

Great Ringstead Neighbourhood Plan

Report to Inform Habitats Regulations Assessment

Great Ringstead Neighbourhood Plan Group

March 2024

Quality information

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1. Introduction

- 1.1 AECOM was appointed by Great Ringstead, known locally as Ringstead, Neighbourhood Plan Group to undertake a Report to Inform the Habitats Regulations Assessment (HRA) of the Ringstead Neighbourhood Plan (RNP) to 2036. This is to inform the planning group and local council (Borough Council of King's Lynn & West Norfolk, as Competent Authority) of the potential effects of Neighbourhood Plan (NP) development on Habitat sites (Special Areas of Conservation, SACs, Special Protection Areas, SPAs, and Ramsar sites designated under the Ramsar convention), and how they are being, or should be, addressed in the draft NP.
- 1.2 The RNP contains policies on the environment, heritage, and protection for historical features in the community, infrastructure and access, and policies relating to sustainability and climate change.
- 1.3 To inform this report, policies contained within the King's Lynn & West Norfolk Borough Council, Core Strategy, which is the current Local Plan at the time of writing (adopted in 2011) and the emerging new Local Plan have been considered.
- 1.4 The objective of this report is to identify if any policies and / or sites proposed for potential allocation in the RNP have the potential to cause Likely Significant Effects (LSEs) and, where identified, adverse effects on the integrity of Habitat sites, either in isolation or in combination with other plans and projects, and to determine whether site-specific or policy mitigation measures are required.

Local Context

- 1.5 The parish of Great Ringstead is located in Norfolk, just inland of the coastal resort of Hunstanton and, as previously mentioned is known locally as Ringstead. The parish forms part of the Le Strange Estate.
- 1.6 It covers an area of 11.13km² (4.30 sq. mi) and had a population of 290 in the 2021 Census¹. For the purposes of local government, it falls within the district of King's Lynn & West Norfolk.
- 1.7 The village itself has suffered some decline but has fared better than most as it still has a village store, the Gin Trap Inn, active village hall, bowls club, table tennis club and Wards Nurseries supplying high quality plants.
- 1.8 Cottages, sold by the Le Strange Estate to their tenants or local people in the late 1940s and 1950s, began to be bought and significantly upgraded and extended as retirement and holiday homes so that by the 2000s the demography of the village had radically changed, with an older population, and few people with school age children attending local schools. Many especially older terraced or semi-detached properties previously occupied by families have been significantly extended and are now occupied by a couple or are second homes or rented as holiday homes.

¹ https://www.citypopulation.de/en/uk/eastofengland/admin/kings_lynn_and_west_norf/E04006341_ringstead/

Legislative Context

- 1.9 The United Kingdom (UK) left the European Union (EU) on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 (“the Withdrawal Act”). The Withdrawal Act retains the body of existing EU-derived law within our domestic law. The most recent amendments to the Habitats Regulations – the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – make it clear that the need for HRA continues post-Brexit.
- 1.10 The HRA process applies the ‘Precautionary Principle’² to Habitat sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the Habitat site(s) in question. Plans and projects with predicted adverse impacts on Habitat sites may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.
- 1.11 The need for Appropriate Assessment (AA, Box 1) is set out in the Conservation of Habitats and Species Regulations 2017 (as amended).

Box 1: The legislative basis for Appropriate Assessment

Conservation of Habitats and Species Regulations 2017 (As Amended)

With specific reference to Neighbourhood Plans, Regulation 106(1) states that:

“A qualifying body which submits a proposal for a neighbourhood development plan must provide such information as the competent authority [the Local Planning Authority] may reasonably require for the purpose of the assessment under regulation 105... [which sets out the formal process for determination of ‘likely significant effects’ and the appropriate assessment].”

- 1.12 It is therefore important to note that this report has two purposes:
- To assist the Qualifying Body (Ringstead Parish Council) in preparing their plan by recommending (where necessary) any adjustments required to protect Habitat sites, thus making it more likely their plan will be deemed compliant with the Conservation of Habitats and Species Regulations 2017 (as amended); and
 - On behalf of the Qualifying Body, to assist the Local Planning Authority (Borough Council of King’s Lynn & West Norfolk) to discharge their duty under Regulation 105 (in their role as ‘plan-making authority’ within the meaning of that regulation) and Regulation 106 (in their role as ‘competent authority’) and reach the formal HRA decision.
- 1.13 As ‘competent authority’, the legal responsibility for ensuring that a decision of LSEs is made, an AA (where required) is undertaken, and Natural England are consulted, falls on the local planning authority. However, they are entitled to

² The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as: *“When human activities may lead to morally unacceptable harm [to the environment] that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis”.*

request from the Qualifying Body the necessary information on which to base their judgment and that is a key purpose of this report.

- 1.14 Over the years, the term HRA has come into wide currency to describe the overall process set out in the Habitats Regulations, from screening through to identification of IROPI. This has arisen to distinguish the overall process from the individual stage of AA. Throughout this report the term HRA is used for the overall process and the use of AA is restricted to the specific stage of that name.
- 1.15 In spring 2018 the ‘Sweetman’ European Court of Justice ruling³ clarified that ‘mitigation’ (i.e., measures that are specifically introduced to avoid or reduce a harmful effect on a Habitat site that would otherwise arise) should **not** be considered when forming a view on LSEs. Mitigation should instead only be considered at the AA stage. This HRA has been cognisant of that ruling.

Scope of the HRA

- 1.16 There are no standard criteria for determining the ultimate physical scope of an HRA of a Plan document. Therefore, in considering the physical scope of the assessment, we were guided primarily by the identified impact pathways (called the source-pathway-receptor model) rather than by arbitrary ‘zones’. Current guidance suggests that the following international sites be included in the scope of assessment:
- All sites within the boundary of Ringstead; and,
 - Other sites shown to be linked to development within the Parish boundary through a known impact ‘pathway’ (discussed below).
- 1.17 Briefly defined, impact pathways are routes by which the implementation of a policy within a Neighbourhood Plan document can lead to an effect upon a Habitat site. An example of this would be new residential development resulting in an increased population and thus increased recreational pressure, which could then affect Habitat sites by, for example, disturbance of wintering or breeding birds.
- 1.18 Guidance from the Department for Levelling Up, Housing and Communities (DLUHC) formerly the Ministry of Housing, Communities and Local Government (MHCLG) states that the HRA should be ‘*proportionate to the geographical scope of the [plan policy]*’ and that ‘*an AA need not be done in any more detail, or using more resources, than is useful for its purpose*’ (MHCLG, 2006, p.6)⁴. More recently, the Court of Appeal ruled that providing the Council (competent authority) was duly satisfied that proposed mitigation could be ‘achieved in practice’ to satisfy that the proposed development would have no adverse effect, then this would suffice. In this case the High Court ruled that for ‘a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of Reg 61 of the Habitats Regulations’.

³ People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

⁴ MHCLG (2006) Planning for the Protection of Habitat sites, Consultation Paper

The Layout of this Report

1.19 **Chapter 2** of this report explains the methodology by which this HRA has been carried out, including the three essential tasks that form part of HRA. **Chapter 3** provides details of the relevant Habitat sites, including Conservation Objectives and current pressures and threats. **Chapter 4** provides detailed background on the main impact pathways identified in relation to the RNP and the relevant Habitat sites. **Chapter 5** undertakes the screening assessment of LSEs of the Plan policies and sites potentially proposed for allocation. The Appropriate Assessment is contained in Chapter 6, while the conclusions and recommendations arising from the HRA process are provided in **Chapter 7**.

Quality Assurance

1.20 This report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2015 and 14001:2015, ISO 44001:2017 and ISO 45001:2018. In addition, our IMS requires careful selection and monitoring of the performance of all sub-consultants and contractors.

1.21 All AECOM Ecologists working on this project are members (at the appropriate level) of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct (CIEEM, 2017).

2. Methodology

Introduction to HRA Methodology

- 2.1 The HRA will be carried out with reference to the general EC guidance on HRA⁵ and that of the UK government⁶.
- 2.2 Figure 1 below outlines the stages of HRA. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the Plan until no significant adverse effects remain.

