Habitats Regulations Assessment of the Central Lincolnshire Local Plan Proposed Submission Draft (Regulation 19)

Main Report

March 2022

Central Lincolnshire
LOCAL PLAN

Appendices (available separately)

Table of Abbreviations

AA	Appropriate Assessment
AMP	Asset Management Plan
CAMS	Catchment Abstraction Management Strategies
EOMS	European Offshore Marine Sites
FRMP	Flood Risk Management Plan
GIS	Geographical Information System
HRA	Habitats Regulations Assessment
IROPI	Imperative Reasons of Over-Riding Public Interest
IRZ	Impact Risk Zone
JNCC	Joint Nature Conservation Committee
LSE	Likely Significant Effects
NOx	Nitrogen oxides
NPPF	National Planning Policy Framework
RBMP	River Basin Management Plan
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SHG	South Humber Gateway
SIP	Site Improvement Plan
SPA	Special Protection Areas
SSSI	Site of Special Scientific Interest
WFD	Water Framework Directive
WRC	Water Recycling Centre
WRMP	Water Resources Management Plan
WRZ	Water Resource Zones

1. Introduction and Background

1.1 Introduction

1.1.1 The Central Lincolnshire authorities (City of Lincoln Council, North Kesteven Council and West Lindsey District Council) are currently preparing a new Local Plan for Central Lincolnshire. The Local Plan will set out planning policies and allocations for the growth and regeneration of Central Lincolnshire over the next 20 years. The development of the Local Plan is currently at the Proposed Submission (Regulation 19) stage.

1.1.2 This report is the Habitats Regulations Assessment (HRA) of the Central Lincolnshire Local Plan Proposed Submission Draft (March 2022)("the Local Plan") and updates the HRA carried out in June 2021[1]. It sets out the methodology, findings and conclusions of the HRA process, to determine whether the Local Plan, either alone or in combination with other plans or projects, is likely to have a significant effect on a European site. It has been prepared in accordance with the requirements of the Habitats Regulations 2017 (as amended) (the 'Regulations').[2]

1.1.3 The first stage of the HRA process is the preparation of a Stage 1 Screening Assessment, which assesses whether the Local Plan is likely to have a significant effect, either alone or in-combination with other plans and projects, on the integrity of European nature conservation sites. Should the Stage 1 assessment conclude that the Local Plan, either alone or in combination with other plans or projects, is likely to have a significant effect, then the HRA process proceeds to Stage 2 Appropriate Assessment. This report presents the results of Stage 1 and 2 and should be read alongside the Proposed Submission Central Lincolnshire Local Plan.

1.1.4 The Central Lincolnshire authorities have also prepared a Sustainability Appraisal (incorporating Strategic Environmental Assessment) Report and this work has been undertaken alongside the HRA, with the two assessments informing each other where appropriate.

1.2 Central Lincolnshire Local Plan

1.2.1 Central Lincolnshire covers the combined areas of the City of Lincoln, North Kesteven and West Lindsey, totalling an area of 2116sq.km, with a population of 290,500 (Census 2011).

1.2.2 The existing Central Lincolnshire Local Plan was adopted on 24 April 2017 and forms the Development Plan for the Central Lincolnshire authorities. It contains 57 policies and allocates a large number of sites for housing, employment and other uses.

1.2.3 The Central Lincolnshire authorities have decided to review the adopted Local Plan, to ensure it remains up to date with changes in national planning policy and that there is a robust and flexible housing supply. The first formal stage of the review was the Issues and Options consultation (Regulation 18), which took place in June and July 2019. The next stage was a further Regulation 18 consultation on the Draft Local Plan, which took place June to August 2021. The Central Lincolnshire authorities are now consulting on a

[1] https://www.n-kesteven.gov.uk/central-lincolnshire/local-plan-consultation-library/

[2] The Conservation of Habitats and Species Regulations 2017 SI No. 2017/1012, TSO (The Stationery Office), London. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents; The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573

Proposed Submission Draft Local Plan, a Regulation 19 consultation. The Local Plan proposes a plan period of 2018 to 2040.

1.2.4 The Local Plan has been prepared in accordance with the National Planning Policy Framework (NPPF) and National Planning Practice Guidance (NPPG). Following consultation on this version of the Local Plan, and consideration of all representations received, the Central Lincolnshire authorities intend to submit the Local Plan to the Secretary of State for independent examination, under Regulation 22 of the Planning Regulations.

Table 1.1: Central Lincolnshire Local Plan – Timetable of Production

Local Plan Stage	Target Date	Actual Date
Public Participation (Regulation 18)	June-July 2019	June-July 2019
Further Public Participation (Regulation 18)	February-March 2020	June-August 2021
Proposed Submission Publication (Regulation 19)	October-November 2020	March-May 2022
Submission (Regulation 22)	December 2020	Spring 2022
Independent Examination	April – June 2021 (estimate: dates set by Inspector)	Summer-Autumn 2022
Inspector's Report Issued	August 2021 (estimate)	Winter 2022
Adoption of Local Plan	September 2021 (dependent on timescales for examination)	Winter 2022

1.2.5 The Local Plan contains several key elements:

- An overall, high-level **vision** for the sustainable growth of Central Lincolnshire;
- A set of 15 **objectives** to ensure that the overall vision of the Local Plan is achieved. The plan objectives are the same as in the Sustainability Appraisal Framework;
- A suite of 84 **strategic and non-strategic policies**, that set an overall strategy for the area, in terms of the pattern, scale and quality of development expected, and that seek to protect and enhance the local environment;
- A **Policies Map** that shows the relevant spatial policies

1.2.6 The strategic and non-strategic policies within the Local Plan cover a number of different themes. The main headings are:

- Introduction, Context, Vision and Objectives
- Spatial Strategy
- Energy, Climate Change and Flooding
- Housing
- Employment

- Retail: City and Town Centres and District, Local and Village Centres
- Tourism and Visitor Economy
- Transport and Infrastructure
- Design and Amenity
- Built Environment
- Natural Environment
- SUEs, Regeneration Areas and Opportunity Areas
- Site Allocations and Locations for Change
- Gypsies and Travellers and Travelling Showpeople
- Ministry of Defence Establishments

1.3 Previous HRA Work

1.3.1 In April 2016, HRA was undertaken to screen Central Lincolnshire's current adopted Local Plan (April 2017). This concluded that the Local Plan policies, alone or in combination with other relevant plans, policies and projects, were not likely to result in any significant negative effects on European Sites.

1.3.2 HRA work on the emerging Local Plan began in June 2021 with a Stage 1 Screening HRA Report. This set out the HRA methodology, European sites potentially affected and the results of a Stage 1 Screening Assessment to determine the 'likely significant effects' of the Local Plan as required under Regulation 105 of the Conservation of Species Regulations 2017 (as amended). The results of the screening identified loss/ fragmentation of habitat and effects on species away from the European site, recreation and visitor pressure, hydrological changes and atmospheric pollution at The Wash SPA/ Ramsar, The Wash and North Norfolk Coast SAC, Humber Estuary SPA/ Ramsar and Humber Estuary SAC were the main issues that would need to be the focus of a Stage 2 Appropriate Assessment.

1.4 Purpose, Scope and Structure of this Report

1.4.1 The purpose of this report is to document the HRA assessment of the Local Plan, as required under Regulation 105 of the Regulations.

1.4.2 The scope of the HRA covers the Local Plan vision, objectives, policies and site allocations. It is important to note that some of the site allocations have already been granted planning permission or built out since the 2018 base date of the Plan. The development provided for under site allocations with planning permission has already been subject to assessment under the Habitat Regulations at the project stage, including consultation with Natural England as the statutory conservation body. There is therefore no requirement to re-assess such allocations, where they have already been found to be acceptable by the relevant local planning authority as the competent authority, at a project level.

1.4.3 The report sets out the methodology, findings and conclusions of Stage 1 Screening Assessment and Stage 2 Appropriate Assessment of the HRA process. It is structured into the following sections:

- **Section 1 Introduction and Background:** provides and overview of the Local Plan and the purpose and structure of this report.
- **Section 2 Habitats Regulations Assessment Legislation and Requirements:** provides an overview of HRA legislation, guidance and best practice and consultation with Natural England.
- **Section 3 Habitats Regulations Assessment Process:** identifies the key stages in the HRA process.

- **Section 4 Identification of European Sites:** sets out those European sites that are included in the assessment and their key pressures, threats and vulnerabilities**.**
- **Section 5 HRA Methodology:** sets out the approach taken for the Stage 1 Screening Assessment process, including the main assumptions in relation to potential effects, and the screening categories.
- **Section 6 Stage 1 HRA Screening Assessment and Conclusions:** identifies whether the plan, either alone or in combination with other plans or projects, is likely to have a significant effect on European sites.
- **Section 7 Stage 2 HRA Appropriate Assessment:** describes the findings of the Appropriate Assessment
- **Section 8 Conclusion and Recommendations:** summarises the HRA conclusions and any recommendations made throughout the report

2. Habitats Regulations Assessment Legislation, Guidance and Best Practice

2.1 Legislation

2.1.1 The HRA process assesses the potential effects of a plan or project on the conservation objectives of sites afforded the highest level of protection in the UK. These were classified under European legislation (the 'Habitats Directive' and the 'Birds Directive'), but since 1 January 2021, they are protected in the UK by the Habitats Regulations 2017 (as amended).

2.1.2 The sites previously formed a network of internationally important sites throughout Europe designated for their ecological status – known as the 'Natura 2000' Network. Sites within the network were referred to as 'Natura 2000 sites'. However, a UK Government Policy Paper[3] on changes to the Habitats Regulations 2017 post Brexit stated that any references to Natura 2000 in the Regulations and in guidance now refers to 'European' sites and the new 'national site network'. The national site network includes Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) designated under these Regulations.

2.1.3 The Policy Paper goes on to state that proposed SACs, potential SACs, Ramsar sites and any areas secured as sites compensating for damage to a European site, also require a HRA because they are protected by government policy. Ramsar sites (Designated Wetlands of International Importance) do not form part of the national site network, however they remain protected in the same way as SPAs and SACs. Many Ramsar sites overlap with SPAs and SACs and may be designated for the same or different species and habitats.

2.1.4 Provision 105 (1) of the Conservation of Habitats and Species Regulations 2017 requires Appropriate Assessment (AA) to be undertaken for plans and projects which are likely to have a significant effect on one or more European sites, either individually, or in combination with other plans and projects. This does not apply to plans or projects directly connected to the conservation management of the features for which the European site was designated.

2.1.5 The term 'Habitats Regulations Assessment" has emerged to refer to the several distinct stages of the overall assessment process, from screening through to Imperative Reasons of Over-Riding Public Interest (IROPI). The purpose of HRA is to assess the impacts of a plan or project, in combination with the effects of other plans and projects, against the conservation objectives of a European site and to ascertain whether it would adversely affect the integrity of that site. Where significant negative effects are identified, alternative options or mitigation measures should be examined to avoid any potential damaging effect.

2.2 Recent Case Law

2.2.1 In April 2018, the Court of Justice for the European Union, in People Over Wind & Sweetman v Coillte Teoranta[4], ruled that when making screening decisions for the purposes of deciding whether an appropriate assessment is required, competent authorities cannot take into account any mitigation measures. This means that measures which have been specifically added to a plan or project to achieve the purpose of avoiding or reducing its harmful effects on a habitats site should not be considered at the screening stage. A full and precise analysis of the measures capable of avoiding or reducing any significant effects

[3] DEFRA (2021) Habitats Regulations Assessments: Protecting a European Site
[4] http://curia.europa.eu/juris/document/document.jsf?docid=200970&doclang=EN

on the site concerned must be carried out specifically at Stage 2 Appropriate Assessment, and not as part of the Screening stage. This is a departure from the approach established by domestic case law. The Habitats Regulations have been amended to reflect this change in the law[5].

2.2.2 In March 2017, a high court ruling[6] found that traffic increases and subsequent air pollution in roads within 200m of a European site, should be considered alone and in-combination with relevant plans and projects.

2.2.3 In November 2018, the *Holohan v An Bord Pleanala* judgement stated that:

"*Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that an 'appropriate assessment' must, on the one hand, catalogue the entirety of habitat types and species for which a site is protected, and, on the other, identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed, and the implications for habitat types and species to be found outside the boundaries of that site, provided that those implications are liable to affect the conservation objectives of the site.*"

2.2.4 This means that a HRA must consider the potential for effects on habitats and species located beyond the boundaries of European sites that may be important in supporting the ecological processes of the qualifying features.

2.3 HRA Guidance and Best Practice

2.3.1 The Regulations do not prescribe a particular methodology for carrying out the HRA of Local Plans.

2.3.2 The HRA of the Local Plan will be carried out in accordance with current available guidance and best practice and seeks to meet the requirements of the Regulations. The main guidance that will be referred to includes:

- Assessment of Plans and Projects Significantly Affecting Natura 2000 sites - Methodological Guidance on the Provisions of Article 6(30 and (4) of the Habitats Directive 92/43/EEC' (European Commission, 2001);
- Appropriate Assessment – Guidance on the Use of Habitats Regulations Assessment (Ministry of Housing, Communities & Local Government July 2019[7]; and
- Scottish Natural Heritage guidance on HRA of Plans: 'Habitats Regulations Appraisal of Plans Guidance for Plan Making Bodies in Scotland' (David Tyldesley and Associates for Scottish Natural Heritage, August 2010 and updated January 2015).

2.3.3 Although the later guidance is for Scottish Plan making bodies, the authorities consider that the general principles and approaches set out in this guidance are transferable and can be applied to HRA in England, subject to minor revisions.

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[5] http://www.legislation.gov.uk/uksi/2018/1307/contents/made
[6] *Wealden District Council v Secretary of State for Communities and Local Government & ors*: *http://www.bailii.org/ew/cases/EWHC/Admin/2017/351.html*
[7] https://www.gov.uk/guidance/appropriate-assessment

2.4 Definition of Key Terms

2.4.1 "**Integrity**" is defined as "…*the site's coherence, ecological structure and function across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of species for which it was classified*" (ODPM Circular 06/2005, para 20.). The 'integrity test' is undertaken during Stage 2 Appropriate Assessment.

2.4.2 Regulation 105 of the Habitats Regulations requires an assessment of the 'likely significant effects' of a land use plan. A "**Significant**" effect is one that could adversely impact on a European site's integrity, i.e., it would undermine the conservation objectives for the site. It is typically determined by considering the extent, complexity, probability, duration, frequency and reversibility of the effect.

2.4.3 The likelihood of it occurring should adopt the precautionary principle[8], taking into account the ecological circumstances of the site. An effect should be considered "**likely**" "*if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site*." (ECJ Case C-127/02 "Waddenzee" Jan 2004).

2.4.4 Significance will vary from site to site according to conservation sensitivities and magnitude of potential impact. Assessment is triggered by likelihood, not certainty, in line with the precautionary principle. Therefore Stage 1 of the HRA considers where the effects are 'likely' and 'significant'. Those effects which are trivial may be disregarded. Significant effects are also determined in-combination with other plans or projects and take account of cumulative effects.

2.5 Consultation with Natural England

2.5.1 Natural England is the statutory nature conservation body for HRA, who will assist in obtaining the necessary information, help agree the process (such as the selection of sites and the scope of the appraisal) and work with the competent authority on agreeing the outcomes and mitigation proposals. The authorities must consult Natural England, and have regard to its advice, under provision 105 (2) of the Habitats Regulations.

2.5.2 The authorities may also consult other bodies and the general public, if considered appropriate (provision105 (3)). This HRA Report has been published on the Central Lincolnshire website and as such, views on the report are welcomed from anybody, during the consultation period of the Local Plan.

2.5.3 This HRA Report has been sent to Natural England in accordance with provision 105 (2).

[8] This is described by the European Commission as being: "*If a preliminary scientific evaluation shows that there are reasonable grounds for concern that a particular activity might lead to damaging effects on the environment, or on human, animal or plant health, which would be inconsistent with protection normally afforded to these within the European Community, the Precautionary Principle is triggered*".

3. Main Stages of HRA

3.1 Stages of HRA

3.1.1 There are 4 main stages to the HRA process. The first step is to decide whether a plan or project should be subject to HRA. This will depend on the type of plan or project and on its potential effects on a European site. All plans and projects (including planning applications) which are not directly connected with, or necessary for, the conservation management of a habitat site, require consideration of whether the plan or project is likely to have significant effects on that site.

3.1.2 A competent authority must therefore first consider: '*Is the plan or project directly connected with or necessary to the management of a European site for nature conservation purposes*?'. If the answer is no, which is the case for the Local Plan, then HRA is required, and the following sequence of stages should be undertaken:

Stage 1 Screening for Likely Significant Effects (LSE)

3.1.3 The first stage of the HRA is to identify the likely impacts of a plan or project (alone or in combination with others) upon a European site, and to consider whether these impacts are likely to be 'significant', i.e., Likely Significant Effects (LSE).

3.1.4 The aim of Stage 1 Screening is to identify and screen out those parts of a plan or project that, either alone or in-combination, without detailed assessment, can be determined as unlikely to result in significant effects upon European sites. The screening exercise should be approached on a precautionary basis. If the screening stage concludes that there are likely to be no significant impacts on European sites, then there will be no need to progress to Stage 2 Appropriate Assessment. If effects are judged likely or uncertain, the precautionary principle is applied, and the Plan is considered in more detail in Stage 2.

Stage 2 Appropriate Assessment (AA)

3.1.5 Where the screening process undertaken in Stage 1 determines that the Plan is likely to have a significant effect on a European site, the assessment proceeds to Stage 2 AA. The Ministry of Housing, Communities & Local Government published guidance on AA explains:

"*Where the potential for likely significant effects cannot be excluded, a competent authority must make an appropriate assessment of the implications of the plan or project for that site, in view the site's conservation objectives. The competent authority may agree to the plan or project only after having ruled out adverse effects on the integrity of the habitats site.*"[9]

3.1.6 This stage considers the impact of a plan or project (alone or in combination with others and directly or indirectly) on the integrity of the European site, with respect to the site's conservation objectives and to their structure and function[10]. The scope and content of the AA will depend on the nature, location, duration and scale of the proposed plan or project and the interest features of the relevant protected site. The assessment needs to be proportionate and sufficient to enable the competent authority to determine whether the plan or project will adversely affect the integrity of the site.

[9] Paragraph 001 Reference ID: 65-001-20190722

[10] Natural England's formal advice on conservation objectives for European sites is publicly available online: http://publications.naturalengland.org.uk/category/6490068894089216

3.1.7 Should the AA identify significant effects on a site's integrity, there is a need to consider potential mitigation. Mitigation measures are protective measures forming part of a project and are intended to avoid or reduce any direct adverse effects that may be caused by a plan or project, to ensure that it does not have an adverse effect on the integrity of a protected site(s). The mitigation hierarchy should be applied. Alternatives, such as changes to the Plan, should be examined first to avoid any potential damaging effects. If no alternative exists, impact reduction measures should be defined and evaluated. If effects remain after all alternatives and mitigation measures have been considered, the plan or project proceeds to Stage 3.

Stage 3 Assessment of Alternative Solutions

3.1.8 This stage examines and recommends alternative ways of achieving the objectives of the project or plan which avoid adverse impact on the integrity of the European site. If, after mitigation, there will still be a negative effect on the integrity of a European site, the plan should be dropped. The only exceptions are where it can be shown that there are 'imperative reasons of overriding public interest'.

Stage 4 IROPI and Compensatory Measures

3.1.9 After consideration of a plan or project under stages 1 to 3, and if it cannot be ascertained that a proposal will not adversely impact on the integrity of a European site, the proposal can only proceed if there are no alternatives solutions and there are IROPI. Any necessary compensation measures must be taken to secure the integrity of the European site network.

3.1.10 The stages outlined above must be undertaken with the rigorous application of the precautionary principle[11]. This requires those undertaking the exercise to be confident that the plan will not have a significant impact on relevant conservation objectives. Where uncertainty or doubt remains, an adverse impact should be assumed.

