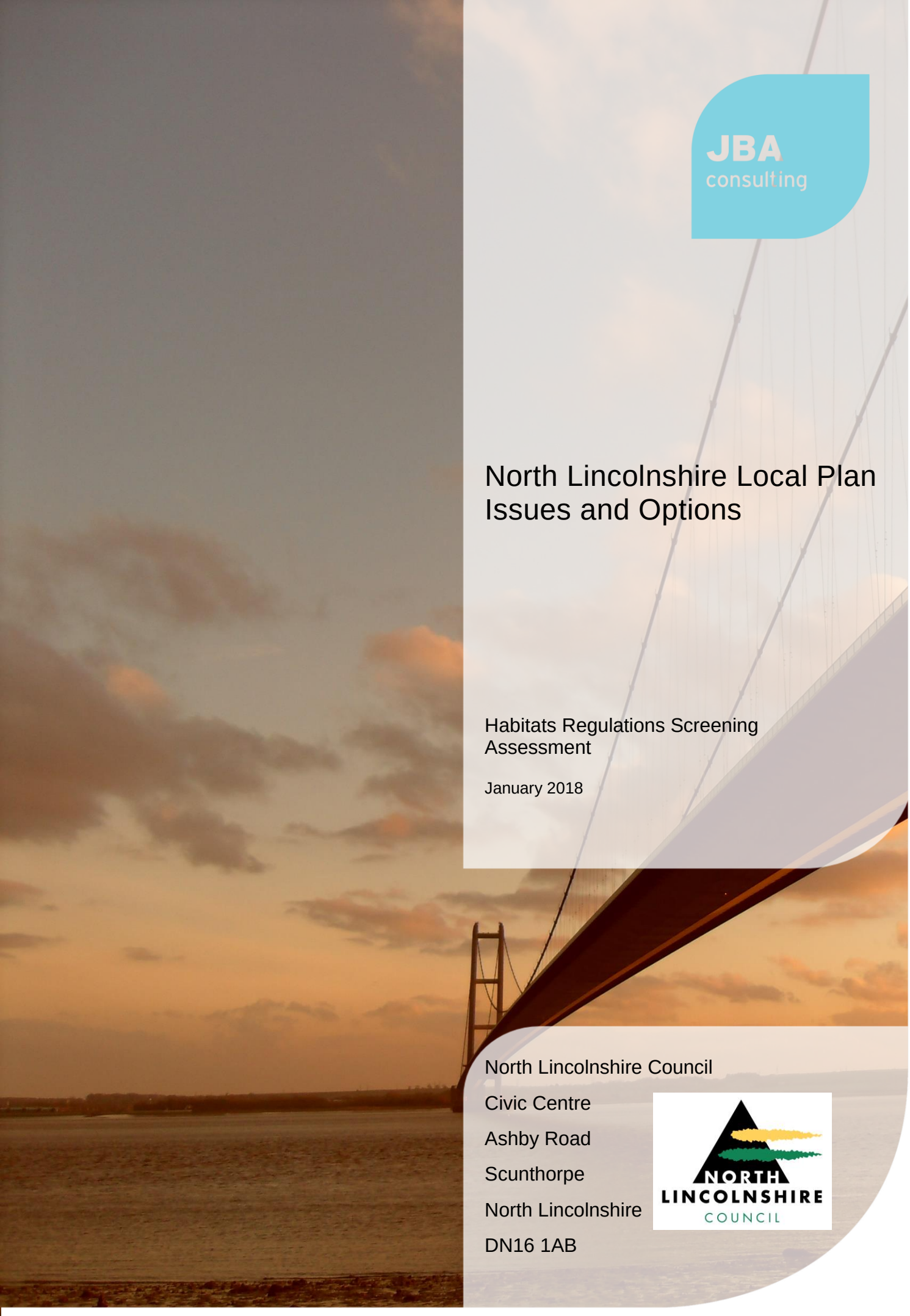

North Lincolnshire Local Plan Issues and Options

Habitats Regulations Screening Assessment

January 2018

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This report describes work commissioned by Chris Barwell, on behalf of North Lincolnshire Council, by a letter dated 2nd March 2017. North Lincolnshire Council's representatives for the contract were Iain Cunningham and Chris Barwell. Laura Thomas and Catherine Porter of JBA Consulting carried out this work.

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Purpose

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Executive Summary

North Lincolnshire Council is currently preparing a new Local Plan for the authority area. The Local Plan will set out the strategic priorities and detailed policies that will guide development in the area up to 2036.

The development of the Local Plan is currently at the Issues and Options stage. A consultation and evidence gathering phase has drawn together key issues in the council area and proposes a number of options on how Local Plan policies could be developed to address these and provide a long-term plan for how the area can be developed over the next 20 years.

To support the development of the Local Plan, North Lincolnshire Council is carrying out a Habitats Regulations Assessment (HRA) in line with requirements set out by the Conservation of Habitats and Species Regulations 2010 (as amended). The purpose of this is to ensure that appropriate consideration is given to the protection of international nature conservation sites (i.e. Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and, as a matter of government policy, also Ramsar sites) during the preparation of the Local Plan.

The first stage of the HRA process is the preparation of a Screening Assessment, which assesses whether the Local Plan is likely to have a significant effect on an international nature conservation site, either directly or indirectly, and/or in-combination with other plans and projects. If the Screening Assessment concludes that the Local Plan is likely to have a significant effect on the conservation objectives of an international nature conservation site, or that such an effect cannot be ruled out (adopting a precautionary approach), then a more-detailed Appropriate Assessment must be carried out.

Seven international nature conservation sites have been identified within North Lincolnshire and a 15km buffer around it. This includes the Humber Estuary SAC, SPA and Ramsar Site, Hatfield Moor SAC, Thorne Moor, SAC, Thorne and Hatfield Moor SPA and the River Derwent SAC. In addition, sites identified/required as compensatory measures to offset adverse effects on international nature conservation sites from other schemes are given the same protection as the sites themselves and consequently, the managed realignment schemes at Chowder Ness and Alkborough will be considered as part of the Humber Estuary designated site.

Development for housing, business, infrastructure, services and recreational/tourism promoted as part of a Local Plan can potentially have adverse impacts on the habitats and species for which international nature conservation sites are designated. These impacts can be direct, such as habitat loss, fragmentation or degradation, or indirect such as disturbance or pollution from transportation. They can also include long-term effects associated with the operational phase of proposed developments or general population growth, and short-term effects arising from construction phases. A number of potential impact pathways have been identified as having the potential to significantly impact on the international nature conservation sites in and around North Lincolnshire, including:

- Recreational pressure
- Urbanisation
- Atmospheric pollution
- Water resource use and flow regulation
- Water pollution/siltation
- Flooding and water level management
- Introduction of invasive non-native species

Furthermore, a series of individually modest effects may in combination produce effects that are likely to have a significant effect on one or more international nature conservation sites. Consequently, a review of other plans and projects with the potential to result in significant effects on international nature conservation sites, in-combination with the North Lincolnshire Local Plan, has also been conducted as part of this screening assessment.

The screening assessment detailed in this report is done as a two-stage process. The first stage reviews each of the options and identifies whether or not they could give rise to the significant impact. This is based on the nature of the options, for example whether they just relate to general

design principles, relate to external plans/projects that have been previously been reviewed or whether they are environmental protection options. The second screening stage considers each international nature conservation site and whether those options identified at the first stage could impact upon the site. A high-level conclusion is then made as to whether the options under consideration, in relation to a specific site, are likely to have significant effects alone or in-combination with other plans and projects.

This Screening Assessment has determined that the Options currently detailed in the North Lincolnshire Issues and Options Document could potentially have significant effects, both alone and in-combination with other plans and projects, on the following sites:

- Humber Estuary SAC
- Hatfield Moor SAC
- Thorne Moor SAC
- Humber Estuary SPA
- Thorne and Hatfield Moors SPA
- Humber Estuary Ramsar Site

Therefore, an Appropriate Assessment will be required to assess in more detail the likely nature of the effects on the integrity of these international nature conservation sites.

The assessment further determined, that due to its distance from the North Lincolnshire boundary, and it being situated upstream, the Local Plan is not likely to have significant effects, either alone or in-combination with other plans or projects, on the following international nature conservation site:

- River Derwent SAC

It should be noted, however, that as plan development is only at the Issues and Options stage, this assessment has been undertaken at a high level. Once policies have been developed, this screening assessment will need to be reviewed to further refine the results based on more specific policy details. At each stage of the Local Plan development process, a HRA will be undertaken, building on the assessment contained within this report, and will be consulted on alongside the plan itself.

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Abbreviations

AAP ..... Area Action Plan

Al3+ ..... Aluminium Ions

APIS ..... Air Pollution Information System

DCLG ..... Department for Communities and Local Government

DEFRA ..... Department of Environment, Food and Rural Affairs

DRMB ..... Design Manual for Roads and Bridges

DPD ..... Development Plan Document

HRA ..... Habitats Regulations Assessment

INNS ..... Invasive Non-native Species

JNCC ..... Joint Nature Conservation Committee

N ..... Nitrogen

NH_3 ..... Ammonia

NO_x ..... Nitrogen Oxides

NPPF ..... National Planning Policy Framework

NPPG ..... National Planning Policy Guidance

P..... Phosphorous

RBMP..... River Basin Management Plan

SAC..... Special Area of Conservation

SPA..... Special Protection Area

SO_2 ..... Sulphur Dioxide

SSSI..... Site of Special Scientific Interest

WRMP..... Water Resource Management Plan

1 Introduction

1.1 Background

North Lincolnshire Council is currently preparing a new Local Plan for North Lincolnshire. The Local Plan will set out the strategic priorities and detailed policies that will guide development in the area up to 2036. The development of the Local Plan is currently at the Issues and Options (Regulation 18) stage. A consultation and evidence gathering phase has drawn together key issues in the council area and proposes a number of options on how Local Plan policies could be developed to address these issues to provide a long-term plan for how the area can be developed over the next 20 years.

To support the development of the Local Plan, North Lincolnshire Council is carrying out a Habitats Regulations Assessment (HRA) in line with requirements set out by the Conservation of Habitats and Species Regulations 2010 (as amended). The purpose of this assessment is to ensure that appropriate consideration is given to the protection of international nature conservation sites (i.e. Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and, as a matter of Government Policy, also Ramsar sites) during the preparation of the Local Plan.

The first stage of the HRA process is the preparation of a Screening Assessment, which assesses whether the Local Plan is likely to have a significant effect on an international nature conservation site, either directly or indirectly, and/or in-combination with other plans and projects. If the Screening Assessment concludes that the Local Plan is likely to have a significant effect on the conservation objectives of an international nature conservation site, or that such an effect cannot be ruled out (adopting a precautionary approach), then a more-detailed Appropriate Assessment must be carried out.

This report details the findings of the HRA Screening Exercise for the Issues and Options document (North Lincolnshire Council, 2018).

1.2 North Lincolnshire Local Plan

The North Lincolnshire Development Plan comprises the Core Strategy (adopted in June 2011) together with 'saved' policies retained from the North Lincolnshire Local Plan (adopted May 2003) (North Lincolnshire Council, 2003), the Housing and Employment Land Allocations Development Plan Document (DPD) (North Lincolnshire Council, 2016a) adopted in March 2016, and the Lincolnshire Lakes Area Action Plan adopted in May 2016 (North Lincolnshire Council, 2016b).

North Lincolnshire Council is now preparing a new Local Plan for North Lincolnshire, covering the period 2017 to 2036, replacing the saved policies from the 2003 Local Plan, the Core Strategy Development Plan Document (DPD), the Housing and Employment Land Allocations DPD, and Lincolnshire Lakes Area Action Plan. The Council approved a new Local Development Scheme in December 2017, which sets out the plan documents that will be prepared and a timetable for their preparation.

The new Local Plan will set out the strategic priorities for development in the area. It will include commitments for housing, employment and other development and will set out the specific criteria against which planning applications for the development and use of land and buildings will be considered. In addition, the Local Plan will seek to address local needs in terms of community facilities and infrastructure, and set out policies for promoting and protecting key environmental features and resources within the area, adapting to climate change and securing good design.

1.3 Legislative Context

European Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (Habitats Directive) was adopted in 1992 and provides legal protection to habitats and species of European importance. The principal aim of this directive is to maintain at, and where necessary restore to, the favourable conservation status of flora, fauna and habitats of European importance.

The Directive establishes the requirement for a European ecological network of protected sites by designating SACs for habitats listed on Annex I and for species listed on Annex II. These

measures are also applied to SPAs classified under Article 4 of the Birds Directive. Together SACs and SPAs make up the Natura 2000 network. Government guidance also requires that Ramsar sites (which support internationally important wetland habitats and are listed under the Convention on Wetlands of International Importance [Ramsar Convention]) are included within a HRA. Together, SACs, SPAs and Ramsar sites are known as 'international nature conservation sites.

The Directive is transposed into law in England and Wales through the Conservation of Habitats and Species Regulations 2010 (as amended), also known as the 'Habitats Regulations'. It is a requirement of Article 102 of the Habitats Regulations that where a plan is likely to have a significant effect on an international nature conservation sites (or an offshore marine site), either alone or in combination with other plans or projects, and where it is not directly connected with or necessary to the management of the site "*the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site's conservation objectives*".

Therefore, for all plans that are not wholly directly connected with, or necessary to, the conservation management of the site's qualifying features, a formal screening for any Likely Significant Effects (either alone or in-combination with other plans or projects) on an international nature conservation site(s) is required. This screening assessment is based on available ecological information on the designated site(s), other plans, projects and policies relevant to the area and details of the proposed development/policy.

If the screening assessment concludes that the plan is likely to have a significant effect on the conservation objectives of the site(s), or that such an effect cannot be ruled out (adopting a precautionary approach) an Appropriate Assessment must be carried out. An Appropriate Assessment involves an assessment of the potential effects of the plan on the conservation objectives of the site(s). If significant effects are identified, mitigation or avoidance measures can be applied.

If it cannot be concluded that the plan will not adversely impact upon the integrity of the site(s), the development will not be able to proceed without further conditions and/or assessment. The plan will need to prove that there are imperative reasons of overriding public interest (IROPI) that outweigh the potentially damaging impacts that the plan may have before it can proceed and in this case compensatory measures will be required.

Planning documents, such as the North Lincolnshire Local Plan, are required to undergo HRA if there is the potential for significant impacts and they are not directly connected with or necessary to the management of an international nature conservation site. As the Plan is not connected with or necessary to the management of international nature conservation sites, it is necessary to undertake a HRA of the Plan. The whole document, including the strategies, sub-points and supporting text have been considered as part of this HRA.

This report comprises a screening assessment of the North Lincolnshire Local Plan Issues and Options document and is based on an examination of information on the international nature conservation sites of relevance prepared by Natural England and the Joint Nature Conservation Committee (JNCC) as well as other readily accessible internet resources concerning the nature and wildlife value of the designated sites. It has been completed in-line with Habitats Regulations guidance published by the European Commission, the Department for Communities and Local Government (DCLG) and Natural England.

2 HRA Methodology

2.1 Introduction

Habitat Regulations Assessment is an assessment of the potential effects of a proposed project on an international nature conservation site(s) (alone and/or in-combination with other plans and projects). The Habitat Regulations promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the plan should aim to avoid any significant adverse effects by identifying potential measures to avoid these effects. Where adverse effects remain, mitigation measures should be applied to a point where these effects are no longer significant. If sufficient mitigation measures cannot be applied, the plan should not be taken forward in its current form. In such a scenario, the plan will require an assessment to identify alternative solutions that deliver the plan in a form that avoids any significant adverse effects.

Where significant adverse effects remain, compensatory measures will be required if the plan is to proceed. However, the application of such measures will only be permitted if no alternative solutions exist and the plan is required for imperative reasons of overriding public interest (the 'IROPI' test).

2.2 HRA Process

The HRA will follow a four-stage process as outlined in the DCLG guidance *Planning for the Protection of European sites: Appropriate Assessment*. These stages are described in Table 2-1.

Table 2-1: The HRA process

Stage/Task	Description
HRA Stage 1: Screening	This process identifies the likely impacts upon an international nature conservation site of a project or plan, either alone or in combination with other projects or plans, and determines whether these impacts are likely to be significant. If no likely significant effect is determined, the project or plan can proceed. If a likely significant effect is identified, task 2 is commenced.
HRA Stage 2: Appropriate Assessment	Task 2 is subsequent to the identification of likely significant effects upon an international nature conservation site in task 1. This assessment determines whether a project or plan would have an adverse impact on the integrity of an international nature conservation site, either alone or in combination with other projects or plans. This assessment is confined to the effects on the internationally important habitats and species for which the site is designated (i.e. the interest features of the site). If it is possible to determine that there will be no adverse effect on the integrity of the international nature conservation site(s), the project or plan can proceed. Otherwise, task 3 is commenced.
HRA Stage 3: Assessment where no alternatives and adverse impacts remain (Mitigation and Alternatives)	Where it has not been possible to determine that a plan or project will have no adverse effect on the integrity of an international nature conservation site, potential avoidance/mitigation measures or alternative options should be identified. If suitable avoidance/mitigation or alternative options are identified, that result in there being no adverse effects from the project or plan on international nature conservation sites, the project or plan can proceed. If no suitable avoidance/mitigation or alternative options are identified, as a rule the project or plan should not proceed. However, in exceptional circumstances, if there is an 'imperative reason of overriding public interest' for the implementation of the project or plan, consideration can be given to proceeding in the absence of alternative solutions. In these cases, compensatory measures must have to be put

Stage/Task	Description
	in place to offset negative impacts.
HRA Stage 4: Compensatory measures	Stage 4 comprises an assessment of the compensatory measures where, in light of an assessment of imperative reasons of overriding public interest, it is deemed that the project should proceed.

Other guidance documents have been used to help inform the methodology of this assessment, including:

- 92/43/EEC 'Habitats' Directive
- 79/409/EEC 'Birds' Directive
- The National Planning Policy Framework (NPPF)
- The Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations) which consolidate the original 2004 regulations and subsequent amendments
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Communities, 2000)
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Communities, 2002)
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC (European Communities, 2007)
- Habitats Regulations Appraisal of Plans: Guidance for plan-making bodies in Scotland. (Scottish Natural Heritage/ David Tyldesley and Associates, 2015)
- Planning for the Protection of European Sites: Appropriate Assessment. Guidance for Regional Spatial Strategies and Local Development Documents (Department for Communities and Local Government, 2006)

2.3 HRA Stage 1: Screening Methodology

This report comprises Stage 1 of the process, namely a Screening Assessment to identify any likely significant effects of the North Lincolnshire Local Plan Issues and Options on any international nature conservation sites.

The principles of 'screening' are applied to a plan or its components (i.e. policies and site allocations) to allow the assessment stage to focus on those aspects that are most likely to have potentially significant effects on international nature conservation sites, as well as shape the emerging strategy. Screening aims to determine whether the plan will have any 'likely significant effects' on any international nature conservation site as a result of its implementation. It is intended to be a coarse filter for identifying effects (positive and negative) that may occur, to allow the assessment stage to focus on the most important aspects. A plan should be considered 'likely' to have an effect if it is not possible (on the basis of objective information) to exclude the likelihood that the plan could have significant effects on any international nature conservation site, either alone or in combination with other plans or projects; an effect will be 'significant' if it could undermine the site's conservation objectives.

Screening can be used to 'screen-out' international nature conservation sites and plan components from further assessment, if it is possible to determine that significant effects are unlikely (e.g. if sites or interest features are clearly not vulnerable (exposed and / or sensitive) to the outcomes of a plan due to the absence of any reasonable impact pathways).

In order to complete the Screening Assessment it is necessary to:

- Identify the international nature conservation sites within and outside the plan area likely to be affected, reasons for their designation and their conservation objectives.
- Describe the plan/strategy and its aims and objectives and also those of other projects or plans that in combination have the potential to impact upon the international nature conservation sites.
- Identify the potential effects on the international nature conservation sites.
- Assess the significance of these potential effects on the international nature conservation sites.

2.3.1 Precautionary Principle

The HRA process is underpinned by the precautionary principle, especially in the assessment of potential impacts and their resolution. Screening takes account of incorporated mitigation measures, which are measures to avoid or reduce significant effects that are part of the submitted proposal, effective and guaranteed to be delivered. However, if there is any uncertainty, and it is not possible, based on the information available, to confidently determine that there will be no significant effects on a site then the precautionary principle will be applied, and the plan will be subject to an Appropriate Assessment (HRA Stage 2). This represents a precautionary approach to the assessment

2.3.2 Consultation

It is a requirement of the Habitat Regulations to consult the appropriate nature conservation statutory body (i.e. Natural England).

3 International Nature Conservation Sites

3.1 Introduction

International nature conservation sites are often collectively known as *Natura 2000* sites. Natura 2000 is an EU-wide network of nature protection areas established under the Habitats Directive. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened habitats and species.

Natura 2000 consists of:

- *Special Areas of Conservation (SACs)* - these are designated under the UK Regulations made under the Habitats Directive to protect those habitat types and species that are considered to be most in need of conservation at a European level (excluding birds).
- *Special Protection Areas (SPAs)* - these are designated under the UK Regulations under the Birds Directive to protect rare and vulnerable birds, and also regularly occurring migratory species.
- *Ramsar sites* - these are wetlands of international importance designated under the Ramsar Convention.

Although not included in the European legislation, as a matter of policy, Ramsar sites in England and Wales are protected as international nature conservation sites. The vast majority are also classified as SPAs and Sites of Special Scientific Interest (SSSIs). All SPAs and terrestrial SACs in England and Wales are also designated as SSSIs under the Wildlife and Countryside Act (1981) as amended.

3.2 International nature conservation sites in and around North Lincolnshire

Best practice guidance suggests that sites occurring within the plan area, along with a wider area of approximately 10km to 15km from the boundary of the area directly affected by a plan, should be identified and assessed as part of the HRA screening process. However, it is important to consider the possibility of impacts for any international nature conservation site which might be affected, whatever their location, given the activities included in the plan and their range of influence. This may extend some distance from the area within the immediate influence of a plan.