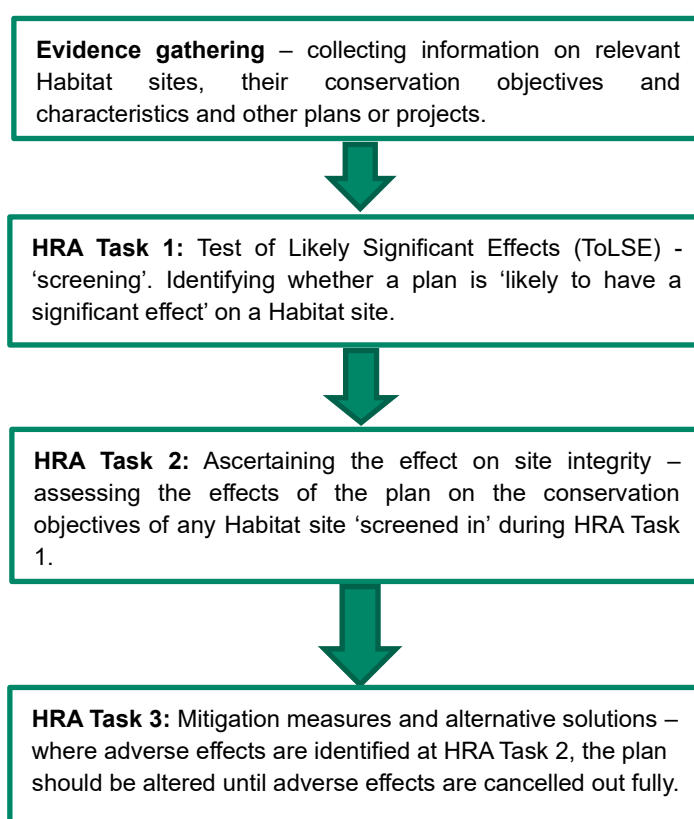


Figure 1: Four Stage Approach to Habitats Regulations Assessment. Source EC, 2011.

Description of HRA Tasks

HRA Task 1 – Likely Significant Effects (LSEs) Screening

- 2.3 Following evidence gathering, the first stage of any Habitats Regulations Assessment is a LSEs screening - essentially a brief, high-level assessment to decide whether the full subsequent stage known as AA is required. The essential question is:

⁵ European Commission (2001): Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive.

⁶ <https://www.gov.uk/guidance/appropriate-assessment>

“Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon Habitat sites?”

- 2.4 The objective is to ‘screen out’ those plans and projects that can, without any detailed appraisal, be concluded to be unlikely to result in significant adverse effects upon Habitat sites, usually because there is no mechanism for an adverse interaction.
- 2.5 The LSEs screening is based on identification of the impact source, its pathway to receptors and an appraisal of the specific Habitat site receptors. These are normally designated features but also include habitats and species fundamental for designated features to achieve favourable conservation status (notably functionally linked habitats outside the Habitat site boundary).
- 2.6 In the Waddensee case⁷, the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive, including that:
- An effect should be considered ‘likely’, “if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site” (para 44);
 - An effect should be considered ‘significant’, “if it undermines the conservation objectives” (para 48); and
 - Where a plan or project has an effect on a site “but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned” (para 47).
- 2.7 The LSEs screening consists of two parts: Firstly, it should determine whether there are any policies that could result in negative impact pathways and secondly it establishes whether there are any Habitat sites that might be affected. It identifies Habitat sites that are most likely to be impacted by the Plan and the impact pathways that are most likely to require consideration.
- 2.8 It is important to note that LSEs screening must generally follow the precautionary principle as its main purpose is to determine whether the subsequent stage of AA (i.e., a more detailed investigation) is required.

HRA Task 2 – Appropriate Assessment

- 2.9 Where it is determined that a conclusion of ‘no LSEs’ cannot be drawn, the analysis must proceed to the next stage of HRA known as AA. Case law has clarified that AA is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to AA rather than the screening process. AA refers to whatever level of assessment is appropriate to form a conclusion regarding effects on the integrity (coherence of structure and function) of Habitat sites in light of their Conservation Objectives.
- 2.10 By virtue of the fact that it follows LSEs screening, there is a clear implication that the analysis will be more detailed than undertaken at the previous stage. One of the key considerations during AA is whether there is available mitigation that would entirely address the potential effect. In practice, the AA would take any policies or proposed sites that could not be dismissed following the high-level

⁷ Case C-127/02

screening analysis and evaluate the potential for an effect in more detail, with a view to concluding whether there would be an adverse effect on site integrity (in other words, disruption of the coherent structure and function of the Habitat site(s)).

- 2.11 In 2018 the Holohan ruling⁸ handed down by the European Court of Justice included among other provisions paragraph 39 of the ruling stating that *‘As regards other habitat types or species, which are present on the site, but for which that site has not been listed, and with respect to habitat types and species located outside that site, ... typical habitats or species must be included in the appropriate assessment, if they are necessary to the conservation of the habitat types and species listed for the protected area’* [emphasis added].
- 2.12 In evaluating significance, AECOM will rely on professional judgement as well as the results of bespoke studies, supported by appropriate evidence/data, and previous stakeholder consultation regarding the impacts of development on the Habitat sites considered within this assessment.

HRA Task 3 – Mitigation

- 2.13 Where necessary, measures will be recommended for incorporation into the Plan in order to avoid or mitigate adverse effects on Habitat sites. For example, there is considerable precedent, both nationally and locally, concerning the level of detail that a Plan document needs to contain regarding mitigation for recreational impacts on Habitat sites. The implication of this precedent is that it is not necessary for all measures that will be deployed to be fully developed prior to adoption of the Plan, but the Plan must provide an adequate policy framework within which these measures can be delivered.
- 2.14 When discussing ‘mitigation’ for a NP document, one is concerned primarily with the policy framework to enable the delivery of such mitigation rather than the detail of the mitigation measures themselves since the NP document is a higher level policy document.

Geographical Scope of the HRA

- 2.15 There are no standard criteria for determining the ultimate physical scope of an HRA. Rather, the source-pathway-receptor model should be used to determine whether there is any potential pathway connecting development to any Habitat sites.
- 2.16 In the case of the RNP, an area extending to 10km from the Parish boundary was selected in which Habitat sites were identified. Habitat sites with hydrological sensitivities were also considered. A search radius of 10km has been used for this analysis on the basis that any potential for aquatic pollution effects at greater distances is likely to be negligible due to dilution factors.

⁸ Case C-461/17

Confirming Other Plans and Projects That May Act ‘In Combination’

- 2.17 It is a requirement of the Regulations that the impacts of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the Habitat site(s) in question.
- 2.18 In considering the potential for combined regional housing development to impact on Habitat sites the primary consideration is the impact of visitor numbers – i.e., recreational pressure and urbanisation.
- 2.19 When undertaking this part of the assessment it is essential to bear in mind the principal intention behind the legislation i.e., to ensure that those projects or plans (which in themselves may have minor impacts) are not simply dismissed on that basis but are evaluated for any cumulative contribution they may make to an overall significant effect. In practice, in combination assessment is therefore of greatest relevance when the plan or policy would otherwise be screened out because its individual contribution is inconsequential.
- 2.20 The following plans are considered to have the potential to act in-combination with the RNP:
- King’s Lynn & West Norfolk Borough Council Local Development Framework – Core Strategy (July 2011)⁹
 - King’s Lynn & West Norfolk Borough Council Site Allocations and Development Management Policies Plan (September 2016)¹⁰
 - Anglian Water – Water Resources Management Plan, 2020 - 2045¹¹
 - Old Hunstanton to Kelling Hard Shoreline Management Plan (SMP5)¹²
- 2.21 It should be noted that, while the broad potential impacts of these other projects and plans have been considered, this assessment does not undertake full HRA on each of these plans. Instead, existing HRAs that have been carried out for surrounding authorities and plans were drawn upon.

⁹ [Core Strategy, adopted version 2011 | Borough Council of King's Lynn & West Norfolk \(west-norfolk.gov.uk\)](#) [Accessed September 2023]

¹⁰ [Adopted plan | Adopted plan | Borough Council of King's Lynn & West Norfolk \(west-norfolk.gov.uk\)](#) [Accessed September 2023]

¹¹ [wrmr-report-2019.pdf \(anglianwater.co.uk\)](#) [Accessed September 2023]

¹² <http://eacg.org.uk/smp5.asp> [Accessed September 2023]

3. Habitat sites

3.1 In the case of the RNP, it has been determined that the Habitat sites identified in Table 1 require consideration. The locations of these Habitat sites in relation to the RNP boundary are shown in Appendix A.

Table 1. Habitat sites for consideration and their location in relation to Ringstead Parish boundary.

Habitat site	Location (at its closest point) and reason for inclusion
North Norfolk Coast SAC	1.8km north-east of the RNP boundary. Susceptible to recreational pressure and changes in air quality.
The Wash & North Norfolk Coast SAC	2.6km north of the RNP boundary. Susceptible to recreational pressure and changes in air quality.
North Norfolk Coast SPA/ Ramsar	1.5km north of the RNP boundary. Susceptible to recreational pressure, noise and visual disturbance to wintering birds and potential loss of functionally linked habitats.
The Wash SPA/ Ramsar	1.8km north-west of the RNP boundary. Susceptible to recreational pressure, noise and visual disturbance to wintering birds and potential loss of functionally linked habitats.