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

4. Identification of European Sites

4.1 European sites that may be affected by the Local Plan

4.1.1 This section of the report identifies the European sites that may be affected by development proposed in the Local Plan and therefore those sites that should be initially considered as the study area for the HRA.

4.1.2 There are no European sites within the boundary of Central Lincolnshire. However, the Local Plan has the potential to impact on areas that are beyond the Plan area. While distance can be used as a starting point, it is commonly recognised in HRA guidance that when considering the potential for effects on European sites that distance itself is not a definitive guide to the likelihood or severity of an impact. There are other factors that will influence the relative distance at which an impact can occur, such as the prevailing wind or river flow direction. This means that development proposed in a Local Plan that is some distance away from a European site could potentially affect the site, and therefore should be considered as part of HRA screening.

4.1.3 Rather than rely on distance alone, best practice is to use a 'source-pathway-receptor' model which focuses on whether there is a pathway from the **source** (the direct or indirect change occurring as a result of development) by which impacts from the Plan can affect the vulnerabilities/sensitivities of a European sites' environmental conditions. The **pathway** is the route or mechanism by which any likely significant effect would be manifest in the environment and would reach the **receptor** (the European site). The potential pathways for unmitigated effects arising from minerals and waste operations include:

- Air – localised air pollution from increased traffic on the roads, dust emissions, whether potential impacts can reach the European site/s via the prevailing wind.
- Water – surface or groundwater pollution and hydrogeological impacts to water-dependent sites including changes in water levels associated with dewatering and/or discharge.
- Land take – direct and indirect impacts from habitat loss and degradation, both within and outside of European site boundaries.
- Habitat/Species disturbance/displacement – noise and visual disturbance from human activities, introduction of invasive species.

4.1.4 Using this approach, the European sites within or adjacent to the plan area with the potential to be affected by the Local Plan are identified in **Table 4.1** below. A 15km buffer was also applied from the Local Plan boundary, in order to take a precautionary approach in identifying sites that may potentially be subject to transboundary impacts. A map showing the location of these European sites is provided overleaf in **Figure 4.1**. Detailed information about each site is provided in **Appendix 1**.

4.1.5 The following European sites were considered but scoped out of the HRA for the following reasons:

- **Baston Fen SAC** –The SAC is a 2km linear drainage channel intensively managed by the Welland and Deeping Internal Drainage Board. It drains into a gravel drain: it is a counter drain section running alongside the River Glen but not directly linked to the river. There is no direct hydrological pathway link between the SAC and potential impacts arising from the Central Lincolnshire area.

- **Grimsthorpe Park SAC** – Grimsthorpe Park is not publicly accessible and therefore any increase in the population within Central Lincolnshire cannot impact on this site in terms of increased disturbance from recreation. There is no direct hydrological pathway link between the SAC and potential impacts arising from the Central Lincolnshire area.

4.1.6 Threats and pressures to the integrity of the qualifying features of each European site have been identified through reviewing JNCC standard data forms and information sheets[12], and Natural England's SIPs[13] and Supplementary Advice on Conservation Objectives[14]. The full range of threats and pressures at each European site is covered in more detail in **Appendix 1**. **Table 4.2** below sets out a summary of those threats and pressures.

Table 4.1: European Sites potentially affected by the Local Plan

Name of European site (location)	Designation			Approximate distance from plan boundary to boundary of European site) (km)
	Ramsar	SPA	SAC	
Sites lying outside Central Lincolnshire but wholly or partly within 15km of its boundary				
1.Humber Estuary (North Lincolnshire/Lincolnshire)	✓	✓	✓	5.6km
2.Thorne Moor (Doncaster)			✓	13.2km
3.Thorne and Hatfield Moors (Doncaster)		✓		13.2km
4.Hatfield Moor (Doncaster)			✓	9.3km
Sites outside Central Lincolnshire beyond 15km of its boundary that may be hydrologically linked				
7.The Wash (Norfolk)	✓	✓		17km
8.The Wash and North Norfolk Coast (Norfolk)			✓	17km

Table 4.2: Summary of Threats and Pressures to Site Integrity of Qualifying Features

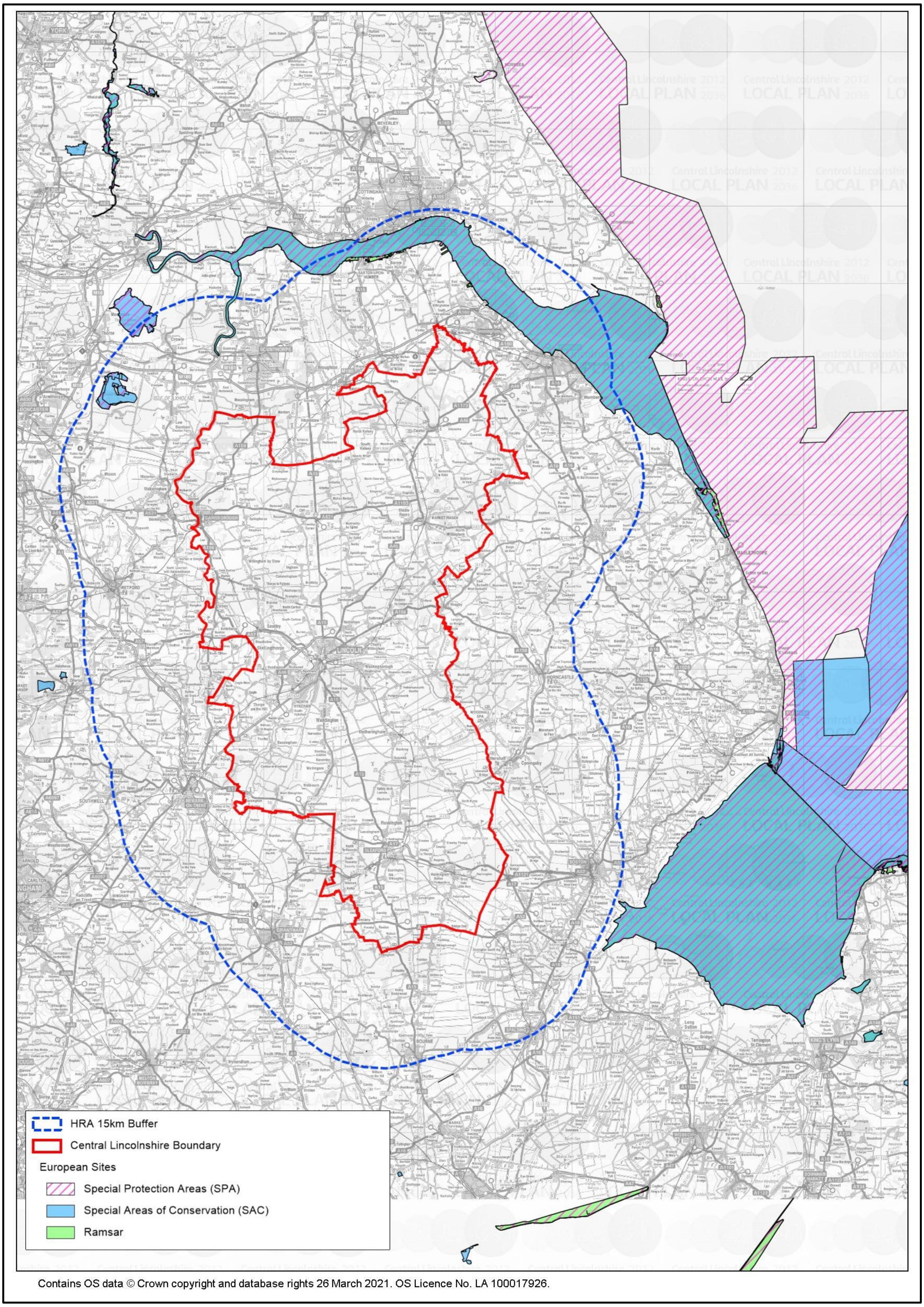
Name of European Site	Threats and Pressures to Site Integrity of Qualifying Features (P = pressure T = threat)
Humber Estuary SPA and Ramsar	• Changes in water supply or flow and water quality (P) • Coastal squeeze (T) • Changes in species distributions (T) • Undergrazing (P) • Invasive species (T) • Natural changes to site conditions (P/T) • Public/access disturbance (P) • Fisheries: Fish stocking (P)

[12] https://jncc.gov.uk/
[13] http://publications.naturalengland.org.uk/category/5458594975711232
[14] http://publications.naturalengland.org.uk/category/6490068894089216

Name of European Site	Threats and Pressures to Site Integrity of Qualifying Features (P = pressure T = threat)
	• Direct land take from development (T) • Shooting/scaring (P) • Direct impact from third party (T) • Inappropriate scrub control (P) • Changes in surrounding supporting off-site habitat (T) • Predation (T) • Air pollution: impact of atmospheric nitrogen deposition (on supporting habitats) (P/T) • Climate Change (T)
Humber Estuary SAC	• Water pollution (P/T) • Coastal squeeze (T) • Changes in species distributions (T) • Undergrazing (P) • Invasive species (T) • Natural changes to site conditions (P/T) • Public/access disturbance (P) • Fisheries: Commercial marine and estuarine (P/T) • Direct land take from development (T) • Air pollution: impact of atmospheric nitrogen deposition (P) • Direct impact from third party (T)
Thorne Moor SAC	• Drainage and water levels (P) • Inappropriate scrub control (P) • Air pollution: impact of atmospheric nitrogen deposition (P/T) • Peat extraction (P) • Invasive species (T) • Changes in surrounding land use (T) • Climate change (T)
Thorne and Hatfield Moors SPA	• Public/access disturbance (T) • Planning permission general (P) • Air pollution: impact of atmospheric nitrogen deposition (on supporting habitats) (P/T) • Changes in surrounding supporting off-site habitat (T) • Changes in water levels (P) • Climate change (P)
Hatfield Moor SAC	• Drainage and water levels (P) • Inappropriate scrub control (P) • Air pollution: impact of atmospheric nitrogen deposition (P/T) • Peat extraction (P) • Invasive species (T) • Changes in surrounding land use (T) • Climate change (T)
The Wash SPA	• Public/access disturbance (T)

Name of European Site	**Threats and Pressures to Site Integrity of Qualifying Features (P = pressure T = threat)**
	• Fisheries: Recreational marine and estuarine (T) • Fisheries: commercial marine and estuarine (T) • Coastal squeeze (T) • Changes in surrounding supporting off-site habitat (T) • Predation (T) • Air pollution: impact of atmospheric nitrogen deposition (on supporting habitats) (P/T) • Changes in water supply or flow and water quality (P)
The Wash and North Norfolk Coast SAC	• Siltation (T) • Fisheries: Recreational marine and estuarine (T) • Invasive Species (T) • Inappropriate coastal management (T) • Fisheries: commercial marine and estuarine (T) • Coastal squeeze (T) • Air pollution: impact of atmospheric nitrogen deposition (P) • Change in land management (T) • Changes in surrounding supporting off-site habitat (T) • Climate change (T) • Changes in water supply or flow and water quality (P)

Figure 4.1: Location of European Sites within 15km of the Central Lincolnshire Local Plan Area Boundary



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4.2 Sources of Information

European sites

4.2.1 Relevant information on each European site, including its features of interest, were taken from the Natura 2000 Data Form or the Information Sheet on Ramsar Wetlands for the designated site, accessed from the JNCC website (www.jncc.gov.uk). Additional details of each site (where they are either a SPA or SAC) were taken from Natural England's Site Improvement Plans (SIPs). The location, extent and site area of the European sites in GIS format was sourced from the UK Government Open Data Portal at https://data.gov.uk/.

Natural England's Impact Risk Zones

4.2.2 Natural England has developed a GIS tool and dataset to make a rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

4.2.3 European sites are underpinned by the SSSI designation, and their interest features and sensitivities are covered by the SSSI IRZs. Where the notified features of the European site and SSSI are different, the SSSI IRZs have been set so that they reflect both. The SSSI IRZs can therefore be used as part of a HRA to help determine whether there are likely to be significant effects from a particular development on the interest features of the site. The IRZs are therefore a useful guide to identify the potential risks to European sites from the Local Plan and will be drawn upon in the Stage 1 HRA Screening of the Proposed Submission Central Lincolnshire Local Plan.

Indicative Functional Land IRZs and Recreational Impact IRZs

4.2.4 Functionally linked land comprises areas outside the designated European site boundary that are known to be regularly used for foraging and/or roosting by qualifying species. Natural England has prepared an indicative functional land IRZ map for The Wash. This can be viewed in **Appendix 1**.

4.2.5 Natural England also uses the IRZ tool to identify zones of potential recreational pressure on SSSIs from proposed development. Where a SSSI is considered to be at significant risk from recreational pressure, it has been given a zone of potential risk using IRZ mapping. These zones have been defined by Natural England following visitor surveys and discussions with land managers. The IRZs for the European sites screened into this HRA have been checked and, currently, there are none that identify recreational pressure as a potential risk.

5 HRA Methodology

5.1 Screening Methodology

Stages in the HRA Screening process

5.1.1 The HRA screening process is summarised in **Table 5.1** below. The HRA process is iterative and will be revisited as the Local Plan develops.

Table 5.1: HRA Stage 1 Screening Key Stages

Stages	Habitats Regulations Assessment	Location in this Report
Stage 1. Screening for likely significant effects	**Task 1** – Identify European sites in and around the Local Plan area that should be considered in the assessment.	Section 4: Table 4.1
	Task 2 – Gather information on the European sites, including the vulnerabilities of their qualifying features, conservation objectives and condition of site. Identify the changes to environmental conditions that may occur as a result of implementing the Local Plan.	Section 4: Table 4.2, Appendix 1
	Task 3 - Identify key components of the emerging Local Plan, including the plan objectives and policies.	Section 1
	Task 4 – Determine, through a screening exercise, all aspects of the Plan which would have no effect on a European site and those aspects where it is not possible to rule out the risk of significant effects, either alone or in combination with other plans or projects.	Section 6 and Appendix 2
	Task 5 - Consider whether other plans or projects, in conjunction with the Local Plan, would have the potential for adverse effects on the qualifying features of identified sites.	Section 6 and Appendix 3
	Task 6 - Conclude whether there are likely significant effects. If there are no likely significant effects, consult	Section 6

Stages	Habitats Regulations Assessment	Location in this Report
	Natural England on the screening recommendation that the further AA stages of the HRA are not necessary.	
	Task 7 – If, after Task 6 significant effects are judged likely or uncertainty exists, or Natural England disagrees with the screening recommendation that an AA is not necessary proceed to Stage 2 AA.	Section 7

Screening Approach

5.1.2 The screening of the Local Plan involves a series of steps to remove or 'screen out' those elements of the Local Plan that are not likely to have a significant effect on a European Site, and to ensure other aspects of the Local Plan are 'screened in' where further appraisal is required. An assessment of the Local Plan will be undertaken using the criteria set out in **Table 5.2**.

5.1.3 These are broadly based on the screening categories set out within the HRA guidance for Scotland. When considering significant effects, effects which would not undermine the conservation objectives of a European site should not be regarded as significant: thus, where a policy/aspect of the Local Plan may potentially have a positive significant effect on a European site, this policy/part can be 'screened out' because the impact would not be negative.

Table 5.2: Screening Categories for HRA Screening: Categorising the Potential Effects of the Local Plan

Screening Category	Type of Policy
'N' categories: screened out or eliminated elements of the Local Plan (Appropriate Assessment not required) Local Plan elements assessed as not likely to have a significant effect on a European site if implemented, either alone or in combination with effects from other plans or projects.	
N1	**General Policy Statement** General strategy statement or general criteria-based policy not likely to have a significant effect as the policy will not lead to development itself.
N2	**Policy refers to proposals that are not generated by the Local Plan and therefore excluded from the assessment.** For example, a policy that refers to a transport project, which is identified in another Plan and possibly by another authority (and this will have been subject to HRA for the other Plan).
N3	**Policies that intend to protect, conserve or enhance the natural (including biodiversity), built or historic environment,** or that positively steers development away from European sites.

N4	**Policy that will not lead to development or other change,** because it is qualitative or design criteria based, which guide development.
N5	**Policy makes provision for change or promotes development but would have no likely significant effect on a European site** Policies that promote development but have no likely significant (negative) effect because there is no physical, ecological, hydrological, chemical or biological link or pathway between the changes the policy may cause and the site's qualifying interests of any European site. This category also covers policies that may have a positive effect; or would not otherwise undermine the conservation objectives for the site. A Plan's positive effects on a site cannot be regarded as 'significant' and can therefore be 'screened out'.
N6	**Policies that make provision for change/promotes development in specific areas but would have no significant effect on a European Site** Policies that could have effects that are trivial or 'de minimis', or so restricted in scale or remote from a European site, even if combined with other effects, that they would not undermine the conservation objectives for the European site. For example, a policy that focuses development in existing urban areas whereby the likelihood of the policy affecting an isolated, relatively inaccessible European site is remote.
N7	**Policies that promote development or change but where it is so general it is not known where, when or how the aspect of the Local Plan may be implemented or where the potential effects may occur, or which European sites, if any, may be affected.** These are very general / strategic policies or proposals which are too general to identify any effect as it is not known where, when or how the aspect of the Local Plan may be implemented, or where any potential effects may occur, or which European Sites, if any, may be affected. These plan aspects may be very similar to the general policy statements screened under N1 but are different in that they promote overall change.
'P' category: screened in elements of the Local Plan (Appropriate Assessment required) Plan considered likely to have a significant effect on a European site	
P	**Policy/proposal/element of the Local Plan with potential to have a likely significant effect and therefore subject to further assessment, including consideration of potential mitigation measures.** This category will cover: • Policies which have been identified as having likely significant effects, either alone or in combination, and directly or indirectly, and are therefore subject to further appraisal; and • Policies where it is not possible to conclude likely significant effects as this is currently uncertain.

5.1.4 The outcome of the screening assessment will be recorded and presented in screening matrices. A colour code will be applied to the categories used to record the potential effects of the Local Plan policies and site allocations on European sites. Green categories record that there are unlikely to be significant effects (and therefore appropriate assessment is not required). Amber categories record that there are likely to be significant effects, or uncertainty remains as to whether there will be likely significant effects (and therefore appropriate assessment is required).

5.2 Potential Impacts of the Local Plan on European Sites

5.2.1 The provisions for growth and new development in the Local Plan has the potential to generate a range of impacts that, depending on their nature, magnitude, location and duration, can potentially significantly impact on European sites. Most potential impact pathways are associated with 'broad quantum of development' or 'population growth' aspects of a Local Plan.

5.2.2 The main ways by which the Local Plan could impact on European sites are through individual allocations of land for development that are directed to a specific location; through in combination effects resulting from the cumulative impacts of development associated with the Local Plan and with the plans and programmes of external authorities. The main possible pathways or categories of effect arising from the Local Plan are set out in Table **5.3**.

Table 5.3: Potential adverse effects arising from the Local Plan

Broad Category of Potential Effects on European Sites	Examples of Activities Resulting in Impacts
Habitat loss/ fragmentation (including loss of functionally linked land)	• Loss of on-site habitat within European site boundary as a result of direct land take; • Loss of off-site, functional habitat outside of European site boundary as a result of direct land take; • Habitat fragmentation/loss of connectivity.
Physical damage to species	• Species mortality (for example, due to collision risk)
Public access and disturbance: recreation and visitor pressure	• Potential for direct damage to habitats from trampling and erosion; • Potential for increased disturbance to species from larger footfall of people and dogs. Impacts will depend on scale, type and predictability of disturbance. Certain species, when breeding and foraging, are particularly sensitive; • Eutrophication from dog fouling; • Spread of invasive species.
Disturbance: urbanisation effects	• Noise, vibration, light pollution, both from construction activity and once development is occupied; • Fly-tipping of garden waste can lead to spread of invasive species; • Predation from domestic cats; • Vandalism and anti-social behaviour; • Increased risk of fire.