For assessment of the North Lincolnshire Local Plan, a 15km buffer has been applied[1]. Seven international nature conservation sites have been identified within the plan area and the 15km buffer. No sites beyond this 15km buffer are deemed relevant to the HRA as it is considered that no pathways, including hydrological connections, exist that would impact upon any international nature conservation sites beyond this extent.

The seven sites identified are summarised in Table 3-1 below and shown on Figure 3-1. It should be noted that several of these designations are overlapping and relate to the same geographical area, although there are some differences in site extent and boundaries.

Table 3-1: International Nature Conservation Sites Summary

Site	Designation	Distance to Plan Area
Humber Estuary	SAC	Within plan area
	SPA	Within plan area
	Ramsar	Within plan area
Hatfield Moor	SAC	0km to west (directly abuts plan area)
Thorne Moor	SAC	Within plan area
Thorne and Hatfield Moor	SPA	Within plan area
River Derwent	SAC	14.4km to north-west

[1]Analysis of HRAs conducted in England by Therivel (2009) showed that the average buffer distance applied in relation to Local Plans is 15km.

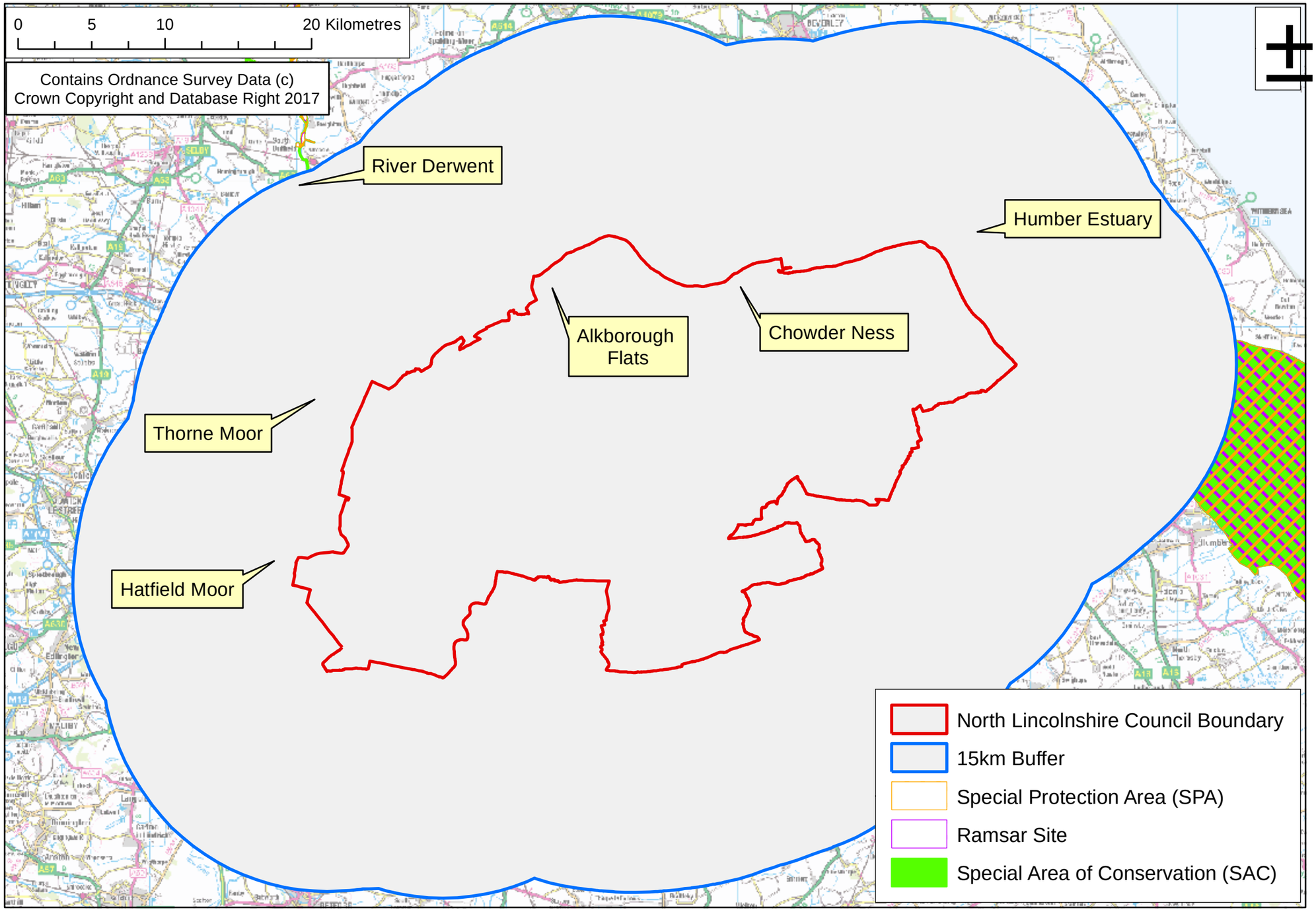

Figure 3-1: International nature conservation sites relevant to the HRA for the North Lincolnshire Local Plan

In addition to the sites identified in Table 3-1, paragraph 118 of the National Planning Policy Framework (NPPF) states that sites identified, or required, as compensatory measures for adverse effects on international nature conservation sites, potential SPAs, possible SACs, and list of proposed Ramsar sites should be given the same protection as international nature conservation sites. Consequently, the managed realignment schemes alongside the Humber Estuary at Chowder Ness and Alkborough (see Figure 3-1) will be considered as part of the Humber Estuary designated site.

Table 3-2 below provides further details on each of the international nature conservation sites identified in Table 3-1. This includes information on qualifying features, conservation objectives and site vulnerabilities. Data on the international nature conservation site interest features, their distribution, and their sensitivity to potential effects associated with the plan were obtained from various sources and reports, including the JNCC and Natural England websites (citations, boundaries, management plans, site improvement plans etc.).

Table 3-2: International nature conservation sites, qualifying features, conservation objectives and site vulnerability

Site	Qualifying Feature (Broad Habitat/ Species Groupings)	Qualifying Features	Conservation Objectives	Site Vulnerability
Humber Estuary SAC	Coastal habitats Coastal habitats (sensitive to abstraction) Estuarine and intertidal habitats Submerged marine habitats Anadromous fish Marine Mammals	Sandbanks which are slightly covered by sea water all the time [1110] Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150] (Priority Habitat) *Salicornia* and other annuals colonizing mud and sand [1310] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes") [2120] Fixed coastal dunes with herbaceous vegetation ("grey dunes") [2130] (Priority Habitat) Dunes with *Hippopha rhamnoides* [2160] Grey Seal *Halichoerus grypus* [1364] River Lamprey *Lampetra fluviatilis* [1099] Sea Lamprey *Petromyzon marinus* [1095]	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; - The extent and distribution of qualifying natural habitats and habitats of qualifying species - The structure and function (including typical species) of qualifying natural habitats - The structure and function of the habitats of qualifying species - The supporting processes on which qualifying natural habitats and habitats of qualifying species rely - The populations of qualifying species, and, - The distribution of qualifying species within the site.	Human induced changes in hydraulic conditions Changes in abiotic conditions Pollution to groundwater (point sources and diffuse sources) Industrial or commercial areas Abiotic (slow) natural processes
Hatfield Moor SAC	Bogs and wet habitats (sensitive to acidification)	Degraded raised bogs still capable of natural regeneration [7120]	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; - The extent and distribution of the qualifying natural habitat - The structure and function (including	Human induced changes in hydraulic conditions (i.e. drainage) Air pollution, air-borne pollutants (i.e. atmospheric nitrogen deposition) Biocenotic evolution, succession Invasive non-native species

Site	Qualifying Feature (Broad Habitat/ Species Groupings)	Qualifying Features	Conservation Objectives	Site Vulnerability
			typical species) of the qualifying natural habitat, and, - The supporting processes on which the qualifying natural habitat rely	Other human intrusions and disturbances (e.g. public access/disturbance, cumulative impacts from development) Inappropriate scrub control
Thorne Moor SAC	Bogs and wet habitats (sensitive to acidification)	Degraded raised bogs still capable of natural regeneration [7120]	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; - The extent and distribution of qualifying natural habitats - The structure and function (including typical species) of qualifying natural habitats, and - The supporting processes on which qualifying natural habitats rely	Human induced changes in hydraulic conditions (i.e. drainage) Air pollution, air-borne pollutants (i.e. atmospheric nitrogen deposition) Biocenotic evolution, succession Invasive non-native species Other human intrusions and disturbances (e.g. public access/disturbance, cumulative impacts from development) Inappropriate scrub control
River Derwent SAC	Riverine habitats and running waters Anadromous fish Non-migratory fish and invertebrates of rivers Mammals of riverine habitats	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] River Lamprey - *Lampetra fluviatilis* [1099] Sea Lamprey *Petromyzon marinus* [1095] Bullhead *Cottus gobio* [1163] Otter *Lutra lutra* [1355]	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; - The extent and distribution of qualifying natural habitats and habitats of qualifying species - The structure and function (including typical species) of qualifying natural	Human induced changes in hydraulic conditions Invasive non-native species Modification of cultivation practices Pollution to groundwater (point sources and diffuse sources)

Site	Qualifying Feature (Broad Habitat/ Species Groupings)	Qualifying Features	Conservation Objectives	Site Vulnerability
			habitats - The structure and function of the habitats of qualifying species - The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely - The populations of qualifying species, and, - The distribution of qualifying species within the site.	
Humber Estuary SPA	Birds of coastal habitats Birds of estuarine habitats	The site qualifies under article 4.1 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the Great Britain populations of the following species listed in Annex I in any season: Avocet *Recurvirostra avosetta* (breeding and wintering) Bittern *Botaurus stellaris* (breeding and wintering) Hen Harrier *Circus cyaneus* (wintering) Golden Plover *Pluvialis apicaria* (wintering) Bar-tailed Godwit *Limosa lapponica* (wintering) Ruff *Philomachus pugnax* (passage) Marsh Harrier *Circus aeruginosus* (breeding) Little Tern *Sterna albifrons* (breeding) The site qualifies under article 4.2 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed in Annex I) in any season: Shelduck *Tadorna tadorna* (wintering) Knot *Calidris canutus* (wintering and passage) Dunlin *Calidris alpina* (wintering)	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; - The extent and distribution of the habitats of the qualifying features - The structure and function of the habitats of the qualifying features - The supporting processes on which the habitats of the qualifying features rely - The population of each of the qualifying features, and, - The distribution of the qualifying features within the site.	Invasive non-native species Changes in abiotic conditions Changes in biotic conditions Abiotic (slow) natural processes Outdoor sports and leisure activities, recreational activities

Site	Qualifying Feature (Broad Habitat/ Species Groupings)	Qualifying Features	Conservation Objectives	Site Vulnerability
		Black-tailed Godwit *Limosa limosa* (wintering and passage) Redshank *Tringa totanus* (wintering and passage) The site qualifies under article 4.2 of the Directive (79/409/EEC) as it is used regularly by over 20,000 waterbirds (waterbirds as defined by the Ramsar Convention) in any season: In the non-breeding season, the area regularly supports 153,934 individual waterbirds (five-year peak mean 1996/97 – 2000/01), including: Dark-bellied Brent goose *Branta bernicla bernicla*, Shelduck *Tadorna tadorna*, Wigeon *Anas penelope*, Teal *Anas crecca*, Mallard *Anas platyrhynchos*, Pochard *Aythya ferina*, Scaup *Aythya marila*, Goldeneye *Bucephala clangula*, Bittern *Botaurus stellaris*, Oystercatcher *Haematopus ostralegus*, Avocet *Recurvirostra avosetta*, Ringed Plover *Charadrius hiaticula*, Golden Plover *Pluvialis apricaria*, Grey Glover *P. squatarola*, Lapwing *Vanellus vanellus*, Knot *Calidris canutus*, Sanderling *C. alba*, Dunlin *C. alpina*, Ruff *Philomachus pugnax*, Black-tailed Godwit *Limosa limosa*, Bar-tailed Godwit *L. lapponica*, Whimbrel *Numenius phaeopus*, Curlew *N. arquata*, Redshank *Tringa totanus*, Greenshank *T. nebularia* and Turnstone *Arenaria interpres*.		
Thorne and Hatfield Moors SPA	Birds of lowland heaths and brecks	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: Nightjar *Caprimulgus europaeus* (breeding) In addition, it is Natural England's view that the site would also meet SPA designation criteria in relation to	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; - The extent and distribution of the habitats of the qualifying features	Other urbanisation, industrial and similar activities Outdoor sports and leisure activities, recreational activities

Site	Qualifying Feature (Broad Habitat/ Species Groupings)	Qualifying Features	Conservation Objectives	Site Vulnerability
		Common Crane *Grus grus*, as the current level of use by this species (i.e. three breeding pairs) constitutes more than 1% of the UK population (Natural England, pers. comm). Whilst a formal re-designation of the site to include Common Crane as a qualifying feature has not been undertaken, this HRA will consider this species as a qualifying feature for the site.	- The structure and function of the habitats of the qualifying features - The supporting processes on which the habitats of the qualifying features rely - The population of each of the qualifying features, and, - The distribution of the qualifying features within the site.	
Humber Estuary Ramsar Site	n/a	Ramsar Criterion 1 – a wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region - *The Humber Estuary qualifies as it is a representative example of a near-natural estuary with a range of component habitats, including dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes and coastal brackish/ saline lagoons*. Ramsar Criterion 3 – a wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region – *The Humber Estuary qualifies because it supports a breeding colony of Grey Seals (Halichoerus grypus) at Donna Nook, the second largest Grey Seal colony in England. The dune slacks at Saltfleetby-Theddlethorpe support the most north-easterly breeding site in GB of Natterjack Toad (Epidalea calamita).* Ramsar Criterion 5 – A wetland should be considered internationally important if it regularly supports 20,000	None available.	Disturbance to vegetation through cutting / clearing Vegetation succession Water diversion for irrigation/domestic/industrial use Overfishing Pollution – domestic sewage Pollution – agricultural fertilisers Recreational/tourism disturbance (unspecified) Coastal squeeze causing loss of intertidal habitats and saltmarsh due to sea level rise and fixed defences.

Site	Qualifying Feature (Broad Habitat/ Species Groupings)	Qualifying Features	Conservation Objectives	Site Vulnerability
		or more waterbirds – *The Humber Estuary qualifies as during the non-breeding season it has a peak count of 153,934 waterfowl (5-year peak mean 1996/97-2000/01).* Ramsar Criterion 6 – A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird – *The Humber Estuary qualifies as it contains populations of a number of species at levels of international importance, including:* *On passage:* *- Golden Plover (Pluvialis apricaria altifrons) NW Europe W Continental Europe NW Africa population (17,996 individuals, representing an average of 2.2% of the population, 5-year peak mean 1996 - 2000)* *- Red Knot (Calidris canutus islandica) (18,500 individuals, representing an average of 4.1% of the population, 5-year peak mean 1996-2000)* *- Dunlin (Calidris alpina alpina) Western Europe (non-breeding) population (20,269 individuals, representing an average of 1.5% of the population, 5-year peak mean 1996-2000)* *- Black-tailed Godwit (Limosa limosa islandica) (915 individuals, representing an average of 2.6% of the population, 5-year peak mean 1996-2000)* *- Common Redshank (Tringa totanus brittanica) (7,462 individuals, representing an average of 5.7% of the population, 5-year peak mean 1996-2000)* *Over winter:* *- Common Shelduck (Tadorna tadorna) North-western Europe (breeding) population (4,464 individuals, representing an average of 1.5% of the population, 5-*		

Site	Qualifying Feature (Broad Habitat/ Species Groupings)	Qualifying Features	Conservation Objectives	Site Vulnerability
		year peak mean 1996/7-2000/1) *- Golden Plover (Pluvialis apricaria altifrons) NW Europe, W Continental Europe, NW Africa population (30,709 individuals, representing an average of 3.8% of the population, 5-year peak mean 1996/7-2000/1)* *- Red Knot (Calidris canutus islandica) (28,165 individuals, representing an average of 6.3% of the population, 5-year peak mean 1996/7-2000/1)* *- Dunlin (Calidris alpina alpina) Western Europe (non-breeding) population (22,222 individuals, representing an average of 1.7% of the population, 5-year peak mean 1996/7-2000/1)* *- Black-tailed Godwit (Limosa limosa islandica) (1,113 individuals, representing an average of 3.2% of the population, 5-year peak mean 1996/7-2000/1)* *- Bar-tailed Godwit (Limosa lapponica lapponica) (2,752 individuals, representing an average of 2.3% of the population, 5-year peak mean 1996/7-2000/1)* *- Common Redshank (Tringa totanus brittanica) (4,632 individuals, representing an average of 3.6% of the population, 5-year peak mean 1996/7-2000/1)* Ramsar Criterion 8 – A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species – *The Humber Estuary qualifies because it acts as an important migration route for both river lamprey (Lampetra fluviatilis) and sea lamprey (Petromyzon marinus) between coastal waters and their spawning areas.*		

4 Potential Impacts and Pathways

4.1.1 Introduction

Development for housing, business, infrastructure, services and recreation/tourism promoted as part of a Local Plan can potentially have adverse impacts on the habitats and species for which international nature conservation sites are designated. These impacts can be direct such as habitat loss, fragmentation or degradation, or indirect such as disturbance or pollution from construction, transportation etc. They can also include long-term effects associated with the operational phase of proposed developments or general population growth, and short-term effects arising from construction phases.

This chapter identifies the potential impacts and their pathways to international nature conservation sites within and adjacent to North Lincolnshire which may arise as a result of the options currently identified in the Local Plan Issues and Options Document. It then goes on to identify the types of impact/pathway to which the qualifying features present upon the international nature conservation sites are particularly sensitive.

4.2 Potential Impacts and Pathways

4.2.1 Introduction

The main potential pathways of impact likely to arise as a result of the options currently identified in the North Lincolnshire Local Plan Issues and Options Document are described below, with local context provided where possible.

4.2.2 Recreational Pressure

Housing development and population increases can result in additional recreational pressures on international nature conservation sites through activities such as walking, dog walking, jogging, cycling, horse riding, motorbike scrambling, boating and other water-based recreational activities. The impacts generated by recreational use in or around international nature conservation sites are usually accidental or incidental, but typically include:

- Physical damage, for example from trampling and erosion
- Disturbance to species, such as ground-nesting birds and wintering wildfowl, from walking, dog walking, cycling, and water sports, and also from increased traffic associated with these activities. This can result in increased mortality, reduced nesting success, and displacement.
- Air pollution (dealt with under section 4.2.4) from increased traffic

The impacts of recreational pressures are complex and depend on the specific species and habitat tolerance levels. For example, certain bird species are more sensitive to disturbance from dog walkers than others, and some habitats are more sensitive to trampling than others. In addition, some species can become habituated to some disturbance, such as noise, particularly if it is regular or continuous; it is often unpredictable disturbance that is most problematic. The level and locations of accessibility of the site to the public will also affect how recreational pressures impact upon it. In addition, where sites are close to urban areas and new developments, recreational pressures can be exacerbated by other damaging activities such as rubbish tipping, vandalism, arson, and predation, particularly by cats (see section 4.2.3).

The Thorne and Hatfield Moors SAC/SPA complex is accessible to the public and intersected by a network of paths and trails. Inevitably, visitors may stray off these paths (although not extensively owing to the wet conditions underfoot) and hence trample the peatland communities. The plant communities of peatland ecosystems are especially susceptible to trampling and are easily damaged at even low levels of disturbance. A shift in species composition follows, with a decrease in *Sphagnum*, liverworts and lichen cover and richness. Furthermore, trampling exposes the bare peat which is susceptible to erosion with impeded re-colonisation. For lichens, this is because growth is inhibited where thalli are broken. Whilst some species benefit from trampling (e.g. Common Sundew *Drosera rotundifolia*, Fen Bedstraw *Galium uliginosum* and Grass-of-Parnassus *Parnassia palustris*), this only occurs at low levels of disturbance such as those caused by deer (the wet depressions caused by ungulate hooves for example create humid conditions which favour sundew species). Once trampling is initiated, the zone of impact

widens as new areas of peatland become vulnerable to trampling (Pellerin *et al*., 2006). Nightjar and Common Crane populations are also vulnerable to disturbance for recreational activities.

The Humber Estuary SAC, SPA and Ramsar site is also susceptible to recreational disturbance, but in contrast to Thorne and Hatfield Moors, disturbance of avian fauna rather than botanical interest is most at risk here. Public access is available to most of the SPA boundary via footpaths and bridleways along the sea wall, access to beaches and saltmarsh, and compared to other estuarine SPA sites in England, the Humber has particularly large areas of intertidal habitat, most of which is well away from the footpath network. However, there is a relatively high level of sand in the substrate, at least in places, meaning that people can easily walk over the intertidal areas in some parts of the site (Ross and Liley, 2014). A recent survey by Fearnley *et al*. (2012) identified that 18.5% of visitors strayed from path onto mudflats/beaches. Straying off the path (and associated noise disturbance) poses a threat to nests and young, increasing stress levels. Recreational disturbance has been reported to change bird behaviour and can be particularly detrimental over winter when bird numbers are higher but resources are scarcer. Whilst the estuary represents a complex system (making it difficult to pin-point causation), there is evidence to suggest that key designation features (e.g. Little Tern *Sternula albifrons* colonies) have declined locally due to recreational disturbance.

Whilst recreational activities are diverse on the Humber, it is thought that shore-based activities are most likely to cause disturbance (Cruickshanks *et al*., 2010). A recent survey identified the main recreational activity on the Humber as dog walking (Fearnley *et al*., 2012). Cruickshanks *et al.* (2010) highlight a range of recreational activities that are associated with the Humber Estuary, and summarise the impact of these and key locations, as described in Table 4-1.