Source: Multi Agency Geographic Information for the Countryside
www.magic.defra.gov.uk

3.2 This was based upon a search of surrounding Habitat sites and the vulnerabilities of their designated features. All the above sites were subjected to the initial screening exercise. It should be noted that the presence of a conceivable pathway linking the parish to a Habitat site does not mean that LSEs will occur.

3.3 The following Habitat sites were also considered:

- Roydon Common & Dersingham Bog SAC
- Dersingham Bog Ramsar

3.4 Both of these sites are 8.8km from the RNP boundary and, according to the Site Improvement Plan¹³, susceptible to changes in air quality. Given the very small scale of development proposed within the RNP it is considered highly unlikely that implementation of the NP will result in significant changes, either alone or in combination, in air quality. These sites have therefore been discounted.

3.5 The reason for designation, Conservation Objectives and environmental vulnerabilities of the Habitat sites are detailed below.

¹³ <https://publications.naturalengland.org.uk/publication/4809467120058368>

North Norfolk Coast SAC

Introduction

- 3.6 The North Norfolk Coast contains a large, active series of dunes on shingle barrier islands and spits and is little affected by development. The exceptional length and variety of the dune/beach interface is reflected in the high total area of embryonic dune. Sand couch (*Elytrigia juncea*) is the most prominent sand-binding grass. The site supports a large area of shifting dune vegetation, which is also varied but dominated by marram (*Ammophila arenaria*). The fixed dunes are rich in lichens and drought-avoiding winter annuals such as common whitlowgrass (*Erophila verna*), early forget-me-not (*Myosotis ramosissima*) and common cornsalad (*Valerianella locusta*). The main communities represented are marram with red fescue (*Festuca rubra*) and sand sedge (*Carex arenaria*), with lichens such as (*Cetraria aculeata*). The dune slacks within this site are comparatively small and the Yorkshire-fog (*Holcus lanatus*) community predominates. They are calcareous and the communities occur in association with swamp communities. Some of the slacks support the liverwort petalwort (*Petalophyllum ralfsii*).
- 3.7 The site encompasses several small percolation lagoons the most notable of which are Blakeney Spit Pools, a lagoon system of six small pools between a shingle ridge and saltmarsh. The bottom of each pool is shingle overlain by soft mud. The fauna of the lagoons includes a nationally rare species, the lagoonal mysid shrimp (*Paramysis nouveli*).

Reason for Designation¹⁴

3.8 Qualifying Annex I habitats:

- Coastal lagoons*
- Fixed dunes with herbaceous vegetation (grey dunes). (Dune grassland)*
- Embryonic shifting dunes
- Humid dune slacks
- Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*). (Mediterranean saltmarsh scrub)
- Perennial vegetation of stony banks. (Coastal shingle vegetation outside the reach of waves)
- Shifting dunes along the shoreline with (*Ammophila arenaria*) (white dunes). (Shifting dunes with marram)

3.9 Annex I priority habitats are denoted by an asterisk (*).

3.10 Qualifying Annex II species:

- Otter (*Lutra lutra*)
- Petalwort

¹⁴ <http://publications.naturalengland.org.uk/publication/6270240262455296>

Conservation Objectives¹⁵

3.11 “With regard to the SAC and the natural habitats and/or species for which the site has been designated (the ‘Qualifying Features’ listed above), and subject to natural change;

3.12 *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 the habitats of qualifying species rely*
- *The populations of qualifying species, and,*
- *The distribution of qualifying species within the site.”*

Current Pressures and Threats

3.13 The Site Improvement Plan¹⁶ identifies the following pressures and threats to the SAC:

- Public access/ disturbance
- Siltation
- Fisheries: Recreational marine and estuarine
- Invasive species
- Inappropriate coastal management
- Fisheries: commercial marine and estuarine
- Coastal squeeze
- Change in land management
- Air Pollution: impact of atmospheric nitrogen deposition

3.14 The Site Improvement Plan (2019) should be read in conjunction with the Supplementary Advice on Conservation Objectives (2017)¹⁷.

¹⁵ Ibid

¹⁶ <http://publications.naturalengland.org.uk/publication/5327498292232192>

¹⁷ [Designated Sites View \(naturalengland.org.uk\)](https://www.naturalengland.org.uk/Designated_Sites_View) [Accessed September 2023]

The Wash & North Norfolk Coast SAC

Introduction

3.15 The Wash is the largest embayment in the UK. It is connected via sediment transfer systems to the north Norfolk coast. Together, the Wash and North Norfolk Coast form one of the most important marine areas in the UK and European North Sea coast, and include extensive areas of varying, but predominantly sandy, sediments subject to a range of conditions. Communities in the intertidal include those characterised by large numbers of polychaetes, bivalve and crustaceans. Subtidal communities cover a diverse range from the shallow to the deeper parts of the embayment and include dense brittlestar beds and areas of an abundant reef-building worm ('ross worm') (*Sabellaria spinulosa*). The embayment supports a variety of mobile species, including a range of fish, otter and common seal (*Phoca vitulina*). The extensive intertidal flats provide ideal conditions for common seal breeding and hauling-out.

3.16 The site contains the largest single area of saltmarsh in the UK and is one of the few areas in the UK where saltmarshes are generally accreting. The proportion of the total saltmarsh vegetation represented by glasswort (*Salicornia sp.*) and other colonising annuals is high because of the extensive enclosure of marsh in this site and is also unusual in that it forms a pioneer community with common cord-grass (*Spartina anglica*). There are large un-grazed saltmarshes on the North Norfolk Coast and traditionally grazed saltmarshes around the Wash. Saltmarsh swards dominated by sea-lavenders (*Limonium spp.*) are particularly well-represented. In North Norfolk, in addition to typical lower and middle saltmarsh communities, there are transitions from upper marsh to tidal reed-swamp, sand dunes (which are largely within the adjacent North Norfolk Coast SAC), shingle beaches and mud/sandflats. Mediterranean saltmarsh scrub vegetation is dominated by a shrubby cover up to 1 metre high of bushes of shrubby sea-blite (*Suaeda vera*) and sea-purslane (*Atriplex portulacoides*), with a patchy cover of herbaceous plants and bryophytes. This scrub vegetation often forms an important feature of the upper saltmarshes, and extensive examples occur where the drift-line slopes gradually and provides a transition to dune, shingle or reclaimed sections of the coast. At a number of locations on this coast perennial glasswort (*Sarcocornia perennis*) forms an open mosaic with other species at the lower limit of the sea-purslane community.

Reason for Designation¹⁸

3.17 Qualifying Annex I habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Coastal lagoons*
- Large shallow inlets and bays
- Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*). (Mediterranean saltmarsh scrub)

¹⁸ <http://publications.naturalengland.org.uk/publication/5950176598425600>

- Mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats)
- Reefs
- *Salicornia* and other annuals colonising mud and sand. (Glasswort and other annuals colonising mud and sand)
- Sandbanks which are slightly covered by sea water all the time. (Subtidal sandbanks)

3.18 Annex I priority habitats are denoted by an asterisk (*).

3.19 Qualifying Annex II species:

- Common seal
- Otter

Conservation Objectives¹⁹

3.20 *“With regard to the SAC and the natural habitats and/or species for which the site has been designated (the ‘Qualifying Features’ listed above), and subject to natural change;*

3.21 *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 the habitats of qualifying species rely*
- *The populations of qualifying species, and,*
- *The distribution of qualifying species within the site.”*

Current Pressures and Threats

3.22 The Site Improvement Plan²⁰ identifies the following pressures and threats to the SAC:

- Public access/ disturbance
- Siltation
- Fisheries: Recreational marine and estuarine
- Invasive species

¹⁹ I bid

²⁰ <http://publications.naturalengland.org.uk/publication/5327498292232192>

- Inappropriate coastal management
- Fisheries: commercial marine and estuarine
- Coastal squeeze
- Change in land management
- Air Pollution: impact of atmospheric nitrogen deposition

3.23 The Site Improvement Plan (2019) should be read in conjunction with the Supplementary Advice on Conservation Objectives (2023)²¹

North Norfolk Coast SPA / Ramsar

Introduction

3.24 A stretch of coastline consisting of shingle beaches, dunes, saltmarsh, intertidal mud and sand flats, brackish lagoons, reedbeds, and grazing marshes. The site supports nationally and internationally important numbers of various species of breeding or wintering waterbirds. It also includes several important botanical areas and is a centre for tourism and general recreation.