Broad Category of Potential Effects on European Sites	Examples of Activities Resulting in Impacts
Hydrological: Changes in water levels and flows	• Potential for drying and reduced water levels arising from increase in water abstraction levels to provide supply (e.g. new housing). Changes to water levels can impact on river flow and water quality; • Flooding/storm water; • Potential impact on groundwater in water cycle by buildings altering groundwater flow.
Hydrological: Changes in water quality	• Potential increase in pressure on sewage infrastructure network and capacity; • Potential increase in volume of waste water discharges (consented) which can lead to reduced water quality; • Hydrological cycle impacts from additional take up of land, loss of permeable surfaces and topography alteration, potentially resulting in flood risk and water quality impacts; • Potential increase in accelerated run off arising from new hard standing/non-permeable surfaces of new development; • Potential increase in surface water run off as a result of new development, which can lead to contamination of watercourse links and reduced water quality.
Air pollution	• Dust emissions (construction phase); • Increased traffic movements and trips arising from construction and once development is occupied, leading to increased air emissions which could damage vegetation and harm species sensitive to changes in air quality; • Potential for increased emissions from buildings.

5.3 Screening Assumptions

5.3.1 This section sets out the assumptions that will be applied when undertaking Stage 1 Screening of the Local Plan. The vulnerabilities/sensitivities of each European site have been considered for relevance to the Local Plan.

5.3.2 Using these assumptions, it is possible to 'screen out' some European sites and impact pathways prior to the Stage 1 screening assessment, as the effects would be trivial or 'de minimis', or so restricted in scale or remote from a European site, even if combined with other effects, that they would not undermine European site conservation objectives.

Habitat loss/ fragmentation (including loss of functionally linked land)

Physical damage to species

5.3.3 Any development resulting from the Local Plan would take place within the administrative boundaries of the Central Lincolnshire authorities. ***Direct land take from European Sites can therefore be ruled out, as there are no European Sites within Central Lincolnshire.***

5.3.4 Damage or loss of off-site, supporting habitat (i.e., land beyond the boundary of European sites that is functionally linked as it may be used by the qualifying species of a site) from development is more likely to be an issue. Functionally linked habitat refers to land or water which is linked to a qualifying species. It may be located some distance from a European site, therefore development some distance from a European site can have an effect on the site if its interest features are reliant on habitats being affected by the development. This includes land which may provide offsite foraging and roosting habitat and movement corridors for mobile species such as birds, bats and fish.

5.3.5 Maximum foraging distances for protected sites notified for bird species have been derived by Natural England[15] and are set out in **Table 5.4** below:

Table 5.4: Maximum foraging distances for notified for bird species

	Maximum Foraging Distance
Sites notified for breeding bird assemblages (excluding ground-nesting heathland species, stone-curlew, marsh harrier & nightjar	500m Some breeding SSSI birds of prey (peregrine, merlin, hen harrier & honey buzzard) can also forage up to 4km.
Sites notified for wintering birds (except wintering waders and grazing wildfowl, wigeon and geese)	500m Wintering marsh harrier and hen harrier can forage up to 10km. Owing to the extensive presence of farmland within 10km and low densities of birds, the standard distance of 500m relating to all wintering birds is deemed acceptable.
Sites notified for wintering waders (except golden plover and lapwing), brent goose & wigeon	2km Breeding marsh harrier can also forage up to 4km and are likely to make significant use of farmland habitat beyond semi-natural areas encompassed by site boundaries. Owing to extensive presence of farmland and low densities of birds, a reduced distance of 2km is deemed generally acceptable.

[15] Natural England (2018) Guidance on evaluating the ecological consequences of badger culling on European Sites

	Maximum Foraging Distance
Sites notified for ground-nesting heathland species (breeding nightjar & stone curlew)	2km Many sites with such sensitive features have issues of recreational disturbance. Buffers need to take into account travel to sites from proposed residential developments. For some Heathland SSSIs/SPAs most of the suitable habitat is designated, areas surrounding the sites are largely built up and the extent of functionally connected land will be limited. Nightjar - up to 4km foraging distance for nightjars but unlikely to be >2km beyond site boundary.
Sites notified for wintering lapwing and golden plover	15-20km Golden plover can forage up to 15km from a roost site within a protected site. Lapwing can also forage similar distances. Both species use lowland farmland in winter, and it is usually difficult to distinguish between designated populations and those present within the wider environment. Developments affecting functionally linked land more than 10km from the site are unlikely to impact significantly on designated populations.
Sites notified for wintering white-fronted goose, greylag goose, Bewick's swan, whooper swan & wintering bean goose	10km
Sites notified for wintering pink-footed goose, barnacle goose	15-20km

5.3.6 The Bat Conservation Trust has identified Core Sustenance Zones (CSZs)[16] for different bat species, which refers to the area surrounding a bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation of the bat colony using the roost. The zones vary depending on species; from 1km to 6km.

5.3.7 There is the possibility that designated bird species might collide with tall buildings or structures, such as wind turbines, if they are located close to a designated site or within foraging range of bird species, resulting in collision mortality.

5.3.8 With regards to the European sites within the study area, site information gathered for **Appendix 1** suggests the following European sites are sensitive to the loss of functionally linked habitat and/or effects on species away from European Sites due to the presence of qualifying mobile species:

- The Humber Estuary SPA/Ramsar
- Thorne and Hatfield Moors SPA
- The Wash SPA/Ramsar

[16] BCT (2020) Core Sustenance Zones and habitats of importance for designing Biodiversity Net Gain for bats. Bat Conservation Trust, London

5.3.9 The Humber Estuary SPA/ Ramsar qualifies as a SPA /Ramsar due to the presence of a range of waterfowl, waders and birds of prey. Species such as the golden plover are known to feed on parcels of agricultural land outside of European site boundaries. This has been documented in a number of academic articles and research reports by the British Trust for Ornithology (BTO). A BTO research report highlighted that flocks, or at least individuals, of golden plover made regular movements of 10-12km between agricultural fields, highlighting the potentially long foraging trips this species undertakes.[17] Field size and surrounding land uses are also factors to be taken into consideration. As the Humber Estuary SPA/ Ramsar is within 10km of the Central Lincolnshire boundary, likely significant effects relating to physical loss or damage of off-site habitat should be given further consideration.

5.3.10 Thorne and Hatfield Moors SPA qualifies as a SPA due to the presence of a breeding population of nightjars. The nightjar population has been surveyed annually since 2005. On-going survey has revealed the feeding flights are not confined to the SPA boundary, and the birds will utilise surrounding habitat, flying up to 5km from their nest sites for feeding purposes, although few flew more than 3km from the site boundary.[18] As Thorne and Hatfield Moors SPA is beyond 5km of the Central Lincolnshire boundary, it can be screened out from further consideration.

5.3.11 The Wash SPA/ Ramsar is the most important migratory and over-wintering site for waterbirds in the UK. In addition, the sites support two species of breeding tern (common and little). Farmland adjoining the protected sites is also important to a number of species e.g., Bewick's swan and pink-footed goose for foraging and roosting. Natural England have prepared an indicative goose and swan functional land IRZ for The Wash (see **Appendix 1**), however none of the identified land is within Central Lincolnshire. As The Wash SPA/ Ramsar is beyond 15km from the Central Lincolnshire boundary, it can be screened out from further consideration.

5.3.12 ***Therefore, likely significant effects relating to physical loss or damage of off-site habitat, or physical damage of species, need to be considered in relation to Humber Estuary SPA/ Ramsar only.***

Public access and disturbance: recreation and visitor pressure

5.3.13 An increase in population is expected to increase the numbers of people visiting the countryside, which may include increased visitor numbers to European sites. Visitors can trample vegetation, cause erosion and disturb sensitive features, such as birds, through both terrestrial and water-based forms of recreation. Dogs taken on to sites can disturb breeding and wintering birds and cause eutrophication through the deposition of faeces.

5.3.14 The Local Plan will result in housing growth and an associated population increase. Where increases in population are likely to result in significant increases in recreation at a European site, either alone or in-combination, the potential for likely significant effects will require assessment.

5.3.15 In theory, sites that are closest to the urban area and other proposed allocation sites may be expected to attract larger numbers of visitors than sites further away. However, HRAs of other Local Plans have considered this issue and research has demonstrated that the majority of visitors to such sites are by car. A visitor assessment of the Thames Basin

[17] Gillings S. & Fuller R.J. (1999). Winter Ecology of Golden Plovers and Lapwings: A review and Consideration of Extensive Survey Methods. BTO Research Report No. 224
[18] Natural England (2019) European Site Conservation Objectives: Supplementary advice on conserving and restoring site features, Thorne and Hatfield Moors Special Protection Area

Heaths SPA[19] determined that the majority of visitors travel by car and 94% of visitor postcodes fell within a 5km radius of the SPA boundary. A visitor study undertaken by Footprint Ecology in 2011[20], found that the median distance among visitors to Breckland SPA was 8.81km. In short, there is no standard method for defining the ‘zone of influence’ of increased recreational and visitor pressure, and a range of approaches have been adopted nationally.

5.3.16 In terms of the European sites relevant to this HRA, a visitor survey of the Humber Estuary[21] found that 70% of those surveyed had travelled by car, living a median distance of 4.4km from the survey point. A visitor survey of the Wash and Gibraltar Point to inform the South East Lincolnshire Local Plan[22], also revealed that the majority of visitors arrived by car and that half of all visitors lived within 7.5km or less of the survey points.

5.3.17 Natural England advised a nearby council (Peterborough City) that any development within 8km of European sites should be taken into consideration in the HRA of the Peterborough Local Plan. Therefore, 8km is considered a reasonable and proportionate distance inside which recreation and visitor pressure should be considered for the Local Plan and which could require mitigation measures. The nature of the proposed development will be taken into account in relation to this impact. For example, employment sites are less likely to result in increased recreation pressure than residential sites, as the employees will be in work within the employment site for the majority of their time spent there. Therefore, employment site allocations with no housing element have been assumed to not give rise to increased recreational pressure.

5.3.18 A review of European Sites within 8km of the Central Lincolnshire boundary identified the following sites:

- Humber Estuary SAC
- Humber Estuary SPA/ Ramsar

5.3.19 ***Using this approach, the likely significant effects of increased recreation and visitor pressure needs to be considered in relation to the Humber Estuary SAC and the Humber Estuary SPA/ Ramsar only. The other European sites can be screened out as they are either greater than 8km from the Central Lincolnshire boundary or greater than 8km from the nearest site allocation within the Local Plan.***

Disturbance: urbanisation

5.3.20 Urbanisation is a general term used to cover a range of impacts that occur due to increases in human populations in close proximity to designated sites. The main impacts of urbanisation include: noise, vibration and light pollution, fly tipping of garden waste, vandalism, litter, increased risk of fire and cat predation. (Impacts from trampling, eutrophication (dog fouling) and habitat damage are covered under increased recreational pressure). Proximity to urban centres and high population pressure means these impacts are all exacerbated and as a result, particular management measures are often required.

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[19] Fearnley, H. and Liley, D. 2013. Results of the 2012/13 visitor survey on the Thames Basin Heaths Special Protection Area (SPA). Natural England Commissioned Reports
[20] Fearnley, H., Liley, D. and Cruickshanks, K. (2010). Visitor survey from results Breckland SPA. Footprint Ecology.
[21] Fearnley, H., Liley, D. and Cruickshanks, K. (2012) Results of the recreational visitor surveys across the Humber Estuary. Footprint Ecology.
[22] Panter, C. and Liley, D. (2016) Wash Visitor Survey. Footprint Ecology.

5.3.21 Urbanisation effects tend to occur over short distances. Development buffers of around 400m are typically used to minimise the effects of urbanisation.[23] The three key factors to consider are species sensitivity, proximity of disturbance sources and timing/duration of the potentially disturbing activity. On a precautionary basis, it has been assumed that these impacts may have a significant impact on European sites where they take place within 1km of the European site boundary or known areas of important supporting habitat (i.e., functional land). Given no European sites are located within the Plan area, and no site allocations are located within 1km of a European site, no further consideration is given to urbanisation impacts**. Likely significant effects relating to urbanisation effects can be screened out.**

Changes in water quality and/or water levels

5.3.22 Impacts on water levels are most likely to affect European sites that are hydrologically connected to potential site allocations, either via surface or groundwater pathways, and those with qualifying features that are wetland habitats or are species dependent on wetland habitats, or habitats sensitive to changes to the water table, as identified in the SIPs.

5.3.23 Both groundwater and surface levels can be affected by abstraction for public water supply and for industrial and agricultural uses. Development promoted through the Local Plan is likely to increase the demand for water abstraction and treatment, which could indirectly impact on European sites in the study area sensitive to water quantity changes. However, it is important to note that much of the water supply to water-resource sensitive European sites is managed through specific consenting regimes that are independent of the Local Plan. These consenting regimes are subject to HRA, and water companies are required to prepare Water Resource Management plans (WRMPs) that take into account population growth and protected sites when considering future water resource provision.

5.3.24 Water dependent European sites are classified as protected under the Water Framework Directive; each protected site has specific objectives to ensure their favourable conservation status. Many European sites are dependent upon there being appropriate water quality to support their integrity, including water courses and other wetland habitats, as well as habitat types such as heathlands, which may be dependent on ground water quality. Water quality can be affected by a number of factors, such as pollution, pesticides and nutrient enrichment and discharges from water treatment works. The most likely impact pathways relating to water quality from increased development within Central Lincolnshire are pollution from surface water runoff and discharge water treatment works.

5.3.25 An adverse effect on the integrity of a European site from hydrological changes was assumed to be likely only where the qualifying features of that site are sensitive to hydrological changes.

Sites identified as vulnerable/sensitive to this effect	**Further assessment required?**	**Comments**
The Wash SPA/ Ramsar	Yes	Qualifying features sensitive to hydrological changes, including water abstraction and changes to water quality.

[23] For example, local planning authorities near the Thames Basin Heaths SPS have adopted a 400m zone around the SPA boundary where there is a presumption against new residential development.

		The Wash is fed by the rivers Witham, Welland and Great Ouse. Potential for possible impacts from hydrological changes via the River Witham and tributaries. European site located at too great a distance to be impacted by issues of surface water runoff from increased development in Central Lincolnshire boundary.
The Wash and North Norfolk Coast SAC	Yes	Qualifying features sensitive to hydrological changes, including water abstraction and changes to water quality. The Wash is fed by the rivers Witham, Welland and Great Ouse. Potential for possible impacts from hydrological changes via the River Witham and tributaries. European site located at too great a distance to be impacted by issues of surface water runoff from increased development in Central Lincolnshire boundary.
Humber Estuary SAC	Yes	Qualifying features sensitive to hydrological changes, including water abstraction and changes to water quality. The Humber is a tidal estuary, fed by the rivers Trent, Ouse and Hull. Potential for possible impacts from hydrological changes via the River Trent. European site located at too great a distance to be impacted by issues of surface water runoff from increased development in Central Lincolnshire boundary.
Humber Estuary SPA/ Ramsar	Yes	Qualifying features sensitive to hydrological changes, including water abstraction and changes to water quality. The Humber is a tidal estuary, fed by the rivers Trent, Ouse and Hull. Potential for possible impacts from hydrological changes via the River Trent. European site located at too great a distance to be impacted by issues of surface water

		runoff from increased development in Central Lincolnshire boundary.
Thorne Moor SAC	No	There is no hydrological link/impact pathway between this site and Central Lincolnshire.
Hatfield Moor SAC	No	There is no hydrological link/impact pathway between this site and Central Lincolnshire.
Thorne & Hatfield Moors SPA	No	There is no hydrological link/impact pathway between this site and Central Lincolnshire.

5.3.26 ***Therefore, the likely significant effects of hydrological changes or water quality needs to be considered in relation to the Wash SPA/ Ramsar, the Wash and North Norfolk SAC, the Humber Estuary SAC, and the Humber Estuary SPA/ Ramsar*.**

Air Quality

5.3.27 The development proposed in the Local Plan is likely to generate an increase in traffic which may lead to an increase in levels of air pollution relative to no growth. Many habitats of nature conservation importance in the UK are adapted to low nutrient conditions and/or are vulnerable to acidification and are sensitive to dust and particulate matter (PM), nitrogen oxides (NOx), sulphur dioxide (SO2) and ammonia (NH3), as well as to nitrogen deposition and acid deposition. Pollutants come from a range of different sources, but transport is known to be the single largest source of NOx emissions and particulate matter.

5.3.28 Air pollution is most likely to affect European sites where plant, soil and water habitats are qualifying features. The risks to qualifying features from air pollution arise from the direct effects which arise when a pollutant which is dispersed in the air is taken up by vegetation, and indirect effects which arise when the pollutant settles into the ground causing nutrient enrichment of the soil or change to the soil PH.[24]

5.3.29 Natural England's advice on the assessment of air quality impacts under the Habitats Regulations states that consideration should be given to the risk of road traffic emissions likely to result from a Local Plan. The main issue for Local Plans is the assessment of 'in-combination' effects due to air quality changes that might be associated with the quantum of development proposed, particularly in relation to traffic and nitrogen deposition.

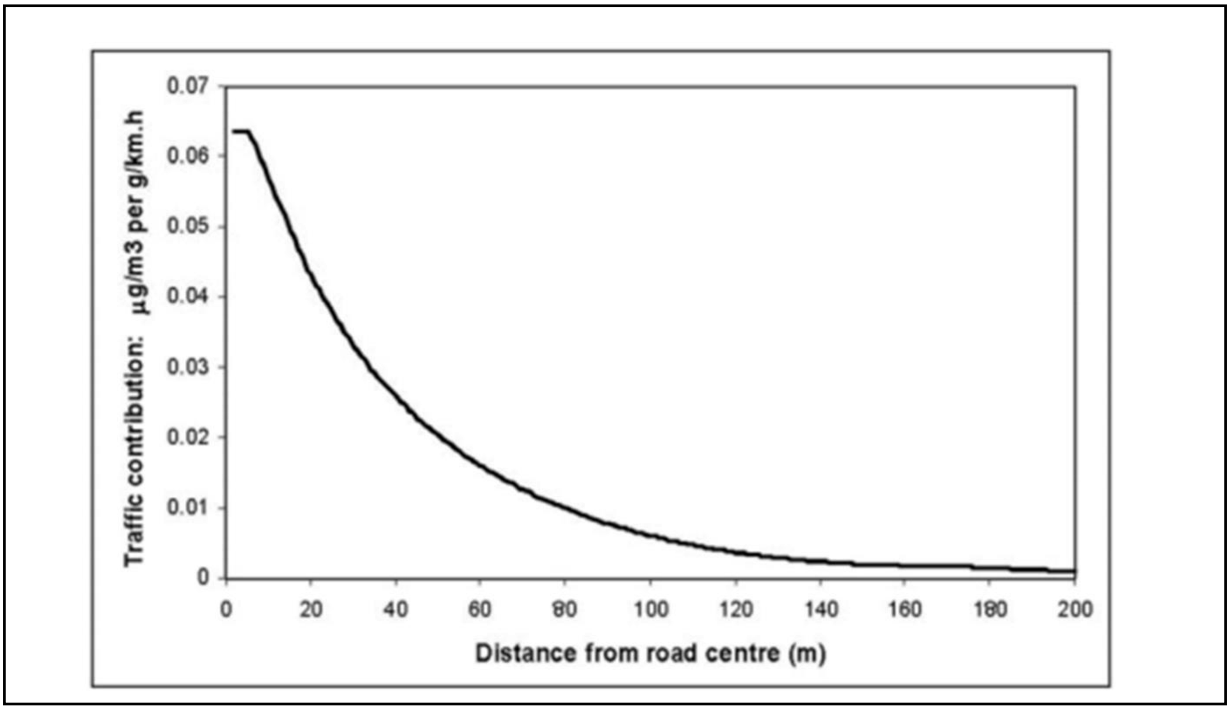
5.3.30 Natural England (2016)[25] review of the ecological impacts of road traffic concluded that vegetation was impacted by exposure to motor vehicle pollution up to 200m from roads and that distance has the potential to be greater. They also found that impacts are greatest within the first 50-100m from roads.