Table 4-1: Recreational Activities Associated with the Humber Estuary (From: Cruickshanks *et al.*, 2010)

Recreational Activity	Description	Key Locations
Shore-based Activities		
Walking	A popular pursuit along much of the Humber banks, including general walking, dog walking and organised groups which make use of the trails around the estuary (e.g. Trans Pennine Trail, The Viking Way).	Takes place at all areas where there is access to the shore around the Humber with a focus on the larger settlements of Hull, Grimsby and Cleethorpes.
Horse riding	A popular activity around the Humber, focussed around long-distance trails (e.g. Heritage Ride) and beach riding.	The busiest areas for horse riding are Spurn Head, North Ferriby, Blacktoft Sands, Grimsby, Cleethorpes and Immingham and Saltfleet on the outer estuary.
Cycling	An informal activity on the Humber. Users make use of the Trans Pennine trail on the northern shore. Occurs more frequently in summer.	The busiest areas for cycling are Spurn Head, Hull and Hessle foreshore, Broomfleet, Barton-upon-Humber, Grimsby, Immingham and Cleethorpes.
Bird and seal watching	A popular activity on the Humber often resulting in large numbers of visitors to see rare birds and the seals at Donna Nook.	Spurn Point, Blacktoft, Tetney, Far Ings Nature Reserves, Welwick, Brough, Donna Nook, Saltfleetby, Killingholme and Easington are all popular locations for birding. Donna Nook is the focus for seal watching, supporting one of the largest grey seal breeding colonies in England. Other seal watching sites include Easington and Cleethorpes.
Beach recreation	Beach recreation attracts large numbers of visitors in the summer.	This activity is focussed around Cleethorpes and along the Lincolnshire coast (e.g. Mablethorpe) and also at Spurn.
Wildfowling	Currently regulated by 13 associations, clubs and syndicates - all of whom are affiliated to British Association for Shooting and Conservation (BASC).	Licensed at around 27 locations on the estuary. The South Humber Area Joint Council (SHAJC) consists of representatives from eight clubs on the

Recreational Activity	Description	Key Locations
		South Bank.
Motorised access	Motorised access and recreation has increased on the beaches and intertidal habitats with the use of quad bikes, four-wheel drive vehicles and motorbikes causing disturbance to birds.	The north bank wildfowling refuge has frequent issues with illegal motorised access. Other locations include South Ferriby, Barton, east of Barton, Blacktoft, Saltfleet, Easington and Welwick.
Samphire collection	Collection of samphire for personal use from the saltmarsh. There is some concern than commercial harvesting could increase the number of people in quieter areas of the SPA.	Occurs at Cleethorpes, Donna Nook, Tetney and Saltfleet on the south bank, and Spurn on the north bank.
Angling	Recreational angling (involving the use of rod and line) takes place around the estuary shore in restricted locations due to poor access. There are more than 20 angling clubs. Recreational fishing also occurs from boats on the Humber.	This occurs in restricted locations due to poor access, with a concentration of activity around the Humber Bridge. The busiest areas for angling are Spurn Head and Bight, Cherry Cobb Sands, Hull and Hessle foreshore to North Ferriby, Barton Cliff, Immingham, Pyewipe and Saltfleet.
Bait digging	Bait digging for recreational fishing purposes. Bait diggers mainly target lugworm (*Arenicola* sp.) and ragworm (*Nereis* sp.). There is some concern that bait digging is increasing.	Occurs around Cleethorpes on the south bank, and Spurn and Easington on the north shore.
Waterborne Activities		
Motor cruising & personal watercraft	This includes motor cruising, jet skiing, water skilling, canoeing and sea kayaking. The estuary is busier in the summer and the activities, particularly jet skiing, are difficult to regulate.	Motor cruising is mainly centred around the main marinas and slipways (for smaller craft) (e.g. Goole, Hull, Grimsby and Cleethorpes). Jet skiing takes place at Saltfleet and from the slipway at the Humber Bridge; water skiing takes place at Hessle; canoeing takes place at Grimsby and Cleethorpes Canoe Club at the mouth of the River Freshney; and sea kayaking is becoming increasingly popular at Kilnsea.
Yachting and sailing	Yachting is a popular recreational activity on the Humber. Activity peaks in the summer months.	Concentrated activity around Hull Marina, Brough, Goole, Winteringham, Ferriby, Barrow Haven, East Halton, Grimsby and Saltfleet.
Kite surfing	Kite flying and surfing on water and land using kite buggies is an increasing activity on the Humber.	There are currently two focal areas at Humberston Beach/Humberston Speed strip and Cleethorpes.
Airborne Activities		
Air-borne recreation	Flying pleasure aircraft, microlights and paragliders is popular and increasing around the Humber.	Most activity is based around the 13 flying clubs and Humberside International Airport. The key areas for pleasure aircraft include Goxhill, Faxfleet to Brough Haven on the North Shore, Barton and Blacktoft Sands. Use of microlights in these areas is also reported, along with regular activity at Mablethorpe and Saltfleetby.

Overall, Cleethorpes, Donna Nook, Hessle and the tip of Spurn attract the highest numbers of visitors and from a review of visitor questionnaire data collected by Fearnley *et al*. (2012), 50% of visitors, on average, who arrived at their destination by foot lived within 0.95km of the site, and, on average, 50% of visitors who arrived at their destination by car lived within 8.4km of the site.

When comparing the impacts of recreational disturbance on the Humber Estuary in comparison to other estuarine sites across England, Ross and Liley (2014) highlight that the Humber has large areas of intertidal habitat, most of which are some distance from footpaths, but many of which have a high level of sand in the substrate allowing easy access for walkers into some parts of the site. The level of surrounding housing (indicating the number of people) is comparable to that of other estuarine SPAs, but the number of car-parks (shown on standard Ordnance Survey maps) is relatively high per kilometre of estuary shoreline. These metrics would indicate that the Humber Estuary is not likely to be as vulnerable to disturbance impacts as some other sites, or at least that some other estuary sites around England are considered to be under greater recreational pressure. The large areas of exposed soft intertidal habitat mean that there are a range of options that birds have to feed and these are so far from the shore that redistribution is likely to be easy. Concern is therefore focused around particularly sensitive locations where birds may congregate, such as roost sites, and to some extent in the areas where access may be diffuse and spread out across important habitat to a level where there is significant habitat lost to the birds (Ross and Liley, 2014).

In relation to the River Derwent SAC, the Site Improvement Plan (Natural England, 2014h) does not identify recreational pressures, or other impacts potentially associated with it, as a key threat to this site.

An additional complication when trying to assess the impacts of recreational disturbance on international nature conservation sites is that most recreational activities are 'casual' and pursued opportunistically (e.g. walking, walking dogs, riding) which makes it difficult to quantify or predict the impacts, and harder to control or manage. It also means it is difficult to explore in detail all of the potential impacts of recreational pressures at the strategic level. However, it is possible for plans and strategies to influence recreational use of international nature conservation sites through the planning process, for example, by increasing the amount of green/open space and leisure/recreational facilities required within or near developments if potentially vulnerable international nature conservation sites are located nearby.

A further consideration is that the population of North Lincolnshire is currently just over 170,000 people, and is expected to grow by around 6% by 2039. By far the biggest increase in population is projected to take place in people of pensionable age (65+), with a projected increase of 55.4%, with 28.9% of the North Lincolnshire population projected to be aged over 65 by 2039 (North Lincolnshire Council, 2017). This is the section of the population with the greatest amount of leisure time, potentially further increasing recreational pressures on international nature conservation sites.

This screening assessment will consider the potential for recreational pressures on an international nature conservation site by taking into consideration the vulnerability of their interest features to such pressures, the accessibility of the site to the public, the likely attractiveness of the site and its habitats/species to visitors, and the proximity of the site to proposed development sites.

4.2.3 Urbanisation

Urbanisation is a broad term that can act as a pathway to produce a number of often disparate impacts to international nature conservation sites. This can include:

- Habitat loss should the development occur within the boundaries of an international nature conservation site. Loss of supporting habitats, such as high tide roosts used by wetland birds that are not within the boundaries of the designated site but that provide important functional habitat linkages, can also be a significant impact.
- Physical damage, for example from trampling and erosion, and also activities such as fly-tipping, littering, vandalism, arson, and predation, particularly by cats.
- Habitat fragmentation, whereby new development results in the separation of available habitats or splits extensive areas of suitable habitat. It is most likely to impact upon species.
- Disturbance (noise and visual) associated with both the construction phase (e.g. from plant movements, machinery) and also the operational phase (e.g. from users of the development undertaking activities such as walking or water sports which generate disturbance as described in section 4.2.2). This typically affects sensitive species such as birds and mammals causing them to deviate from their normal preferred behaviour.

- Air pollution (dealt with under section 4.2.4) from increased traffic both during the construction and operational phases.

Recreational pressure, as discussed in section 4.2.2, is also frequently associated with urbanisation and often generates the greatest impacts, however, in contrast to other urbanisation impacts, it is less associated with proximity to development, and is consequently discussed separately in this report.

Given the link between proximity to development and urbanisation impacts impacting on international nature conservation sites, development buffers are often applied. Within these zones development (typically specified as housing development) should not be allocated due to the potential effects of urbanisation. These buffer zones are typically of around 500m, such as that used for the Thames Basin Heaths SPA.

Both the Humber Estuary and Thorne and Hatfield Moors have interest features which are susceptible to urbanisation. The Humber Estuary is noted for significant populations of wading birds which are vulnerable to predation associated with the influx of domesticated cats and other large predators found in urban areas. Likewise, Thorne and Hatfield Moors hold significant populations of breeding Nightjar *Caprimulgus europaeus*. There is growing evidence, however, to suggest that the reverse is true. The so called 'Predation Paradox' proposes that predation is reduced in urban areas owing to the surplus of anthropogenic food sources which provide an alternative food source to large predators. Furthermore, anthropogenic food supplies can benefit prey (Fischer *et al.,* 2012).

The north shore of the Humber Estuary is slightly more populated than the South, when looking at property within 5km of the centre of the estuary. It should be noted, however, that relative to other estuaries, the Humber is more sparsely populated, so at present, urbanisation poses a lower threat (Cruickshanks *et al*., 2010). However, future development pursued under the North Lincolnshire Local Plan, and neighbouring plans, has the potential to exacerbate urbanisation pressures on international nature conservation sites. Therefore, this screening assessment will consider the potential for urbanisation pressures to be generated in relation to the international nature conservation sites identified in section **Error! Reference source not found.**, taking into account the vulnerability of their interest features and the proximity of the site to proposed development sites.

Given its distance from North Lincolnshire itself, urbanisation is not considered to pose a threat to the River Derwent SAC, and Natural England (2014h) do not identify any direct threats to the site form urbanisation pathways in the Site Improvement Plan for the SAC. However, urbanisation could lead to indirect threats such as water pollution (see section 4.2.6) and water abstraction (see section 4.2.5) which are identified by Natural England (2014h) as particular issues for this site.

This screening assessment will consider the potential for the range of disparate impacts that can arise as a result of urbanisation and affect an international nature conservation site, taking into account the vulnerability of the interest features to such pressures, and the proximity of the site to proposed development sites.

4.2.4 Atmospheric Pollution

A range of pollutants can have a negative effect on air quality. However, the most significant pollutants in relation to habitats and species (in particular plants) are:

- Sulphur dioxide (SO_2) which is typically generated from combustion of coal and heavy fuel oils. The energy industry was the primary source of this pollutant, however, as the use of coal for power generation has declined, so have levels of SO_2.
- Nitrogen oxides (NO_x) which are mainly generated from vehicle emissions, with road transport being a key source. NO_x emissions have decreased with increased fuel efficiency and catalytic converters.
- Ammonia (NH_3) which is primarily associated with agriculture, such as through the decomposition of manure and slurry.

The above pollutants primarily impact on habitats and species through acidification and eutrophication. Acidification increases the acidity of soils, which can directly affect some species, but can also lead to leaching of some important base chemicals, such as calcium. It can also result in the mobilisation and uptake of toxins by plants, such as metals including aluminium. Over recent years, due to improvements in vehicle technology and fuel efficiency, combined with

declines in the use of coal for energy production, acidification levels in the UK have decreased, and are expected to continue to decrease in the future (DEFRA, 2016). Eutrophication increases the amounts of available Nitrogen (N) which is a particular problem in low-nutrient systems where available nitrogen is often a limiting factor to plant growth. Therefore, eutrophication can often result in the slow-growing, low-nutrient demanding species being out-competed by faster growing species that take advantage of the elevated levels of available Nitrogen. However, as with SO_2, technological improvements, such as the three-way catalytic converter, have resulted in a dramatic reduction in NO_x emissions from petrol-fuelled vehicles, although this decrease has been slowed in recent years with the increased number of higher NO_x emitting diesel vehicles on the road (DEFRA, 2016). Determining trends in NH_3 emissions is difficult due to their typically diffuse sources, however, compared to other air quality pollutants there has been relatively little reduction in total emissions since the 1990s. Where slight reductions have been observed, this is largely due to a decrease in UK cattle numbers (the largest of the livestock emitters), where better farming practices have improved efficiencies (DEFRA, 2016).

New developments progressed under the Local Plan, and an associated increase in population, have the potential to result in an increased use of the road network by vehicles which could have adverse effects on air quality. This could have subsequent effects on habitats sensitive to air quality changes and higher deposits of Nitrogen oxides, particulates and Sulphur Dioxide. For example, there is the potential for effects on the health of *Sphagnum* (which is critical to the ability of the degraded raised bog to re-establish actively growing peat within the site, such as on Thorne and Hatfield Moors).

It should be noted that the likelihood of this effect is greatly reduced as the distance increases between the deposit area (typically the road network) and the international nature conservation site. Pollutant levels can be expected to fall substantially at a distance less than 50m from the source and can be expected to fall to background levels at a distance of more than 200m (Highways Agency, 2009). One of North Lincolnshire's major strengths and opportunities is its high quality transport network, with easy access to the UK's motorway and trunk road network (i.e. M180, M181, A180, A160 link and A15), a well-connected rail network, Humberside airport, four inland ports (i.e. Flixborough Wharf, Grove Port, Gunness and Keadby) and close proximity to the South Humber Gateway ports at Grimsby, Immingham and Killingholme.

An additional consideration is that the vast majority of new vehicles on the road generally emit fewer emissions than older vehicles. This has become more apparent over the last 5 years as the car industry has responded to increasing climate change (carbon reduction) pressures. However, recent investigations have indicated that the published laboratory emissions data from manufacturers may not in fact reflect actual independent on-road emissions levels (AIR, 2017). Road tax bands were also amended by the Government in 2009 to ensure that the most polluting cars are penalised more heavily than previously. These measures have helped to increase the demand for cleaner more fuel-efficient vehicles; this trend will likely increase further in the future as cars continue to become even greener.

The Humber Estuary is vulnerable to atmospheric nitrogen deposition. On the Humber, coastal saltmarsh is particularly susceptible to the fertilising effects of this pollution whereby nitrogen deposits favour the growth of grasses over forbs. A shift towards later successional species is also apparent. Mature saltmarsh is most vulnerable because interspecific competition is greatest here. The effects of atmospheric nitrogen deposition are augmented by wildfowl, hence zones with high concentrations of winter feeding geese and waders are at greatest risk of dry deposition of gaseous ammonia. Saltmarsh adjacent to power stations are also at a higher risk from dry gaseous nitrogen oxide. Finally, saltmarsh located in areas with elevated wet deposition of ammonium and nitrate are particularly vulnerable. The critical load of nitrogen deposition has been set at 20-30 kg N ha^{-1} $year^{-1}$ (Air Pollution Information System (APIS), 2014a).

Lowland raised bogs are also vulnerable to atmospheric nitrogen deposition, especially the deposition of ammonia. Ammonia increases the susceptibility of plants to stress (e.g. water stress). *Sphagnum* moss and lichens are particularly susceptible to bleaching following exposure. A shift in species composition is also likely, with an increase in algal growth over *Sphagnum*. Finally, ammonia deposition may lead to oxidation and erosion of peat to the detriment of the species it supports. Ammonia pollution is associated with agriculture. For example, where livestock, fertiliser or senescing vegetation are located nearby, ammonia may be released into the atmosphere. Wildlife can also contribute to atmospheric nitrogen pollution, especially populations of birds and seals in significant numbers within 1-3km. Lowland raised bogs are more susceptible to the effects of ammonia where the water levels are low. The critical

load of ammonia deposition is 1 µg NH_3 m^{-3} annual mean for lichens and bryophytes and 3 µg NH_3 m^{-3} annual mean (uncertainty of 2-4 µg NH_3 m^{-3}) for higher plants (APIS, 2014b).

Natural England (2014h) does not identify atmospheric pollution as a particular risk to the River Derwent SAC in its Site Improvement Plan.

The UK Air Pollution Information System (APIS, 2017) provides detailed information on air pollution and its effects on habitats and species. Critical loads (i.e. the threshold level for the deposition of a pollutant above which harmful indirect effects can be shown on a habitat or species) have been developed on a site-specific basis, with each interest feature assessed for each site, as summarised in Table 4-2. It should be noted that critical loads have not been specified for the interest features of Ramsar sites, but the interest features are similar to those for SACs and SPAs.

Table 4-2: Critical Loads relating to Eutrophication and Acidification for interest features of SACs and SPAs in and around North Lincolnshire (From: APIS, 2017)

Site	Qualifying Features	Critical Loads Nutrient Nitrogen	 Acid	Comment on exceedance Impacts
Humber Estuary SAC	Sandbanks which are slightly covered by sea water all the time	Not sensitive to eutrophication	Not sensitive to acidification	n/a
	Mudflats and sandflats not covered by seawater at low tide	No critical load assigned	Not sensitive to acidification	n/a
	Estuaries	20-30kg N/ha/yr	Not sensitive to acidification	Nitrogen loading can result in an increase in late successional species. An increase in productivity can also occur which can result in an increase in graminoids.
	Coastal lagoons			
	Salicornia and other annuals colonizing mud and sand			
	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)			
	Embryonic shifting dunes	10-20kg N/ha/yr	Not sensitive to acidification	Nitrogen loading can result in an increase in biomass and increased N leaching.
	Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")			
	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	Acid type - 8-10kg N/ha/yr Calcareous type - 10-15kg N/ha/yr	Acid type Min Critical Load (CL)Min Nitrogen (N): 0.223keq MinCLMaxN: 4.548keq MinCLMin Sulphur (S): 0.420keq MinCLMaxS: 4.110keq Calcareous type MinCLMinN: 0.856keq MinCLMaxN: 5.710keq MinCLMinS: 4.000keq MinCLMaxS; 5.710keq	Nitrogen deposition can result in an increase in tall grasses and a decrease in prostrate plants. Increased nitrogen leaching can occur from soils leading to soil acidification. Typical lichen species can often be lost. Acidification can cause leaching which will cause a decrease in soil base saturation, increasing the availability of Aluminium ions (Al3+). Mobilisation of Al3+ may cause toxicity to plants and mycorrhiza and may have direct impacts on lower plants (lichens and byophytes).
	Dunes with *Hippopha*	No critical load	MinCLMinN:	Acidification can cause

Site	Qualifying Features	Critical Loads Nutrient Nitrogen	Acid	Comment on exceedance Impacts
	rhamnoides	assigned	0.223keq MinCLMaxN: 4.548keq MinCLMinS: 0.420keq MinCLMaxS: 4.110keq	leaching which will cause a decrease in soil base saturation, increasing the availability of Al3+ ions. Mobilisation of Al3+ may cause toxicity to plants and mycorrhiza and may have direct impacts on lower plants (lichens and byophytes)
	Grey Seal *Halichoerus grypus*	Species broad habitat is not sensitive to eutrophication	Species broad habitat is not sensitive to acidification	n/a
	River Lamprey *Lampetra fluviatilis*	No critical load assigned for broad habitat of this species	No critical load assigned for broad habitat of this species	Nitrogen is often co-limiting in these systems with Phosphorous (P). Other sources of N can also be significant (e.g. diffuse agricultural pollution) Acidification can cause increased Al3+ concentrations which can impact on invertebrate populations and can be toxic to fish.
	Sea Lamprey *Petromyzon marinus*			
Hatfield Moor SAC	Degraded raised bogs still capable of natural regeneration [7120]	5-10kg N/ha/yr	MinCLMinN: 0.321keq MinCLMaxN: 0.467keq MinCLMinS: 0.141keq MinCLMaxS: 0.146keq	Nitrogen loading can increase vascular plants, alter growth and species composition of bryophytes and increase N in peat and peat water. Acidification can cause leaching which can cause a decrease in soil base saturation, increasing the availability of Al3+ ions. Mobilisation of Al3+ may cause toxicity to plants and mycorrhiza and may have direct effect on lower plants (bryophytes and lichens)
Thorne Moor SAC	Degraded raised bogs still capable of natural regeneration [7120]			
River Derwent SAC	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	No critical load assigned	No critical load assigned	Nitrogen is often co-limiting in these systems with P. Other sources of N can also be significant (e.g. diffuse agricultural pollution) Acidification can cause increased Al3+ concentrations which can impact on invertebrate populations and can be toxic to fish.
	River Lamprey *Lampetra fluviatilis*	No critical load assigned for broad habitat of this species	No critical load assigned for broad habitat of this species	
	Sea Lamprey *Petromyzon marinus*			
	Bullhead *Cottus gobio*			
	Otter *Lutra lutra*			
Humber Estuary SPA	Ringed Plover *Charadrius hiaticula* (passage and wintering)	Species is not sensitive to eutrophication impacts on supporting broad habitats	Species is not sensitive to acidification impacts on supporting broad habitats	Eutrophication has the potential to have a positive impact on species due to impacts on food supply.
	Pochard *Aythya ferina* (wintering)			
	Scaup *Aythya marila* (wintering)	Species is not sensitive to	Species is not sensitive to	n/a