Reason for Designation

3.25 The **SPA** is designated for²²:

Breeding:

- Sandwich tern (*Sterna sandvicensis*)
- Common tern (*Sterna hirundo*)
- Little tern (*Sterna albifrons*)
- Bittern (*Botaurus stellaris*)
- Marsh harrier (*Circus aeruginosus*)
- Montagu's harrier (*Circus pygargus*)
- Avocet (*Recurvirostra avosetta*)
- Arctic tern (*Sterna paradisaea*)
- Kingfisher (*Algedo atthis*)
- Short-eared owl (*Asio flammeus*)
- Gadwall (*Anas strepera*)
- Shoveler (*Anas clypeata*)
- Garganey (*Anas querquedula*)

²¹ [Designated Sites View \(naturalengland.org.uk\)](https://designatedsites.naturalengland.org.uk/) [Accessed September 2023]

²² <http://publications.naturalengland.org.uk/publication/4732349359063040>

- Black-tailed godwit (*Limosa limosa*)
- Bearded tit (*Panurus biarmicus*)
- Parrot crossbill (*Loxia pytyopsittacus*)

Supporting over winter:

- Dark-bellied brent goose (*Branta bernicla bernicla*)
- Pink-footed goose (*Anser brachyrhynchus*)
- Knot (*Calidris canutus*)
- Wigeon (*Anas penelope*)
- European white-fronted goose (*Anser albifrons albifrons*)
- Pintail (*Anas acuta*)
- Shelduck (*Tadorna tadorna*)
- Grey plover (*Pluvialis squatarola*)
- Ringed plover (*Charadrius hiaticula*)
- Oystercatcher (*Haematopus ostralegus*)
- Redshank (*Tringa tetanus*)

3.26 The **Ramsar** is designated for²³:

Criterion 1: The site is one of the largest expanses of undeveloped coastal habitat of its type in Europe. It is a particularly good example of a marshland coast with intertidal sand and mud, saltmarshes, shingle banks and sand dunes. There are a series of brackish-water lagoons and extensive areas of freshwater grazing marsh and reed beds.

Criterion 2: Supports at least three British Red Data Book and nine nationally scarce vascular plants, one British Red Data Book lichen and 38 British Red Data Book invertebrates.

Criterion 5: Assemblages of international importance – species with peak counts in winter.

Criterion 6: species/populations occurring at levels of international importance.

Species regularly supported during the breeding season:

- Sandwich tern
- Common tern
- Little tern

Species with peak counts in spring/autumn:

- Knot

²³ <https://jncc.gov.uk/jncc-assets/RIS/UK11048.pdf>

Species with peak counts in winter:

- Pink-footed goose
- Dark-bellied brent goose
- Wigeon
- Pintail

Conservation Objectives²⁴

“With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the ‘Qualifying Features’ listed below), and subject to natural change;

3.27 *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.”*

Current Pressures and Threats

3.28 The Site Improvement Plan²⁵ identifies the following pressures and threats to the SPA:

- Inappropriate water levels
- Public access/ disturbance
- Fisheries: Recreational marine and estuarine
- Inappropriate coastal management
- Fisheries: Commercial marine and estuarine
- Predation
- Coastal squeeze
- Changes in species distributions

²⁴ <http://publications.naturalengland.org.uk/publication/4732349359063040>
<https://designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UK9020309&SiteName=outer%20thames&countyCode=&responsiblePerson=&SeaArea=&IFCAAarea=&HasCA=1&NumMarineSeasonality=3&SiteNameDisplay=Outer%20Thames%20Estuary%20SPA#hlco> [accessed 18/10/2022]

²⁵ <http://publications.naturalengland.org.uk/publication/5327498292232192>

3.29 The Site Improvement Plan (2019) should be read in conjunction with the Supplementary Advice on Conservation Objectives (2023)²⁶.

3.30 The Information Sheet on Ramsar Wetlands²⁷ does not identify any additional factors (past, present or potential) adversely affecting the site's ecological character.

The Wash SPA/ Ramsar

Introduction

3.31 The Wash is numerically the most important area in Britain for wintering waterfowl, taking waders and wildfowl together. It is also the most important area in Britain in early autumn for moulting waders. The Wash is important also to certain wintering passerines, to breeding waders and terns, and to certain seabirds.

Reason for Designation

3.32 The **SPA** is designated for²⁸:

Breeding:

- Little tern (*Sterna albifrons*)
- Common tern (*Sterna hirundo*)

Supports over winter:

- Bewick's swan (*Cygnus cygnus*)

Supports internationally important numbers of individual species: dark-bellied brent geese (*Branta bernicla bernicla*); pink-footed geese (*Anser brachyrhynchus*); shelduck (*Tadorna tadorna*); pintail (*Anas acuta*); oystercatcher (*Haematopus ostralegus*); grey plover (*Pluvialis squatarola*); sanderling (*Calidris alba*); knot (*Calidris canutus*); dunlin (*Calidris alpina*); bar-tailed godwit (*Limosa lapponica*); curlew (*Numenius arquata*); redshank (*Tringa totanus*) and turnstone (*Arenaria interpres*).

National importance to other migratory birds. Wintering: wigeon (*Anas penelope*); goldeneye (*Bucephala clangula*); gadwall (*Anas strepera*); common scoters (*Melanitta nigra*); black-tailed godwits (*Limosa limosa*) and probably several gull species (*Larus*). Important populations of wintering passerines are also supported.

The salt-marshes support a diverse breeding bird population, including black-headed gulls (*Chroicocephalus ridibundus*), shelducks and numerous wader species. Breeding redshanks occur at exceptionally high densities, and the breeding population of this species is undoubtedly of national importance although its exact size is still being assessed.

²⁶ [Designated Sites View \(naturalengland.org.uk\)](https://naturalengland.org.uk) [Accessed September 2023]

²⁷ <https://jncc.gov.uk/jncc-assets/RIS/UK11048.pdf>

²⁸ <https://publications.naturalengland.org.uk/publication/5747661105790976>

3.33 The **Ramsar** is designated for²⁹:

Criterion 1: The Wash is a large shallow bay comprising very extensive saltmarshes, major intertidal banks of sand and mud, shallow water and deep channels. It is the largest estuarine system in Britain.

Criterion 3: Qualifies because of the inter-relationship between its various components including saltmarshes, intertidal sand and mud flats and the estuarine waters. The saltmarshes and the plankton in the estuarine water provide a primary source of organic material which, together with other organic matter, forms the basis for the high productivity of the estuary.

Criterion 5: Assemblages of international importance – species with peak counts in winter.

Criterion 6: species/populations occurring at levels of international importance.

Species with peak counts in spring/autumn:

- Curlew
- Oystercatcher
- Grey plover
- Red knot
- Sanderling

Species with peak counts in winter:

- Black-headed gull
- Common eider (*Somateria mollissima*)
- Bar-tailed godwit
- Shelduck
- Dark-bellied brent goose
- Dunlin
- Pink-footed goose

Conservation Objectives³⁰

3.34 “With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the ‘Qualifying Features’ listed above), and subject to natural change;

3.35 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*

²⁹ <https://rsis.ramsar.org/RISapp/files/RISrep/GB395RIS.pdf>

³⁰ <https://publications.naturalengland.org.uk/publication/5747661105790976>

- *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.”*

Current Pressures and Threats

3.36 The Site Improvement Plan³¹ identifies the following pressures and threats to the SPA:

- Inappropriate water levels
- Public access/ disturbance
- Fisheries: recreational marine and estuarine
- Inappropriate coastal management
- Fisheries: commercial marine and estuarine
- Predation

3.37 The Site Improvement Plan (2019) should be read in conjunction with the Supplementary Advice on Conservation Objectives (2023)³².

3.38 The Information Sheet on Ramsar Wetlands³³ does not identify any additional factors (past, present or potential) adversely affecting the site’s ecological character.

³¹ <https://publications.naturalengland.org.uk/publication/5327498292232192>

³² [Designated Sites View \(naturalengland.org.uk\)](https://publications.naturalengland.org.uk/publication/5327498292232192) [Accessed September 2023]

³³ <https://rsis.ramsar.org/RISapp/files/RISrep/GB395RIS.pdf>

4. Background to Impact Pathways

- 4.1 In carrying out an HRA it is important to avoid confining oneself to effectively arbitrary boundaries (such as Local Authority or parish boundaries), but to use an understanding of the various ways in which Land Use Plans can impact on Habitat sites to evaluate whether development is connected with Habitat sites, in some cases many kilometres distant. Briefly defined, impact pathways are routes by which a change in activity associated with a development can lead to an effect upon a Habitat site. As highlighted earlier, it is also important to bear in mind DLUHC (formerly MHCLG) guidance which states that the AA should be *'proportionate and sufficient to support the task of the competent authority in determining whether the plan or project will adversely affect the integrity of the site.'* (DLUHC, 2019, paragraph 003 Reference ID: 65-003-20190722.³⁴).
- 4.2 Based upon Natural England's Site Improvement Plans (SIPs) and professional judgement, there are several impact pathways that require consideration regarding development proposals within the RNP area and the relevant Habitat sites.
- 4.3 The following impact pathways are considered relevant to the HRA of the Ringstead Neighbourhood Plan.
- Public access/ recreational pressure;
 - Urban impacts;
 - Loss of functionally linked habitat;
 - Noise and visual disturbance from construction;
 - Changes in air quality;
 - Water resources; and
 - Water quality.