5.3.31 According to The Highways Agency Design Manual for Roads and Bridges, Section 3, Part 1[26], in terms of nitrogen deposition from traffic emissions, only increases in heavy duty vehicle (HDV) flows that will change by 200 Annual Average Daily Traffic (AADT) or more are considered significant. Additionally, it is widely accepted that air pollution from roads is

[24] Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). Available at: http://publications.naturalengland.org.uk/publication/4720542048845824
[25] http://publications.naturalengland.org.uk/publication/6212190873845760
[26] Standards For Highways | Design Manual for Roads and Bridges (DMRB)

unlikely to be significant beyond 200m from the road itself (see **Figure 5.1**). In most cases, only traffic on major roads (e.g., 'A' roads) is considered sufficient to affect air quality at a level significant to habitats. 200m is therefore the distance that has been used in this HRA to determine whether a European site is likely to be significantly affected by the Local Plan in terms of reduced air quality from atmospheric pollution. Where a site is within 200m of only minor roads, no significant effect from traffic-related air pollution is considered to be the likely outcome.

Figure 5.1: Traffic Contribution to Pollutant Concentration at Different Distances from the Road Centre (DFT)[27]



Sites identified as vulnerable/sensitive to this effect	Further assessment required?	Comments
The Wash SPA/ Ramsar	No	Beyond 200m from the nearest A road. The site will therefore not be exposed to potentially significant air quality changes associated with increased traffic originating from Central Lincolnshire, alone or in combination with other plans or projects.
The Wash and North Norfolk Coast SAC	No	The A149 is within 200m of the SAC at Blakeney and at locations to the east of Blakeney. However, the Central Lincolnshire boundary is over 80km, as the crow flies, from Blakeney. Due to this distance, the site will therefore not be exposed to potentially significant air quality changes associated with increased traffic originating from Central Lincolnshire, alone or in combination with other plans or projects.

[27] http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf

<table>
<tr><td>Humber Estuary SAC</td><td>Yes</td><td>There are a number of A roads within 200m of the SAC including: M62, A18, A161, A1077, A63 and A180.

According to the SIP, the following qualifying features are sensitive to changes in air quality and at risk of being affected by increases in Nitrogen levels:

• H1310 Glasswort and other annuals colonising mud and sand
• H1330 Atlantic salt meadows
• H2110 Shifting dunes
• H2120 Shifting dunes with marram
• H2130 Dune grassland
• H2160 Dunes with sea-buckthorn</td></tr>
<tr><td>Humber Estuary SPA/ Ramsar</td><td>Yes</td><td>There are a number of A roads within 200m of the SPA including: M62, A161, A63 and A180.

According to the supplementary advice for the site, the structure and function of habitats which support the qualifying features of the SPA may be sensitive to changes in air quality, affecting the quality and availability of nesting, feeding or roosting habitats. Such features include:

• Bittern
• Shelduck
• Marsh harrier
• Hen harrier
• Avocet
• Golden plover
• Knot
• Dunlin
• Ruff
• Bar-tailed godwit
• Redshank
• Little tern
• Waterbird assemblage</td></tr>
<tr><td>Thorne Moor SAC</td><td>No</td><td>Beyond 200m from the nearest A road. The site will therefore not be exposed to potentially significant air quality changes associated with increased traffic originating from Central Lincolnshire, alone or in combination with other plans or projects.</td></tr>
<tr><td>Hatfield Moor SAC</td><td>No</td><td>Beyond 200m from the nearest A road. The site will therefore not be exposed to potentially significant air quality changes associated with increased traffic originating</td></tr>
</table>

		from Central Lincolnshire, alone or in combination with other plans or projects.
Thorne & Hatfield Moors SPA	No	Beyond 200m from the nearest A road. The site will therefore not be exposed to potentially significant air quality changes associated with increased traffic originating from Central Lincolnshire, alone or in combination with other plans or projects.

5.3.32 ***Therefore, the likely significant effects of changes in air quality need to be considered in relation to the Humber Estuary SAC and the Humber Estuary SPA/ Ramsar.***

In-combination effects

5.3.33 As well as considering whether the Local Plan policies alone may result in likely significant effects, a key requirement of the Regulations is to determine whether the Local Plan is likely to have a significant effect when considered in-combination with other plans and projects. For example, the effect of a plan on air quality may be insignificant when considered alone, but when combined with the effects of increased air pollution from other plans, may lead to significant impacts on site integrity. Regulation 105 of the Regulations requires an appropriate assessment of "*any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or project."*

5.3.34 This HRA has taken a pragmatic approach to considering plans and projects in-combination; focusing on in-combination effects within the plan, i.e., separate policies or site allocations affecting the same European Site(s), and in-combination impacts with Local Plans that direct spatial development within and adjacent to the Central Lincolnshire area. **Appendix 3** lists the plans and projects that will be taken into account.

Summary of Screening Assumptions

5.3.35 Based on the screening assumptions established above, **Table 5.5** below sets out a summary of the European sites and potential effects resulting from the Local Plan screened into the Stage 1 Screening Assessment. Those sites and impact pathways 'screened out' have not been considered further in the screening matrices in **Appendix 2**.

Table 5.5: Summary of Screening Assumptions for the Central Lincolnshire Local Plan

'Screened in' – amber 'Screened out' – green

European Site	Habitat loss/ fragmentation (including loss of functionally linked land)	Physical damage to species	Disturbance: recreation and visitor pressure	Disturbance: urbanisation	Hydrological change	Air Quality
The Wash SPA (Norfolk)	green	green	green	green	amber	green

European Site	Habitat loss/ fragmentation (including loss of functionally linked land)	Physical damage to species	Disturbance: recreation and visitor pressure	Disturbance: urbanisation	Hydrological change	Air Quality
The Wash and North Norfolk Coast SAC (Norfolk)						
Humber Estuary SPA/ Ramsar (North Lincolnshire/Lincolnshire)						
Humber Estuary SAC (North Lincolnshire/Lincolnshire)						
Hatfield Moor SAC (Doncaster)						
Thorne Moor SAC (Doncaster)						
Thorne and Hatfield Moors SPA (Doncaster)						

Summary of Screening Distances

5.3.36 The following table summarises the screening distances that will be used as a guide for each impact pathway described above. They are for guidance purposes only and do not imply that all sites within these distances will result in a likely significant effect on a European site.

Table 5.6: Impact Pathway Screening Distances

Impact Pathway	Screening Distance	Rationale
Loss/ fragmentation of habitat	No set distance – use Natural England's SSSI Impact Risk Zones and Indicative Functional Land Maps where available	Agreed approach with Natural England
Disturbance: increased recreational and/or visitor pressure	8km	Agreed approach with Natural England
Disturbance: urbanisation effects (indirect disturbance from noise, vibration and/or light pollution)	None – impact pathway screened out	

Impact Pathway	Screening Distance	Rationale
Hydrological changes	No standard distance	Use source/pathway/receptor model
Air Quality – vehicle exhaust emissions	200m from European site	Highways Agency Guidance

5.4. Appropriate Assessment

5.4.1 Should it not be possible at Stage 1 Screening to conclude that there will be no likely significant effects on European sites as a result of the Local Plan, it will be necessary to undertake a Stage 2 Appropriate Assessment. **Table 5.7** below sets out the key steps of an appropriate assessment.

Table 5.7: HRA Stage 2 Appropriate Assessment Key Steps

Stage	Habitats Regulations Assessment
Stage 2 Appropriate Assessment	**Task 1 -** Explore the reasons for the European designation of screened in sites
	Task 2 - Explore the environmental conditions required to maintain the integrity of the European sites and trends in current environmental processes
	Task 3 - Gain an understanding of the Plan and its policies and consider each policy in context of the environmental processes
	Task 4 - Decide on any identified impacts and whether they would lead to an adverse effect on site integrity. Consider whether impacts are direct, indirect or cumulative
	Task 5 - Identify other plans or projects that might affect the European sites in combination with the Plan and decide whether there are any adverse effects that might not result from the Plan in isolation but will do so 'in-combination'
	Task 6 - Develop mitigation measures to avoid the effect entirely, or if not possible, to mitigate the impact sufficiently that the effect on the European site is rendered effectively inconsequential

5.4.2 The focus of the appropriate assessment, if required, will be on those impacts identified at the screening stage as likely to have a significant effect. The assessment would consider whether any of the identified impacts would lead to an adverse effect on the integrity of the qualifying features of the European site/s.

5.4.3 A site's integrity depends on it being able to sustain its 'qualifying features' (i.e., the features for which each site is significant) and to ensure their continued viability. Assessing effects on site integrity involves considering whether the predicted impacts of the Plan's policies (either alone or in-combination) have the potential to:

- Cause delays to the achievement of conservation objectives for the site;
- Interrupt progress towards the achievement of conservation objectives for the site;
- Disrupt those factors that help to maintain the favourable conditions of the site;
- Interfere with the balance, distribution and density of key species that are the indicators of favourable condition on the site;
- Cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem;
- Change the dynamics of relationships that define the structure or function of the site (e.g., relationships between soil and water, or animals and plants);
- Interfere with anticipated natural changes to the site;
- Reduce the extent of key habitats or t/he population of key species;
- Reduce the diversity of the site;
- Result in disturbance that could affect the population, density or balance between key species;
- Result in fragmentation;
- Result in the loss of key features.

6 Stage 1 HRA Screening Assessment and Conclusions

6.1 Stage 1 Screening

6.1.1 A screening assessment has been undertaken to identify the likely significant effects of the policies and site allocations within the Local Plan on European sites. Screening matrices have been prepared to assess policies and site allocations individually and these are presented in **Appendix 2**. In accordance with the requirements of the Habitats Regulations, the in-combination effects of the policies together and with other plans, projects or programmes has been taken into consideration.

6.1.2 A summary of the results of the HRA Stage 1 Screening Assessment is provided below.

Significant Effects Unlikely

6.1.3 Significant effects on the integrity of European sites were assessed as unlikely for the majority of the general Local Plan policies, either because they would not result directly in development or they seek to protect, conserve or enhance the natural or historic environment, and/or positively steer development away from European sites. The screening assessment has resulted in the majority of policies, **75 in total,** being screened out from further HRA work (i.e., appropriate assessment). **Table 6.1** below summarises those aspects of the Local Plan that would not be likely to have a significant effect on a European site for the reasons given.

Significant Effects Likely

6.1.4 The screening assessment concluded that **4 policies** in the Local Plan were likely or uncertain to result in significant effects on a European site and has therefore been screened in for further assessment at Stage 2 Appropriate Assessment. These are summarised in **Table 6.2** below.

6.1.5 Additionally, **7 site allocations** were considered likely or uncertain to result in significant effects and have been screened in for further consideration:

- WL/CAI/001 Land to the South of North Kelsey Road
- WL/CAI/002 Land at Sunnyside, west of Tennyson Close, Caistor
- WL/CAI/008 Land adjacent and to the rear of Roman Ridge on Brigg Road
- WL/KEE/003 Land at Church Lane, Keelby
- WL/SCO/011 North Moor Road
- WL/SCO/012 Land East of North Moor Road, Scotter
- WL/BLYT/006 Land to south of Rowan Drive

6.1.6 The results of the screening identified that the following European sites are potentially adversely affected by impacts arising from the Local Plan, either alone or in combination:

- Humber Estuary SPA
- Humber Estuary SAC
- The Wash SPA
- The Wash and North Norfolk Coast SAC

6.1.7 The potential impacts arising as a result of these site allocations are:

- Loss/ fragmentation of habitat and effects on species away from the European site
- Disturbance: recreation and visitor pressure
- Hydrological changes

- Atmospheric pollution

6.1.8 Therefore, a Stage 2 Appropriate Assessment is required to assess in more detail the likely significant effects on the integrity of these four European sites.

Table 6.1: Local Plan policies 'Screened Out' from further HRA appraisal

Aspects of the plan which would not be likely to have a significant effect on a European Site alone	**Relevant Parts of the Local Plan**
General Policy Statement	• Vision • Objectives • Policy S1: The Spatial Strategy and Settlement Hierarchy • Policy S9: Decentralised Energy Networks and Combined Heat and Power • Policy S10: Supporting a Circular Economy • Policy S16: Wider Energy Infrastructure • Policy S19: Fossil Fuel Exploration, Extraction, Production or Energy Generation • Policy S45: Strategic Infrastructure Requirements • Policy S52: Universities and Colleges
Policies that would have no effect because no development could occur through the policy itself	• Policy S46: Safeguarded Land for Future Key Infrastructure
Policies that intend to protect, conserve or enhance the natural (including biodiversity), built or historic environment	• Policy S12: Water Efficiency and Sustainable Water Management Policy • Policy S21: Flood Risk and Water Resources • Policy S51: Creation of New Open Space, Sports and Leisure Facilities • Policy S56: Development on Land Affected by Contamination • Policy S57: The Historic Environment • Policy S58**:** Protecting Lincoln, Gainsborough and Sleaford's Setting and Character • Policy S59: Green and Blue Infrastructure Network • Policy S60: Protecting Biodiversity and Geodiversity • Policy S61: Biodiversity Opportunity and Delivering Measurable Net Gains • Policy S62: Area of Outstanding Natural Beauty and Areas of Great Landscape Value • Policy S63: Green Wedges • Policy S64: Local Green Space • Policy S65: Important Open Space

Aspects of the plan which would not be likely to have a significant effect on a European Site alone	**Relevant Parts of the Local Plan**
	• Policy S66: Trees, Woodland and Hedgerows
Qualitative or criteria-based policies that will not themselves lead to development or other change	• Policy S7: Reducing Energy Consumption - Residential Development • Policy S8: Reducing Energy Consumption – Non-Residential Buildings • Policy S11: Embodied Carbon • Policy S13: Reducing Energy Consumption in Existing Buildings • Policy S17: Carbon Sinks • Policy S15: Protecting Renewable Energy Infrastructure • Policy NS18: Electric Vehicle Charging • Policy S20: Resilient and Adaptable Design • Policy S22: Affordable Housing • Policy S23: Meeting Accommodation Needs • Policy NS24: Custom and Self-Build Homes • Policy S25: Sub-Division and Multi-Occupation of Dwellings Within Lincoln • Policy S26: Houseboat Moorings and Caravans • Policy NS27: Residential Annexes • Policy S29: Strategic Employment Sites (SESs) • Policy S31: Important Established Employment Areas (IEEA) • Policy S32: Local Employment Areas (LEA) • Policy S33: Non-Designated Employment Proposals Within Identified Settlements • Policy S34: Non-Designated Employment Proposals in the Countryside • Policy NS41: City and Town Centre Frontages • Policy S42: Sustainable Urban Tourism • Policy S43: Sustainable Rural Tourism • Policy S47: Accessibility and Transport • Policy S48: Walking and Cycling Infrastructure • Policy S49: Parking Provision • Policy S50: Community Facilities • Policy S53: Design and Amenity • Policy S54: Health and Wellbeing • Policy NS55: Advertisements • Policy S67: Best and Most Versatile Agricultural Land • Policy S68: Sustainable Urban Extensions

Aspects of the plan which would not be likely to have a significant effect on a European Site alone	**Relevant Parts of the Local Plan**
Policies that make provision for change or promote development but would have no likely significant effect on a European site, because there is no physical, ecological, hydrological, chemical or biological link or pathway between the changes the policy may cause and the site's qualifying interests of any European site	• Policy S35: Network and Hierarchy of Centres • Policy S36: Lincoln's City Centre and Primary Shopping Area • Policy S37: Gainsborough Town Centre and Primary Shopping Area • Policy S38: Sleaford Town Centre and Primary Shopping Area • Policy S39: Market Rasen and Caistor Town Centres • Policy S40: District, Local and Village Centres • Policy S69: Lincoln Sustainable Urban Extensions • Policy S70: Gainsborough Sustainable Urban Extensions • Policy S71: Sleaford Sustainable Urban Extensions • Policy S84: Ministry of Defence Establishments
Policies/proposals that make provision for change/promotes development in specific areas, but would have no significant effect on a European site, because the effects are trivial or 'de minimis'	• Policy S5: Development in the Countryside • Policy S44: Lincolnshire Showground • Policy NS72: Lincoln Regeneration and Opportunity Areas • Policy NS73: Gainsborough Riverside Opportunity Area • Policy NS74: Sleaford Regeneration and Opportunity Areas • Policy S75: RAF Scampton
Policies that promote development or change but where it is so general it is not known where, when or how the aspect of the Plan may be implemented or where the potential effects may occur, or which European sites, if any, may be affected	• Policy S28: Spatial Strategy for Employment

Table 6.2: Local Plan Policies 'Screened In' for Stage 2 Appropriate Assessment

Aspects of the plan which are likely to have a significant effect on a European Site, either alone or in-combination	Relevant Parts of the Local Plan
Policy/proposal/element of the Plan with potential to have a likely significant effect and therefore subject to further assessment, including consideration of potential mitigation measures.	• Policy S2: Growth Levels and Distribution • Policy S3: Housing in the Lincoln Urban Area, Main Towns and Market Towns • Policy S4: Housing Development in or Adjacent to Villages • Policy S14: Renewable Energy • Policy S30: Employment Allocations on Sustainable Urban Extensions (SUEs)

Table 6.3: Summary of Screening Assessment

European Site	Loss/ fragmentation of habitat (functionally linked habitat)	Physical damage to species	Disturbance: recreation and visitor pressure	Hydrological changes	Atmospheric pollution
Humber Estuary SPA	Potential LSE	Potential LSE	Potential LSE	Potential LSE	Potential LSE
Humber Estuary SAC	No LSE	No LSE	Potential LSE	Potential LSE	Potential LSE
The Wash SPA	No LSE	No LSE	No LSE	Potential LSE	No LSE
The Wash and North Norfolk Coast SAC	No LSE	No LSE	No LSE	Potential LSE	No LSE

7. Stage 2 Appropriate Assessment

7.1 Introduction

7.1.1 Following the screening stage, if likely significant effects on European sites are unable to be ruled out, the competent authority is required to make an 'Appropriate Assessment' of the implications of the plan for European sites, in view of their conservation objectives. The appropriate assessment should consider the impacts of the plan (either alone or in combination with other projects or plans) on the integrity of European sites with respect to their conservation objectives and to their structure and function. A site's integrity depends on it being able to sustain its 'qualifying features' (i.e., those Annex I habitats, Annex II species, and Annex I bird populations for which it has been designated) and to ensure their continued viability.

7.1.2 Based on the information gathered for the screening process and considering the Habitats Regulations requirement for a precautionary approach, it has been determined that an Appropriate Assessment is required for the policies and sites in the Local Plan as set out in **Para 6.1.5** and **Table 6.2** in **Section 6**.

7.1.3 The following section presents the Appropriate Assessment of the Central Lincolnshire Local Plan Proposed Submission Draft (March 2022). The Appropriate Assessment should be revisited in the light of any significant changes to the Local Plan as it progresses through the plan making process.

7.1.4 The consideration and assessment of potential effects was informed by the information provided by the European site characterisation (**Appendix 1**), the Plans and Projects Review (**Appendix 3**) and the additional information provided through the Scoping work (Task 1 of the Appropriate Assessment).

7.2 Habitat loss/ fragmentation (including loss of functionally linked land)

Humber Estuary SPA and Ramsar

Introduction

7.2.1 As previously identified in paragraph 5.3.3 above, any development resulting from the Local Plan would take place within the administrative boundaries of the Central Lincolnshire authorities and therefore direct land take from European sites can be ruled out, as there are no European sites within Central Lincolnshire.

7.2.2 The Humber Estuary SPA has been designated for mobile bird species, including waterfowl, waders and birds of prey. These species are likely to routinely forage or roost beyond the designated site boundary of the SPA and therefore may depend on functionally linked habitats for their survival. Consequently, a loss of supporting habitat used by qualifying species outside the designated site boundary may have adverse effects on site integrity.