Site	Qualifying Features	Critical Loads Nutrient Nitrogen	Acid	Comment on exceedance Impacts
	Sanderling *Calidris alba* (wintering and passage)	eutrophication impacts on supporting broad habitats	acidification impacts on supporting broad habitats	
	Dunln *Calidris alpina* (wintering)			
	Ruff *Philomachus pugnax* (passage)			
	Whimbrel *Numenius phaeopus* (passage)			
	Hen Harrier *Circus cyaneus* (wintering)			
	Shelduck *Tadorna tadorna* (wintering)			
	Mallard *Anas platyrhynchos* (wintering)			
	Bittern *Botaurus stellaris* (wintering and breeding)	Rich fens: 15-30kg N/ha/yr	Species is not sensitive to acidification impacts on supporting broad habitats	Potential negative impacts from eutrophication due to adverse impacts on the broad habitat types supporting this species (e.g. increase in tall graminoids, decrease in bryophytes).
	Marsh Harrier *Circus aeruginosus* (breeding)			
	Dark-bellied Brent Goose *Branta bernicla bernicla* (wintering)	Pioneer, low-mid, mid-upper saltmarshes: 20-30kg N/ha/yr	Species is not sensitive to acidification impacts on supporting broad habitats	Potential negative impacts from eutrophication due to adverse impacts on the broad habitat types supporting this species (e.g. increase in late successional species, increase in productivity and dominance of graminoids).
	Redshank *Tringa totanus* (passge and wintering)	Pioneer, low-mid, mid-upper saltmarshes: 20-30kg N/ha/yr	Species is not sensitive to acidification impacts on supporting broad habitats	Potential negative impacts from eutrophication due to adverse impacts on the broad habitat types supporting this species (e.g. increase in late successional species, increase in productivity and dominance of graminoids). Eutrophication also has the potential to have a positive impact on species due to impacts on food supply.
	Turnstone *Arenaria interpres* (wintering)			
	Bar-tailed Godwit *Limosa lapponica* (wintering)			
	Black-tailed Godwit *Limosa limosa* (wintering)			
	Knot *Calidris canutus* (wintering)			
	Grey Plover *Pluvialis squatarola* (wintering)			
	Lapwing *Vanellus vanellus* (wintering)			
	Avocet *Recurvirostra avosetta* (breeding and wintering)			
	Oystercatcher *Haematopus ostralegus* (wintering)			
	Goldeneye *Bucephala clangula* (wintering)			
	Wigeon *Anas penelope* (wintering)			

Site	Qualifying Features	Critical Loads Nutrient Nitrogen	Acid	Comment on exceedance Impacts
	Teal *Anas crecca* (wintering)			
	Little Tern *Sterna albifrons* (breeding)	Coastal stable dune grasslands (acid type): 8-10kg N/ha/yr Shifting coastal dunes: 10-20kg N/ha/yr. Coastal dune grasslands (calcareous type): 10-15kg N/ha/yr.	Species is not sensitive to acidification impacts on supporting broad habitats	Potential negative impacts from eutrophication due to adverse impacts on the broad habitat types supporting this species (e.g. increase in tall grasses, decrease in prostrate plants, increased N leaching from soils, soil acidification, loss of typical lichen species, biomass increase).
	Golden Plover *Pluvialis apicaria* (wintering)	Pioneer, low-mid, mid-upper saltmarshes: 20-30kg N/ha/yr. Low and medium altitude hay meadows: 20-30kg N/ha/yr.	Species is not sensitive to acidification impacts on supporting broad habitats	Potential negative impacts from eutrophication due to adverse impacts on the broad habitat types supporting this species (e.g. increase in late successional species, increase in productivity and dominance of graminoids, increase in tall grasses, decrease in diversity). Eutrophication also has the potential to have a positive impact on species due to impacts on food supply.
	Curlew *Numenius arquata* (wintering)	Pioneer, low-mid, mid-upper saltmarshes: 20-30kg N/ha/yr. Low and medium altitude hay meadows: 20-30kg N.ha/yr.	Species is not sensitive to acidification impacts on supporting broad habitats	Potential negative impacts from eutrophication due to adverse impacts on the broad habitat types supporting this species (e.g. increase in late successional species, increase in productivity and dominance of graminoids increase in tall grasses, decrease in diversity).
Thorne and Hatfield Moors SPA No data available for Common Crane	Nightjar *Caprimulgus europaeus* (breeding)	Dwarf shrub heath: 10-20kg N/ha/yr.	Species is not sensitive to acidification impacts on supporting broad habitats	Potential negative impacts from eutrophication due to adverse impacts on the broad habitat types supporting this species (e.g. transition from heather to grass dominance, decline in lichens, changes in plant biochemistry, increased sensitivity to abiotic stress).
Note: keq relates to 1,000 eq. The unit eq refers to molar equivalent of potential acidity resulting from, for example, sulphur, oxidised and reduced nitrogen, as well as base cations (APIS, 2017).				

New development/housing and the associated increase in traffic has the potential to generate increases in atmospheric pollution, however, this is difficult to quantify. This screening assessment will consider the potential impact of this in relation to the international nature conservation sites identified in section **Error! Reference source not found.**, taking into account the vulnerability of their interest features, proximity to proposed development sites and likely associated traffic increases. However, the impact of air pollution from increased traffic associated with new development/housing, will be considered applicable to areas within 200m; the distance detailed in the Design Manual for Roads and Bridges (DRMB) guidance (Highways Agency, 2009) as the buffer within which the contribution of vehicle emissions can be considered

significant. The exception to this buffer will be any new significant point-sources that the Local Plan proposes which will be considered on a policy/site-specific basis.

4.2.5 Water Resource Use and Flow Regulation

New development and population increases can result in hydrological effects to existing watercourses and groundwater resources. Such effects can include changes to surface and ground water flow, levels and quality (see section 4.2.6 in relation to water quality); this can have subsequent effects on habitats and supported species of international nature conservation sites. The main types of potential hydrological effects are as follows:

- **Water abstraction** – new developments would increase the demand for water, potentially resulting in increased levels of water abstraction and subsequently affecting surface and/or ground water flow and levels. Any such effects would be more extreme during the summer as water demand will likely peak at this time. The assessment of potential effects of increased water demand will consider how the public water supply system operates and how it is regulated with other water-resource consents, in addition to policy provisions within the Local Plan to help manage demand and promote water efficiency measures.
- **Water discharges** – new developments could also result in an increase in discharges to water via foul and surface water/storm water drainage (flood risk). This could also occur during construction phases but would be short-term and of reduced significance. Such discharges can impact on surface water and ground water quantity and flows.

A large proportion of the activities which exploit water resources, such as agriculture, flood defence, recreation, power generation, fisheries or nature conservation, will not be directly controlled or influenced by options/policies contained within the Local Plan. Furthermore, specific consenting regimes, independent of the Local Plan, tend to regulate water supply and exploitation in relation to water-resource sensitive international nature conservation sites. However, development promoted or supported by the Local Plan will likely increase demand for water.

Water supplies in North Lincolnshire are managed by Anglian Water and Yorkshire Water, with the majority of the area being within Anglian Water's area, and the Isle of Axholme area west of the River Trent falling into Yorkshire Water's area. Wastewater assets are maintained by Anglian Water and Severn Trent Water. Under the Water Act 2003, all water companies must produce a Water Resources Management Plan (WRMP) that sets out the strategy for managing water resources across their supply area over a 25-year period, and estimates likely demand and forecasts supply. Within the Anglian Water area, North Lincolnshire falls within the 'Central Lincolnshire' resource zone (this covers a much greater area than North Lincolnshire, but includes substantial proportions of North Lincolnshire. Within this resource zone, groundwater is abstracted from the Sherwood Sandstone and Lincolnshire Limestone, whilst surface water is abstracted from the River Ancholme. During the plan period (2015 to 2040), Anglian Water forecast a 13% reduction in household consumption driven by customers selecting metering, including baseline water efficiencies (Anglian Water, 2015). However, within the Central Lincolnshire region, Anglian Water project growth of 2,000 properties per year, which is only half that projected by the relevant Local Authorities combined, who projected 4,000 properties per year. However, given the supplies available, Anglian Water still project that there will be a surplus of water, ranging from 32.2Ml/d to 53Ml/d within the resource zone throughout the WRMP period (Anglian Water, 2015).

In the Humber estuary, several schemes were identified in the Yorkshire Water WRMP which have the potential to alter flow conditions in the Humber. These are the Ouse Raw Water Transfer Scheme, East Yorkshire Boreholes Schemes, Humber Estuary Port Developments, the East Yorkshire Groundwater Option 1 Scheme and the Desalination scheme in Hull. The latter is purported to be detrimental to biodiversity and resource intensive. The scale of this scheme is unknown and would require a pipeline through the estuary. A slight increase in discharge is anticipated with the Ouse Raw Water Transfer in low flow conditions. In addition, minor adverse effects are predicted for dissolved oxygen levels and migratory Lamprey. Dissolved oxygen conditions will be therefore monitored before and after the scheme. Cumulative adverse effects of the Ouse Raw Water Transfer and East Yorkshire Boreholes schemes are predicted to be minor at worst. Furthermore, any increase in discharge associated with these schemes will be largely ameliorated by a reduction in abstraction at additional Yorkshire Water Sources to comply with Water Resource Management Plans and Water Framework Directive requirements. It is

further anticipated that abstraction at catchment source will be reduced to lessen in combination effects. The Yorkshire Water WRMP concluded that the effects of abstraction within, and neighbouring, the Humber catchment are unlikely to be significant. Climate change is also predicted to alter flow conditions in the Humber. Wetter winters and drier summers are predicted (Cascade Consulting, 2013). No schemes were identified in the Anglian Water WRMP from the Central Lincolnshire resource zone.

In relation to Thorne and Hatfield Moors, they are particularly sensitive to flow regulation. Abstraction of water from around this site is likely to lead to scrub development which in turn causes further water loss through evapotranspiration. This is detrimental for mire communities especially *Sphagnum* and Cotton-grass *Eriophorum* sp. Scrub further shades the peatland which inhibits the development of the bog (Brightman, 2016). The East Yorkshire Groundwater Option 1 Scheme detailed in the Yorkshire Water WRMP is predicted to have negligible effects on Thorne Moors (abstraction will be within licensed limits with infrastructure off-site). Likewise, effects on Hatfield Moor will be negligible for the same reasons (Cascade Consulting, 2013).

In relation to the River Derwent SAC, Natural England (2104h) identify that over-abstraction can lead to reduced flows within the river with negative implications for the SAC interest features.

Taking into account the assessment already conducted as part of the relevant WRMPs, this screening assessment will consider the potential for impacts on an international nature conservation site due to changes in water levels and/or flows by taking into consideration the vulnerability of their interest features to such impacts, and the pathways i.e. the hydrological connectivity between the site and the areas proposed for development.

4.2.6 Water Pollution/Siltation

New development promoted under the local plan, and the likely associated population increases, can also impact on existing watercourses and groundwater resources in relation to water quality, particularly in relation to wastewater treatment. Again, this can have subsequent effects on habitats and supported species of international nature conservation sites. As discussed in section 4.2.5, new developments could result in an increase in discharges via foul and surface water/storm water drainage (flood risk). This could also occur during construction phases (e.g. oil spillage or other pollution incidents from construction plant and machinery) but would be short-term and of reduced significance. Discharges can also occur during the operational phase of works, for example, from oil released from a higher number of cars using roads close to the watercourse network or through increased use of waterways by motor powered boats.

The Humber River Basin Management Plan (RBMP) (Environment Agency, 2015a) identifies a number of significant water management issues across the river basin district. Within the Humber, key issues relating to water quality include:

- Pollution from waste water (e.g. from sewage treatment works, leakages from privately owned septic tanks, storm overflows) which affects 38% of waterbodies within the district. Population growth, alongside changes in rainfall patterns are increasing the pressure on the sewer network.
- Pollution from towns, cities and transport (e.g. rainwater draining from roofs, roads and pavements which carries pollutants such as grot, bacteria, oils, metals, vehicle emissions, detergents and road salt), which affects 16% of waterbodies in the district.
- Pollution from rural areas (e.g. from poor land management which increases the amount of soils/sediment entering watercourses; this can cause eutrophication. More intense rainfall as a result of a changing climate will likely exacerbate this), which affects 32% of waterbodies in the district.
- Pollution from abandoned mines which affects 4% of waterbodies in the district.

A review of data held by the Environment Agency's Catchment Data Explorer (2017) has identified a key indication of water quality within the operational catchments covered by North Lincolnshire, as shown in

Table 4-3 below.

Table 4-3: Summary of Water Quality Statistics across Operational Catchments that fall wholly or partly within North Lincolnshire (From: Environment Agency, 2017)

Catchment	No. of Waterbodies	Ecological Status or Potential					Chemical Status	
		Bad	Poor	Moderate	Good	High	Fail	Good
Ancholme	14	0	1	12	1	0	0	14
Becks Northern	21	2	4	13	2	0	0	21
Trent and Trib	23	2	1	20	0	0	0	23
Isle of Axholme	12	0	3	9	0	0	3	9

Thorne and Hatfield Moors are largely rain-fed and hence naturally acidic (Holden *et al*., 2004). It follows that water quality is largely determined by atmospheric inputs. Hence, these lowland raised bogs are especially susceptible to atmospheric nitrogen deposition and the factors which cause it (location of industry, agriculture, wildlife) (see section 4.2.4).

In contrast, water pollution in the Humber Estuary can follow several pathways. The main sensitivities in terms of water quality are dissolved oxygen levels which are susceptible to depletion during the summer months, particularly in the inner estuary. This may cause a barrier to Sea Lamprey when they are migrating through the area in summer months (Natural England, 2014i) Likewise, Tributyltin pollution is also common in the inner estuary, and several of the clay pits on the south bank fail the total Phosphorous (P) target and have impoverished macrophyte communities (Natural England, 2014i). It is thought that habitat restoration within the catchment is likely to improve water quality in the Humber. For example, wetland creation/enhancement can filter pollutants before they enter the estuary, and 534ha of wetland have been created/enhanced in recent years around the Humber. Conversely, habitat destruction is likely to lead to an increase in water pollution events and water quality deterioration (Environment Agency, 2015a).

Natural England (2014h) highlights that water pollution is a significant issue in relation to the River Derwent SAC. This is attributed to the highly erodible soils of the catchment which are a dominant source of sediment input to the system, entering via run-off and directly supplied by agricultural drainage systems. Cattle poaching can also be a significant issue in places. However, being upstream of North Lincolnshire, any impacts the Local Plan has on water quality, are unlikely to impact upon the River Derwent SAC.

In relation to the Local Plan, the water quality effects are likely to be either controlled by existing consenting regimes, particularly in relation to point sources (which must undergo HRA), or have diffuse 'in combination' effects that are difficult to quantify and this assessment will focus on the development of suitable mitigating policy that will minimise the impacts of development on water quality; this will be detailed at later stages of the HRA process. This screening assessment will therefore consider where potential water quality impacts on an international nature conservation site may arise due to changes in water quality, taking into consideration the vulnerability of their interest features to such impacts, and the pathways i.e. the hydrological connectivity between the site and the areas proposed for development.

4.2.7 Flooding and Water Level Management

Much of the North Lincolnshire area is very low-lying and is at flood risk. Development supported by the Local Plan therefore could exacerbate this. For example, impermeable surfaces can have considerable effects on waterbodies and watercourses, resulting in flow rates and volumes often exceeding the capacity of the receiving drains or watercourses, causing localised flooding and contributing to regional flood events.

With regards to international nature conservation sites, all sites that are not conditioned to flooding will be sensitive to flood events, and even those which experience periodic/regular flood events could be adversely impacted upon by large-scale events, of long duration, or which introduce water quality issues. Furthermore, development of flood risk management strategies and construction of flood defences in and around international nature conservation sites has the potential to result in adverse impacts, for example through direct habitat loss, changing

hydrological processes, or through impacts such as 'coastal squeeze'. Coastal squeeze occurs when flood and coastal defences constrain the ability of intertidal habitats (most notably saltmarsh) to naturally move landward in response to sea level rise (Royal Haskoning, 2006). However, the Local Plan will likely have little influence over the flood defence strategy likely to be implemented across North Lincolnshire, and as part of river basin and catchment wide strategies, the likely impact of long-term flood policy on international nature conservation sites will already have been assessed as part of the HRAs conducted for other plans.

However, the Humber Estuary area is sensitive to flooding with 70,000 properties at risk (Cascade Consulting, 2013). Within the Humber, the intertidal habitat (mudflats and saltmarsh) is threatened by the development of flood defences and coastal squeeze; defences may need to be re-positioned, squeezing intertidal habitat. Rising sea levels further shave intertidal habitat. In cases of overriding public interest, sea defences may reduce intertidal habitat but loss of habitat must be compensated through habitat creation elsewhere. This is a criterion of the National Biodiversity Action Plan which states that the total area of intertidal habitat must be maintained. Here the focus is on establishing new habitat as soon as possible so there is no net loss. Habitat creation may involve moving sea defences inland. Thorne and Hatfield Moors are particularly sensitive to water level management. Peat forms under saturated conditions and is dependent on rain-fed nutrients/moisture. The water table level determines whether peat is accumulating or breaking down as any shift from anaerobic to aerobic conditions enhances decomposition. Furthermore, increased oxidation leads to increased mineralisation and an associated loss of nutrients/reduced fertility. Finally, bog pools represent a key habitat across the moors and hence their loss is associated with the species they support. There are a number of factors which may alter the hydrology of Thorne and Hatfield Moors. One is cutting drains to increase surface run off. This was practiced historically to harvest peat and has resulted in the widespread degradation of the moors. Moorland restoration, therefore, has sought to reverse this process by blocking drains across the sites. Another factor is afforestation which intercepts moisture and returns it to the atmosphere. Finally, water levels may be controlled directly via pumping (Holden *et al.* 2004).

Physical modification of the river, through the construction of flood embankments, which has removed connectivity between the river and floodplain, and channelisation, which has changed the natural river system and created vertical bank profiles, are identified as a key issue affecting the condition of the River Derwent SAC (Natural England, 2014h). However, being outside of North Lincolnshire, and with other plans and projects influencing flood risk management policy, the Local Plan is unlikely to impact upon water levels and flood management within this site.

This screening assessment will consider how the Local Plan could potentially impact on flooding regimes in and around international nature conservation sites, both through increasing flood risk from inappropriate development and encouraging further implementation of flood risk management measures to allow development to proceed. It will assess how this could potentially impact on the interest features, taking into account their vulnerability.

4.2.8 Introduction of Invasive Non-native Species

Invasive non-native species (including diseases and pathogens) impact biodiversity and ecosystems through resource competition, consumption and interbreeding. Development activities may cause the introduction or spread of non-native invasive animals and plants which could result in changes to community composition and even to the complete loss of native communities.

Natural England (2014i) recognises that there are a number of issues with invasive non-native species (INNS) within and around the Humber, including Water Fern *Azolla filiculoides* at Far Ings, the presence of Himalayan Balsam *Impatiens glandulifera* across the catchment, localised patches of Giant Hogweed *Heracleum mantegazzianum* and Japanese Knotweed *Fallopia japonica*, and the presence of Slipper Limpet *Crepidula fornicata* and Chinese Mitten Crab *Eriocheir sinensis* in marine areas. Several of the clay pits on the south bank have, or have had, active fisheries and some still support non-native fish species.

On Thorne and Hatfield Moors, Australian Swamp Stonecrop *Crassula helmsii* is present around the periphery of the site (Natural England, 2014d).

On the River Derwent SAC, Himalayan Balsam is identified by Natural England (2014h) as being a significant threat to the site, out-competing marginal vegetation. Furthermore, when it dies back in winter it leads to bare ground which is subject to increased erosion and run-off into the

river, thereby increasing sediment loads which can then smother aquatic plants and spawning areas for Lamprey and Bullhead. There are also problems with Japanese Knotweed and Giant Hogweed in the catchment.

4.3 Qualifying Features and Sensitivity to Impacts/Pathways

Table 4-4 shows the qualifying features of the international nature conservation sites within and adjacent to North Lincolnshire and identifies the pathways of impact to which they are most sensitive. Their qualifying features have been grouped into their broad habitat and species types to facilitate the sensitivity assessment. However, this is only applicable to SACs and SPAs; it does not directly relate to the criterion under which Ramsar sites are designated.

It must be noted that during the assessment of the likely impacts of the Local Plan on an international nature conservation site, all of the potential pathways of impact will be considered.

Table 4-4: Sensitivity of Qualifying Features to Potential Impacts/Pathways

	Potential Impacts/Pathways						
	Recreational Pressures	Urbanisation	Atmospheric Pollution	Water Resource Use / Flow Regulation	Water Pollution / Siltation	Flood and Water Level Management	Introduction of Invasive Non-native Species
SAC habitat groups							
Coastal habitats	✓	✓	✓	✓	✓	✓	✓
Coastal habitats (sensitive to abstraction)	✓	✓	✓	✓	✓	✓	✓
Estuarine and intertidal habitats	✓	✓	✓	✓	✓	✓	✓
Submerged marine habitats	✓			✓	✓	✓	✓
Bogs and wet habitats (sensitive to acidification)	✓	✓	✓	✓	✓	✓	✓
Riverine habitats and running waters	✓	✓	✓	✓	✓	✓	✓
SAC species groups							
Anadromous fish	✓	✓		✓	✓	✓	✓
Marine mammals	✓					✓	
Non-migratory fish and invertebrates of rivers	✓	✓		✓	✓	✓	✓
Mammals of riverine habitats	✓	✓		✓	✓	✓	
SPA bird species groups							
Birds of coastal habitats	✓	✓		✓	✓	✓	✓
Birds of estuarine habitats	✓	✓		✓	✓	✓	✓
Birds of lowland heaths and brecks	✓	✓		✓	✓	✓	✓
Birds of lowland freshwaters and their margins	✓	✓		✓	✓	✓	✓

5 North Lincolnshire Local Plan and Other Relevant Plans

5.1 Introduction

This section gives a brief description of the North Lincolnshire Local Plan and outlines the key objectives/policies and priorities and how these may impact upon international nature conservation sites.

The Habitat Regulations also require that the potential effects of the plan on international nature conservation sites must be considered 'in combination with other plans or projects'. The 'in combination' assessment must also consider within-plan effects (i.e. between policies or strategic sites). Consideration of "in combination' effects is not a separate assessment, but is integral to the screening and appropriate assessment stage and development of avoidance/mitigation measures. There is limited guidance available on the scope of the 'in combination' element, particularly which plans should be considered. However, the assessment should not necessarily be limited to plans at the same level in the planning hierarchy and there is consequently a wide range of plans that could have potential 'in combination' effects with the Local Plan Strategy due to its regional scale. This section, therefore also identifies the other plans that it is considered could potentially act 'in combination' with the Local Plan Strategy to have "significant effects" on international nature conservation sites.