Background to Recreational Pressure

- 4.4 There is growing concern over the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites must fulfil Conservation Objectives while also providing recreational opportunity. Various research reports have provided compelling links between changes in housing and access levels and impacts on European protected sites^{35, 36}.
- 4.5 Recreational use of a site has the potential to:
- Cause disturbance to sensitive species such as wintering wildfowl;

³⁴ Available at: <https://www.gov.uk/guidance/appropriate-assessment#what-must-an-appropriate-assessment-contain>

³⁵ Liley D, Clarke R.T., Mallord J.W., Bullock J.M. 2006a. The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths. Natural England / Footprint Ecology.

³⁶ Liley D., Clarke R.T., Underhill-Day J., Tyldesley D.T. 2006b. Evidence to support the appropriate Assessment of development plans and projects in south-east Dorset. Footprint Ecology / Dorset County Council.

- Prevent appropriate management or exacerbate existing management difficulties;
- Cause damage through erosion, trampling and fragmentation; and
- Cause eutrophication as a result of dog fouling.

4.6 Different types of Habitat sites (e.g., coastal, heathland, chalk grassland) have varying vulnerabilities and are sensitive to different types of recreational pressures. Studies across a range of species have shown that the effects from recreation can be complex.

Bird Disturbance

4.7 Disturbance effects can have negative impacts on qualifying birds in various ways, with reduced chick provisioning and increased nest predation as a result of adults being flushed from the nest and deterred from returning to it by the presence of people and dogs likely to be a particular problem. A literature review on the effects of human disturbance on breeding birds found that 36 out of 40 studies reported reduced breeding success as a consequence of disturbance³⁷. The main reasons given for the reduction in breeding success were nest abandonment and increased predation of eggs or young. Studies of other species have shown that birds nest at lower densities in disturbed areas, particularly when there is weekday as well as weekend pressure³⁸.

4.8 Studies have shown that birds are more significantly affected by dog walkers than by people alone, with birds flushing more frequently, at greater distances and for longer (Underhill-Day, 2005). In addition, dogs, rather than people, tend to be the cause of many management difficulties, notably by worrying grazing animals, and can cause eutrophication near paths. Nutrient-poor habitats are particularly sensitive to the fertilising effect of inputs of phosphates, nitrogen and potassium from dog faeces³⁹.

4.9 Underhill-Day (2005) summarises the results of visitor studies that have collected data on the use of semi-natural habitat by dogs. In surveys where 100 observations or more were reported, the mean percentage of visitors who were accompanied by dogs was 54.0%.

4.10 A study of bird disturbance in North Kent was undertaken in 2010/2011 by Footprint Ecology⁴⁰. It focused on recreational disturbance to wintering waterfowl on intertidal habitats along the North Kent shoreline, stretching between Gravesend and Whitstable and encompassing the following three SPAs: the Thames Estuary and Marshes SPA, Medway Estuary and Marshes SPA and Swale SPA. From 1,400 events (records of visitors in the bird survey areas) occurring within 200m of the birds, 3,248 species-specific observations were noted of which:

³⁷ Hockin, D., M. Oundsted, M. Gorman, D. Hill, V. Keller and M.A. Barker (1992) – Examination of the effects of disturbance on birds with reference to its importance in ecological assessments. *Journal of Environmental Management*, **36**, 253-286.

³⁸ Van der Zande, A.N., J.C. Berkhuizen, H.C. van Letesteyn, W.J. ter Keurs and A.J. Poppelaars (1984) – Impact of outdoor recreation on the density of a number of breeding bird species in woods adjacent to urban residential areas. *Biological Conservation*, **30**, 1-39.

³⁹ Shaw, P.J.A., K. Lankey and S.A. Hollingham (1995) – Impacts of trampling and dog fouling on vegetation and soil conditions on Headley Heath. *The London Naturalist*, **74**, 77-82.

⁴⁰ D. Liley & H. Fearnley (Footprint Ecology), 2011. Bird Disturbance Study North Kent.

- 74% resulted in no response.
- 13% resulted in a major flight.
- 5% resulted in a short flight.
- 5% resulted in a short walk.
- 3% resulted in an alert.

4.11 Dog walking accounted for 55% of all major flight observations with a further 15% attributed to walkers without dogs. After controlling for distance, major flights were more likely to occur when activities took place on the intertidal zone (compared to events on the water or events on the shore), when dogs were present and a higher number of dogs were present in visitor groups.

4.12 There were significant differences between species with curlew *Numenius arquata* the species with the highest probability of major flight and teal and black-tailed godwit *Limosa limosa* the lowest. Tide state was also significant with major flights more likely at high tide, after controlling for distance. There was a significant interaction between distance and tide, indicating that the way in which birds responded varied according to tide.

4.13 However, bird disturbance studies need to be treated with care. For instance, the magnitude of disturbance is not necessarily correlated with the impact of disturbance, i.e., the most easily disturbed species are not necessarily those that will suffer the greatest impacts. For example, it has been shown that, in some cases, the most easily disturbed birds simply move to other feeding sites, whilst others may remain (possibly due to an absence of alternative sites) and thus suffer greater population-level impacts⁴¹. A recent literature review undertaken for the RSPB⁴² also urges caution when extrapolating the results of disturbance studies because responses differ between species and may be impacted by local environmental conditions. These facts have to be taken into account when attempting to predict the impacts of future recreational pressure on international sites.

4.14 It should be emphasised that recreational use is not necessarily a problem. Many Habitat sites are also National Nature Reserves or nature reserves managed by Wildlife Trusts and the RSPB. At these sites, access is encouraged and resources are available to ensure that recreational use is managed appropriately.

Where increased recreational use is predicted to cause adverse impacts on a site, avoidance and mitigation should be considered. Avoidance of recreational impacts at Habitat sites involves locating new development away from such sites; Local Plans and other strategic plans, including NPs, provide the mechanism for this. Where avoidance is not possible, mitigation will usually involve a mix of access management, habitat management and provision of alternative recreational space.

⁴¹ Gill et al. (2001) - Why behavioural responses may not reflect the population consequences of human disturbance. *Biological Conservation*, **97**, 265-268

⁴² Woodfield & Langston (2004) - Literature review on the impact on bird population of disturbance due to human access on foot. *RSPB research report* No. 9.

Norfolk Visitor Survey

4.15 A visitor survey across Norfolk was undertaken by Footprint Ecology during 2015 and 2016⁴³. The key findings of the survey are as follows:

4.16 Across Norfolk, 6,096 groups of visitors were interviewed representing information from 35,458 people with 3,466 dogs.

- 52% interviewed groups were local residents who made their visit from home.
- 32% of visitors were on holiday.
- 27% of visitors visited the site daily.
- 77% of visitors travelled to their location by car or van, 18% of visitors arrived by foot.
- The most commonly reported activity was dog walking (41%), with walking second at 26%.
- 51% of visitors who arrived by car lived within 5km of their visit location.

4.17 The results also highlighted how an increase in recreational pressure (particularly at the North Coast, the Broads and the Valley Fens) is predicted to be linked with residential development across multiple local authorities.

Trampling Damage

4.18 Coastal habitats are particularly vulnerable to recreational impacts because they are highly dynamic environments that continually change in response to biotic and abiotic factors. Sand dune communities worldwide are characterized by high levels of biodiversity that are often affected by human-induced impacts such as those caused by trampling.

4.19 In order to understand the effects of recreational pressure such as trampling and other processes, fencing experiments have been carried out on coastal dunes. Since dune systems are subjected to different trampling intensities, studies have explored the effects of accessibility on vascular plants cover.

4.20 Generally, plant communities subject to trampling show lower species and structural diversity, since only dominant and tolerant plant species persist. Furthermore, limiting trampling appears to produce positive changes in dune vegetation communities after a period of only two years⁴⁴.