Assessment of Effects

7.2.3 Stage 1 Screening identified that the Humber Estuary SPA /Ramsar is *potentially* at risk from physical loss or damage of *off-site* functionally linked habitat as a result of the following policies and site allocations:

- Policy S2: Growth Levels and Distribution
- Policy S3: Housing in the Lincoln Urban Area, Main Towns and Market Towns
- Policy S4: Housing Development in or Adjacent to Villages
- Policy S14: Renewable Energy
- WL/CAI/001 Land to the South of North Kelsey Road
- WL/CAI/002 Land at Sunnyside, west of Tennyson Close, Caistor
- WL/CAI/008 Land adjacent and to the rear of Roman Ridge on Brigg Road
- WL/KEE/003 Land at Church Lane, Keelby
- WL/SCO/011 North Moor Road, Scotter
- WL/SCO/012 Land East of North Moor Road, Scotter
- WL/BLYT/006 Land to south of Rowan Drive

Site Allocations

7.2.4 Natural England's SSSI Impact Risk Zones (IRZs) are a GIS based tool that can be used to identify potential risk posed by development proposals to SSSIs, SACs, SPAs and Ramsar sites. The tool identifies zones around each designated site, which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposals that could have adverse impacts.

7.2.5 Natural England has identified land potentially functionally linked to some of the European Sites within the national site network. Work is underway to map potentially functionally linked land to the Humber Estuary SPA, however this was not available at the time of writing this HRA. The Central Lincolnshire Authorities have therefore agreed an approach with Natural England in the absence of mapping.

7.2.6 The following paragraphs will assess the above mentioned site allocations to determine whether a site is functionally linked to the SPA. A desk-based study has been undertaken to identify potential impacts from the site allocations on offsite habitat used by the qualifying bird species of the Humber Estuary SPA and Ramsar. The desk-based study included:

- Identification of and ruling out the qualifying bird species unlikely to use the habitat types located within the site allocations;
- A review of aerial photography and information submitted on potential site allocations (for example, Phase 1 habitat surveys) to identify the main habitat types within each site allocation and establish their potential suitability as habitat for SPA bird species;
- A search of the Lincolnshire Environmental Records Centre to obtain information on qualifying bird species records within 1km of each site allocation. Significant population defined as 1% of the qualifying population;
- A review of the site's location within flood risk zones (because many of the SPA bird species favour sites which flood);
- Identification of any factors likely to impact on the suitability of the site allocation for functionally linked habitat, including the size of the site, proximity to potential sources of disturbance, tree and hedgerow cover and sight lines.

7.2.7 **Table 7.1** below summaries the known habitat preferences for Humber Estuary SPA and Ramsar qualifying bird species and assesses whether each bird species in susceptible to loss of habitats located within the 7 housing site allocations identified in paragraph 7.2.3 above.

Table 7.1: Habitat Preferences for Humber Estuary SPA and Ramsar qualifying bird species

Bird Species	**Habitat Preferences**[28][29]	**Susceptible to Loss of Habitat Types Found in Local Plan Allocations?**
Individual qualifying species		
Avocet	The species breeds in flat open areas on shallow saline or brackish wetlands with islands, ridges, spits or margins of bare sand, clay or mud and sparse short vegetation, including inland lakes, pools, coastal lagoons, estuaries, saltpans, saltmarshes, irrigated land and floodplains in arid areas Outside of the breeding season the species inhabits coastal and inland saline lakes and mudflats	No – habitat types affected by site allocations are of low importance for this species
Bittern	Preference for quiet lowland marshes around lakes and rivers.	No – habitat types affected by site allocations are of low importance for this species
Hen harrier	The hen harrier lives in open areas with low vegetation. In	**Yes – may utilise arable fields and pasture**

[28] BirdLife Data Zone, accessed 26.1.2022
[29] Birds A- Z | Bird Guides - The RSPB, accessed 26.1.2022

Bird Species	Habitat Preferences[28][29]	Susceptible to Loss of Habitat Types Found in Local Plan Allocations?
	winter they move to lowland farmland, heathland, coastal marshes, fenland and river valleys.	
Golden plover	When on passage and in its winter quarters, moist grasslands, agricultural land (e.g., stubble, ploughed or fallow fields), also foraging on tidal shores, coastal rocky outcrops, intertidal flats and saltmarshes in shallow bays and estuaries. Often in the company of lapwings.	**Yes – may utilise arable fields and pasture**
Bar-tailed godwit	On passage outside the breeding season, it favours intertidal areas along muddy coastlines, estuaries, inlets, and sheltered bays with tidal mudflats or sandbars.	No – habitat types affected by site allocations are of low importance for this species
Ruff	Preference for muddy margins of lakes, pools, ponds, rivers and other watercourses, irrigated levels, flood lands, and marshes; less frequently seashores and tidal mudflats. May also use dry grasslands, harvested cornfields, airfields, and dried beds of seasonal water bodies.	**Yes – may utilise arable fields and pasture**
Marsh Harrier	The species inhabits extensive areas of dense marsh vegetation, in fresh or brackish water, generally in lowlands. Also occurs on shallow excavations, irrigated fields, rushy grassland, fens and peat bogs, and especially in non-breeding season, grassy plains or ploughland. Farmland (including fallows, meadows) adjoining regular territories used for hunting, especially where reedbeds limited or occupied at high density.	**Yes – may utilise arable fields and pasture**
Little Tern	The species breeds on barren or sparsely vegetated beaches, islands and spits of sand, shingle, shell fragments, pebbles, rocks or coral fragments on seashores	No – habitat types affected by site allocations are of low importance for this species

Bird Species	Habitat Preferences[28][29]	Susceptible to Loss of Habitat Types Found in Local Plan Allocations?
	or in estuaries, saltmarshes, saltpans, offshore coral reefs, rivers, lakes and reservoirs. It may also nest on dry mudflats in grassy areas but shows a preference for islets surrounded by saline or fresh water.	
Shelduck	The species shows a preference for saline habitats and frequents mudflats and muddy or sandy estuaries in coastal regions and occurs inland on saline and brackish lakes.	No – habitat types affected by site allocations are of low importance for this species
Redshank	The species breeds on coastal saltmarshes, inland wet grasslands with short swards (including cultivated meadows), grassy marshes, swampy heathlands and swampy moors. On passage the species may frequent inland flooded grasslands and the silty shores of rivers and lakes, but during the winter it is largely coastal, occupying rocky, muddy and sandy beaches, saltmarshes, tidal mudflats, saline and freshwater coastal lagoons, tidal estuaries, saltworks and sewage farms	No – habitat types affected by site allocations are of low importance for this species
Knot	Outside of the breeding season the species is strictly coastal, frequenting tidal mudflats or sandflats, sandy beaches of sheltered coasts, rocky shelves, bays, lagoons and harbours, occasionally also oceanic beaches and saltmarshes.	No – habitat types affected by site allocations are of low importance for this species
Dunlin	In the non-breeding season this species mainly prefers estuarine mudflats, but also frequent a wide variety of freshwater and brackish wetlands, both coastal and inland, including lagoons, muddy freshwater shores, tidal rivers, flooded fields, sewage farms, salt-works, sandy coasts. For roosting	**Yes – may utilise pasture where regular flooding occurs.**

Bird Species	Habitat Preferences[28][29]	Susceptible to Loss of Habitat Types Found in Local Plan Allocations?
	during high tides and at night this species prefers large fields of naturally fertilised short pasture or soil-based crops with few vertical structures that could be used by predators.	
Black-tailed godwit	During breeding, typically favours marshy hummocky moorland but changes in land management have created new habitat and poorly drained pastures, damp heaths free of scrub, or border of reedy wetland are of primary importance. But other grasslands managed as meadows, especially when grazed and hay-cut and flooded in winter are also used. Outside the breeding season, favoured habitats include sewage farms, lake margins, tidal marshes, mudflats and sheltered coastal inlets.	**Yes – outside the breeding season, may use flooded pasture and grassland for feeding.**
Waterbird Assemblage (non-breeding)		
Dark-bellied brent goose	Outside of the breeding season the species becomes predominantly coastal, inhabiting estuaries, tidal mudflats, sandy shores, coastal saltmarshes (especially in the spring) and shallow muddy bays. In recent years increasing numbers have moved inland to feed on grass and cultivated crops.	**Yes – may utilise arable fields and pasture.**
Wigeon	In the non-breeding season this species shows a preference for coastal saltmarshes, freshwater, brackish and saline lagoons, flooded grasslands, estuaries, intertidal mudflats and other sheltered marine habitats.	**Yes – may utilise pasture where regular flooding occurs.**
Teal	On passage or in winter will frequent open habitats such as shallow tidal coasts, large estuaries, saltmarshes, and lagoons, brackish or saline, flooded fields, and artificial	**Yes – may use flooded fields.**

Bird Species	Habitat Preferences[28][29]	Susceptible to Loss of Habitat Types Found in Local Plan Allocations?
	waters such as reservoirs devoid of vegetation	
Mallard	The species occurs in almost every wetland type. It requires water less than 1 m deep for foraging and shows a preference for freshwater habitats	**Yes – may use flooded fields.**
Pochard	Although at all seasons strongly preferring fresh water, will shift to coastal and inshore maritime habitats when driven by compelling factors.	No – habitat types affected by site allocations are of low importance for this species
Scaup	The species winters on shallow coastal waters less than 10 m deep (especially in the vicinity of sewage outlets), as well as sheltered bays, estuaries and brackish coastal lagoons. It is also found inland on large lakes and reservoirs during this season.	No – habitat types affected by site allocations are of low importance for this species
Goldeneye	The species winters mainly at sea on inshore waters, shallow bays, estuaries and coastal lagoons. Further to the south and on migration the species may also frequent large rivers, lakes and reservoirs.	No – habitat types affected by site allocations are of low importance for this species
Oystercatcher	Outside of the breeding season the species is chiefly coastal, frequenting estuarine mudflats, saltmarshes and sandy and rocky shores.	No – habitat types affected by site allocations are of low importance for this species
Ringed plover	Outside of the breeding season the species inhabits muddy, sandy or pebbly coasts including estuaries, tidal mudflats and sandflats. It also frequents mud banks or sandbanks along rivers and lakes, lagoons, saltmarshes, short grassland, farmland, flooded fields, gravel pits, reservoirs, sewage works and saltpans during this season.	No – habitat types affected by site allocations are of low importance for this species
Grey plover	Outside of the breeding season the species frequents intertidal mudflats, saltmarshes, sandflats and	No – habitat types affected by site allocations are of low importance for this species

Bird Species	**Habitat Preferences**[2829]	**Susceptible to Loss of Habitat Types Found in Local Plan Allocations?**
	beaches of oceanic coastlines, bays and estuaries. During migration it may also be found inland on lakes, pools or grasslands.	
Lapwing	Found on farmland, particularly in lowland areas. In the breeding season prefer spring sown cereals, root crops, permanent unimproved pasture, meadows and fallow fields. They can also be found on wetlands with short vegetation. In winter they flock on pasture and ploughed fields.	**Yes – may utilise pasture and arable fields.**
Sanderling	On passage the species may occur on inland freshwater or saline lakes, but it is largely coastal during the winter, inhabiting open sandy beaches exposed to the sea, the outer reaches of estuaries, rocky and muddy shores and mudflats.	No – habitat types affected by site allocations are of low importance for this species
Whimbrel	On passage in the autumn and spring the species frequents wetlands, tidal flats, short-sward wet and dry grasslands, farmland, heathland, generally occupying coastal habitats in the winter such as muddy, rocky or sandy beaches, exposed reefs, tidal mudflats, sandflats, tidal marshes and lagoons.	**Yes – may utilise arable fields and grassland.**
Curlew	During the winter the species frequents muddy coasts, bays and estuaries with tidal mudflats and sandflats, rocky and sandy beaches with many pools, saltmarshes, coastal meadows and pasture and muddy shores of coastal lagoons, inland lakes and rivers. It also utilises wet grassland and arable fields during migration.	**Yes – may utilise arable fields and grassland.**
Greenshank	In its wintering grounds this species frequents a variety of freshwater, marine and artificial wetlands, including	**Yes – may utilise wet grassland.**

Bird Species	Habitat Preferences[28][29]	Susceptible to Loss of Habitat Types Found in Local Plan Allocations?
	swamps, open muddy or rocky shores of lakes and large rivers, sewage farms, saltworks, inundated rice-fields, ponds, reservoirs, flooded grasslands, saltmarshes, sandy or muddy coastal flats and estuaries.	
Turnstone	Outside of the breeding season the species is mainly coastal, although on migration it may occur inland along dykes or on lake shores.	No – habitat types affected by site allocations are of low importance for this species

7.2.8 **Table 7.1** above has identified that the following qualifying bird species may be susceptible to the loss of offsite habitat to be found within the site allocations:

- Hen harrier
- Golden plover
- Ruff
- Marsh Harrier
- Dunlin
- Black-tailed godwit
- Dark-bellied brent goose
- Wigeon
- Teal
- Mallard
- Lapwing
- Whimbrel
- Curlew
- Greenshank

7.2.9 **Table 7.2** below provides an assessment of each individual site allocation screened in for Appropriate Assessment.

Table 7.2: Assessment of the likely suitability of habitat within housing site allocations

Site Allocation Ref and Name	**Site Size (ha)**	**Approximate Distance to the Humber Estuary SPA/Ramsar**	**Site Description/ Current Use**	**Surrounding Development/ Land Use**	**Site Falls Within Humber Estuary SSSI IRZ[30]?**	**Qualifying bird species recorded within 1km[31] of the site?** **(Number and years)**	**Likelihood of habitat suitability for SPA bird species?**
WL/CAI/001 Land to the South of North Kelsey Road	5.9	18km	Greenfield; agricultural use (Livery to the frontage and field to the rear).	Residential to the north and west. Industrial estate to the east. Arable farmland to the south.	No	Yes **Wintering and breeding:** Marsh Harrier (1, 2012) **Assemblage:** Curlew (8, 1990 – 2017) Lapwing (7, 1990 – 2012) Whimbrel (4, 2014 – 2016)	**Low** • Site lies outside the IRZ for the SPA; • The site is relatively small compared to functionally linked land identified in neighbouring East Lincolnshire; • No significant numbers of SPA bird species recorded within or close to the site; • Site is beyond the foraging distance for Hen harrier and Marsh harrier (4km); • Site is agricultural land, but not arable, therefore likely to be unsuitable for Golden plover; • Site is located outside of flood zone 2 and 3; • The site is between an industrial estate and a new residential development under construction, therefore increasing likelihood of human disturbance, reducing its openness and restricting sight lines preferred by SPA bird species.

30 Defra Magic Map, accessed on 23/12/2021
31 Lincolnshire Environmental Records Centre, accessed on 23/12/2021

Site Allocation Ref and Name	Site Size (ha)	Approximate Distance to the Humber Estuary SPA/Ramsar	Site Description/ Current Use	Surrounding Development/ Land Use	Site Falls Within Humber Estuary SSSI IRZ[30]?	Qualifying bird species recorded within 1km[31] of the site? (Number and years)	Likelihood of habitat suitability for SPA bird species?
WL/CAI/002 Land at Sunnyside, west of Tennyson Close, Caistor	2.7	18km	Greenfield; agricultural use	Residential to the north. Arable farmland to the south and west. Gardens to the east.	No	Yes **Wintering and breeding:** Marsh Harrier (1, 2012) **Assemblage:** Curlew (5, 1990 – 2017) Lapwing (4, 1990 – 2012) Whimbrel (4, 2014 – 2016)	**Low** • Site lies outside the IRZ for the SPA; • The site is relatively small compared to functionally linked land identified in neighbouring East Lincolnshire; • No significant numbers of SPA bird species recorded within or close to the site; • Site is beyond the foraging distance for Hen Harrier and Marsh Harrier (4km); • Site is agricultural land, but not arable, therefore unsuitable for Golden plover; • Site is located outside of flood zone 2 and 3; • Residential development to the north increases likelihood of human disturbance; • An enclosed site with hedgerows to all site boundaries, increasing risk of predation.
WL/CAI/008 Land adjacent and to the rear of Roman Ridge on Brigg Road	2.21	17km	Greenfield; agricultural use The site has outline planning permission for 69 dwellings.	Fields to the north and north west and north east. Road to the south and residential beyond to the south and south east.	No	Yes **Wintering and breeding:** Marsh Harrier (1, 2012)	**Low** • Site lies outside the IRZ for the SPA; • The site is relatively small compared to functionally linked land identified in neighbouring East Lincolnshire;

Site Allocation Ref and Name	Site Size (ha)	Approximate Distance to the Humber Estuary SPA/Ramsar	Site Description/ Current Use	Surrounding Development/ Land Use	Site Falls Within Humber Estuary SSSI IRZ[30]?	Qualifying bird species recorded within 1km[31] of the site? (Number and years)	Likelihood of habitat suitability for SPA bird species?
						Assemblage: Curlew (9, 1990 – 2017) Lapwing (6, 1990 – 2012) Whimbrel (4, 2014 – 2016)	• No significant numbers of SPA bird species recorded within or close to the site; • Site is beyond the foraging distance for Hen Harrier and Marsh Harrier (4km); • Site is agricultural land, but not arable, therefore unsuitable for Golden plover; • Site is located outside of flood zone 2 and 3; • An enclosed site with hedgerows to all site boundaries, increasing risk of predation.
WL/KEE/003 Land at Church Lane, Keelby	4.45	7km	Greenfield; agricultural use (arable)	Field to the north. Playing fields to the north east. Arable fields to the east. Residential to the west and south west. Water treatment works and fields to the south.	No	No	**Low** • Site lies outside the IRZ for the SPA; • The site is relatively small compared to functionally linked land identified in neighbouring East Lincolnshire; • No significant numbers of SPA bird species recorded within or close to the site; • Site is beyond the foraging distance for Hen harrier and Marsh harrier (4km); • Site is located outside of flood zone 2 and 3; • A public footpath crosses through the centre of the site, and playing fields to the north east of the site

Site Allocation Ref and Name	Site Size (ha)	Approximate Distance to the Humber Estuary SPA/Ramsar	Site Description/ Current Use	Surrounding Development/ Land Use	Site Falls Within Humber Estuary SSSI IRZ[30]?	Qualifying bird species recorded within 1km[31] of the site? (Number and years)	Likelihood of habitat suitability for SPA bird species?
							are in close proximity, increasing likelihood of disturbance.
WL/SCO/011 North Moor Road, Scotter	2.05	10km (Ramsar) 19km (SPA)	Greenfield; agricultural use (arable)	Playing fields to the north. Residential to the south east and east. Grassland and the River Eau to the west and south.	No	Yes **Wintering and breeding:** Hen Harrier (3, 2003 – 2017) Marsh Harrier (6, 2003 – 2016) **Assemblage:** Curlew (11,1977-2001) Lapwing (38, 1976 – 2017)	**Low** • Site lies outside the IRZ for the SPA; • The site is relatively small compared to functionally linked land identified in neighbouring East Lincolnshire; • No significant records of SPA bird species within or close to the site; • Site is beyond the foraging distance for Hen harrier and Marsh harrier (4km); • Site is located outside of flood zone 2 and 3; • Playing fields to the north of the site are in close proximity, increasing likelihood of disturbance.
WL/SCO/012 Land East of North Moor Road, Scotter	1.68	10km (Ramsar) 19km (SPA)	Greenfield; agricultural use (arable)	Arable fields to the north and west, beyond North Moor Road. Play area and residential to the east and south	No	Yes **Wintering and breeding:** Hen Harrier (3, 2003 – 2017) Marsh Harrier (6, 2003-2016) **Assemblage:**	**Low** • Site lies outside the IRZ for the SPA; • The site is relatively small compared to functionally linked land identified in neighbouring East Lincolnshire; • No significant records of SPA bird species within or in close proximity to the site;

Site Allocation Ref and Name	Site Size (ha)	Approximate Distance to the Humber Estuary SPA/Ramsar	Site Description/ Current Use	Surrounding Development/ Land Use	Site Falls Within Humber Estuary SSSI IRZ[30]?	Qualifying bird species recorded within 1km[31] of the site? (Number and years)	Likelihood of habitat suitability for SPA bird species?
						Curlew (11, 1977-2001) Lapwing (38, 1976 – 2017)	• Site is beyond the foraging distance for Hen harrier and Marsh harrier (4km); • Site is located outside of flood zone 2 and 3; • A children's play area and public open space to the south of the site are in close proximity, increasing likelihood of disturbance.
WL/BLYT/006 Land to south of Rowan Drive	4.15	16km	Greenfield; allotments and agricultural use (arable)	Residential to the north. Farmland (arable) to the east, south and west.	No	Yes **Assemblage:** Lapwing (4, 2004 – 2013) Pochard (2, 2013)	**Low** • Site lies outside the IRZ for the SPA; • The site is relatively small compared to functionally linked land identified in neighbouring East Lincolnshire; • No significant records of SPA bird species within or in close proximity to the site; • Site is located outside of flood zone 2 and 3; • There is a public right of way running along the northern edge of the site, and an allotment to the western edge, which may increase the likelihood of human disturbance at the site.