5.2 North Lincolnshire Local Plan

North Lincolnshire Council is currently preparing a new single Local Plan for North Lincolnshire. Once agreed (formerly adopted) it will replace the current North Lincolnshire Local Plan, the Core Strategy and Housing and Employment Land Allocations Development Plan Documents (DPDs), and the Lincolnshire Lakes Area Action Plan (AAP).

The new Local Plan is being prepared because:

1. There has been a change in legislation since the Core Strategy was adopted and the legislative requirement for plan making has changed. The preferred approach of the government is now for each Local Planning authority to prepare a single Local Plan for its area.
2. The Core Strategy needs to be reviewed/updated to take account of national planning policy changes.

Development of a new Local Plan also provides opportunity to review and assess what the existing Local Development Framework has achieved since 2011, to re-evaluate the area's current position, and to look at what type of place North Lincolnshire will be in 19 years' time and how the Authority plans to get there.

None of the options within the current Local Plan Issues and Options document are directly connected with, or necessary to the nature conservation management of the sites identified in section **Error! Reference source not found.** as potentially being impacted upon by the plan.

5.2.1 Current Status of Local Plan Development - The Issues and Options Stage

Development of a new Local Plan has to go through a number of stages. The development of the new North Lincolnshire Local Plan is currently at an early stage. An initial consultation exercise was conducted between late February and mid-April 2017 and a consultation document was published to raise awareness of the Local Plan and to get the views of local communities and others about issues that should be covered in the plan. This, together with available evidence and policy, has helped to inform the Issues and Options document to which this HRA screening relates.

Within the Issues and Options document, an emerging spatial vision is presented, which seeks to build on the council's broader ambitions, emerging evidence and national policy. The spatial vision aims to meet the council's ambitions that North Lincolnshire is: safe; well; prosperous; and connected. The full text of the spatial vision can be found in the main consultation document (North Lincolnshire Council, 2018).

Beneath the spatial vision sit 14 emerging spatial objectives, which are derived from the vision and focus on key issues that the Local Plan needs to address. They provide a broad direction for

the spatial strategy and the detailed policies that will be included in the plan. The emerging spatial objectives are detailed in Table 5-1.

Table 5-1: Emerging Spatial Objectives for the North Lincolnshire Local Plan (North Lincolnshire Council, 2018)

Spatial Objectives	
Spatial Objective 1: Supporting & Growing Our Economy	To promote economic growth in North Lincolnshire that increases the area's prosperity through supporting business growth and investment, enterprise and job creation. The area will make the most of its strategic location adjacent to the Humber Estuary, infrastructure and international connections to be a key location for businesses, whilst sufficient employment land will be delivered in sustainable locations that meet the needs of existing and future businesses. Employment levels will be increased, creating more and better job prospects. The vitality and viability of Scunthorpe, our Market Towns, district and local centres as places for shopping, leisure, cultural and community activities will be encouraged.
Spatial Objective 2: Supporting Sustainable Communities	To support the creation and maintenance of sustainable communities in North Lincolnshire by situating new development in locations that offer the best and most appropriate opportunities for sustainable development. This will ensure that new homes and jobs are supported by a high-quality environment, services and infrastructure and in turn new development supports the vitality, viability and economic performance of our towns and villages. Local communities will be encouraged to develop a community-led Neighbourhood Plan, where appropriate.
Spatial Objective 3: Meeting Our Housing Need	To increase the supply of housing to meet our future need and support the growth of our economy. This will take place by delivering a wide choice of high quality, well designed housing in North Lincolnshire that is accessible to, and meets the needs and aspirations of, the area's existing and future residents. This will include meeting the needs of the various groups that have differing housing requirements (including affordable [in its widest sense], families with children, older persons, specialist housing and those who wish to build their own home (custom build or self-build)).
Spatial Objective 4: Delivering Infrastructure For Growth	To identify and deliver the wide range of physical, social and environmental infrastructure needed to support our ambitions for growth and development in North Lincolnshire. This will include delivering a connected, well-maintained, efficient, safe and sustainable transport network including roads, public transport and walking and cycling routes that supports economic growth and allows local residents to have high quality access to key services and facilities without increasing the need to travel. This is essential in creating places that are cleaner, greener and safer. We will also seek to deliver the necessary community infrastructure/facilities and green infrastructure to support the creation of sustainable communities. This will be done by working closely with a wide range of partner organisations and infrastructure providers.
Spatial Objective 5: Supporting Our Rural Areas and Countryside	To support strong and thriving rural communities and countryside by encouraging diversification of the rural economy and retaining and enhancing key local facilities, infrastructure and services whilst promoting appropriate, sustainable development in rural settlements which meets local needs and reflects the surrounding environment.
Spatial Objective 6: Protecting and Enhancing Our Natural, Built and Historic Environment	To ensure that North Lincolnshire's high-quality natural, built and historic environments are safeguarded, conserved and enhanced to maintain their contribution to the area's local distinctiveness and quality of life. Internationally, nationally and locally designated areas of habitat and nature conservation importance (particularly those in the Humber Estuary and at Crowle Moors) will be protected, whilst the area's diverse landscapes, open spaces and green infrastructure network will be recognised for their importance and enhanced. Designated and non-designated heritage assets along with the area's townscapes will be protected and enhanced to maintain the local streetscene and its distinctiveness.
Spatial Objective 7: Promoting High	To ensure that all new development in North Lincolnshire exhibits a high standard of design and architectural quality and innovation that reflects the character of the areas' landscapes and townscapes and contributes to local

Spatial Objectives	
Quality Design	distinctiveness. Development should be accessible to all of the community, contribute to an enhanced feeling of safety and security, and make the most of opportunities for efficient use of resources, contributing to cleaner, greener and safer places.
Spatial Objective 8: Raising Our Aspirations	To encourage greater economic prosperity and reduce inequalities by supporting opportunities for the provision of education, training and research facilities that help to raise the aspirations and attainment of North Lincolnshire's young people, support adults to re-engage with work and lifelong learning, and develop and upskill the area's workforce to equip them to meet the needs of business and industry.
Spatial Objective 9: Supporting Our Quality of Life	To support the health and well-being of North Lincolnshire's communities by safeguarding, enhancing and providing a wide range of educational, social, sporting, health, recreational and cultural facilities that contribute to the quality of life and satisfaction of those who live, work within and visit the area, as well as by seeking to reduce deprivation and social, economic and environmental inequalities.
Spatial Objective 10: Developing Our Visitor Economy	To develop North Lincolnshire's visitor economy and make it a destination of choice for tourists and visitors alike by taking advantage of the opportunities provided by the area's high quality natural and built environment including its diverse landscapes, countryside and townscapes, as well as its rich cultural heritage. Attractions such as Normanby Hall, Waters' Edge Country Park, Crowle Moors, our Market Towns, and the Humber Estuary will play their part in developing North Lincolnshire as a tourist destination.
Spatial Objective 11: Tackling Climate Change	To address and reduce the causes and impacts of climate change in North Lincolnshire by supporting and contributing to achieving sustainable flood management as part of new development and locating development, where possible, away from areas at risk of flooding. To encourage the use of low and zero carbon technologies by promoting sustainable land management and conservation including for protecting habitats, and encouraging appropriate building design.
Spatial Objective 12: Efficient Use of Our Resources	To encourage the effective and prudent use of North Lincolnshire's resources including energy, water, soils, minerals and waste by supporting the efficient use of land and buildings, including sustainable construction techniques within new developments, reducing the level of waste produced and promoting the use of renewable and low carbon energy, subject to its impact on the area's landscapes and communities. Measures to minimise pollution and improve air, soil and water quality will also be employed as part of creating a cleaner, greener and safer area.
Spatial Objective 13: Ensuring Minerals Supply	To ensure a steady and adequate supply of minerals, including aggregates, industrial minerals and energy minerals to meet national, regional and local needs in the most appropriate and sensitive way whilst taking account of impacts on the environment and local communities. Economically important mineral resources will be safeguarded from incompatible development.
Spatial Objective 14: Delivering Sustainable Waste Management	To support the use and effective management of North Lincolnshire's waste as a resource by reducing the amount that needs to be treated and disposed. There will be greater encouragement to reduce levels being produced and increase re-use and recycling in order move waste up the 'Waste Hierarchy'. A network of appropriately-located sustainable waste management facilities will be developed and existing facilities protected from incompatible development whilst recognising the need to avoid negative impacts on local communities.

Beneath these emerging spatial objectives sit a number of Options, which cover a range of topics, including:

- Growth (an overarching topic for the general growth of North Lincolnshire)
- Meeting the housing need
- Delivering jobs and supporting the economy
- Managing the natural and historic environment
- Planning for a sustainable supply of minerals
- Sustainable waste management

- Creating sustainable communities and better places (no options have currently been proposed under this theme)
- Providing infrastructure and delivering the plan
- Managing and delivering development

Within each topic area there are a number of more specific aspects discussed, each of which present a series of options for consultees to consider and select as most appropriate for the future development of North Lincolnshire. It is these topic areas that this HRA will consider and screen for their potentially significant effects on the international nature conservation sites within and around North Lincolnshire.

5.2.2 The Next Steps

Following this 'Issues and Options' stage further evidence will be prepared and any comments received will be considered to help determine the preferred option for each issue or subject. This is known as the 'Preferred Options' stage and will also include a range of policies, policy approaches and sites for further consultation.

Following consideration of all relevant evidence and the comments received at the Preferred Options stage, the Plan will be refined and a draft Local Plan will be formerly published for a further statutory six-week consultation period. After this consultation, comments received, alongside the draft Local Plan and supporting evidence, will be submitted to the Government for an Examination in Public. An independent Planning Inspector will be appointed to examine the Local Plan through a series of public hearings. After these hearings, the Inspector will consider all evidence and prepare a report setting out whether or not the Plan is 'sound'. Once this report is received the Plan can be adopted and brought into force.

At each stage of the Local Plan development process, a HRA will be undertaken, building on the assessment contained within this report, and will be consulted on alongside the plan itself.

5.3 Other Relevant Plans and Projects that Could Act In-combination

A series of individually modest effects may in combination produce effects that are likely to adversely affect the integrity of one or more international nature conservation sites. Article 6(3) of the Habitats Directive tries to address this by taking into account the combination of effects from other plans or projects. The Directive does not explicitly define which other plans and projects are within the scope of the combination provision. Guidance in section 4.4.3 of '*Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC'*, published by the European Commission, states:

'When determining likely significant effects, the combination of other plans or projects should also be considered to take account of cumulative impacts. It would seem appropriate to restrict the combination provision to other plans or projects which have been actually proposed'.

A large number of plans and projects have been identified as occurring within the plan area, and immediate surrounding area, and because of this a pragmatic approach has been adopted to their review. This includes approved but incomplete plans and projects, permitted ongoing activities and plans or projects begun/applied for but not yet approved. Table 5-2 below lists the relevant plans and projects that have been considered as having the potential to result in significant effects on international nature conservation sites in-combination with the North Lincolnshire Local Plan. A more detailed review is provided in Appendix A.

Table 5-2: Other Plans and Projects

Plan/Project	
Land Use Planning	
Lincolnshire Lakes Area Action Plan	
Neighbouring Local Authority Local Plans/Local Development Frameworks	Initial Draft Bassetlaw Plan
	Doncaster Local Plan
	East Riding Local Plan
	New Hull Local Plan
	North East Lincolnshire Local Plan
	Central Lincolnshire Local Plan

Plan/Project	
Neighbourhood Plans within North Lincolnshire	Appleby Neighbourhood Plan
	Brigg Neighbourhood Plan
	Bonby Neighbourhood Plan
	Elsham Neighbourhood Plan
	Saxby All Saints Neighbourhood Plan
	South Ferriby Neighbourhood Plan
	Winterton Neighbourhood Plan
	Worlaby Neighbourhood Plan
Development/ Economic	
The Humber Strategic Economic Plan 2014-2020	
Greater Lincolnshire Strategic Economic Plan 2014-2030	
Able Logistics Park	
Able Marine Energy Park	
North Killingholme Power Project	
Green Port Hull / Paull Local Development Order	
Humber Gas Pipeline Replacement Project	
Water Management and Flooding	
River Basin Management Plan (RBMP): Humber River Basin District	
Grimsby and Ancholme Catchment Flood Management Plan	
River Trent Catchment Flood Management Plan	
Humber Flood Risk Management Strategy	
Humber Estuary Coastal Authorities Group: Flamborough Head to Gibraltar Point Shoreline Management Plan 2010	
Nature Conservation	
Humber Management Scheme – Action Plan 2016	
Thorne and Hatfield Moors Site Improvement Plan	
Thorne Moors Water Level Management Plan	
The Humberhead Levels Partnership	
Humberhead Levels Nature Improvement Area	
Lincolnshire Biodiversity Action Plan 2015-20	
Lincolnshire Geodiversity Strategy 2017-21	
Recreation and Tourism	
North Lincolnshire Rights of Way Improvement Plan	
England Coast Path Project	
Other	
Local Transport Plan 2011 to 2026	
Humber Area Local Aggregate Assessment (draft)	
Waste Strategy 2012 - 2030	
Action Plan for the Scunthorpe PM10 AWMA	

6 Screening Assessment

6.1 Introduction

This section considers the various options outlined within the North Lincolnshire Local Plan Issues and Options document (North Lincolnshire Council, 2017) and identifies whether or not they are likely to have significant effects on site integrity, either alone or in-combination with other plans.

This screening assessment is done as a two-stage process. The first, coarse level screening stage, reviews each of the options presented in each topic area and identifies whether or not they could give rise to the impacts/pathways discussed in section 4. The second screening stage considers each international nature conservation site identified in section **Error! Reference source not found.** and whether those potential options, where impacts/pathways could potentially be generated, could impact upon the site. A high-level conclusion is then made as to whether the options under consideration, in relation to a specific site, are likely to have significant effects alone or in-combination with other plans and projects.

However, it should be noted, given that the Local Plan is currently at an early stage, with only Issues and Options currently developed, the assessment is conducted at a high level. Once more detailed policies have been identified at the next stage of plan development, a more detailed assessment of the impacts of each policy will be able to be conducted.

6.2 Initial Screening of Options

The initial screening of options is undertaken generically, based on all international nature conservation sites currently being considered in this HRA (see section **Error! Reference source not found.**). This is done based on a review of the broad 'type' of Option being presented. Table 6-1 summarises the broad types of option which it is considered can be screened out at this initial stage. Where options under the same broad topic are contrasting and potentially pose a risk to international nature conservation sites, those potentially posing a risk will be screened in to the assessment. The precautionary principle is also applied, and any options where there is uncertainty will also be screened into the assessment.

Table 6-1: Generic Option Types that can be Screened Out of the HRA at the Initial Screening Stage

Broad Option Type	Comment
General statements of policy	Section 4.3.2 of guidance produced by the European Communities (2000) on Article 6 of the Habitats Directive recognises that policy documents which show the general direction of political will, or intention of a government department or lower tier of local government, should not be treated as 'plans' under Article 6(3) of the Habitats Directive. This is because, typically, initiatives derived from these policy documents must then pass through the intermediary 'plan' stage before implementation.
General options / guidance on design that will not lead to development	Options relating to the expectations of the plan-making body when it is considering the qualitative criteria to apply to developments (e.g. construction style, housing mix etc.), but which do not lead to development themselves will be screened out. However, options with specific proposals or site allocations will remain screened in to the process.
External plans / projects	Options that relate to proposals in other plans or projects, that are then subsequently referred to within this plan (such as options that relate to continuing with policies previously included in the Local Development Framework and already assessed under the Habitats Regulations, or water resource allocation plans proposed under the WRMP) will be screened out. However, these will be assessed on an option-by-option basis.
Environmental protection options	Options which promote the protection of the natural or built environment will not typically have significant effects on international nature conservation sites and will be screened out. However, these will be assessed on an option-by-option basis.

Table 6-2: Initial Coarse Level Screening of Options (refer to Table 6-1)

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
Growth	Growth	A	Scunthorpe and Market Towns - Development focused on Scunthorpe and to a lesser extent the six market towns of Brigg, Barton upon Humber, Epworth, Crowle, Kirton in Lindsey and Winterton (Continuation of the Core Strategy). Scunthorpe would be the main area of growth. The market towns would continue to fulfil a supporting role for growth. Limited development would be supported in smaller rural settlements. This option represents a continuation of the current planning strategy for North Lincolnshire as set out in the Core Strategy, in effect rolling this forward from 2026 to 2036. This option would result in the continuation of the Lincolnshire Lakes proposal, which will deliver 6,000+ homes to the west of Scunthorpe.	**Yes -** These options relate to the strategic direction for growth to be promoted by the North Lincolnshire Local Plan. All options will result in development of sites and therefore have the potential to impact on international nature conservation sites via the following pathways: - Recreational Pressures - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
		B	Six Market Towns and Scunthorpe - Development focused equally on Scunthorpe and the six market towns of Brigg, Barton upon Humber, Epworth, Crowle, Kirton in Lindsey and Winterton. Scunthorpe and the market towns would be the main focus for future growth and development in North Lincolnshire. Compared to the current approach, each of the six market towns and Scunthorpe would have an equal role in meeting the growth needs for the district, rather than the majority of development being focused in Scunthorpe. Limited development would be supported in smaller rural settlements. This option represents a change from the current planning strategy as set out in the Core Strategy. It has more of an area-wide focus but does not rule out the Lincolnshire Lakes through a balanced spatial strategy.	
		C	Six Market Towns, Scunthorpe and Larger Service Centres - Development dispersed across Scunthorpe, the six market towns and Larger Service Centres across North Lincolnshire. Scunthorpe, the six market towns and a range of other large service centres would be the main focus for future growth and development in North Lincolnshire. This would put greater emphasis on villages to accommodate growth. The scale of development would be proportionate to their scale, character and respective capacity for	

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
			accommodating growth. This option represents a change from the current planning strategy as set out in the Core Strategy. It has a district-wide focus beyond the existing area of opportunity and spreads development beyond Scunthorpe and the market towns.	
		D	A New Settlement - Development of a new settlement or significant expansion of an existing settlement. This option would involve planning for a new settlement which could take different forms. It could be completely new or involve a very significant expansion of an existing village or settlement. This approach would need to be linked with another option as it would take time to develop a new community and would be unlikely to meet the needs of the whole district. Transport links and access to services, facilities and employment would be key considerations. This option represents a complete change from the current planning strategy for North Lincolnshire, as set out in the Core Strategy. Previous work has been carried out looking at suitable locations but locations are yet to be determined. The location would have a key influence on how much demand there might be from people living in adjoining areas to live there.	
		E	A Balanced Approach - This option would seek to deliver a more balanced approach to the location of new development in North Lincolnshire that would seek to maintain and enhance the vitality and viability of the areas' communities. This option would represent a move away from the current strategy set out in the Core Strategy. It will have an area-wide focus, spreading development across the area's towns and villages beyond Scunthorpe, the Market Towns and Larger Service Centres. Levels of growth in the towns and villages would be dependent upon their sustainability and ability to accommodate it. Consideration would be given to the availability of infrastructure and services and would take into account access to transport, employment and any environmental constraints. This would not necessarily mean that growth would happen everywhere. Larger development would still take place in Scunthorpe and the	

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
			Market Towns. Opportunities for growth would also be provided in the Larger Service Centres/Larger Rural Settlements and Smaller Rural Settlements through the provision of appropriately-sized allocations. This would support their prosperity and maintain local services and facilities.	
Meeting the Housing Need	Future housing growth	A	Baseline Population Growth - 365 homes per year	**Yes -** These options propose alternatives for future growth of housing and will lead to residential development. They have the potential to impact on international nature conservation sites via the following pathways: - Recreational Pressures - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
		B	Medium Economic Projection - 452 homes per year	
		C	Longer Term Economic Growth - 583 homes per year	
		D	Aspirational Economic Growth (Core Strategy) - 754 homes per year	
	Housing land allocations	A	Seek to take forward existing unimplemented housing land allocations to meet the housing needs. A number of the housing allocations have developer interest and are likely to come forward for development. Some of the sites may take longer to deliver due to viability issues.	**Yes -** These options will look to develop site allocations for housing and therefore have the potential to impact on international nature conservation sites via the following pathways: - Recreational Pressures - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
		B	Seek to allocate alternative sites to meet the housing needs. Landowners, agents and developers have put forward land for development through the Initial Regulation 18 Call for Sites consultation. The council is asking for any additional sites to be submitted for consideration as part of this consultation.	
	Housing mix	A	Continue with the current approach of ensuring all new housing developments provide a mixture of house types that reflect the findings of the North Lincolnshire Strategic Housing Market Assessment (SHMA) 2017 and any updates.	**No** - these options relate to housing mix only (i.e. the design criteria for developments) and therefore do not allocate sites for housing themselves.