4.21 A study of paths on a dune system at Winterton, Norfolk, was undertaken by ground and aerial surveys and a map produced of the 35km of major paths in 104ha of dune⁴⁵. Experiments were carried out on the resistance to trampling of a tall *Festuca ovina-Carex arenaria* sward. Estimates were made of the comparative vulnerability of other plant communities. The range extended from *Ammophila arenaria*, which was 10 times as vulnerable, to a short rabbit-grazed sward, 13-14 times as vulnerable. The more vulnerable habitats attracted more

⁴³ <https://www.north-norfolk.gov.uk/media/3382/visitor-surveys-at-european-protection-sites-2015-16.pdf>

⁴⁴ Santoro, R et.al. (2012) Effects of Trampling Limitation on Coastal Dune Plant Communities. Environmental Management DOI 10.1007/s00267-012-9809-6

⁴⁵ L.A. Boorman, R.M. Fuller. Studies on the impact of paths on the dune vegetation at Winterton, Norfolk, England, Biological Conservation, Volume 12, Issue 3, 1977, Pages 203-216.

people. Forty-two percent of the paths at Winterton occur on the steep slopes dominated by *Ammophila*. Comparisons were made with a similar site at Meijendel where greater recreational pressure necessitated laid-out paths and fencing to control visitors. It was suggested that if visitor pressure increased at Winterton, similar management interventions may also be required there.

Nutrient enrichment

4.22 A major concern for nutrient-poor terrestrial habitats such as dune systems is nutrient enrichment associated with dog fouling, which has been addressed in various reviews (e.g.,⁴⁶). It is estimated that dogs will defecate within 10 minutes of starting a walk and therefore most nutrient enrichment arising from dog faeces will occur within 400m of a site entrance. In contrast, dogs will urinate at frequent intervals during a walk, resulting in a spread-out distribution of urine. For example, in Burnham Beeches National Nature Reserve it is estimated that 30,000 litres of urine and 60 tonnes of dog faeces are deposited annually⁴⁷. While there is little information on the chemical constituents of dog faeces, nitrogen is one of the main components⁴⁸. Nutrient levels are the major determinant of plant community composition and the effect of dog defecation in sensitive habitats is comparable to a high-level application of fertiliser, potentially resulting in the shift to plant communities that are more typical of improved grasslands.

Summary

4.23 Overall, the following Habitat sites are considered susceptible to recreational pressure within the context of the RNP:

- North Norfolk Coast SAC
- The Wash & North Norfolk Coast SAC
- North Norfolk Coast SPA/ Ramsar
- The Wash SPA/ Ramsar

Background to Urban Effects

4.24 The list of urbanisation impacts can be extensive, but core impacts can be singled out (note that this list does not imply that all these impacts are expected to occur):

Increased Fly-Tipping

4.25 Whilst fly-tipping is generally considered more of a localised and visual problem, an negative ecological effect of tipping is the introduction of pollutants, plastics and non-native plants to the environment. This can create physical and chemical hazards for wildlife and could potentially damage habitats.

4.26 Residents of Ringstead have regular bin collections⁴⁹ and access to a recycling centre in Heacham to prevent the spread of waste into the environment. This

⁴⁶ Taylor K., Anderson P., Taylor R.P., Longden K. & Fisher P. 2005. Dogs, access and nature conservation. English Nature Research Report, Peterborough.

⁴⁷ Barnard A. 2003. Getting the facts – Dog walking and visitor number surveys at Burnham Beeches and their implications for the management process. *Countryside Recreation* 11:16-19.

⁴⁸ Taylor K., Anderson P., Liley D. & Underhill-Day J.C. 2006. Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.

⁴⁹ https://www.west-norfolk.gov.uk/info/20174/bins_and_recycling_collection_dates

combined with the very open and public nature of the relevant Habitat sites makes it highly unlikely that there will be increased fly-tipping as a result of the RNP and this impact pathway is therefore not considered further in this HRA.

Cat Predation

- 4.27 A survey undertaken in 1997 indicated that nine million British cats brought home 92 million prey items over a five-month period⁵⁰. A large proportion of domestic cats are found in urban settings, and residential development is likely to lead to increased cat predation if the development is located sufficiently close to Habitat sites designated for sensitive bird species (particularly ground nesting birds).
- 4.28 The average roaming distance of domestic cats is approx. 40-200m from home⁵¹ and LSEs due to cat predation may be an issue where allocated sites are within 200m of an SPA/ Ramsar. None of the identified Habitat sites are within 200m of the RNP boundary and, as such, this impact pathway is therefore not considered further in this HRA.

Wildfires / Arson

- 4.29 Wildfires are a periodic threat across Habitat sites and can adversely affect habitats through direct damage to the vegetation and soils, which results in the reduction of habitat quality and associated wildlife alongside carbon release to atmosphere and watercourses.
- 4.30 The cause is generally accepted to be of human origin, with deliberate intent or careless behaviour near footpaths and car parks appearing to be the chief cause of ignition. Available research^{52, 53} identifies the principle causes of 'wild' fires to be deliberate fire-setting; out-of-control campfires, out-of-control planned fires (e.g., part of moorland management for grouse); and out-of-control bonfires.
- 4.31 Kirby & Tantram (1999) concluded that fires occurred at higher densities on the fringes of larger conurbations and in sites within developed urban areas, where fire events present a serious risk to ecological integrity. A zone of 500m was used, based on the maximum likely access distance for average users of greenspaces^{54, 55}, and it was found that the degree of development within this zone correlated with incidence of fires (on Dorset Heathlands). There is also evidence to suggest that a significant proportion of deliberate fire setting is by children of school age.
- 4.32 The age structure of Ringstead parish from the 2011 and 2021 Census data indicates that the majority of residents in Ringstead are aged between 45-64 (33.33%), followed by 65-84 (31.13%). Given this age profile it is highly unlikely that there will be an increased risk of wildfire / arson as a result of the RNP and this impact pathway is therefore not considered further in this HRA.

⁵⁰ Woods, M. et al. 2003. Predation of wildlife by domestic cats *Felis catus* in Great Britain. *Mammal Review* 33, 2 174-188

⁵¹ <https://www.petplan.co.uk/pet-information/cat/advice/roaming/>

⁵² J. C. Underhill-Day, (2005) 'A literature review of urban effects on lowland heaths and their wildlife', English Nature Research Reports, Number 623

⁵³ J.S. Kirby & D.A.S Tantram (1999) 'Monitoring heathland fires in Dorset: Phase 1' Report to Department of the Environment, Transport and the Regions: Wildlife and Countryside Directorate

⁵⁴ arrison, C, Burgess, J, Millward, A, Dawe, G. 1995. Accessible greenspace in towns and cities: A review of appropriate size and distance criteria. English Nature Research Report No. 153. English Nature, Peterborough.

⁵⁵ Box, J. & Harrison, C. 1993. Natural spaces in urban places. *Town 19 Country Planning*, 62(9): 231-235

Background to Loss of Functionally Linked Habitat

- 4.33 While most Habitat sites have been geographically defined to encompass the key features that are necessary for coherence of their structure and function, and the support of their qualifying features, this is not always the case. A diverse array of qualifying species including birds, bats and amphibians are not confined to the boundary of designated sites.
- 4.34 For example, the highly mobile nature of both wildfowl and heathland birds implies that areas of habitat of crucial importance to the maintenance of their populations are outside the physical limits of Habitat sites. Despite not being part of the formal designation, this habitat is still integral to the maintenance of the structure and function of bird populations in the designated site and, therefore, land use plans that may affect such areas should be subject to further assessment. This has been underlined by a recent European Court of Justice ruling (C-461/17, known as the Holohan ruling⁵⁶) which in paragraphs 37 to 40 confirms the need for an AA to consider the implications of a plan or project on habitats and species outside the Habitat site boundary, provided that those implications are liable to affect the Conservation Objectives of the site.
- 4.35 With regard to birds, functionally linked habitats typically provide habitat for foraging or other ecological functions essential for the maintenance of the designated population e.g., high-tide roosts for coastal waders and waterfowl. Functionally linked habitats may extend up to the maximum foraging distances established for relevant bird species. However, the number of birds foraging will tend to decrease further away from the protected site and thus the importance of the land to the maintenance of the designated population will decrease.
- 4.36 Natural England's Impact Risk Zones (IRZs)⁵⁷ identify the core foraging distances that wintering birds will travel from their SPAs / Ramsars and the guidance that underlies those zones will be utilised in this HRA. The relevant IRZs are shown in Table 2:

Table 2. Natural England's Impact Risk Zones (IRZs) for different groups of designated bird species.

Assemblage	Impact Risk Zone (IRZ, based on core foraging distance)
Wintering birds (except wintering waders and grazing wildfowl; wigeon and geese)	Up to 500m
Dabbling ducks such as teal, mallard and gadwall	Home ranges could extend beyond site boundaries at coastal sites, but less likely to do so at inland water bodies.
Wintering waders (except golden plover and lapwing), brent goose & wigeon	Maximum foraging distance is 2km

⁵⁶ The Holohan ruling also requires all the interest features of the Habitat sites discussed to be catalogued (i.e., listed) in the HRA. That is the purpose of Appendix A.

⁵⁷ Knight M. (2019). Impact Risk Zones Guidance Summary – Sites of Special Scientific Interest Notified for Birds. Version 1.1. 8pp.