7.2.10 The desk-based study identified that all 7 housing site allocations have a low potential to support the SPA/Ramsar qualifying bird species.

Policy S14 Renewable Energy

7.2.11 The development of renewable energy sources (i.e., both wind and solar farms) has the potential to result in the loss of habitat that is functionally linked to European Sites. The Stage 1 Screening could not rule out Policy S14 Renewable Energy from resulting in adverse effects as it seeks to maximise renewable energy generated within Central Lincolnshire.

7.2.12 Policy S14 seeks to maximise the generation of renewable energy generated in Central Lincolnshire. No sites for wind turbines or solar farms are allocated through the policy, however, the policy identifies broad areas suitable for larger scale wind energy turbines. One of these areas to the south east of Keelby, falls within the IRZ for the Humber Estuary SSSI, which underpins the Humber Estuary SPA/Ramsar. The advice for this IRZ states solar schemes with a footprint > 0.5ha and all wind turbines have the potential to impact upon the SSSI.

7.2.13 Policy S14 includes wording which will provide a level of protection for the natural environment, including European Sites. It states that proposals "*will be supported where the direct, indirect, individual and cumulative impacts are, or will be made, acceptable*". Such impacts are set out in part i of the policy and include the impacts on biodiversity and geodiversity. Biodiversity could include the Humber Estuary SPA qualifying bird species. The policy states that any larger scale wind turbine proposals outside of the identified areas should be refused. Additionally, the policy states that "*proposals for ground-based photovoltaics should be accompanied by evidence demonstrating how opportunities for delivering biodiversity net gain will be maximised in the scheme taking account of soil, natural features, existing habitats, and planting proposals accompanying the scheme to create new habitats linking into the nature recovery strategy*".

Policy S2 Growth Levels and Distribution, Policy S3 Housing in the Lincoln Urban Area, Main Towns and Market Towns, and Policy S4 Housing Development in or Adjacent to Villages

7.2.14 Policy S2 Growth Levels and Distribution sets out the overall quantum of housing growth for the plan period 2018-2040. The majority of this growth will be met through allocated sites, which, in relation to offsite habitat impacts on the Humber Estuary, have been considered in **Table 7.2** above. The Local Plan does not make an allowance for small sites coming forward on unallocated land for residential development (known as windfall sites), however the plan provides the framework for such sites to come forward under Policy S3 Housing in the Lincoln Urban Area, Main Towns and Market Towns, and Policy S4 Housing Development in or Adjacent to Villages. The scale of any windfall development site outside of the main urban areas is likely to be small; Policy S4 states unallocated sites in Large and Medium Villages will be up to 10 dwellings and in Small Villages, up to 5 dwellings. These are unlikely to be on sites greater than 1ha and therefore are highly unlikely to be of a sufficient size to support significant populations of qualifying species on functionally linked land.

In-Combination Effects

7.2.15 In terms of in-combination effects with other plans and projects, the North East Lincolnshire Local HRA considered loss of functionally linked land in relation to the Humber Estuary/Ramsar as a result of housing site allocations proposed within the Local Plan. The Appropriate Assessment recommended housing site allocations with medium or high potential to support SPA/Ramsar bird species should be required to provide an assessment for these species incorporating a suitable level of data collection and/or bird surveying to determine the individual and cumulative importance of the site for SPA/Ramsar species. The HRA concluded providing the safeguards and mitigation measures included in the North East Lincolnshire Local Plan (incorporating Main Modifications) are successfully implemented as intended, the Local Plan will not result in adverse effects on the integrity of European Sites.

7.2.16 The HRA of the North Lincolnshire Local Plan Publication version also considered the impacts of the Local Plan on functionally linked land outside of the Humber Estuary SPA/Ramsar. The HRA concluded no likely significant effects, as the measures to avoid/reduce impacts upon the Humber Estuary SPA/Ramsar are sufficiently incorporated into the Local Plan.

Avoidance and Mitigation Measures

Policies in the Central Lincolnshire Local Plan

7.2.17 **Policy S60 Protecting Biodiversity and Geodiversity** will provide a high level of protection for the Humber Estuary SPS/Ramsar as it specifically states that all development should "protect, manage, enhance and extend the ecological networks of habitats, species and sites of international, national and local importance". It goes on to state that development proposals that "are likely to result in a significant adverse effect, either alone or in combination with other proposals, on any internationally designated site, must satisfy the requirements of the Habitats Regulations (or any superseding similar UK legislation). Development requiring Appropriate Assessment will only be allowed where it can be determined, taking into account mitigation, that the proposal would not result in significant adverse effects on the site's integrity."

South Humber Gateway Ecological Mitigation North East Lincolnshire Delivery Plan

7.2.18 The South Humber Gateway (SHG) is located on the south bank of the Humber Estuary in northern Lincolnshire. Covering an area of approximately 1,000 hectares it represents one of the largest potential development areas in the UK. The area is immediately adjacent to the Humber Estuary SPA and Ramsar. Large numbers of SPA birds rely on land within this area for roosting, loafing and foraging. Ecological surveys have established that these areas are of functional importance to the conservation of the SPA/Ramsar bird populations. Fields that had supported at least 1% of the Humber population of given waterbird species on at least one survey visit were flagged as being potentially important in supporting the waterbird assemblage of the Humber Estuary SPA. 454 hectares of such fields were identified across the SHG in North and North East Lincolnshire.

7.2.19 It was determined that the most effective course of action in the SHG was to identify large areas of land which can be used to mitigate against the loss of land currently used by waders. These areas are safeguarded from development in the North East Lincolnshire Local Plan through Policy 6 Habitat Mitigation – South Humber Bank.

Conclusion

7.2.20 All 7 housing site allocations are considered to have low potential to support SPA/Ramsar qualifying bird species due to their distance from the Humber Estuary, small site size, land use and surrounding land uses. The likelihood that a site comprises functionally linked habitat reduces with increasing distance, because birds tend to prefer to forage close to their roosting / breeding grounds to reduce energy expenditure. Larger sites are likely to support higher abundances of wildfowl and waders; small site allocations are less likely to provide a sufficient area to regularly support more than 1% of the population of a qualifying bird species.

7.2.21 The Local Plan includes a strong policy framework that will ensure new development protects designated habitats and species, and delivers a net gain for biodiversity, specifically Policy S60 Protecting Biodiversity and Geodiversity and Policy S61 Biodiversity Opportunity and Delivering measurable Net Gains.

7.2.22 **It can reasonably be concluded, after taking into account the above mitigation measures and consideration of other plans, that the Local Plan will not result in adverse effects, alone or in combination, on the integrity of the Humber Estuary SPA/ Ramsar as a result of loss or fragmentation of offsite, functionally linked habitat.**

7.3 Physical damage to species – impact of wind turbines on SPA species

Humber Estuary SPA and Ramsar

Introduction

7.3.1 Natural England[32] suggests wind turbines can harm bird populations in three possible ways:

- Direct loss/ deterioration of habitat;
- Indirect habitat loss through disturbance and/or displacement (including disruption to flight lines resulting from avoidance action);
- Mortality resulting from collisions with turbines or ancillary infrastructure.

7.3.2 The SIP for the Humber Estuary does not specifically mention wind turbines as a threat to its qualifying features. Natural England's Conservation Advice identifies electricity from renewable energy sources as a pressure for the qualifying features, but the advice is only provided for features within the site and not functionally linked land. Nonetheless, there are qualifying bird species of the SPA known to rely on suitable habitat outside of the designates site boundary and therefore inappropriate management and direct or indirect impacts which may affect the extent and distribution of habitats may adversely affect the population and alter the distribution of birds.

Assessment of Effects

7.3.3 Stage 1 Screening identified that the Humber Estuary SPA /Ramsar is *potentially* at risk of adverse effects on species as a result of physical damage as a result of wind turbine development promoted through the following policies:

- Policy S14: Renewable Energy

7.3.4 Policy S14 seeks to maximise appropriately located renewable energy generated in Central Lincolnshire, including wind-based proposals. Proposals for a small to medium single wind turbine, which is defined as a turbine up to a maximum of 40m from ground to tip of blade, are, in principle, supported throughout Central Lincolnshire subject to meeting criteria (i)-(iii) of the policy. Proposals for medium (over 40m from ground to tip of blade) to large scale wind turbines (including groups of turbines) will, in principle, be supported only where they are located within an area identified as a 'Broad Area Suitable for Larger Scale Wind Energy Turbines' as identified on the Policies Map. Such proposals will be tested against criteria (i)-(iii); National Planning Policy; and whether, following appropriate consultation, it can be demonstrated that the planning impacts identified by affected local communities have been fully addressed and therefore the proposal has their backing. The policy states that any medium to large scale wind turbine proposals outside of the identified Broad Area Suitable for Larger Scale Wind Energy Turbines should be refused. The Local Plan does not therefore allocate or identify specific sites for wind farm development however, there is a spatial component to the policy, which effectively guides developers to these broad areas although no further guidance is provided in terms of potential locations or quantum of development.

7.3.5 The broad areas suitable for larger scale wind energy turbines are based on identifying and mapping strategic constraints, which include SPAs, SACs and Ramsars, to avoid locating

[32] Natural England (2007) Assessing ornithological impacts associated with wind farm developments: surveying recommendations (Technical Information Note TIN008)

wind turbine proposals within designated sites. However, most bird species are highly mobile that routinely travel beyond designated site boundaries. Wind farm schemes within typical off-site flight distances for SPA species therefore may pose a significant risk of collision mortality. The risks are difficult to assess at a strategic plan level. In 2009, the RSPB provided a high-level map and guidance[33] that assigned one of three sensitivity ratings (high, medium, unknown) to each 1km square in England. The majority of the broad areas identified as potentially suitable for larger scale wind energy turbines in the Local Plan to the north and north east of Central Lincolnshire, and therefore in closest proximity to the Humber Estuary SPA, have been categorised as 'unknown' sensitivity. These areas are unlikely to be within the range of species included in the mapping, or will not contain suitable habitat, but some may be sensitive. However, one area in the north western corner of Central Lincolnshire (in the area of Susworth and Scotterthorpe) coincides with an area categorised by the RSPB mapping as 'high' sensitivity. These areas are considered to be the most sensitive bird areas in relation to onshore wind farms. The RSPB report notes that the map and guidance "*do not obviate the need for specialist, detailed assessment of specific wind energy proposals on a case-by-case basis*" and the map "*is not intended to depict 'no-go' areas for development*".

7.3.6 Policy S14 Renewable Energy provides protective wording regarding considering the impact of renewable energy schemes. Proposals must comply with the criteria set out in bullets i to iii of the policy, which state "*The impacts are acceptable having considered the scale, siting and design, and the consequent impacts on landscape character; visual amenity; biodiversity; geodiversity*". The policy goes on to state that "*Testing compliance with part (i) above will be via applicable policies elsewhere in a development plan document for the area (i.e., this Local Plan; a Neighbourhood Plan, if one exists; any applicable policies in a Minerals or Waste Local Plan); and any further guidance set out in a Supplementary Planning Document*". Any proposal for medium to large scale wind turbines will therefore need to comply with Policy S60 Protecting Biodiversity and Geodiversity, which makes provision for project level HRA should this be required. This is considered sufficient to ensure that the qualifying bird species of the Humber SPA are not adversely affected by the Local Plan.

In-Combination Effects

7.3.7 The HRA of the North Lincolnshire Local Plan Publication version considered impacts of renewable energy proposals on the Humber Estuary SPA/Ramsar. The HRA identified that the development of renewable energy resources under policy DQE8, particularly wind power, in close proximity to the SPA, could have a significant adverse impact on bird populations through collision, diversion of migratory flyways and impacts on feeding routes. However, the Appropriate Assessment concluded no adverse impact upon site integrity due to sufficient avoidance/mitigation measures within the Local Plan.

7.3.8 The HRA of the North East Lincolnshire Local Plan screened in Policy 30: Renewable and Low Carbon Infrastructure for further consideration in the Appropriate Assessment as significant effects could not be ruled out in relation to physical loss of habitat, non-physical disturbance and air pollution on the Humber Estuary SAC/SPA. The Local Plan does not allocate specific sites for renewable energy, and therefore proposals will be assessed as and when they come forward. The HRA concluded that safeguards are built into both the policy wording of Policy 30 and the supporting text, and together with Policy 40: Biodiversity and Geodiversity, the NPPF, and the requirement for HRA at the project level in

[33] J. A. Bright, R. H. W. Langston, S. Anthony (2009) Mapped and written guidance in relation to birds and onshore wind energy development in England. RSPB Research Report No. 35. RSPB. Beds.

accordance with the Habitats Regulations, these provide sufficient assurance that the integrity of the Humber Estuary will be safeguarded when implementing this policy.

Avoidance and Mitigation Measures

Policies in the Central Lincolnshire Local Plan

7.3.9 **Policy S60 Protecting Biodiversity and Geodiversity** will provide a high level of protection for the Humber Estuary SPS/Ramsar as it specifically states that all development should "*protect, manage, enhance and extend the ecological networks of habitats, species and sites of international, national and local importance*". It goes on to state that development proposals that "*are likely to result in a significant adverse effect, either alone or in combination with other proposals, on any internationally designated site, must satisfy the requirements of the Habitats Regulations (or any superseding similar UK legislation). Development requiring Appropriate Assessment will only be allowed where it can be determined, taking into account mitigation, that the proposal would not result in significant adverse effects on the site's integrity*."

Conclusion

7.3.10 ***The safeguards set out in Policy S14 Renewable Energy, together with Policy S60 Biodiversity and Geodiversity which sets out a requirement for HRA, provides sufficient assurance that the Local Plan will not result in a likely significant effect on the Humber Estuary SAC/SPA.***

7.4 Disturbance: recreation and visitor pressure

Humber Estuary SPA/Ramsar and Humber Estuary SAC

Introduction

7.4.1 It is becoming widely acknowledged that access to nature has a positive impact on human health and wellbeing. However, the legal requirements for biodiversity and geodiversity must also be adhered to and this will require care on sites which are important for both biodiversity and public access, including European Sites[34].

7.4.2 There are 140,710 residential properties within Central Lincolnshire (Council Tax data 2020[35]). The Local Plan seeks to deliver 23,320 to 29,150 new dwellings between 2018 and 2040. At the top end of this range, this would equate to a 20% increase in residential properties. The development of new housing will result in an increase in people and an increase, therefore, in the number of people seeking recreation.

7.4.3 The Humber Estuary is a key attraction for visitors and recreational pressure has been identified as a key issue. The SIP[36] for the Humber Estuary SPA and SAC reports public access and disturbance is a pressure on the qualifying features of both sites. The SIP states that recreational disturbance could be contributing to declines in breeding and migratory bird populations at certain locations. Dog walkers, birders and other regularly occurring activities may be causing disturbance to birds.

Visitor Numbers and Recreational Activities

7.4.4 The Humber Estuary Recreational Visitor Survey (Fearnley et al 2012) was undertaken by Footprint Ecology in 2011/12. A total of 614 face-to-face interviews were conducted with visitors at 20 different survey points, with the majority of fieldwork conducted during the winter November 2011 – March 2012.

7.4.5 The data gathered highlighted that 80% of visitors interviewed were local residents visiting on a short trip or day trip from home. Most (70%) interviewees arrived at sites by car. Home postcodes indicated people travelling from their home lived a median distance of 4.42km from the survey point. The main motivation for selection of sites to visit was closeness to home (29% of all interviewees), and other key factors included quick and easy travel route from home/accommodation (9%) and the particular wildlife interest (9%).

7.4.6 Dog walking was the main activity undertaken (40% of interviewed visitors) and other activities included walking (27% of interviews), wildlife watching (13%), family outing (3%), fishing (3%), airborne activities (3%), cycling (2%) and jogging (2%). In general, dog walking, walking, jogging, cycling and airborne activities were the activities which were undertaken closest to home by visitors. The visitor data was cross references to bird data to identify areas where there are potential conflicts or cause for concern. There are a number of locations where access and bird interest coincide.

Assessment of Effects

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[34] IPENS (2015) Public Access and Disturbance Theme Plan - A strategic approach to identifying and addressing significant effects on the features of Natura 2000 sites
[35] [Council Tax: stock of properties, 2019 - GOV.UK (www.gov.uk)]
[36] IPENS (2015) Site Improvement Plan Humber Estuary

7.4.7 Stage 1 Screening identified that the Humber Estuary SPA /Ramsar and Humber Estuary SAC are *potentially* at risk of adverse effects as a result of increased disturbance from recreation and visitor pressure as a result of the following policies and site allocations:

- Policy S2: Growth Levels and Distribution
- Policy S3: Housing in the Lincoln Urban Area, Main Towns and Market Towns
- Policy S4: Housing Development in or Adjacent to Villages
- WL/KEE/003 Land at Church Lane, Keelby

7.4.8 According to the SIP, the qualifying features which are sensitive to impacts from recreation are:

- Bittern
- Common shelduck
- Marsh harrier
- Hen harrier
- Avocet
- Golden plover
- Red knot
- Dunlin
- Ruff
- Black-tailed godwit
- Bar-tailed godwit
- Common redshank
- Little tern
- Estuaries
- Atlantic salt meadows
- Waterbird assemblage

WL/KEE/003 Land at Church Lane, Keelby

7.4.9 Site WL/KEE/003 allocates land for 100 dwellings and is located just outside the SSSI IRZ for the Humber Estuary. This allocation could result in an additional population of 240 people (based on 2.4 people per household[37]). This figure is indicative, as the Local Plan allocates sites for indicative dwelling numbers and therefore these may be slightly higher or lower when a planning application is submitted for a site.

7.4.10 Dog walkers are a key source of disturbance as part of increased recreational pressure. Visitor surveys undertaken across the Humber Estuary by Fearnley et al (2012) identified that the Humber area is widely used by dog walkers. During the winter survey, 45% of groups interviewed had at least one dog with the, and 41% during the summer survey. An estimated 33% of households in the UK own a dog in 2021[38]. If this figure is applied to site WL/KEE/03, then an estimated 33 out of 100 households could own one or more dogs.

7.4.11 The site is 7km from the Humber Estuary and is therefore further than the median 4.42km distance that the majority of visitors travel to partake in recreational activities. The site lies outside the IRZ for the Humber Estuary SSSI which underpins the Humber Estuary SPA

[37] ONS Labour Force Survey, 2020
[38] PFMA (Pet Population 2021 | PFMA)

and SAC. Given the small scale of this site, and its location beyond 4.42km, its contribution to visitor pressure 'alone' is unlikely to be significant.

Policy S2 Growth Levels and Distribution

7.4.12 Policy S2 sets out the overall quantum of housing growth for the plan period 2018-2040. The policy states that the strategic aim is to facilitate the delivery of 29,150 new dwellings over the plan period, which equates to between 1,060 and 1,325 dwellings per year.

7.4.13 The Local Plan's strategy for the distribution of residential development is to focus growth on urban areas and larger settlements. The majority of this growth will be focused on the Lincoln Strategy Area (around 64% /18,656 dwellings) and on the main urban areas of Gainsborough and Sleaford (around 12% each/3,498 dwellings each). Given that the Humber Estuary SPA and SAC is further than 8km from the main settlements of Lincoln, Gainsborough and Sleaford, growth in these areas is unlikely to result in significant effects as a result of increased recreational and visitor pressure.