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
		B	Ensure all new housing developments provide a mixture of housing types on a site by site basis using robust evidence which is different to the findings of the SHMA. If so, please state which evidence should be used.	
	Housing density	A	Set the housing density based the on emerging evidence identified within North Lincolnshire Strategic Housing Land Availability Assessment (SHLAA).	**Yes -** Whilst this policy relates to design criteria for residential development, variations in density will impact upon the number of people, vehicles etc, and, for example, could result in variations for demand in water or discharges of foul water. This could impact on international nature conservation sites in contrasting ways through the following pathways: - Recreational Pressures - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation
		B	Determine housing density on a site by site basis through the Development Management process.	
		C	Set out specific density requirements for each allocated site within planning policy.	
	Delivering rural exception sites	A	Continue the current approach to delivering affordable housing through rural exception sites. This option would deliver 100% affordable housing on sites adjacent to rural settlements that would not normally be used for housing development.	**Yes -** These options look to allocate sites for housing development in rural areas and will lead to residential development. They have the potential to impact on international nature conservation sites via the following pathways: - Recreational Pressures - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
		B	Seek to provide affordable housing on rural exception sites and allow the inclusion of market housing to cross-subsidise affordable provision.	
	Providing housing for older people	A	Allow developers to make their own decisions on house types and building standards.	**No** - these options relate to provision of housing for older people and relate to the make-up of housing developments on sites already allocated for development. They therefore do not allocate sites for
		B	Require developers to build a proportion of houses within housing schemes to the new optional building regulations standard aimed at	

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
			making homes more accessible and adaptable.	development themselves.
		C	Require developers to build bungalows, level access flats, multi-generational housing, sheltered housing or extra care housing as a proportion of all new housing developments.	
		D	Allocate specific sites for housing schemes for older people or those requiring extra care.	**Yes -** This option, in contrast to the other options under this broad topic, will allocate sites for residential development which could impact on international nature conservation sites via the following pathways: - Recreational Pressures - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
	Providing Gypsy and Traveller accommodation	A	Seek to allocate sites as part of residential allocations.	**No** - this option will allocate sites for Gypsies and Travellers within sites already allocated for residential development and will therefore not allocate any new sites for development itself. Residential allocations will be assessed in relation to policies developed under above options and further consideration of this option would be a duplication of assessment.
		B	Seek to allocate sites specifically for Gypsies and Travellers and travelling show people.	**Yes -** This option, in contrast to the other option under this broad topic, will allocate sites for Gypsy and Traveller accommodation which could impact on international nature conservation sites via the following pathways: - Recreational Pressures - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
				- Introduction of INNS
	Delivery of self-build and custom build development	A	Promote local authority land available specifically for self-builders via the Self-build and Custom Build Register.	**Yes -** These options look to identify plots for self-build housing developments and they have the potential to impact on international nature conservation sites via the following pathways: - Recreational Pressures - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
		B	Provide specific serviced plots on larger residential schemes specifically for self-builders. This could potentially allow a better mix of housing styles on larger schemes.	
Delivering jobs and supporting the economy	Employment sites within North Lincolnshire	A	Retain all existing allocated employment sites as identified within the Housing and Employment Land Allocations DPD (Retain all sites currently allocated for employment uses as employment allocations).	**No** - As this policy will just retain allocations for employment land already identified in the Housing and Employment Land Allocations DPD, and not suggest new sites, there is no requirement to further screen this option as it has been previously assessed. The conclusions of the previous assessment (North Lincolnshire Council, 2014) can be carried through for this Local Plan, should policies be developed under this option.
		B	Consider alternative uses on some of the sites which are currently allocated for employment (consider changing the allocation of any sites (by site reduction or de-allocation) which are currently allocated for employment and have not been developed).	**Yes -** These options will allocate new sites for employment development and could impact on international nature conservation sites via the following pathways: - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
		C	Allocate new sites for employment uses within North Lincolnshire (Consider allocating new sites for employment sites, potentially on Greenfield land).	
		D	Allocate new sites for employment uses within North Lincolnshire alongside the area's main transport corridors (Further employment growth should be directed towards the area's main transport corridors that take advantage of North Lincolnshire's transport linkages).	

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
	North Lincolnshire's rural economy	A	Support and encourage genuine proposals for rural enterprise (such as conversions of existing buildings and limited new build where required) within North Lincolnshire's rural areas. This option would help to facilitate and encourage small-scale employment proposals and help to reduce the need to travel in our rural areas.	**Yes -** These options will lead do the development of new employment sites in rural areas and could impact on international nature conservation sites via the following pathways: - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
		B	Allocate sites for small-scale rural employment opportunities. This option would target specific small-scale employment proposals within the rural area allowing new/established enterprises the scope to grow.	
	The visitor economy	A	Concentrate on our existing tourist sectors. This option would look to retain and expand existing tourist facilities in North Lincolnshire.	**Yes -** These options look to develop tourist assets in North Lincolnshire (existing or new) and could impact on international nature conservation sites via the following pathways: - Recreational pressure - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Introduction of INNS
		B	Develop new tourist attractions. This option would be to seek and encourage new tourist attractions into North Lincolnshire.	
	Scunthorpe town centre	A	Retain or make minor amendments only to the Town Centre boundary, including the primary shopping frontages as it currently is.	**No -** As these policies are focussed on Scunthorpe Town centre only, given that this area is already heavily urbanised and the distance between this area and the international nature conservation sites being considered in this HRA, no likely significant effects are anticipated.
		B	Significantly amend the Town Centre boundary (growing or reducing), including the primary shopping frontages, to allow a greater/different mix of town centre uses in the area.	
Managing the natural and historic environment	Biodiversity and geodiversity	A	In addition to the requirement to protect all biodiversity and geodiversity designated sites, where development is proposed adjacent to a designated site a buffer zone will be required around the site.	**No** - as these options relate to environmental protection they will not significantly impact upon international nature conservation sites.
		B	In addition to the requirement to protect all biodiversity and geodiversity designated sites, the enhancement of existing biodiversity in such designated sites should be encouraged through	

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
			the development of adjacent sites.	
	Landscape	A	Continue with the current policy approach adopted within the Core Strategy and North Lincolnshire Local Plan saved policies that designate landscapes.	**No** - as these options relate to environmental protection they will not significantly impact upon international nature conservation sites.
		B	Include a criteria-based policy that is applicable to both rural and urban areas to protect landscape with important character.	
		C	Identify areas of specific landscape character by setting out what makes them special using the North Lincolnshire Character Assessment.	
		D	Rely on the National Landscape Character Areas and the North Lincolnshire Landscape Areas (included in the Supplementary Planning Guidance) to guide development proposals without creating specific policy/policies.	
	Green and blue infrastructure	A	Create a Green and Blue Infrastructure Strategy linking parks, natural green spaces, historic landscape and waterscapes providing quality greenspace between settlements, connecting town to country with a natural and recreational resource.	**Yes -** These options look to develop Green and Blue infrastructure which will enhance the tourist resource in North Lincolnshire potentially attracting more visitors to the area and could impact on international nature conservation sites via the following pathways: - Recreational pressure - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
		B	Identify specific opportunities for major development proposals to provide additional green infrastructure to help provide any missing links in the network.	
	Local green spaces	A	Develop a criteria–based policy approach to development that is applicable to all development sites.	**No** - as these options relate to environmental protection they will not significantly impact upon international nature conservation sites.
		B	Designate specific land as LGS through the Local Plan in accordance with the requirements of the NPPF.	
	Historic natural and built heritage	A	Provide specific policies to safeguard historic landscapes, archaeological sites, listed buildings and conservation areas, together with non-designated identified buildings of townscape merit.	**No** - as these options relate to environmental protection they will not significantly impact upon international nature conservation sites.
		B	Have an overarching development management policy to protect all	

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
			heritage assets and retain conservation areas.	
		C	Rely on national guidance contained in the NPPF and National Planning Policy Guidance (NPPG) to retain all heritage assets.	
	Flood risk	A	No development should be allowed in areas of functional flood plain.	**No** - These options relate to guiding principles of development, in relation to flood risk, and do not specifically allocate any land for development and will therefore not significantly impact upon international nature conservation sites.
		B	Some development should be allowed in areas of high flood risk if the benefits outweigh the risk.	
		C	Continue with the flood risk management approach set out in the North Lincolnshire Core Strategy.	
		D	Develop a flexible policy approach in compliance with national and local policy (i.e. to not create flood risk on-site or elsewhere and to provide safe development) to development in flood risk areas bearing in mind we have many existing settlements within flood risk areas.	
	Water efficiency	A	Implement the higher water efficiency standard of 110 litres of water usage per person per day through a future Local Plan Review.	**Yes -** applying different water efficiency standards has the potential to alter demands for water within developments, potentially resulting in differing rates of abstraction. This could impact on international nature conservation sites via the following pathways: - Water Resource Use and Flow Regulation
		B	Continue to use the Building Regulations Standard of 125 litres of water usage per person per day.	
	Renewable & low carbon energy	A	Designate areas within the Local Plan for renewable and low carbon energy development (for example wind turbines and solar photovoltaic) without detrimental harm to North Lincolnshire landscape character and residential amenity.	**Yes -** These options promote renewable and low carbon energy, and whilst they do not allocate any sites, policies developed under them may do so and therefore these options could impact on international nature conservation sites via the following pathways: - Urbanisation - Atmospheric Pollution
		B	Require all new major development to provide a percentage of their forecast energy needs from onsite renewable and low-carbon energy technologies.	
Planning for a sustainable supply of minerals	Managing the impact of mineral development	A	Set out specific policies in the Local Plan for managing the impacts of mineral development on the wider environment and the restoration/after-use of mineral workings.	**Yes -** These options look to set policies for mineral development and whilst they do not allocate any sites, policies developed under them may do so and therefore these options could impact on international nature conservation sites via the following pathways: - Urbanisation - Atmospheric Pollution
		B	Do not include specific policies on managing the impacts of mineral development on the wider environment and the restoration/after-use of mineral workings. This would result in us relying on higher level national planning policy.	

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
				- Water Resource Use and Flow Regulation - Water Pollution/Siltation
Sustainable waste management	Identifying sites for waste management	A	Identify specific sites or locations in the Local Plan for sustainable waste management facilities.	**Yes** - These options are concerned with waste management and could result in the development of policies/sites which allocate land for waste management. This could impact on international nature conservation sites via the following pathways: - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation
		B	Use criteria-based policies to ensure that sustainable waste management facilities are developed in the most sustainable and appropriate locations.	
		C	Do not include any specific sites/locations or criteria-based policies and rely on national policy.	
	Managing the impact of waste development	A	Set out specific policies in the Local Plan for managing the impacts of waste development on the wider environment.	**Yes** - These options are concerned with waste management and could result in the development of policies/sites which allocate land for waste management or impact on waste management. This could impact on international nature conservation sites via the following pathways: - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation
		B	Do not include specific policies on managing the impacts of waste development on the wider environment and rely on higher level national planning policy.	
Creating sustainable communities and better places	Currently no broad or specific objectives are identified under this topic.			
Providing infrastructure and delivering the plan	Infrastructure provision	A	The Local Plan's growth strategy should be determined by making the best use of existing infrastructure.	**Yes** - These options relate to potential new/ improvements to existing infrastructure. Policies developed under these options could impact on international nature conservation sites via the following pathways: - Urbanisation - Atmospheric Pollution
		B	The Local Plan's growth strategy should not be constrained by existing infrastructure capacity and location.	

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
				- Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
	Sustainable transport	A	Require new developments to demonstrate within a Transport Statement how they facilitate walking and cycling and the use of public transport (this option would require applicants to demonstrate how they would try to reduce car dependence in new developments).	**Yes -** These options relate to development of sustainable transport and whilst they will likely lead to environmental protection policies, they may also increase visitor numbers or result in the development of new assets. Policies developed under these options could therefore impact on international nature conservation sites via the following pathways: - Recreational Pressures - Urbanisation - Atmospheric Pollution - Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS
		B	Require that new developments make available information on walking, cycling and public transport links to all new residents (this option would require developers to provide information to new residents/occupants on the public transport options available to them and the walking and cycling routes within the locality. This could be potentially difficult to enforce).	
		C	Seek contributions to infrastructure to support sustainable transport choices through S106 agreements (This option would require S106 funding towards the provision of sustainable transport measures by, for example, bus provision, walking routes and cycling routes).	
Managing and delivering development	Development limits	1	Continue to apply development limits to settlements as set out in the existing Core Strategy (2011) and Housing and Employment Land Allocations DPD (2016) and review them, as required, through the Local Plan process.	**No** - As this option will just continue to apply development limits set out in the existing Core Strategy and Housing and Employment Land Allocations DPD, there is no requirement to further screen this option as it has been previously assessed. The conclusions of the previous assessment (North Lincolnshire Council, 2014) can be carried through for this Local Plan, should policies be developed under this option.
		2	Do not apply settlement development limits and instead use criteria-based policies within the Local Plan to determine whether a development proposal is sustainable.	**Yes** - based on the precautionary principle these options could result in policies which result in development outside of allocated sites, or via an alternative approach. This could impact on international nature conservation sites via the following pathways: - Recreational Pressures - Urbanisation - Atmospheric Pollution
		3	An alternative approach (please tell us).	

Topic	Broad Option	Specific Options		Potential to Impact on international nature conservation sites?
				- Water Resource Use and Flow Regulation - Water Pollution/Siltation - Flood and Water Level Management - Introduction of INNS

6.3 Screening Assessment

Table 6-3: Screening Assessment

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
Humber Estuary SAC				
Coastal habitats **Coastal habitats (sensitive to abstraction)** **Estuarine and intertidal habitats** **Submerged marine habitats** **Anadromous fish** **Marine Mammals** - Given that the Grey Seal population for which this site is designated breeds at Donna Nook, over 30km from the North Lincolnshire boundary, it is unlikely to be impacted upon by the policies	Urbanisation	Being partly located within North Lincolnshire, any development promoted under policies that are included within the North Lincolnshire Local Plan, that develop from this Issues and Options document, have the potential to directly impact upon the qualifying features of the Humber Estuary SAC. This is particularly the case where development/allocations, either of housing or employment sites, are implemented in close proximity to the site boundary, or the supporting sites of Alkborough Flats and Chowder Ness. This could result in direct habitat loss where this occurs within the site boundary, or indirect impacts such as physical damage, habitat fragmentation, disturbance or increased air pollution (see below). **Likely Significant Effect**	Given that a number of the plans and projects reviewed have the potential to significantly impact upon the Humber Estuary SAC, and require mitigation and avoidance measures to offset adverse impacts, there is the potential that in-combination effects could arise with the North Lincolnshire Local Plan. Further assessment will be undertaken at later stages of plan development.	**Likely significant effect (alone and in-combination)**
	Recreational Pressures	As a population increase of 6% is anticipated in North Lincolnshire by 2039, with the greatest increase (55.4%) in people over 65 who have the greatest amount of leisure time, it is likely that increasing numbers of visitors will use the amenity resource provided by the estuary, potentially result in increased disturbance (i.e. visual and noise), trampling and air pollution from increasing traffic (see below). Options relating to the visitor economy, blue and green infrastructure and local green spaces however, could help to reduce pressures by providing alternative amenity resources, however, depending on the actual wording of the policies developed they could also attract increasing numbers of visitors to the area potentially further exacerbating recreational pressures. **Likely Significant Effect**		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
developed in the North Lincolnshire Local Plan following on from this Issues and Options Document. Whilst Grey Seal may use habitats within the estuary outside of Donna Nook for feeding, it is not considered that the Local Plan will have a likely significant effect on this qualifying feature.	Atmospheric Pollution	Increased population in the area expected during the lifetime of the plan will likely increase the number of vehicles using the local road and motorway network. However, the Highways Agency (2009) reports that pollutant levels can be expected to fall substantially at a distance less than 50m from the source and can be expected to fall to background levels at more than 200m. However, at this stage, the areas to be allocated for development are not known and could potentially be located in close proximity to the estuary, or connect to roads that are. In addition, the Issues and Options document contains options relating to the improvement of existing infrastructure, or potentially the development of new assets. Furthermore, options that lead to the development of employment sites, mineral developments and waste management sites could also lead to additional point sources in the catchment. This could have a significant impact on the site as APIS (2017) identify that a number of qualifying features (i.e. estuaries, coastal lagoons, saltmarsh habitats and dune habitats) are potentially sensitive to eutrophication and/or acidification. **Likely Significant Effect**		
	Water Resource Use and Flow Regulation	Given the highly developed coastline of the Humber Estuary, water abstraction and also discharges have the potential to significantly effect this site. However, the Anglian Water WRMP (Anglian Water, 2015) identifies that, even with projected increases in the number of properties across Central Lincolnshire, there will still be a surplus of water over the plan period (2015-2040) which covers the lifetime of the North Lincolnshire Local Plan. Also, in relation to the Yorkshire Water WRMP, Cascade Consulting (2013) identify that there are number of schemes across the estuary that could impact on flow conditions in the Humber, but that overall the effects of abstraction within and neighbouring the Humber catchment are unlikely to be significant. However, as the exact policies of the Local Plan are not currently known, based on the precautionary principle, this potential impact remains screened in to the assessment in relation to the Humber Estuary. **Likely Significant Effect**		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
	Water Pollution/Siltation	A significant number of the options within the Issues and Options document have the potential to lead to policies that will increase water pollution/siltation, both during any construction phases or operationally. For example, options relating to future housing growth/land allocations, employment sites, the rural economy, mineral development, waste management and infrastructure all have the potential to result in policies that could potentially lead to issues such as increased wastewater discharges, road run-off and surface water run-off, potentially adversely impacting on water quality in the Humber Estuary. **Likely Significant Effect**		
	Flood and Water Level Management	A significant number of options within the Issues and Options document have the potential to lead to policies that could either increase flooding (e.g. through housing/ employment site development increasing surface water run-off) or require additional flood risk management measures to protect developments from flooding. This could adversely impact upon the Humber Estuary, in particular through resulting in coastal squeeze. Whilst a number of other plans have been developed in relation to the implementation of flood risk management around the Humber Estuary, and assessed under the Habitats Regulations process, given that the exact policies of the North Lincolnshire Local Plan are still to be determined, a precautionary approach is adopted and this pathway remains screened in to the assessment. **Likely Significant Effect**		
	Introduction of INNS	Development activities that are promoted under the Local Plan have the potential to result in the introduction or spread of INNS, particularly during any construction phases. This could significantly effect the native flora and fauna of the Humber Estuary SAC. **Likely Significant Effect**		
Hatfield Moor SAC				
Bogs and wet habitats (sensitive to	Urbanisation	Given that Hatfield Moor SAC is located outside of the North Lincolnshire boundary, direct impacts of urbanisation upon it (e.g. habitat loss) are unlikely. However, indirect impacts could still arise,	None of the plans and projects reviewed were identified as potentially resulting in adverse	**Likely significant effect (alone and**