Assemblage**Impact Risk Zone (IRZ, based on core foraging distance)**

Wintering lapwing and golden plover

Maximum foraging distance is 15-20km.

Golden plover can forage up to 15km from a roost site within a protected site. Lapwing can also forage similar distances. Both species use lowland farmland in winter and it is difficult to distinguish between designated populations and those present within the wider environment.

Developments affecting functionally linked land more than 10km from the site are unlikely to impact significantly on designated populations.

Wintering white-fronted goose, greylag goose, Bewick's swan, whooper swan, pink-footed goose & wintering bean goose

Maximum foraging distance is 10km although studies have shown that pink-footed geese will fly 20km from their roosting site to feed⁵⁸.

A bespoke functional land IRZ has replaced the individual Birds 6/7 IRZs for sites supporting the following goose and swan species: pink-footed geese, barnacle goose, Bewick's swan, white-fronted goose and whooper swan.

The IRZ is based on GIS distribution records of feeding pink-footed geese from a study undertaken for Natural England by the Wildfowl & Wetlands Trust⁵⁹ and the results of work undertaken by the British Trust for Ornithology to identify functionally connected habitat used by barnacle goose, Bewick's swan, white-fronted goose and whooper swan based on WeBS site and BirdTrack data and focuses on only the areas of land that we know are being used as functional habitat by designated populations

4.37 The guidance document further identifies that for SSSIs designated for wintering waterfowl and waders (other than golden plover and lapwing) a maximum of 2km is appropriate for the identification of potential functionally linked habitat, with the exception of wind energy (3km) and airports (10km).

4.38 There is now an abundance of authoritative examples of HRA cases on plans affecting bird populations, where Natural England recognised the potential importance of functionally linked land⁶⁰.

4.39 Relevant designated birds, as per the site Conservation Objectives relating to the North Norfolk Coast SPA / Ramsar and The Wash SPA/ Ramsar, are shown

⁵⁸ <https://monitoring.wwt.org.uk/wp-content/uploads/2018/12/Mapping-feeding-Pinkfeet-in-England-Final-report-vFinal.Jan15-2.pdf> [accessed 14/04/2021]

⁵⁹ Ibid

⁶⁰ Chapman C & Tyldesley D. 2016. Functional linkage: How areas that are functionally linked to Habitat sites have been considered when they may be affected by plans and projects – A review of authoritative decisions. Natural England Commissioned Reports 207: 73pp.

in Table 3. The habitats and foraging resources that may be present within the RNP boundary are shown in bold.

Table 3. Habitat preferences and diet of designated bird species of the North Norfolk Coast SPA / Ramsar

Designated Bird Feature	Habitat Preferences⁶¹	Diet⁶²
Avocet	Mudflats, lagoons, sandy beaches	Invertebrates, especially insects, crustaceans, worms, but also small fish; sweeps bill from side to side, prey located by touch.
Sandwich tern	Sandy seacoasts, in winter estuaries	Mostly fish by plunge-diving (offshore feeding)
Common tern	Sandy seacoasts, in winter marshes, estuaries	Mostly fish, also crustaceans in some areas, mostly by plunge-diving (offshore feeding)
Dark-bellied brent goose	Tundra, on migration marshes & estuaries	Eelgrass (<i>Zostera</i>), also vegetation by grazing on land or shallow water
Pink-footed goose	Tundra lakes, rivers & wet meadows	Plant material, including roots, tubers, shoots, leaves, in winter now mostly on farmland
Wigeon	Marsh, lakes, open moor, on migration also estuaries	Mostly leaves, shoots, rhizomes, also some seeds
Knot	Tundra, on migration coastal	Summer, insects and plant material, Winter Inter-tidal invertebrates, especially molluscs
Little tern	Seacoasts, rivers & lakes	Small fish and invertebrates, often hovers before plunge-diving
Bittern	Reedbeds and marshes	Mostly fish, amphibians, insects but wide variety, mostly in shallow water in or near cover
Marsh harrier	Reedbeds and marshes	Ground-dwelling animals , especially in marshy areas, preference for easily caught prey
Montagu's harrier	Marsh, moor & grassland	Ground-dwelling animals , especially in areas with low vegetation

⁶¹ Taken from British Trust of Ornithology BirdFacts <https://www.bto.org/understanding-birds/birdfacts>

⁶² Ibid

4.40 Generally, the identification of an area as functionally linked habitat is now a relatively straightforward process and it is reasonable to assume that a site <2 ha in size is unlikely to support a large enough population of birds (taking sightlines etc. into account) to constitute 1% of an SPA population. However, the importance of non-designated land parcels may not be immediately apparent and could require the analysis of existing data sources to be firmly established. In some instances, data may not be available at all, requiring further survey work.

4.41 The following Habitat site is considered susceptible to the potential loss of functionally linked habitat in the context of the RNP:

- North Norfolk Coast SPA / Ramsar
- The Wash SPA/ Ramsar

Background to Noise and Visual Disturbance

4.42 As detailed in the section on recreational pressure above, human activity can affect birds either directly (e.g., by causing them to flee) or indirectly (e.g. by damaging their habitat). Human activity can also lead to behavioural changes (e.g., alterations in feeding behaviour, avoidance of certain areas etc.) and physiological changes (e.g., an increase in heart rate) that, although less noticeable, may ultimately result in major population-level effects⁶³.

4.43 Recreational pressure is not the only potential source of disturbance. Construction work taking place immediately adjacent to the designated site or functionally linked habitats could cause disturbance and displacement of designated birds. While any impact relating to demolition and construction activities will be temporary (birds would likely return once construction work ceases and the disturbance stimulus is removed) the resulting effect on population survival could be significant if it occurs during the winter / passage period and prevents birds from using feeding areas on which they rely. It should be noted that any operational activities are likely to be permanent and thus their impact could result in a more severe negative impacts on designated bird features.

4.44 The degree of impact that varying levels of noise will have on different species of bird is relatively poorly understood. Several studies have found that an increase in traffic levels on roads leads to a reduction in the bird abundance within adjacent hedgerows - Reijnen et al (1995) examined the distribution of 43 passerine species (i.e., 'songbirds'), of which 60% had a lower density closer to the roadside than further away. By controlling vehicle usage, they also found that the density generally was lower along busier roads than quieter roads⁶⁴.

4.45 A recent review on recreational disturbance on the Humber⁶⁵ assessed different types of noise disturbance on waterfowl referring to studies relating to aircraft (see Drewitt 1999⁶⁶), traffic (Reijnen, Foppen, & Veenbaas 1997)⁶⁷, dogs (Lord,

⁶³ Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

⁶⁴ Reijnen, R. et al. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32: 187-202

⁶⁵ Helen Fearnley Durwyn Liley and Katie Cruickshanks (2012) Results of Recreational Visitor Survey across the Humber Estuary produced by Footprint Ecology

⁶⁶ Drewitt, A. (1999) Disturbance effects of aircraft on birds. English Nature, Peterborough.

⁶⁷ Reijnen, R., Foppen, R. & Veenbaas, G. (1997) Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation*, 6, 567-581.

Waas, & Innes 1997⁶⁸; Banks & Bryant 2007⁶⁹) and machinery (Delaney et al. 1999; Tempel & Gutierrez 2003). These studies identified that there is still relatively little work on the effects of different types of water-based craft and the impacts from jet skis, kite surfers, windsurfers etc. (see Kirby et al. 2004⁷⁰ for a review). Some types of disturbance are clearly likely to invoke different responses. In very general terms, both distance from the source of disturbance and the scale of the disturbance (noise level, group size) will influence the response (Delaney et al. 1999⁷¹; Beale & Monaghan 2005⁷²). On UK estuaries and coastal sites, a review of WeBS data showed that, among the volunteer WeBS surveyors, driving of motor vehicles and shooting were the two activities most perceived to cause disturbance (Robinson & Pollitt 2002)⁷³.

- 4.46 Additionally, animals can be disturbed by the movement of ships. For instance, a DTI study of birds of the North West coast noted that: *“Divers and scoters were absent from the mouths of some busier estuaries, notably the Mersey... Both species are known to be susceptible to disturbance from boats, and their relative scarcity in these areas... may in part reflect the volume of boat traffic in these areas”*⁷⁴.
- 4.47 Three of the most important factors determining the magnitude of disturbance appear to be species sensitivity, proximity of the disturbance source and timing / duration of the disturbance. Generally, the most disturbing activities are likely to be those that involve irregular, infrequent and unpredictable loud noise events, movements or vibrations. Birds are least likely to be disturbed by activities that involve regular, frequent, predictable, quiet patterns of sound, movement and vibration. The further any activity is from the birds, the less likely it is to result in disturbance.
- 4.48 An increasing amount of research on visual and noise disturbance of waterfowl from construction (and other activities) is now available⁷⁵. Both visual and noise stimuli may elicit disturbance responses, potentially affecting the fitness and survival of waterfowl and waders. Noise is a complex disturbance parameter requiring the consideration of multiple parameters, including its non-linear scale, non-additive effect and the source-receptor distance. A high level of noise disturbance constitutes a sudden noise event of over 60dB or prolonged noise of over 72dB. Bird responses to high noise levels include major flight or the cessation of feeding, both of which might affect the survival of birds particularly if other stressors are present (e.g., cold weather, food scarcity).
- 4.49 Generally, research has shown that above noise levels of 84dB waterfowl show a flight response, while at levels below 55dB there are no behavioural effects. These two thresholds are therefore considered useful as defining two extremes.