7.4.14 Approximately 12% of the growth (3,498 dwellings) will be directed to "Elsewhere". Policy S2 states that this will primarily be directed to the market towns (Caistor and Market Rasen) and in well-connected villages and villages with a good range of services. Both Caistor and Market Rasen are greater than 8km from the Humber Estuary SPA and SAC, therefore growth in these areas is unlikely to result in significant effects as a result of increased recreational and visitor pressure.

Policy S3: Housing in the Lincoln Urban Area, Main Towns and Market Towns, and Policy S4 Housing Development in or Adjacent to Villages

7.4.15 Policy S3 supports proposals not specifically identified as an allocation or area of change within the Local Plan that come forward in the Lincoln Urban Area, Main Towns and Market Towns, within the developed footprint of these areas and at appropriate locations. Policy S4 supports small scale proposals, not specifically identified as an allocation within the Local Plan, on appropriate locations within the developed footprint of up to 10 dwellings in the Large Villages and Medium Villages and up to 5 dwellings in Small Villages.

7.4.16 These policies therefore enable the provision of further dwellings in addition to those allocated within the plan. Some of the housing sites that may come forward as windfall development may fall within 8km of Humber Estuary SPA, although the Central Lincolnshire boundary is beyond the 4.42km median distance travelled by the majority of visitors to the Humber Estuary to partake in recreational activities.

In-Combination Effects

7.4.17 The North Lincolnshire Local Plan Publication Draft HRA concluded no adverse effect upon site integrity of the SPA as a result of recreational pressure. The appropriate assessment identified that the existing policies and provisions in the of the North Lincolnshire Local Plan Publication Draft, in relation to recreational pressures, will ensure that the Local Plan will have no adverse effects either alone or in combination with any other plans or projects.

7.4.18 The HRA of the North East Lincolnshire HRA undertook detailed work in relation to likely significant effects arising from increased recreational pressure attributable to growth proposed within the Local Plan. The HRA found that the predicted 6.3% increase in visitors to the Humber Estuary SPA/Ramsar, arising from the housing allocations within the Local Plan and visits from non-residents, have the potential to result in adverse effects on the integrity of the SPA/Ramsar site as a result of increases in recreational disturbance to birds. The HRA recommended mitigation would require a multi-faceted approach, including the provision of alternative open space and green infrastructure, site management and monitoring. The HRA concluded that providing the mitigation measures described are successfully delivered and the strategy for delivering mitigation continues to be responsive and adaptive to new information during the lifetime of the Local Plan, an increase in recreational pressures associated with the Local Plan, incorporating Main Modifications, will not lead to adverse effects on the integrity of the Humber Estuary European sites.

Avoidance and Mitigation Measures

Policies in the Central Lincolnshire Local Plan

7.4.19 The Proposed Submission Local Plan policies include a range of measures which will help to mitigate potential increased recreational pressure arising from new residential development across the Local Plan area:

7.4.20 **Policy S1 The Spatial Strategy and Settlement Hierarchy** seeks to concentrate growth in the main urban areas of Lincoln, Gainsborough and Sleaford and in settlements that support their roles, with the remaining growth delivered elsewhere in Central Lincolnshire to support the function of other sustainable settlements.

7.4.21 **Policy S51 Creation of New Open Space, Sports and Leisure Facilities** requires all new residential development of 10 dwellings or more to provide new or enhanced publicly accessible open space, sports and leisure facilities to meet the needs of their occupiers in accordance with the open space standards set out in Appendix 3 of the Local Plan. The standards include 1ha per 1,000 population of natural or semi-natural greenspace. Such developments will need to be within 400m walking distance of an accessible natural greenspace of at least 2 ha. These new open spaces and leisure facilities will provide locations for recreational activities closer and therefore more attractive to new residents, thus reducing the risk of increased visitor pressure on the SPA and SAC.

7.4.22 **Policy S59 Green and Blue Infrastructure Network** sets out a strategic approach to green infrastructure, protecting the existing green and blue infrastructure network and seeking to extend and enhance it. The policy requires development proposals to ensure existing and new green and blue infrastructure is considered and integrated into the scheme design. This policy requirement should provide opportunities to mitigate increases in recreational pressure arising from new housing development by providing alternative locations for recreational activities.

7.4.23 **Policy S60 Protecting Biodiversity and Geodiversity** states that the highest level of protection will be afforded to internationally protected sites. Development proposals that are likely to result in a significant adverse effect, either alone or in combination with other proposals, on any internationally designated site, must satisfy the requirements of the Habitats Regulations.

7.4.24 **Policy S64 Local Green Space** and **Policy S65 Important Open Space** protect existing open spaces from being lost to development.

7.4.25 **Policies S69 to S71** set out the requirements for the Sustainable Urban Extensions to Lincoln, Gainsborough and Sleaford. All will be required to provide a range of open space, recreation and leisure uses, green infrastructure enhancements and linkages. This will ensure suitable sites for recreation are provided close to where people live.

Cleethorpes Habitat Management Plan

7.4.26 Cleethorpes has been identified as a key area where adverse effects ay result as a result of increased recreational pressures. The Draft Cleethorpes Habitat Management Plan (2021) will replace the current Management Plan which expired at the end of 2021. It sets out a vision for the Cleethorpes area to ensure the nationally and internationally important designations are effectively managed and enhanced, while also ensuring that this is balanced with tourism and local residents' use of the natural area. To achieve the vision, the management plan aims to adhere to the legislation that governs the management of the designated areas, manage users to ensure these do not conflict with the protected areas and cause recreational disturbance, to deliver the council's obligations regarding management of recreational pressures in the designated sites, establish an appropriate level of public access and recreational activity and, enhance people's knowledge and awareness of the natural assets of Cleethorpes coastline.

7.4.27 Actions outlines in the Management Plan include improving signage and education boards in the designated sites, continued monitoring of disturbance to the designated features, an eco-tourism plan and, an annual communications plan

Conclusion

7.4.28 ***In light of the mitigation measures and safeguards committed to in the Local Plan, it can be reasonably concluded that the Local Plan will not have an adverse effect on the integrity of the Humber Estuary SPA or SAC as a result of increased recreational pressure***.

7.5 Hydrological Changes

Humber Estuary SPA and SAC
The Wash SPA and The Wash and North Norfolk Coast SAC

Introduction

7.5.1 Many European Sites and qualifying species are dependent on water quality and appropriate water levels and flows to remain in favourable condition. Wetland habitats rely on hydrological connections with other surface waters, such as rivers, streams and lakes.

7.5.2 Impacts on water quality, i.e., water pollution, can come from various sources including:

- Point source pollution – permitted discharges, e.g., from wastewater treatment.
- Pollution incidents – one off incidents or accidents
- Diffuse pollution – unplanned and unlicensed pollution from various sources, including farming, homes and roads.

7.5.3 The main ways in which development may impact adversely on water levels in European Sites are:

- Increased abstraction of water from surface water and ground water bodies, which may reduce water levels in European Sites sharing the same catchment;
- The increase in impermeable surfaces increases the volume and speed of surface water runoff. Accelerated run-off could result in the discharge of excess water directly into watercourses, impacting on water levels of wetland habitats.

7.5.4 Water pollution has been identified as a pressure or threat in 87 SIPs (63% of SIPs covering water dependent European Sites). Water pollution mainly affects freshwater Natura 2000 sites (71 SIPs) though marine and estuary sites are also affected (16 SIPs). In the majority of cases (92%), diffuse water pollution is specifically identified.[39] A range of measures have been identified in SIPs to address diffuse water pollution, including investigation, diffuse water pollution plans, catchment sensitive farming, water industry asset management plans and regulation.

7.5.5 The Humber Estuary is a Water Framework Directive (WFD) protected site, with a number of WFD waterbodies hydrologically connected to the site, and therefore likely significant effects as a result of changes in water quantity and/or water quality is particularly relevant. The site falls under the Humber River Basin Management Plan and the SIP and supplementary advice set out the priorities and measures required to meet the conservation objectives for the site. According to the SIP, water pollution is identified as an issue for both the SPA and SAC. One of the main concerns is an annual dissolved oxygen (DO) sag in the River Ouse, which may have implications for the upstream migration of sea lamprey and other qualifying species. There are also several point sources of water pollution which are contributing high phosphorus loadings to the estuary, including a former smelting plant and several clay pits.

7.5.6 The Wash SPA and The Wash and North Norfolk Coast SAC are also WFD protected sites. There are a number of WFD waterbodies hydrologically connected to the site. The SIP identifies inappropriate water levels as a pressure on qualifying SPA species a number of qualifying features, such as Bittern, Marsh Harrier, Common Tern and the waterfowl

[39] IPENS (2015) Diffuse water pollution theme plan - developing a strategic approach to diffuse water pollution for England’s Natura 2000 site

assemblage which are dependent on freshwater or habitats fed by freshwater. Changes in source, depth, duration, frequency, magnitude and timing of water supply or flow can have important implications for these features. Such changes may affect the quality and suitability of habitats used by birds for drinking, preening, feeding or roosting.

7.5.7 The current condition and ecological status of the water dependent European sites screened into the Appropriate Assessment are summarised in **Table 7.3** below. Waterbodies hydrologically connected to the Humber Estuary SPA and SAC are 'moderate' in terms of ecological status, with the exception of two waterbodies: Laceby Beck / River Freshney Catchment (to N Sea) and Skitter Beck / East Halton Beck. Waterbodies hydrologically connected to the Wash SPA and the Wash and North Norfolk Coast SAC are 'good' or 'moderate', with the exception of two waterbodies: Heacham River and East & West Fen Drains.

Table 7.3: Condition of SSSIs underpinning Humber Estuary SPA/SAC, The Wash SPA and The Wash and North Norfolk Coast SAC and ecological status of WFD waterbodies hydrological connected to the European Sites

Current condition of SSSI underpinning European site[40]	**Area of SSSI underpinning European Site (ha)**
Humber Estuary SPA/SAC (Humber Estuary SSSI)	
Total Area	37,000.60
WFD favourable	2,789.45
WFD unfavourable recovering	33,747.22
WFD unfavourable no change	61.45
WFD unfavourable declining	402.46
WFD destroyed/partially destroyed	0
Name of WFD Waterbody[41]	**Current Ecological Status**[42]
Ottringham Drain from Ottringham Grange to Humber	Moderate
Fosse drain / Skeffling Drain	Moderate
Winestead Drain from Source to Humber	Moderate
Oldfleet/Wyton/Sproatley Drain from Source to Humber Water Body	Moderate
Mill Beck 2 (Ellerker Area)	Moderate
Fleet Drain	Moderate
Sands/Keyingham/Roos Dr from Source to Humber	Moderate

[40] Natural England Designated Sites View – accessed 24.2.2022
[41] As identified in Natural England Site Improvement Plans
[42] DEFRA Catchment Data Explorer (updated 14th September 2021)

Current condition of SSSI underpinning European site[40]	**Area of SSSI underpinning European Site (ha)**
Earnshaw's Warping Drain	Moderate
Ouse from R Wharfe to Upper Humber	Moderate
Paupers Drain Catchment (trib of Trent)	Moderate
Adlingfleet Drain Upper Catchment (trib of Trent)	Moderate
Torne/Three Rivers from Mother Drain to Trent	Moderate
Buck Beck from Source to N Sea	Moderate
Seven Towns North Eau	Moderate
Seven Towns South Eau	Moderate
Ancholme from Bishopbridge to the Humber	Moderate
Laceby Beck / River Freshney Catchment (to N Sea)	Bad
North Beck Drain	Moderate
Skitter Beck / East Halton Beck	Bad
Winterton Beck from Source to the Humber	Moderate
The Wash and North Norfolk SAC (North Norfolk Coast SSSI)	
Total Area	7,862.29
WFD favourable	7,691.25
WFD unfavourable recovering	171.04
WFD unfavourable no change	0
WFD unfavourable declining	0
WFD destroyed/partially destroyed	0
The Wash SPA (The Wash SSSI)	
Total Area	62,045.63
WFD favourable	42,177.66
WFD unfavourable recovering	19,611.49
WFD unfavourable no change	0
WFD unfavourable declining	256.48
WFD destroyed/partially destroyed	0

Current condition of SSSI underpinning European site[40]	**Area of SSSI underpinning European Site (ha)**
Name of WFD Waterbody	**Current Ecological Status**
Ingol	Moderate
Heacham River	Poor
Burn	Moderate
East & West Fen Drains	Bad
Whaplode River	Moderate
Kirton Marsh Drain	Good

Assessment of Effects

7.5.8 Stage 1 Screening identified that the Humber Estuary SPA and SAC, The Wash SPA and The Wash and North Norfolk Coast SAC are *potentially* at risk of adverse effects as a result of water quality and hydrological issues as a result of the following policies:

- Policy S2: Growth Levels and Distribution
- Policy S3: Housing in the Lincoln Urban Area, Main Towns and Market Towns
- Policy S4: Housing Development in or Adjacent to Villages
- Policy S30 Employment Allocations on Sustainable Urban Extensions (SUEs)

7.5.9 In 2013, the Environment Agency undertook an assessment to determine areas of water stress in the UK. The assessment classified Anglian Water supply regions as areas of “serious” water stress[43]. In 2021, this assessment was updated to take account of the publication of the National Framework for Water Resources and the Water Resource Management Plans published in 2020. Severn Trent Water was added to the list of areas in serious water stress.

7.5.10 Water in Central Lincolnshire is predominantly supplied by Anglian Water, with Seven Trent Water supplying water in the west and north-west of the Plan area, including Gainsborough. Water companies have a statutory duty to establish how planned development in their area can be serviced. In terms of planning for growth and use of water, the Water Resources Management Plans (WRMPs) for Anglian Water and Severn Trent Water demonstrate that Anglian Water and Severn Trent have long-term plans in place to accommodate the impacts of population growth, drought, environmental obligations and climate change uncertainty in order to balance supply and demand. As part of the statutory approval process, the plans must be approved by both the Environment Agency (EA) and Natural England (as well as other regulators), and therefore the outcomes of the plans can be used to inform whether growth levels can be supplied with a sustainable source of water supply.

[43] Serious water stress is defined in the Water Industry (Prescribed Conditions) Regulations 1999 as where ‘the current household demand for water is a high proportion of the current effective rainfall which is available to meet that demand; or the future household demand for water is likely to be a high proportion of the effective rainfall which is likely to be available to meet that demand’.

7.5.11 In terms of the Anglian Water WRMP[44], the water supply area is divided into 28 Water Resource Zones (WRZs) of which Central Lincolnshire is mainly supplied from the Central Lincolnshire WRZ. WRZs share the same raw resources for supply and are interconnected by supply pipes, treatment works and pumping stations. The Central Lincolnshire WRZ has been forecast a deficit in supply of -9.55Ml/d by 2044/45 without intervention. The preferred scheme to address this deficit is potable water treatment and transfer between South Humber Bank WRZ plus East Lincolnshire WRZ to Central Lincolnshire WRZ. The WRMP was subject to its own HRA during its preparation. The HRA concluded that the preferred schemes in the Central Lincolnshire WRZ would not result in adverse effects on the integrity of a European Site.

7.5.12 Anglian Water's Water Recycling Long-Term Plan[45] describes the investment needed to balance the supply and demand for water recycling services over a 25 year period. The report includes county summaries of the number of homes planned to 2025 and 2045, population growth to 2025 and 2045 and the expected investment required in water recycling infrastructure required over the period 2020 to 2045. **Table 7.4** shows the strategy for investment within the Central Lincolnshire Local Plan area, which demonstrates additional capacity at water recycling centres has been planned to accommodate future growth proposed.

Table 7.4: Anglian Water Investment Programme for Water Recycling Centres in Central Lincolnshire

Water Recycling Centre (WRC)	**Investment Strategy**	**£M Asset Management Plan Period**				
		AMP7 2020-25	AMP8 2025-30	AMP9 2030-35	AMP10 2035-40	AMP11 2040-45
Aisthorpe	Additional WRC flow capacity	2.289				
Bassingham	Additional WRC flow capacity		2.993			
Beckingham	WRC - descriptive to numeric permit		0.004			
Billinghay	Increase WRC process capacity	0.5	1.963			
Branston Booths	Investigate urban creep (the loss of permeable surfaces within urban areas creating increased runoff) at WRCs	0.04	0.5			
Caistor	Additional WRC flow capacity			1.5		
Canwick	Increase drainage capacity		10.545	18.837		19.303
Corringham	Additional WRC flow capacity	0.007				
Dorrington	Additional WRC flow capacity			1.5		

[44] Anglian Water (2019) Water Resources Management Plan December 2019
[45] Anglian Water (2018) Water Recycling Long-Term Plan September 2018

Water Recycling Centre (WRC)	**Investment Strategy**	**£M Asset Management Plan Period**				
		AMP7 2020-25	AMP8 2025-30	AMP9 2030-35	AMP10 2035-40	AMP11 2040-45
Faldingworth	Investigate urban creep at WRCs	0.04				
Heckington	Additional WRC flow capacity	0.019				
Ingham	Additional WRC flow capacity					0.007
Kirby la Thorpe	Additional WRC flow capacity					
Market Rasen	Combined Sewer Overflow investigations	0.019				
	Combined Sewer Overflow improvements		0.416			
	Additional WRC flow capacity					6.289
Martin	Additional WRC flow capacity	0.007				
Metheringham	Additional WRC flow capacity	1.164				
	Increase drainage capacity			1.047	0.764	0.725
Navenby	Additional WRC flow capacity		1.5			
Nettleham	Additional WRC flow capacity					1.5
Nocton (RAF)	Additional WRC flow capacity	3.762				
North Kelsey	Increase WRC process capacity	0.777	0.5			
Owmby	Additional WRC flow capacity				0.004	
Rowston	Additional WRC flow capacity		1.5			
Silk Willoughby	Additional WRC flow capacity			0.007		
South Hykeham	Increase drainage capacity			4.676		3.281
	Additional WRC flow capacity		1.5			
Sturton by Stow	Additional WRC flow capacity		1.5			
Swinderby	Additional WRC flow capacity	1.875				
Waddingham	Additional WRC flow capacity			1.5		
Washingborough	Combined Sewer Overflow investigations	0.019				
	Combined Sewer Overflow improvements		0.416			

Water Recycling Centre (WRC)	**Investment Strategy**	**£M Asset Management Plan Period**				
		AMP7 2020-25	AMP8 2025-30	AMP9 2030-35	AMP10 2035-40	AMP11 2040-45
	Additional WRC flow capacity			7.639		

7.5.13 The Severn Trent WRMP[46] divides the water supply area into 15 WRZs, of which Central Lincolnshire is mainly supplied from the Newark and Nottinghamshire WRZs. The Nottinghamshire WRZ has been identified as high vulnerability, as the zone relies on imports from some of the surface water sources in the Strategic Grid which may be impacted by climate change. The WRZ is forecast a deficit in supply by 2044/45 without investment. The WRMP sets out preferred schemes in each WRZ to maintain the supply demand balance. A number of schemes are proposed for the Nottinghamshire WRZ. The WRMP was subject to its own HRA during its preparation. The HRA concludes the WRMP schemes will have no adverse effects on any European site, either alone or in combination with any other plans or projects.

7.5.14 The levels of water that Anglian Water and Severn Trent Water can abstract is controlled by the Environment Agency's permitting system. The Environment Agency regulate existing licences and grant new ones. To do this they use: the catchment abstraction management strategy (CAMS) process and abstraction licensing strategies (ALS). This Environment Agency management approach to water abstraction licensing and protecting European Sites (e.g., arising from water company abstraction requests) means that water level management is strictly controlled by the CAMS and licensing regimes.

7.5.15 Catchment Abstraction Management Strategies (CAMS) set out how the Environment Agency will manage water resources in each catchment, how much is available and how it is licensed, taking into account what the environment needs. The impact of extracting water from the Trent Witham and Ancholme (rivers that flow into coastal Humber and Wash European Sites) is considered and controlled by the Environment Agency under their Abstraction Licence Strategy process. The Environment Agency has an obligation to protect all sites designated under the Habitat Regulations. Under these Regulations, the Environment Agency will consider the impact of proposed abstractions on designated sites and will assess existing abstraction licences and any new applications to make sure they are not impacting on internationally important nature conservation sites.