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
acidification)		for example from trampling, habitat fragmentation, disturbance and air pollution (see below), depending on the policies that are selected following this Issues and Options Document. **Likely Significant Effect**	impacts on Hatfield Moor SAC. However, dependent on the policies included in the North Lincolnshire Local Plan, there is the potential that in-combination effects could occur. Further assessment will be undertaken at later stages of plan development.	**in-combination)**
	Recreational Pressures	As a population increase is anticipated in North Lincolnshire over the life of the plan, with the greatest increase in people over 65 who have the greatest amount of leisure time, there is the potential that an increasing number of visitors will use the moors. This could cause physical damage such as trampling/erosion or disturbance, potentially resulting in changes in species composition (Pellerin *et al*., 2006). Options relating to the visitor economy, blue and green infrastructure and local green spaces, could help to reduce pressures by providing alternative amenity resources, however, depending on the actual wording of the policies developed they could also attract increasing numbers of visitors to the wider area potentially further exacerbating recreational pressures. **Likely Significant Effect**		
	Atmospheric Pollution	Lowland raised bog habitats are vulnerable to atmospheric nitrogen deposition, especially of ammonia. Although anticipated increases in population during the life of the plan will likely increase the number of vehicles using the local road and motorway network, the Highways Agency (2009) reports that pollutant levels can be expected to fall substantially at a distance less than 50m from the source and can be expected to fall to background levels at more than 200m. Whilst the areas to be allocated for development are not currently known, they could potentially be located in close proximity to the site boundary, or connect to roads that are. In addition, the Issues and Options document contains options relating to the improvement of existing infrastructure, or potentially the development of new assets. Furthermore, options that lead to the development of employment sites, mineral developments and waste management sites could also lead to additional point sources of pollution in the local area. **Likely Significant Effect**		
	Water Resource Use and Flow	Lowland raised bogs are particularly sensitive to water abstraction which can impact on the vegetation communities present. Hatfield		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
	Regulation	Moors falls within the Yorkshire Water service area and Cascade Consulting (2013) determined that abstraction identified in the WRMP, which covers the life of the plan, will have a negligible impact on the moors. However, as the exact policies of the Local Plan are not currently known, based on the precautionary principle, this potential impact remains screened in to the assessment in relation to Hatfield Moor SAC. **Likely Significant Effect**		
	Water Pollution/Siltation	Several options within the Issues and Options document have the potential to lead to policies that will increase water pollution/siltation, both during any construction phases or operationally. For example, options relating to future housing growth/land allocations, employment sites, the rural economy, mineral development, waste management and infrastructure all have the potential to result in policies that could lead to issues such as increased wastewater discharges, road run-off and surface water run-off potentially adversely impacting on water quality. However, as the site is effectively located upstream of North Lincolnshire, it is unlikely that sources of water pollution within North Lincolnshire would be able to impact on this SAC. **No Likely Significant Effect**		
	Flood and Water Level Management	A significant number of options within the Issues and Options document have the potential to lead to policies that could either increase flooding (e.g. through housing/ employment site development increasing surface water run-off) or require additional flood risk management measures to protect developments from flooding. Whilst a number of other plans have been developed in relation to implementation of flood risk management in the local area, and assessed under the Habitats Regulations process, given that the exact policies of the North Lincolnshire Local Plan are still to be determined, a precautionary approach is adopted and this pathway remains screened in to the assessment. **Likely Significant Effect**		
	Introduction of INNS	Development activities that are promoted under the Local Plan have the potential to result in the introduction or spread of INNS, particularly during any construction phases. This could significantly effect the		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
		native flora and fauna of the Hatfield Moor SAC which directly abuts the North Lincolnshire boundary. **Likely Significant Effect**		
Thorne Moor SAC				
Bogs and wet habitats (sensitive to acidification)	Urbanisation	Given that Thorne Moor SAC falls partly inside the North Lincolnshire boundary, direct impacts of urbanisation upon it (e.g. habitat loss) could occur, although are unlikely. However, indirect impacts could arise, for example from trampling, habitat fragmentation, disturbance and air pollution (see below), depending on the policies that are selected following this Issues and Options Document. **Likely Significant Effect**	None of the plans and projects reviewed were identified as potentially resulting in adverse impacts on Thorne Moor SAC. However, dependent on the policies included in the North Lincolnshire Local Plan, there is the potential that in-combination effects could occur. Further assessment will be undertaken at later stages of plan development.	**Likely significant effect (alone and in-combination)**
	Recreational Pressures	As a population increase is anticipated in North Lincolnshire over the life of the plan, with the greatest increase in people over 65 who have the greatest amount of leisure time, there is the potential that an increasing number of visitors will use the moors for recreation. This could cause physical damage such as trampling/erosion or disturbance, potentially resulting in changes in species composition (Pellerin *et al*., 2006). Options relating to the visitor economy, blue and green infrastructure and local green spaces, could help to reduce pressures by providing alternative amenity resources, however, depending on the actual wording of the policies developed they could also attract increasing numbers of visitors to the wider area potentially further exacerbating recreational pressures. **Likely Significant Effect**		
	Atmospheric Pollution	Lowland raised bog habitats are vulnerable to atmospheric nitrogen deposition, especially of ammonia. Although anticipated increases in population during the life of the plan will likely increase the number of vehicles using the local road and motorway network, the Highways Agency (2009) reports that pollutant levels can be expected to fall substantially at a distance less than 50m from the source and can be expected to fall to background levels at more than 200m. Whilst the areas to be allocated for development are not currently known, they could potentially be located in close proximity to the site boundary, or connect to roads that are. In addition, the Issues and Options document contains options relating to the improvement of existing		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
		infrastructure, or potentially the development of new assets. Furthermore, options that lead to the development of employment sites, mineral developments and waste management sites could also lead to additional point sources of pollution in the local area. **Likely Significant Effect**		
	Water Resource Use and Flow Regulation	Lowland raised bogs are particularly sensitive to water abstraction which could impact on the vegetation communities present. Thorne Moors falls within the Yorkshire Water service area and Cascade Consulting (2013) identify that abstraction identified in the WRMP to meet water supplies over the life of the plan, will have a negligible impact on the moors as abstraction will be within licensed limits. However, as the exact policies of the Local Plan are not currently known, based on the precautionary principle, this potential impact remains screened in to the assessment in relation to Thorne Moors SAC. **Likely Significant Effect**		
	Water Pollution/Siltation	Several options within the Issues and Options document have the potential to lead to policies that will increase water pollution/siltation, both during any construction phases or operationally. For example, options relating to future housing growth/land allocations, employment sites, the rural economy, mineral development, waste management and infrastructure all have the potential to result in policies that could lead to issues such as increased wastewater discharges, road run-off and surface water run-off potentially adversely impacting on water quality on Thorne Moors. **Likely Significant Effect**		
	Flood and Water Level Management	A significant number of options within the Issues and Options document have the potential to lead to policies that could either increase flooding (e.g. through housing/ employment site development increasing surface water run-off) or require additional flood risk management measures to protect developments from flooding. Whilst a number of other plans have been developed in relation to implementation of flood risk management in the local area, and assessed under the Habitats Regulations process, given that the exact policies of the North Lincolnshire Local Plan are still to be determined,		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
		a precautionary approach is adopted and this pathway remains screened in to the assessment. **Likely Significant Effect**		
	Introduction of INNS	Development activities that are promoted under the Local Plan have the potential to result in the introduction or spread of INNS, particularly during any construction phases. This could significantly effect the native flora and fauna of the Thorne Moor SAC. **Likely Significant Effect**		
River Derwent SAC				
Riverine habitats and running waters **Anadromous fish** **Non-migratory fish and invertebrates of rivers** **Mammals of riverine habitats**	Urbanisation	Being located 14km away from the North Lincolnshire boundary, direct and indirect impacts on the qualifying interests of this SAC from urbanisation and development promoted by policies in the plan are unlikely. **No Likely Significant Effect**	None identified due to the distance of this site from the North Lincolnshire boundary, its position upstream, and the nature of the interest features present.	**No Likely Significant Effect (alone and in-combination)**
	Recreational Pressures	Whilst an increase in population in North Lincolnshire is expected during the lifetime of the plan, particularly of over 65s with a considerable amount of leisure time, it is unlikely to impact on the qualifying features of the SAC due to the distance from the North Lincolnshire boundary. Furthermore, Natural England (2014h) does not identify recreational pressures as a particular threat to this site. **No Likely Significant Effect**		
	Atmospheric Pollution	Although an increase in population is expected in North Lincolnshire during the lifetime of the plan, which is likely to result in increases in vehicles using the local road and motorway network, adverse impacts are not anticipated given the distance to the site which is over 14km from the local authority boundary. The Highways Agency (2009) reports that pollutant levels can be expected to fall substantially at a distance less than 50m from the source and can be expected to fall to background levels at a distance of more than 200m. Combined with technological improvements reducing vehicle emissions no significant effects are anticipated. **No Likely Significant Effect**		
	Water Resource Use and Flow	Whilst over-abstraction is identified as a threat to the interest features of this site, with the potential to lead to reduced flows (Natural		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
	Regulation	England, 2014h), the distance from the North Lincolnshire boundary means that abstractions to support development and Local Plan policies within North Lincolnshire are unlikely to impact on this SAC. Furthermore, any increase in discharges associated with policies developed under the local plan are unlikely to impact upon this SAC, which is upstream of North Lincolnshire. **No Likely Significant Effect**		
	Water Pollution/Siltation	Whilst water pollution and siltation is identified by Natural England (2014h) as a significant issue for the River Derwent SAC, given the distance between North Lincolnshire and this site, and that the area is located downstream of it, no significant effects are identified. **No Likely Significant Effect**		
	Flood and Water Level Management	Given the distance between the River Derwent SAC and North Lincolnshire, and that the local authority is located downstream of the designated site, any increased flood risk arising from implementation of policies promoted by the Local Plan, or need to implement flood risk management measures, is not anticipated to have a likely significant effect on the qualifying features of this SAC. **No Likely Significant Effect**		
	Introduction of INNS	Whilst the River Derwent does have issues with INNS, given the distance between the SAC and the North Lincolnshire boundary (14km) and that it is located upstream, no significant effects are anticipated. **No Likely Significant Effect**		
Humber Estuary SPA				
Birds of coastal habitats **Birds of estuarine habitats**	Urbanisation	Being partly located within North Lincolnshire, any development promoted under policies that are included within the North Lincolnshire Local Plan, that arise from this Issues and Options document, have the potential to directly impact upon the qualifying features of the Humber Estuary SPA. This is particularly the case where development/allocations, either of housing or employment sites, are implemented in close proximity to the site boundary, or the supporting sites of Alkborough Flats and Chowder Ness. This could result in direct habitat loss where this occurs within the site boundary, or	Given that a number of the plans and projects reviewed have the potential to significantly impact upon the Humber Estuary SPA, and require mitigation and avoidance measures to offset adverse impacts, there is the potential that in-combination	**Likely significant effect (alone and in-combination)**

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
		indirect impacts such as physical damage, habitat fragmentation, disturbance or increased air pollution (see below). In particular, any policies for renewable and low carbon energy, if allocated to sites around the estuary, could result in significant habitat fragmentation for bird species using the site and nearby functionally linked habitats. **Likely Significant Effect**	effects could arise with the North Lincolnshire Local Plan. Further assessment will be undertaken at later stages of plan development.	
	Recreational Pressures	As a population increase of 6% is anticipated in North Lincolnshire by 2039, with the greatest increase (55.4%) in people over 65 who have the greatest amount of leisure time, it is likely that increasing numbers of visitors will use the amenity resource provided by the estuary, potentially resulting in increased disturbance (i.e. visual and noise) to the bird populations using the site, along with trampling and air pollution from increasing traffic which could impact on supporting habitats (see below). Options relating to the visitor economy, blue and green infrastructure and local green spaces, could help to reduce pressures by providing alternative amenity resources, however, depending on the actual wording of the policies developed they could also attract increasing numbers of visitors to the area potentially further exacerbating recreational pressures. **Likely Significant Effect**		
	Atmospheric Pollution	Increased population in North Lincolnshire, expected during the lifetime of the plan, will likely increase the number of vehicles using the local road and motorway network. However, the Highways Agency (2009) reports that pollutant levels can be expected to fall substantially at a distance less than 50m from the source and can be expected to fall to background levels at more than 200m. However, at this stage, the areas to be allocated for development are not known and could potentially be located in close proximity to the estuary, or connect to roads that are. In addition, the Issues and Options document contains options relating to the improvement of existing infrastructure, or potentially the development of new assets. Furthermore, options that lead to the development of employment sites, mineral developments and waste management sites could also lead to additional point sources of pollution in the catchment. This could have a significant impact on the site as APIS (2017) identify that fen, saltmarsh and dune grasslands, which support a number birds for which the site is		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
		designated, are sensitive to eutrophication, potentially impacting on community composition, increasing grass dominance and soil acidification). **Likely Significant Effect**		
	Water Resource Use and Flow Regulation	Given the highly developed coastline of the Humber Estuary, water abstraction and also discharges have the potential to significantly effect the habitats that support the bird species for which this site is designated. However, the Anglian Water WRMP (Anglian Water, 2015) identifies that, even with projected increases in the number of properties across Central Lincolnshire, there will still be a surplus of water over the plan period (2015-2040) which also covers the lifetime of the North Lincolnshire Local Plan. Also, in relation to the Yorkshire Water WRMP, Cascade Consulting (2013) identify that there are number of schemes across the estuary that could impact on flow conditions in the Humber, but, that overall, the effects of abstraction within and neighbouring the Humber catchment are unlikely to be significant. However, as the exact policies of the Local Plan are not currently known, based on the precautionary principle, this potential impact remains screened in to the assessment in relation to the Humber Estuary. **Likely Significant Effect**		
	Water Pollution/Siltation	A significant number of the options within the Issues and Options document have the potential to lead to policies that will increase water pollution/siltation, both during any construction phases or operationally. For example, options relating to future housing growth/land allocations, employment sites, the rural economy, mineral development, waste management and infrastructure all have the potential to result in policies that could lead to issues such as increased wastewater discharges, road run-off and surface water run-off potentially adversely impacting on water quality in the Humber Estuary and the habitats that support the bird species for which this site is designated. **Likely Significant Effect**		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
	Flood and Water Level Management	A significant number of options within the Issues and Options document have the potential to lead to policies that could either increase flooding (e.g. through housing/ employment site development increasing surface water run-off) or require additional flood risk management measures to protect developments from flooding. This could adversely impact on the Humber Estuary, in particular through resulting in coastal squeeze, which could result in a loss of intertidal habitat which the bird species for which the SPA is designated rely upon. Whilst a number of other plans have been developed in relation to the implementation of flood risk management around the Humber Estuary, and assessed under the Habitats Regulations process, given that the exact policies of the North Lincolnshire Local Plan are still to be determined, a precautionary approach is adopted and this pathway remains screened in to the assessment. **Likely Significant Effect**		
	Introduction of INNS	Development activities that are promoted under the Local Plan have the potential to result in the introduction or spread of INNS, particularly during any construction phases. This could significantly effect the native flora and fauna of the Humber Estuary SPA. **Likely Significant Effect**		
Thorne and Hatfield Moors SPA				
Birds of lowland heaths and brecks **Birds of lowland freshwaters and their margins**	Urbanisation	Given that Thorne and Hatfield Moors SPA falls partly inside the North Lincolnshire boundary, direct impacts of urbanisation upon it (e.g. habitat loss of areas upon which Nightjar rely) could occur, although are unlikely. However, indirect impacts could arise, for example, from trampling, habitat fragmentation, disturbance and air pollution (see below), depending on the policies that are selected following this Issues and Options Document. In particular, any policies for renewable and low carbon energy (i.e. wind farms), if allocated to sites around the moors could result in significant habitat fragmentation, potentially impacting upon Nightjar migration routes. **Likely Significant Effect**	None of the plans and projects reviewed were identified as potentially resulting in adverse impacts on Thorne and Hatfield Moors SPA. However, dependent on the policies included in the North Lincolnshire Local Plan, there is the potential that in-combination effects could occur. Further assessment will be undertaken at later stages of plan development.	**Likely significant effect (alone and in-combination)**
	Recreational Pressures	As a population increase is anticipated in North Lincolnshire over the life of the plan, with the greatest increase in people over 65 who have the greatest amount of leisure time, there is the potential that an		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
		increasing number of visitors will use the moors for recreation. This could cause physical damage such as trampling/erosion of the habitats upon which Nightjar rely, or disturbance. Options relating to the visitor economy, blue and green infrastructure and local green spaces, could help to reduce pressures by providing alternative amenity resources, however, depending on the actual wording of the policies developed, they could also attract increasing numbers of visitors to the wider area potentially further exacerbating recreational pressures. **Likely Significant Effect**		
	Atmospheric Pollution	Lowland raised bog habitats are vulnerable to atmospheric nitrogen deposition, especially of ammonia. APIS (2017) identify that there is the potential for negative impacts to arise on Nightjar populations (no data is currently available for Common Crane) from eutrophication adversely impacting on the supporting habitats of this species, for example through a transition from heather to grass dominance or changes in plant biochemistry. Although anticipated increases in population during the life of the plan will likely increase the number of vehicles using the local road and motorway network, the Highways Agency (2009) reports that pollutant levels can be expected to fall substantially at a distance less than 50m from the source and can be expected to fall to background levels at more than 200m. Whilst the areas to be allocated for development are not currently known, they could potentially be located in close proximity to the site boundary, or connect to roads that are. In addition, the Issues and Options document contains options relating to the improvement of existing infrastructure, or potentially the development of new assets. Furthermore, options that lead to the development of employment sites, mineral developments and waste management sites could also lead to additional point sources of pollution in the local area. Given the current lack of information on where development will be located, based on the precautionary principle, there is the potential that the broad habitats supporting Nightjar populations could be significantly impacted upon by atmospheric pollution. **Likely Significant Effect**		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
	Water Resource Use and Flow Regulation	Lowland raised bogs are particularly sensitive to water abstraction which could impact on the vegetation communities present, and consequently the Nightjar and Common Crane populations they support. Thorne and Hatfield Moors SPA falls within the Yorkshire Water service area and Cascade Consulting (2013) identify that abstraction identified in the WRMP to meet water supplies over the life of the plan, will have a negligible impact on the moors. However, as the exact policies of the Local Plan are not currently known, based on the precautionary principle, this potential impact remains screened in to the assessment in relation to Thorne and Hatfield Moors SPA. **Likely Significant Effect**		
	Water Pollution/Siltation	Several options within the Issues and Options document have the potential to lead to policies that will increase water pollution/siltation, both during any construction phases or operationally. For example, options relating to future housing growth/land allocations, employment sites, the rural economy, mineral development, waste management and infrastructure all have the potential to result in policies that could lead to issues such as increased wastewater discharges, road run-off and surface water run-off potentially significantly effecting water quality of the Thorne Moors component of the SPA. However, in relation to the Hatfield Moors component of the site, as it is effectively located upstream of North Lincolnshire, it is unlikely that sources of water pollution within the local authority would be able to impact upon this SPA. **Likely Significant Effect**		
	Flood and Water Level Management	A significant number of options within the Issues and Options document have the potential to lead to policies that could either increase flooding (e.g. through housing/ employment site development increasing surface water run-off) or require additional flood risk management measures to protect developments from flooding. Whilst a number of other plans have been developed in relation to the implementation of flood risk management in the local area, and assessed under the Habitats Regulations process, given that the exact policies of the North Lincolnshire Local Plan are still to be determined, a precautionary approach is adopted and this pathway remains		

Qualifying Features	Potential Pathway of Impact	Mechanism of Effect/Impact, if Known (i.e. options likely to have a significant impact)	Potential In-combination Effects with other Plans	Screening Conclusion
		screened in to the assessment. **Likely Significant Effect**		
	Introduction of INNS	Development activities that are promoted under the Local Plan have the potential to result in the introduction or spread of INNS, particularly during any construction phases. This could significantly effect the native flora and fauna of the Thorne and Hatfield Moors SAC. **Likely Significant Effect**		
Humber Estuary Ramsar Site				
Coastal habitats **Coastal habitats (sensitive to abstraction)** **Estuarine and intertidal habitats** **Amphibia** **Birds of coastal habitats** **Birds of estuarine habitats** **Marine Mammals** - See conclusion above in relation to Humber Estuary SAC regarding the screening out of Grey Seal from this assessment.	Recreational Pressures	Given that the Humber Estuary SAC and SPA is designated for very similar qualifying features to the Ramsar Site the assessments detailed above are also considered applicable to the Ramsar Site. **Likely Significant Effect** The exception to this is the qualifying feature of amphibia, which relates to populations of Natterjack Toad. This population is located at Saltfleetby-Theddlethorpe dunes on the coast between Cleethorpes and Mablethorpe, over 35km from the North Lincolnshire boundary. Given this considerable distance, it is not considered that this qualifying feature will be significantly affected by policies developed following the North Lincolnshire Issues and Options Document. **No Likely Significant Effect**	Given that a number of the plans and projects reviewed have the potential to significantly impact upon the Humber Estuary Ramsar Site, and require mitigation and avoidance measures to offset adverse impacts, there is the potential that in-combination effects could arise with the North Lincolnshire Local Plan. Further assessment will be undertaken at later stages of plan development.	**Likely significant effect (alone and in-combination**
	Urbanisation			
	Atmospheric Pollution			
	Water Resource Use and Flow Regulation			
	Water Pollution/Siltation			
	Flood and Water Level Management			
	Introduction of INNS			

6.4 Screening Statement and Conclusion

Given its early stage of preparation, options currently detailed in the North Lincolnshire Issues and Options Document have the potential to lead to the development of policies which could significantly impact upon international nature conservation sites in or around North Lincolnshire. The most likely effects are related to pressures from urbanisation (e.g. new housing development or new employment sites), recreational activities, atmospheric pollution, introduction of INNS, and pathways acting through the water environment (i.e. water resource use and flow regulation, water pollution/siltation and flooding and water level management).

This Screening Assessment has determined that the Options currently detailed in the North Lincolnshire Issues and Options Document could potentially have significant effects, both alone and in-combination with other plans and projects, on the following sites:

- Humber Estuary SAC
- Hatfield Moor SAC
- Thorne Moor SAC
- Humber Estuary SPA
- Thorne and Hatfield Moors SPA
- Humber Estuary Ramsar Site

Therefore, an Appropriate Assessment is required to assess in more detail the likely nature of the effects on the integrity of these international nature conservation sites.

The assessment further determined, that due to its distance from the North Lincolnshire boundary, and it being situated upstream of the area, the Local Plan is not likely to have significant effects, either alone or in-combination with other plans or projects, on the following international nature conservation site:

- River Derwent SAC

It should be noted, however, that as plan development is only at the Issues and Options stage, this assessment has been undertaken at a high level. Once policies have been developed, this screening assessment will need to be reviewed to further refine the results based on more specific policy details.

Appendices

A Review of Other Plans and Projects that could act In-combination with the North Lincolnshire Local Plan

Document	Description of Plan / Project	Potential in-combination effects on international nature conservation sites
Land Use Planning		
Lincolnshire Lakes	This project will create a number of high quality, sustainable village communities on land between the western edge of Scunthorpe and the River Trent, set within an attractive waterside environment with major opportunities for leisure, sport and recreation. It will also provide an ideal setting for new businesses with the creation of new high-quality employment space and a Business Park. The Lincolnshire Lakes Area Action Plan (AAP) has been produced to set the planning policy framework to deliver the development in a properly planned way and this was adopted in May 2016.	The HRA produced for the Lincolnshire Lakes AAP identified that adverse impacts could arise on the Humber Estuary SAC/SPA/Ramsar Site through urbanisation, recreational disturbance, air pollution and loss of supporting habitat. However, the HRA concluded that the Lincolnshire Lakes AAP would not have likely significant effects on the Humber, either alone or in-combination with other plans and projects. This is the case so long as any expansion to the allocated developed land was further assessed in an updated HRA, any future expansion of Scunthorpe Port was subject to a project-specific HRA and that raising the right bank of the River Trent would adhere to standard water quality controls and would be undertaken outside of the wintering bird season. The proposals for the Lincolnshire Lakes project are still being development and therefore in-combination effects could arise with the North Lincolnshire Local Plan if policies within it lead to further developments/land allocation changes around the Lincolnshire Lakes area.
Initial Draft Bassetlaw Plan	Bassetlaw District Council is in the early stages of preparing the Bassetlaw Plan. The new Local Plan for Bassetlaw and establish the long-term approach to development in the District up to the year 2034.	As the plan is still in development a HRA has yet to be produced for it. Dependent on the policies contained within the plan, and the findings of the HRA, there is the potential that in-combination effects could arise with the North Lincolnshire Local Plan, particularly in relation to Thorne and Hatfield Moors which are the closest international nature conservation sites to Bassetlaw. Further assessment will be undertaken at later stages of plan development.
Doncaster Local Plan	The emerging Doncaster Local Plan will replace the adopted Unitary Development Plan and Local Development Framework. It will provide the new planning strategy for the borough and will provide a comprehensive statement of the borough's most important planning policies and will set out detailed development management policies to guide new development in the borough.	As the plan is still in development a HRA has yet to be produced for it. Dependent on the policies contained within the plan, and the findings of the HRA, there is the potential that in-combination effects could arise with the North Lincolnshire Local Plan, particularly in relation to Thorne and Hatfield Moors which are the closest international nature conservation sites to Doncaster. Further assessment will be undertaken at later stages of plan development.
East Riding Local Plan	This is a suite of adopted planning documents that together provide the long-term development plan for the East Riding till 2029. A number of documents make up the plan including, the strategy document, the allocations document and the Bridlington Town Centre Area Action Plan.	The HRA for the strategy document and allocation plan reached similar conclusions that land allocated for development at Hedon Haven would result in the loss of functional habitat used by birds from the adjacent Humber Estuary, however, mitigation measures including enhancement of habitat at Newton Garth and Hedon Haven will provide alternative wet grassland sites which will compensate for the loss of habitat. As the North Lincolnshire Local Plan is still in development, there is the potential that in-combination effects could arise dependent on the policies contained within it, particularly in relation to Thorne and Hatfield Moors which are the closest international nature conservation sites to the East Riding. Further assessment will be undertaken at later stages of plan development.