7.5.16 Flood Risk Management Plans (FRMPs) explain the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs. FRMPs set out how risk management authorities will work with communities to manage flood and coastal risk. Within the Humber River basin district there are two FRMPs: Humber and Kingston upon Hull and Haltemprice Catchment within East Riding of Yorkshire. The FRMP provides a range of objectives and programmes of measures identified to address risks from all flood sources. These are drawn from the many risk management authority plans already in place but also include a range of further strategic developments for the FRMP 'cycle' period of 2015 to 2021.

7.5.17 RBMPs and FRMPs provide an integrated approach to catchment planning for water. There are strong links between RBMPs and the UK's marine strategy which implements the Marine Strategy Regulations 2010. Measures in the RBMPs will contribute to achieving good environmental status in the UK seas. The RBMPs set out: the current state of the

[46] Severn Trent (2019) Water Resources Management Plan August 2019

water environment, pressure affecting the water environment, environmental objectives for protecting and improving the waters and, a programme of measures and actions needed to achieve the objectives. The Environment Agency has routine monitoring programmes in place for assessing compliance with Habitats Directive sites.

In-Combination Effects

7.5.18 Growth proposed within other Local Authorities' Local Plans may act in-combination with that proposed within the Central Lincolnshire Local Plan to increase the demand for water and therefore potentially leading to significant adverse effects. However, as Anglian Water's and Severn Trent Water's WRMPs explicitly account for the growth predicted by Central Lincolnshire and other LPAs, 'in combination' effects between the Central Lincolnshire Local Plan and other Local Plans due to the amount of growth proposed are unlikely to occur.

7.5.19 The HRAs of the Local Plans of neighbouring administrative areas have considered the issue of water quality and hydrological issues. The HRA of the North East Lincolnshire Local Plan (July 2017) could not rule out significant effects relating to changes in water quality on the Humber Estuary SAC, SPA and Ramsar at the Stage 1 Screening Stage. However, the Stage 2 Appropriate Assessment concluded that whilst the qualifying features of the Humber Estuary sites are theoretically vulnerable to changes in water quantity, the water levels in areas of primary importance for qualifying features are predominantly controlled by tidal powers at the estuary scale and/or coastal management regimes. Therefore, the policies proposed within the Local Plan would not be expected to result in any measurable changes in water levels with potential to result in likely significant effects on the Humber Estuary SPA or Ramsar site. Any effects on water quality resulting from the Local Plan would be localised and should be regulated and managed by Environment Agency consents and Water Company Asset Management Programmes. The HRA concluded that the mitigation and avoidance safeguards built into the Local Plan were sufficiently robust to ensure that likely significant effects on the Humber Estuary SAC, SPA and Ramsar site as a result of changes in water quality and quantity will not occur.

7.5.20 Existing water abstraction licenses held by Anglian Water and Severn Trent Water have been subject to assessment by the Environment Agency and deemed acceptable. Any further water abstraction licence applications will be subject to HRA by the Environment Agency as a Competent Authority.

Avoidance and Mitigation Measures

Policies in the Central Lincolnshire Local Plan

7.5.21 The Local Plan includes a number of policies that will help to mitigate potential effects from water quality and quantity changes arising from the demand new development will place on water supply. They have been developed in consultation with the Environment Agency, Anglian Water and Severn Trent:

7.5.22 **Policy S12 Water Efficiency and Sustainable Water Management** requires all new dwellings to meet the Optional Technical Housing Standard for water efficiency of 110 litres per person per day. The policy goes on to encourage proposals to go further than this (for example 85 litres per day). This will help to reduce the demand for water and maximise the efficient use of water across Central Lincolnshire.

7.5.23 **Policy S21 Flood Risk and Water Resources** requires development proposals to demonstrate that water is available to support the development proposed and that adequate mains foul water treatment and disposal already exists or can be provided in time to serve the development. It requires proposals to meet the Building Regulation water efficiency standard of 110 litres per occupier per day or the highest water efficiency standard that applies at the time of the planning application. It also specifies that development “contributes positively to the water environment and its ecology where possible and does not adversely affect surface and ground water quality in line with the requirements of the Water Framework Directive”.

7.5.24 These measures will ensure that infrastructure improvements to manage increased wastewater and sewage effluent produced by new development are delivered in a timely manner, and that, as required by the Water Framework Directive, there is no deterioration to water quality and the environment. These requirements are not limited to the water environment within the Central Lincolnshire area, and thus includes European Sites outside the area.

7.5.25 **Policy S56 Development on Land Affected by Contamination** requires development proposals to the potential environmental impacts on people, biodiversity, buildings, land, air and water arising from the development itself and any former use of the site, including, in particular, adverse effects arising from pollution. Again, these impacts are not limited to the Central Lincolnshire area and will include consideration of impacts upon the wider area.

7.5.26 **Policy S60 Protecting Biodiversity and Geodiversity** will provide some mitigation for any potential impacts of air pollution on a European Site because it sets out the highest level of protection to internationally protected sites and that development proposals that are likely to result in a significant adverse effect, either alone or in combination with other proposals, must satisfy the requirements of the Habitats Regulations.

Other Mitigation Measures

7.5.27 Mitigation and monitoring are already in place, namely the Environment Agency’s assessment and monitoring of water abstraction licences to ensure they will not have an adverse effect on European Sites, and Anglian Water’s and Severn Trent water’s WRMPs, which include a commitment to reducing the demand for water and water efficiency measures.

Conclusion

7.5.28 Avoiding adverse effects on water quality and quantity is primarily the responsibility of the Water Companies (through resource planning) and the Environment Agency (abstraction licensing). However, the Local Plan can direct requirements for efficiency of water use in new developments and require that issues relating to water supply and discharge (including potential effects on European sites) are in place prior to the implementation of development proposals.

7.5.29 As demonstrated above, the Local Plan includes a strong policy framework that will ensure new development takes into account potential environmental impacts, maximises the efficient use of water, and demonstrates that water infrastructure can be provided in time to support the development. It also includes strong policy safeguards to secure measures that may be required to protect water quality and European sites to meet the requirements of the Water Framework Directive. Provided that these policy safeguards are implemented, and the regulatory process is followed, this HRA has no further recommendations.

7.5.30 ***It can reasonably be concluded, after taking into account the above mitigation measures and consideration of other plans, that there will be no likely significant***

effects, alone or in combination, on the Humber Estuary SPA or SAC or The Wash and North Norfolk Coast SAC, resulting from water quality or hydrological changes through the implementation of the Local Plan.

7.6 Atmospheric Pollution

Humber Estuary SPA/Ramsar and Humber Estuary SAC

Introduction

7.6.1. Air pollution, in particular atmospheric nitrogen deposition, is a major pressure on biodiversity. Adverse impacts include: loss of sensitive species, changes to habitat structure and function, the homogenisation of vegetation types, changes in soil chemistry, and an increased sensitivity to abiotic and biotic stresses (such as pests and climate).[47]

7.6.2. Nitrogen deposition has been identified as a priority issue in the SIP and in Natural England's Conservation Advice[48]. The qualifying features which are sensitive to pressure from air pollution are:

- H1310 Salicornia and other annuals colonising mud and sand
- H1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
- H2120 Shifting dunes along the shoreline with Ammophila arenaria ('White dunes')
- H2110 Embryonic shifting dunes
- H2130 Fixed dunes with herbaceous vegetation ('Grey dunes')
- H2160 Dunes with Hippophae rhamnoides
- Bittern (breeding and non-breeding)
- Shelduck (non-breeding)
- Marsh harrier (breeding)
- Hen harrier (non-breeding)
- Avocet (breeding and non-breeding)
- Golden plover (non-breeding)
- Knot (non-breeding)
- Dunlin (non-breeding)
- Ruff (non-breeding)
- Black-tailed godwit (non-breeding)
- Bar-tailed godwit (non-breeding)
- Redshank (non-breeding)
- Little tern (breeding)
- Waterbird assemblage

Assessment of Effects

7.6.3. Stage 1 Screening identified that the Humber Estuary SPA and SAC are *potentially* at risk of adverse effects as a result of an increase in air pollution arising from increased vehicle traffic as a result of the overall amount of growth proposed within the Local Plan. The following policies were screened in for further consideration at Appropriate Assessment (all individual site allocations were screened out):

- Policy S2: Growth Levels and Distribution
- Policy S3: Housing in the Lincoln Urban Area, Main Towns and Market Towns
- Policy S4: Housing Development in or Adjacent to Villages
- Policy S30: Employment Allocations on Sustainable Urban Extensions (SUEs)

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[47] IPENS (2015) Atmospheric nitrogen theme plan - developing a strategic approach for England's Natura 2000 sites

[48]

7.6.4. The Air Pollution Information System (APIS)[49] is an online resource providing data on the sensitivity of habitats, species and statutory designated sites to air pollution. Site critical loads of nitrogen deposition for the Humber Estuary are provided on APIS. Critical loads and levels are thresholds below which harmful effects on sensitive UK habitats will not occur to a noteworthy level, according to current levels of scientific understanding. Critical loads and levels are subject to regular review.

7.6.5. **Table 7.5** below shows the exceedance of nitrogen deposition for each qualifying feature and **Table 7.6** summarises concentrations of NOx. Deposition is shown for the minimum, maximum and average (3 year 2013-2015) for the site. Currently, the critical loads for nitrogen deposition are only exceeded for H2130 Fixed dunes with herbaceous vegetation ('Grey dunes') acid type.

Table 7.5: Nitrogen deposition on the Humber Estuary SAC qualifying habitats

Qualifying habitat	APIS broad habitat class	Critical loads (kg/N/ha/yr)	Minimum deposition for N (kg/N/ha/yr)	Maximum deposition load for N (kg/N/ha/yr)	3 year average (2013-2015) (kg/N/ha/yr)
H1310 Salicornia and other annuals colonising mud and sand	Pioneer, low-mid, mid-upper saltmarshes	20-30	13.2	28.9	14.4
H1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	Pioneer, low-mid, mid-upper saltmarshes	20-30	13.2	28.9	14.4
H2120 Shifting dunes along the shoreline with Ammophila arenaria ('White dunes')	Shifting coastal dunes	10-20	13.2	28.9	14.4
H2110 Embryonic shifting dunes	Shifting coastal dunes	10-20	13.2	28.9	14.4
H2130 Fixed dunes with herbaceous vegetation ('Grey dunes')	Coastal stable dune grasslands - calcareous type	10-15	13.2	28.9	14.4

[49] www.apis.ac.uk

Qualifying habitat	APIS broad habitat class	Critical loads (kg/N/ha/yr)	Minimum deposition for N (kg/N/ha/yr)	Maximum deposition load for N (kg/N/ha/yr)	3 year average (2013-2015) (kg/N/ha/yr)
	Coastal stable dune grasslands - acid type	8-10	13.2	28.9	14.4
H2160 Dunes with Hippophae rhamnoides	No comparable habitat with established critical load estimates available	Not available for this feature	13.2	28.9	14.4

Source: APIS

Table 7.6: NOx concentrations for the Humber Estuary SAC qualifying habitats

Qualifying habitat	APIS broad habitat class	Critical levels (µg NOx/m3 annual mean)	Critical Level (µg NOx/m3 24-hour mean)	Minimum NOx	Maximum NOx	Average
				NOx Concentration µg/m3		
H1310 Salicornia and other annuals colonising mud and sand	Pioneer, low-mid, mid-upper saltmarshes	30	75	46.96	10.06	15.87
H1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	Pioneer, low-mid, mid-upper saltmarshes	30	75	46.96	10.06	15.87
H2120 Shifting dunes along the shoreline with Ammophila arenaria ('White dunes')	Shifting coastal dunes	30	75	46.96	10.06	15.87
H2110 Embryonic shifting dunes	Shifting coastal dunes	30	75	46.96	10.06	15.87
H2130 Fixed dunes with herbaceous vegetation ('Grey dunes')	Coastal stable dune grasslands	30	75	46.96	10.06	15.87

Qualifying habitat	APIS broad habitat class	Critical levels (µg NOx/m3 annual mean)	Critical Level (µg NOx/m3 24-hour mean)	Minimum NOx	Maximum NOx	Average
				NOx Concentration µg/m3		
H2160 Dunes with Hippophae rhamnoides	No comparable habitat with established critical load estimates available	30	75	46.96	10.06	15.87

Source: APIS

7.6.6. The apportionment of nitrogen deposition by source is set out in **Table 7.7** below. The data shows that the most significant local source of nitrogen deposited onto the Humber Estuary SAC/SPA is ‘Livestock’, which accounts for 33.7% of the total contributions. The next biggest contributor is fertiliser application at 14.9%. Road transport accounts for 8.6% of total contributions.

Table 7.7: Local contributions to nitrogen deposition on the Humber Estuary SAC/SPA

Type of Source	Total Deposition (KgN/ha/yr)	% of Total Contribution
Livestock	3.52	33.7
Fertiliser application	1.56	14.9
Others	0.17	12.9
Other transport	1.26	12.1
Road transport	0.9	8.6
Europe import	0.66	6.3
Non-agricultural non-abatable	0.66	6.3
Non-agricultural abatable	0.54	5.2

Source: APIS 2018

7.6.7. There are a number of ‘A’ roads within close proximity of the SAC and SPA, given the substantial size of the designated sites. Therefore, if there is a significant increase in Annual Average Daily Traffic along any of those routes as a result of the development proposed through the Local Plan, there could be significant effects as a result of increased air pollution. As outlined in the screening assumptions in **Chapter 5**, vehicle emissions, particularly of NOx and NO2, are greatest within the first 50-100m from the road and pollutant levels can be expected to fall to near background levels at more than 200m. Therefore, atmospheric deposition related to increased use of the major roads inside and within 200m of the SAC/SPA could adversely impact on the integrity of the designated sites.

7.6.8. A study of 2011 Census data reveals commuting patterns by method of travel to work for residents in Central Lincolnshire. According to the Census, 3,235 Central Lincolnshire residents travel to work with North Lincolnshire, 1,914 with North East Lincolnshire and 3,089 with East Lindsey by all methods of travel. These figures represent 1.74%, 1.03% and 1.66% respectively of the working age population (age 16-64) of Central Lincolnshire (at the time of the 2011 Census) and are therefore not significant commuting flows.

7.6.9. Further study of the Census data[50] indicates that very small numbers of residents from Central Lincolnshire's main areas of population and focus for growth (64%/18,656 dwellings) within the Local Plan: Lincoln Urban Area, Gainsborough and Sleaford are commuting to either North Lincolnshire, North East Lincolnshire or East Lindsey. Commuting from the market towns of Market Rasen and Caistor, located within the north east of the plan area, has a stronger link to these neighbouring local authorities.

7.6.10. However, whilst residents from Central Lincolnshire commute to work by car or van into neighbouring North Lincolnshire, North East Lincolnshire and East Lindsey, where the Humber Estuary SAC and SPA/Ramsar is located, the roads within 200m of the European site are not key commuting routes from Central Lincolnshire. The main roads out of the north of Central Lincolnshire into these neighbouring districts are the A159 towards Scunthorpe, A15 towards Barton upon Humber, A1173 towards Immingham and A46 towards Grimsby and Cleethorpes. The A15 crosses the Humber Estuary SAC via the Humber Bridge linking North Lincolnshire and East Riding of Yorkshire, and links with the A180, a key route through North East Lincolnshire to Immingham, Grimsby and Cleethorpes. Neither of these routes are likely to experience a significant increase in vehicle traffic as a result of development in Central Lincolnshire. According to the 2011 Census, 133 residents travelled to Kingston upon Hull for work from Central Lincolnshire. This represents 0.07% of the working age population at the time of the Census. Residents commuting to Immingham, Grimsby or Cleethorpes from the Local Plan area are more likely to use the A1173 and A46 than the A180.

Avoidance and Mitigation Measures

Policies in the Central Lincolnshire Local Plan

7.6.11. **Policy S1: The Spatial Strategy and Settlement Hierarchy** focuses new development in the Lincoln Urban Area, main towns of Gainsborough and Sleaford, market towns of Caistor and Market Rasen and in large villages of 750 dwellings or more. This strategy will help to reduce the need to travel by car and reduce the distance travelled to access services, facilities and employment, which will contribute to minimising nitrogen emissions associated with transport.

7.6.12. **Policy S47: Accessibility and Transport** requires developments to demonstrate, where appropriate, that they have had regard to locating the development where travel can be minimised and the use of sustainable transport modes maximised, minimise additional travel demand and made allowance for low and ultra-low emission vehicle infrastructure. **Policy S48: Walking and Cycling Infrastructure** requires development proposals to demonstrate how the ability to travel by foot or cycle will be actively encouraged. The implementation of these policies should also help to minimise any increase in private car use associated with residential and employment development promoted through the Local Plan.

7.6.13. **Policy S65: Development on Land Affected by Contamination** requires development proposals to take into account the potential environmental impacts of the proposal, including on air.

7.6.14. Open space and green infrastructure policies, including **S51 Creation of New Open Space, Sports and Leisure Facilities**, **S59 Green and Blue Infrastructure Network**,

[50] Oliver O'Brien & James Cheshire (2016) Interactive mapping for large, open demographic data sets using familiar geographical features, Journal of Maps, 12:4, 676-683, DOI: 10.1080/17445647.2015.1060183

S64 Local Green Space and **S65 Important Open Space**, which protect existing open space and provide enhanced or new provision, should help to provide opportunities for recreation close to where people live, minimising the need to travel by car to access such facilities.

In-Combination Effects

7.6.15. The HRA of the North East Lincolnshire Local Plan concluded that the Local Plan will not have adverse effects on the integrity of the Humber Estuary SAC or SPA as a result of air pollution, either from increased traffic or commercial sources. The Appropriate Assessment undertook further analysis of the potential for impacts arising from increase in vehicle traffic along the A1098 and A180 and found that the distance from the road to potentially sensitive habitats, the small proportion of each habitat type that will be lost and the unlikely presence of sand dunes at Cleethorpes beach, will greatly minimise any possible effects of increased air pollution from traffic.

7.6.16. The HRA of the North Lincolnshire Local Plan concludes the avoidance/mitigation measures incorporated into the Local Plan are sufficient to ensure no adverse impact upon site integrity as a result of atmospheric pollution.

7.6.17. The HRA of the East Lindsey Local Plan concluded no likely significant effects arising from the Local Plan and screened out the need for Appropriate Assessment.

Conclusion

7.6.18. ***Given the considerations above, it can be concluded that the Local Plan will not result in a likely significant effect on the Humber Estuary SAC and SPA/Ramsar in relation to atmospheric pollution.***

8. Conclusion and Recommendations

8.1.1. The report presents the findings of the HRA for the Central Lincolnshire Local Plan Proposed Submission Draft (March 2022). It updated earlier work carried out in support of the Central Lincolnshire Local Plan Consultation Draft (June 2021), by re-screening each of the policies and site allocations in the Local Plan for likely significant effects on identified European Sites, and by undertaking a Stage 2 Appropriate Assessment to determine whether there will be adverse effects on site integrity.

8.1.2. The screening identified the potential for likely significant effects as a result of:

- Habitat loss/ fragmentation (including loss of functionally linked land) on the Humber Estuary SPA/Ramsar
- Physical damage to species – impact of wind turbines on SPA species on the Humber Estuary SPA/Ramsar
- Disturbance: recreation and visitor pressure on the Humber Estuary SAC and SPA/Ramsar
- Hydrological changes on the Humber Estuary SAC and SPA/Ramsar, the Wash SPA/Ramsar and the Wash and North Norfolk Coast SAC
- Atmospheric pollution on the Humber Estuary SAC and SPA/Ramsar

8.1.3. The Appropriate Assessment considered these impact pathways further. Provided that the identified mitigation and recommendations made in this report are implemented, it is possible to conclude that the Local Plan is compliant with the Habitats Regulations and will not result in likely significant effects on the integrity of any of the European Sites identified, either alone or in combination with other plans and projects.

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