Document	Description of Plan / Project	Potential in-combination effects on international nature conservation sites
		Given the distance between North Lincolnshire and Bridlington it is not considered that the Area Action Plan for this town centre would have in-combination effects with the North Lincolnshire Local Plan.
Hull Local Plan	Hull City Council is currently preparing a Hull Local Plan that will be used to guide development in the city up to 2032. It will identify land for different uses and once adopted, its policies will be used to determine planning applications	As the plan is still in development a HRA has yet to be produced for it. Dependent on the policies contained within the plan, and the findings of the HRA, there is the potential that in-combination effects could arise with the North Lincolnshire Local Plan, particularly in relation to the Humber Estuary which are the closest international nature conservation site to Hull. Further assessment will be undertaken at later stages of plan development.
North East Lincolnshire Local Plan	The Local Plan for North East Lincolnshire sets out the vision and objectives for the Borough, allocates sites for housing, employment and other forms of development and sets out development management policies for the Borough. It has yet to be adopted, however, it is at a relatively advanced stage of development.	The HRA produced for the pre-submission draft of the North East Lincolnshire Local Plan concluded that adverse impacts would not arise on international nature conservation sites in and around the local authority area, so long as mitigation was implemented. Mitigation measures included modifying/strengthening policy text so that adverse impacts could be avoided, undertaking project-specific HRAs as developments came forward, following good practice construction techniques, promoting sustainable transport methods and improving green infrastructure/open spaces, amongst others. However, as the North Lincolnshire Local Plan is still in development there is the potential that in-combination effects could arise dependent on the policies contained within it, particularly in relation to the Humber Estuary which are the closest international nature conservation site to North East Lincolnshire. Further assessment will be undertaken at later stages of plan development.
Central Lincolnshire Local Plan	The West Lindsey Local Plan (First Review) was adopted on 19 June 2006 and formally replaced by the Central Lincolnshire Local Plan on 24 April 2017. Central Lincolnshire covers the combined areas of the City of Lincoln, North Kesteven and West Lindsey. The Central Lincolnshire Local Plan includes policies for the growth and regeneration of Central Lincolnshire up to 2036. The Local Plan includes policies to make sure that settlements grow in the right way, ensure homes and employment sites are located where needed, and ensures communities are sustainable, accessible and inclusive.	The HRA for the Central Lincolnshire Local Plan concluded that it would be unlikely to have a significant negative effect on an international nature conservation site, either alone or in combination with other plans or projects. It found that the Central Lincolnshire Local Plan mitigated against all of its own potential significant effects, which could be taken together with the positive mitigating impacts of other plans and projects which address, avoid or reduce potential significant negative effects on international nature conservation sites. However, as the North Lincolnshire Local Plan is still in development there is the potential that in-combination effects could arise dependent on the policies contained within it, for example as a hydrological connection, via the River Trent, does exist between Central Lincolnshire and North Lincolnshire. Further assessment will be undertaken at later stages of plan development.
Appleby, Brigg, Bonby, Elsham, Saxby All Saints, South Ferriby, Winterton and Worlaby Neighbourhood Plans	Whilst these Neighbourhood Plans have yet to be developed, these parishes have been designated as Neighbourhood Areas and are in the process of plan development. They are anticipated to cover key policies which will affect the outcome of planning applications. Hence it will allow local communities to shape development within their neighbourhood (RTPI, 2017).	These Plans will sit under local plans and hence in-combination effects are not anticipated. In addition, because it is generally in the interest of residents to maintain the character and biodiversity of the local area, these Plans are likely to benefit international nature conservation sites.
Development/ Economic		
The Humber Strategic Economic Plan 2014-2020	The Economic Plan outlines the key sectors across the region, opportunities for growth, the importance of developing a strong infrastructure, supporting	The Plan clearly states that all proposed development should be sustainable and not infringe on the environmental qualities of international nature conservation sites. Furthermore, proposed flood risk

Document	Description of Plan / Project	Potential in-combination effects on international nature conservation sites
	businesses, promoting tourism, equipping the work force whilst protecting the environment. The ambition of the Plan is to create a competitive, resilient and prosperous region.	management objectives are likely to improve water quality and enhance biodiversity. However, some adverse effects associated with increased growth/development of the area are likely to have in-combination effects on the Humber Estuary SAC/SPA/Ramsar Site.
Greater Lincolnshire Strategic Economic Plan 2014-2030	The Plan covers opportunities for growth, existing skills within Greater Lincolnshire, existing assets e.g. transport and infrastructure and a strategy for achieving growth in the future. The priorities for growth set out in the Plan include focusing on success in a few key existing sectors including tourism, food production and engineering. Expanding growth into new sectors including care and logistics. These aims will be achieved by promoting telecommunications and developing Lincolnshire's infrastructure network.	The focus on growth and development within Lincolnshire will put pressure upon land and resources within the area. It is likely to increase pollution and disturbance to existing international nature conservation sites even with the most stringent environmental regulation. For example, the push to develop tourism in the area will attract visitors to areas of natural beauty including designated sites. Hence, in-combination effects are likely on international nature conservation sites.
Able Logistics Park	Able Logistics Park is a 497.5ha site with full planning permission in place for the creation of extensive warehousing, external storage and transportation depots, with the benefit of being located in close proximity to deep-water quays. It is located at North Killingholme.	This scheme has the potential to have significant adverse impacts on the Humber Estuary SAC, SPA and Ramsar site, however, planning conditions have been applied to address potential impacts, such as direct loss of mudflat, water pollution and disturbance to bird populations. This includes creation of wetland habitat to provide feeding, roosting and loafing areas for waterbirds at Halton Marshes, timing works to avoid the key overwintering period, phasing works to minimise construction disturbance, minimising light disturbance and having a pollution prevention plan. Consequently, it was assessed that the project is not likely to have a significant effect, alone or in-combination with other plans and projects. However, in-combination effects could arise with the new North Lincolnshire Local Plan if policies within it lead to further developments within the North Killingholme area.
Able Marine Energy Park	This is a fully consented project that will be a bespoke port facility for the renewable energy sector, particularly offshore wind. It covers approximately 900 acres and features 1300m of new deep-water quays. It will provide a multi-user facility for the manufacture, storage, assembly and deployment of next generation offshore wind turbines and their associated supply chains. It is located on the south bank of the Humber near North Killingholme. It constitutes a Nationally Significant Infrastructure Project.	This scheme has the potential to have significant adverse impacts on the Humber Estuary SAC, SPA and Ramsar site, however, mitigation measures and planning conditions have been applied to address potential impacts. This includes significant areas of wetland habitat creation, alongside a Regulated Tidal Exchange scheme at Cherry Cobb Sands, and careful phasing and timing of works to avoid critical periods. With the imposition of these planning conditions, the project was assessed as not likely to have a significant effect, alone or in-combination with other plans and projects. However, in-combination effects could arise with the new North Lincolnshire Local Plan if policies within it lead to further developments within the North Killingholme area.
North Killingholme Power Project	This project will involve the construction of a new electrical generating station and associated infrastructure on a 286ha site at North Killingholme. It will either operate as a gas-fired station, or a plant fuelled by solid fuels (i.e. coal, petroleum coke or biomass). It will also include full carbon capture facilities. It constitutes a Nationally Significant	This scheme has the potential to have significant adverse impacts on the Humber Estuary SAC, SPA and Ramsar site through, for example, habitat loss and habitat fragmentation from construction of cooling water infrastructure in the estuary, direct fish/lamprey mortality from water abstraction, air quality changes and dust deposition and disturbance of birds from noise, light, vehicular movements and human activity. However, a number of conditions have been applied to the project to

Document	Description of Plan / Project	Potential in-combination effects on international nature conservation sites
	Infrastructure Project.	ensure no adverse impacts arise, including limiting piling extents to prevent habitat loss, fish screening of the intake system, reducing train speeds to limit noise and providing visual screening. Consequently, it was concluded that the North Killingholme Power Project would not adversely affect the integrity of the Humber Estuary SAC/SPA/Ramsar Site, so long as the mitigation and avoidance measures are implemented. However, in-combination effects could arise with the North Lincolnshire Local Plan if policies within it lead to further developments within the North Killingholme area.
Green Port Hull / Paull Local Development Order	This is a 500ha site of employment land, part of which is covered by the Paull Local Development Order which grants outline planning permission for development that is associated with renewable and low-carbon industries.	This project would likely have adverse impacts on the Humber Estuary SAC, SPA and Ramsar site. However, as part of this Local Development Order, a package of works to avoid likely significant effects on the international nature conservation site has been developed, involving measures to provide alternative habitat for Curlew, Golden Plover and Lapwing at two locations; Hedon (Newton Garth) and Hedon Haven. This will include wet grassland creation on arable land. As a result of these avoidance measures the HRA for the Local Development Order concluded that there is no potential for likely significant effects on the Humber SAC/SPA/Ramsar Site, alone or in-combination with other plans or projects. Whilst this site is located on the North Bank of the Humber, given the scale of the development, potential in-combination effects could arise in conjunction with the North Lincolnshire Local Plan, depending on what policies are contained within it as the plan develops.
Humber Gas Pipeline Replacement Project	This project by National Grid Gas Plc comprises the construction of a replacement section of gas transporter pipeline crossing under the Humber Estuary between the existing Goxhill Above Ground Installation on the south bank of the estuary within North Lincolnshire, to the Paull Above Ground Installation on the north bank of the estuary within the East Riding of Yorkshire. It constitutes a Nationally Significant Infrastructure Project and seeks to ensure the long-term security of the Feeder 0 Gas Transmission Pipeline where it crosses the River Humber.	The HRA that accompanies this development identifies that a number of likely significant effects on the Humber Estuary SPA and Ramsar site could occur as a result of this project, including displacement and disturbance of qualifying bird species through noise and visual disturbance, loss of foraging/roosting habitat within and adjacent to construction areas and potential impacts on inter-tidal habitats from potential pollution pathways. A number of mitigation measures were proposed to offset adverse impacts, including retaining grassland areas as alternative habitat, temporarily changing existing land use management practices and controlling access carefully. It was therefore concluded that there would not be an adverse impact on the integrity of the Humber Estuary SPA and Ramsar site as a result of the project alone, or in-combination with other projects. However, in-combination effects could arise with the North Lincolnshire Local Plan if policies within it lead to further developments within the Goxhill area that cause additional disturbance whilst the pipeline project is ongoing.
Water Management and Flooding		
Water Resource Management Plans (WRMP)- Anglian Water and Yorkshire Water.	These Plans outline the regional strategy for managing water resources across their supply area over a 25-year period. They detail the likely demand and forecast supply. This includes an exploration of proposed and existing schemes/sectors which are likely to be resource intensive. Management of these anticipated impacts are then addressed to comply with the requirements of the Water Framework Directive.	Changes to water abstraction and discharge can adversely affect international nature conservation sites by changing surface and ground water flow levels and quality (including dissolved oxygen). For example, Thorne and Hatfield Moors are susceptible to abstraction which can foster scrub development and lead to a loss of the qualifying communities of the international nature conservation site. Despite these sensitivities, the Plans include measures to reduce in -combination effects of the various proposed schemes. Furthermore, the Anglian WRMP proposes a reduction in household consumption in the future thanks to metering and baseline water

Document	Description of Plan / Project	Potential in-combination effects on international nature conservation sites
		efficiencies. As a result, in-combination effects on international nature conservation sites are likely to be negligible.
River Basin Management Plan (RBMP): Humber River Basin District	The Plan outlines relevant water bodies within the district and their classification. It covers the water quality within these catchments and actions to improve water quality in the future. It sets water quality targets and the next steps to achieve these. The aim of the RBMP is to address a range of challenges including: pollution (point source and diffuse) and physical modification of water bodies.	Any improvements to water quality or naturalising water bodies can only have a positive impact on international nature conservation sites and hence no in-combination effects are anticipated.
Grimsby and Ancholme Catchment Flood Management Plan	The Management Plan outlines measures for sustainable management over the next 50-100 years. It takes into consideration climate change and current policies to target resources in the most effective way. It looks at current and future flood risk for the whole catchment and sub catchments. The purpose of the Plan is to establish new policies to reduce flood risk.	Reducing flood risk presents tangible benefits to society but these benefits are not always transposed to the natural world. Flooding can have positive outcomes for wildlife by creating wetland habitat for waders and other wetland specialists. Flooding can detrimentally affect some species by inundating burrows and nests. In-combination effects will depend on the approach taken to flood risk management. If it focusses on improving water storage across the catchment by improving habitat quality, international nature conservation sites such as Thorne and Hatfield Moors may benefit. Conversely, hard engineering options may disconnect rivers from their floodplains, leading to a loss of wetland habitat. The Management Plan emphasises a sustainable approach and hence in-combination effects are likely to be kept to a minimum.
River Trent Catchment Flood Management Plan	The Management Plan outlines measures for sustainable management for the next 50-100 years. It takes into consideration climate change and current policies to target resources in the most effective way. It looks at current and future flood risk for the whole catchment and sub catchments. The purpose of the Plan is to establish new policies to reduce flood risk.	Reducing flood risk presents tangible benefits to society but these benefits are not always transposed to the natural world. Flooding can have positive outcomes for wildlife by creating wetland habitat for waders and other wetland specialists. Flooding can detrimentally affect some species by inundating burrows and nests. In-combination effects will depend on the approach taken to flood risk management. If it focusses on improving water storage across the catchment by improving habitat quality, international nature conservation sites such as Thorne and Hatfield Moors may benefit. Conversely, hard engineering options may disconnect rivers from their floodplains, leading to loss of wetland habitat. The Management Plan emphasises a sustainable approach and hence in-combination effects are likely to be kept to a minimum.
Humber Flood Risk Management Strategy	The Management Strategy provides information on the work to date, the importance of the strategy, the history of the project, flood risk areas and priority areas for protection. The overall aim of the strategy is to ensure that 99% of the local population receives a good standard of protection from coastal flooding for the next 25 years and into the future. It proposes to do so via improving and protecting defences and managed realignment.	The soft engineering options discussed within the Strategy are compatible with the aims and objectives of international nature conservation sites. For example, managed realignment creates suitable habitat for wading birds and other species. In contrast, artificial structures or hard engineering options may facilitate development closer to the coast and habitat may be lost as a result. Hence, the Flood Risk Strategy may have in-combination effects on the Humber Estuary depending on the approach of defence adopted.
Humber Estuary Coastal Authorities Group: Flamborough Head to Gibraltar Point Shoreline	The Shoreline Management Plan outlines the principles and compliance of sustainable shoreline management. It details coastal processes relevant to the plan, existing defences, land use and surrounding environments. Finally, it	The Management Plan is likely to benefit international nature conservation sites in so far as the approach is sustainable and actively seeks to prosper the environment. However, there remains a potential conflict of interest between this aim and the aim to prosper the economy and society. Hence, in-

Document	Description of Plan / Project	Potential in-combination effects on international nature conservation sites
Management Plan 2010	presents an action plan heading forward. The aims of the Management Plan are to protect against coastal erosion and flooding and promote sustainable development and coastal management which benefits the economy, environment and society.	combination effects between the Local Plan and the Shoreline Management Plan are possible depending on the focus at the time.
Nature Conservation		
Humber Management Scheme – Action Plan 2016	The Action Plan summarises the Humber Nature Partnership's approach to protecting the qualifying features of the European Marine Site. The conservation objectives and targets of the Action Plan relate to protecting the integrity of the SPA and SAC which is measured using indicators such as abundance and distribution of qualifying habitats and species and the quality of the processes which underlie them.	The aims and objectives of the Action Plan are compatible with the conservation of the Humber Estuary European Marine Site and hence no in-combination effects on this international nature conservation site are anticipated.
Thorne and Hatfield Moors Site Improvement Plan	The Site Improvement Plan (SIP) outlines the pressures and threats associated with the conservation of Thorne and Hatfield Moors. These include: Drainage, scrub control, air pollution, recreation, peat extraction and invasive species amongst others. The SIP then goes on to describe targets to address each of these issues, who is responsible and the associated cost.	The aims and objectives of the SIP are compatible with the conservation of Thorne and Hatfield Moors and hence no in-combination effects on this international nature conservation site are anticipated.
Thorne Moors Water Level Management Plan	The Management Plan provides background to water level management at Thorne Moor including the biodiversity on site, water quality and important physical features. It then proceeds to outline proposed actions to conserve these assets including contingency plans were applicable. These actions take into consideration site constraints. The aims of the Plan are to achieve target condition, protect and enhance conservation interest on site and minimise damage to these features.	The aims and objectives of the Plan are compatible with the conservation of Thorne Moors and hence no in-combination effects on this international nature conservation site are anticipated.
The Humberhead Levels Partnership	The Partnership is a collaboration of twelve organisations working to achieve bigger, better and more joined-up wetland habitat within the Humberhead Levels, whilst addressing existing environmental problems. This sustainable approach to management will involve local stakeholders to conserve biodiversity and the unique habitats on site.	The aims and objectives of the Partnership are compatible with the conservation of local international nature conservation sites and hence no in-combination effects are anticipated.
Humberhead Levels Nature Improvement Area	The Humberhead Levels Nature Improvement Area (NIA) is coordinated by the Humberhead Levels Partnership. The aims of the Improvement Area are consistent with the Partnership and include bigger, better and more joined up habitat within the Humberhead Levels. One element of this landscape scale conservation initiative is monitoring and evaluation to ensure the	The aims and objectives of the NIA are compatible with the conservation of local international nature conservation sites and hence no in-combination effects are anticipated.

Document	Description of Plan / Project	Potential in-combination effects on international nature conservation sites
	aims of the NIA are being met.	
Lincolnshire Biodiversity Action Plan 2015-20	The Action Plan describes the value, threats and protection of biodiversity in Lincolnshire including a detailed discussion of the key habitats and species found in Lincolnshire. It then goes on to propose actions for protecting biodiversity in Lincolnshire. The aims of the Action Plan relate to conserving and enhancing, valuing and recording biodiversity and ensuring that efforts to this effect are sustainable.	The aims and objectives of the Action Plan are compatible with the conservation of international nature conservation sites by protecting interest features within them. No in-combination effects on any international nature conservation sites are anticipated.
Lincolnshire Geodiversity Strategy 2017-21	The Geodiversity Strategy highlights the value, diversity, threats and protection of geodiversity in Lincolnshire. It has four main aims which include; 1. Recording and conserving geodiversity; 2. Robust legislation for geodiversity; 3. Publicise geodiversity; 4. Meet geodiversity objectives.	The aims and objectives of the Strategy are compatible with the conservation of international nature conservation sites by protecting interest features within them. No in-combination effects on any international nature conservation sites are anticipated.
Recreation and Tourism		
North Lincolnshire Rights of Way Improvement Plan	The Improvement Plan details how the rights of way network in North Lincolnshire can be strengthened, promoted, streamlined and extended. The Plan incorporates costs and completion dates for a range of proposed actions and has the overall aim of improving the network of public rights of way in North Lincolnshire.	Public rights of way are utilised by walkers, cyclists and horse riders. Within North Lincolnshire, most public rights of way are within rural areas. Many of the actions proposed in the plan have the aim of encouraging greater usage of rights of way by the public, often in isolated areas. Increased recreational pressure close to or within international nature conservation sites has the potential to disturb the qualifying features of the international nature conservation site e.g. avian fauna. However, the plan does make reference to complying with current legislation surrounding nature conservation sites. Furthermore, the plan proposes that to increase public usage of the rights of way network within North Lincolnshire, car parks should be constructed to make remote routes more accessible. Likewise, management will incorporate vegetation clearance. Whilst increased recreational pressure has the potential to have in-combination effects with the Local Plan, to some extent, improving the public rights of way network will reduce motorised traffic and hence may contribute to air quality and congestion targets. Hence, the Plan may contribute to the conservation of international nature conservation sites in a small way.
England Coast Path Project	Natural England is currently in the process of developing a new National Trail around all of England's coast. As part of this project a 'coastal margin' is being identified. In this margin, walkers will have new rights for access. In North Lincolnshire, the coastal path proposals are still in development, but are expected to allow new access by early 2019.	Given this path is proposed to extend along the North Lincolnshire Coast, and cross the Humber using the Humber Bridge, it has potential to increase the number of visitors coming to the area. In-combination with policies within the North Lincolnshire Local Plan that encourage tourism and the development of recreational assets, this has the potential to significantly impact on the Humber Estuary SAC/SPA/Ramsar Sites through increased recreational pressures.
Other		
Local Transport Plan 2011 to 2026	The Transport Plan is composed of two separate documents; a strategy and how the strategy will be implemented. This fifteen-year plan, seeks to foster a well maintained and sustainable transport network across North Lincolnshire. This will in turn support	The Local Transport Plan includes measures to encourage sustainable transport including promoting public transport, cycling and walking. These elements are likely to have a positive impact on local international nature conservation sites by improving air quality. However, enhancing the transport network could facilitate increased levels of visitors to international

Document	Description of Plan / Project	Potential in-combination effects on international nature conservation sites
	local businesses and communities.	nature conservation sites and development within the region which may have in-combination effects on international nature conservation sites via habitat loss and disturbance.
Humber Area Local Aggregate Assessment (draft)	The Assessment outlines the geology of the region, aggregate resources, their supply and demand (both now and in the future) and their import and export. It details objectives for meeting future demand.	Aggregate resources are predominantly used in construction and hence any increase in supply may facilitate construction in the wider area. Furthermore, mining these resources can be extremely destructive e.g. marine dredging. Marine dredging currently takes place in the North Sea beyond the Humber Estuary. The number of licensed dredging areas here is likely to increase. Hence in-combination effects are likely between the aims and objectives of the Assessment and the Local Plan.
Action Plan for the Scunthorpe PM10 AQMA	The Action Plan outlines the measures required to meet the target of reducing PM_{10} concentrations within the Scunthorpe wide Air Quality Management Area. These measures are presented as an action plan and relate to air quality monitoring, industry, development control, non-permitted process emissions and tailpipe emissions. The action plan allocates responsibility to tackling each of these areas and includes measures to ensure compliance.	The Action Plan aims to improve air quality locally. This can only have a positive impact on the communities and habitats found in local international nature conservation sites. Hence no in-combination effects are anticipated as a result of this Plan.
Waste Strategy 2012 - 2030	The Waste Strategy covers the legal requirements and guidance applicable to waste management, recycling, waste disposal methods, challenges and solutions, options to reduce and re-use waste and a short, medium and longer-term goals. The aims of the Strategy are to reduce the quantity of waste produced and to move towards a zero-waste management system by 2020.	This Strategy for tackling waste production it likely to have a positive effect on international nature conservation sites via seeking more sustainable approaches to waste management e.g. by promoting reductions in waste and recycling. The outcome of this strategy can only be positive, although the pathways of impact on international nature conservation sites may be indirect.

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