⁶⁸ Lord, A., Waas, J.R. & Innes, J. (1997) Effects of human activity on the behaviour of northern New Zealand dotterel *Charadrius obscurus aquilonius* chicks. *Biological Conservation*, 82,15-20.

⁶⁹ Banks, P.B. & Bryant, J.V. (2007) Four-legged friend of foe? Dog-walking displaces native birds from natural areas. *Biology Letters*, 3, 611-613.

⁷⁰ Kirby, J.S., Clee, C. & Seager, V. (1993) Impact and extent of recreational disturbance to wader roosts on the Dee estuary: some preliminary results. *Wader Study Group Bulletin*, 68, 53-58.

⁷¹ Delaney, D.K., Grubb, T.G., Beier, P., Pater, L.L.M. & Reiser, H. (1999) Effects of Helicopter Noise on Mexican Spotted Owls. *The Journal of Wildlife Management*, 63, 60-76.

⁷² Beale, C.M. & Monaghan, P. (2005) Modeling the Effects of Limiting the Number of Visitors on Failure Rates of Seabird Nests. *Conservation Biology*, 19, 2015-2019.

⁷³ Robinson, J.A. & Pollitt, M.S. (2002) Sources and extent of human disturbance to waterbirds in the UK: an analysis of Wetland Bird Survey data, 1995/96 to 1998/99: Less than 32% of counters record disturbance at their site, with differences in causes between coastal and inland sites. *Bird Study*, 49, 205.

⁷⁴ DTI (2006). *Aerial Surveys of Waterbirds in Strategic Wind Farm Areas: 2004/05 Final Report*

⁷⁵ Institute of Estuarine & Coastal Studies (IECS), University of Hull. (2013). *Waterbird Disturbance Mitigation Toolkit – Informing Estuarine Planning & Construction Projects*. 36pp.

The same authors have shown that regular noise levels should be below 70dB at the bird, as birds will habituate to noise levels below this level. Generally, noise is attenuated by 6dB with every doubling of distance from the source. For example, impact piling, which is a particularly noisy construction process of approx.. 110dB at 0.67m from source, will therefore reduce to 67 – 68dB by 100m from the source. Overall, the loudest construction noise will have fallen to below disturbing levels by 100m, and certainly by 200m, from the source even without mitigation.

4.50 Visual disturbance is generally considered to have a higher impact than noise disturbance as, in most instances, visual stimuli will elicit a disturbance response at greater distances than noise. For example, a flight response is triggered in most species when they are approached to within 150m across a mudflat. Visual disturbance can be exacerbated by workers operating equipment outside machinery, undertaking sudden movements and using large machinery. Some species are particularly sensitive to visual disturbance, including curlew (taking flight at 275m), redshank (at 250m), shelduck (at 199m) and bar-tailed godwit (at 163m).

4.51 For the purpose of this assessment, a precautionary buffer of 300m has been used for visual and noise disturbance impacts.

4.52 The following Habitat sites are considered susceptible to visual and noise disturbance within the context of the RNP, should works be within 300m of functionally linked habitat:

- North Norfolk Coast SPA / Ramsar
- The Wash SPA/ Ramsar

Background to Atmospheric Pollution

4.53 The main pollutants of concern for Habitat sites are oxides of nitrogen (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂) and are summarised in Table 4.

Table 4. Main sources and effects of air pollutants on habitats and species⁷⁶.

Pollutant	Source	Effects on habitats and species
Sulphur dioxide (SO ₂)	<p>The main sources of SO₂ are electricity generation, and industrial and domestic fuel combustion. However, total SO₂ emissions in the UK have decreased substantially since the 1980's.</p> <p>Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of SO₂ have been</p>	<p>Wet and dry deposition of SO₂ acidifies soils and freshwater and may alter the composition of plant and animal communities.</p> <p>The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species.</p>

⁷⁶ Source: Information summarised from the Air Pollution Information System (<http://www.apis.ac.uk/>)

Pollutant	Source	Effects on habitats and species
	documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO ₂ emissions in the UK.	However, SO ₂ background levels have fallen considerably since the 1970's and are now not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London.
Acid deposition	<p>Leads to acidification of soils and freshwater via atmospheric deposition of SO₂, NO_x, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most of this contributed by lower sulphate levels.</p> <p>Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, increased N emissions may cancel out any gains produced by reduced S levels.</p>	<p>Gaseous precursors (e.g., SO₂) can cause direct damage to sensitive vegetation, such as lichen, upon deposition.</p> <p>Can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants.</p> <p>Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.</p>
Ammonia (NH ₃)	Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes and from some chemical processes and vehicle exhausts. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock.	<p>The negative effect of NH₄⁺ may occur via direct toxicity when uptake exceeds detoxification capacity and via N accumulation.</p> <p>Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath</p>

Pollutant	Source	Effects on habitats and species
	<p>Ammonia reacts with acid pollutants such as the products of SO₂ and NO_x emissions to produce fine ammonium (NH₄⁺) - containing aerosol. Due to its significantly longer lifetime, NH₄⁺ may be transferred much longer distances (and can therefore be a significant trans-boundary issue).</p> <p>While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type</p>	<p>species (lichens, mosses) to grasses is often seen.</p> <p>As emissions mostly occur at ground level in the rural environment and NH₃ is rapidly deposited, some of the most acute problems of NH₃ deposition are for small relict nature reserves located in intensive agricultural landscapes.</p>
Nitrogen oxides (NO _x)	Nitrogen oxides are mostly produced in combustion processes. Half of NO _x emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes.	<p>Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NO_x for all vegetation types has been set to 30 ug/m³.</p> <p>Deposition of nitrogen compounds (nitrates (NO₃), nitrogen dioxide (NO₂) and nitric acid (HNO₃)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification.</p> <p>In addition, NO_x contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.</p>
Nitrogen deposition	The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO _x) or reduced (e.g. NH ₃) nitrogen emissions (described	All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally.

Pollutant	Source	Effects on habitats and species
	<p>separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices.</p> <p>The N pollutants together are a large contributor to acidification (see above).</p>	<p>Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species.</p> <p>N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.</p>
Ozone (O ₃)	<p>A secondary pollutant generated by photochemical reactions involving NO_x, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above).</p> <p>Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40 ppb ('episodes' or 'smog'). Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.</p>	<p>Concentrations of O₃ above 40 ppb can be toxic to both humans and wildlife and can affect buildings.</p> <p>High O₃ concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in forest production and altered species composition in semi-natural plant communities.</p>

4.54 SO₂ emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil. As such, it is unlikely that material increases in SO₂ emissions will be associated with the WntSNP. NH₃ emissions are dominated by agriculture, with some chemical processes also making notable contributions.

4.55 NH₃ can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges⁷⁷. NO_x can also be toxic at high concentrations (far above the annual average Critical Level) but generally only in the presence of elevated SO₂ which is very rare in the UK.

⁷⁷ http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.

4.56 NO_x emissions, however, are dominated by the output of vehicle exhausts (more than half of all emissions). Within a ‘typical’ housing development, by far the largest contribution to NO_x (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison⁷⁸. Emissions of NO_x could therefore be reasonably expected to increase as a result of greater vehicle use as an indirect effect of the WntSNP. High levels of NO_x and NH₃ are likely to increase the total N deposition to soils, potentially leading to deleterious knock-on effects in resident ecosystems. Increases in nitrogen deposition from the atmosphere can, if sufficiently great, enhance soil fertility and lead to eutrophication. This often has adverse effects on community composition and the quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats⁷⁹,⁸⁰.

4.57 According to the World Health Organisation, the critical NO_x concentration (critical threshold) for the protection of vegetation is 30 µgm⁻³. In addition, ecological studies have determined ‘Critical Loads’ (CLs)⁸¹ of atmospheric N deposition (that is, NO_x combined with ammonia NH₃) for key habitats within Habitat sites.

4.58 According to the Department of Transport’s Transport Analysis Guidance, “Beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant”⁸² (see Figure 2).

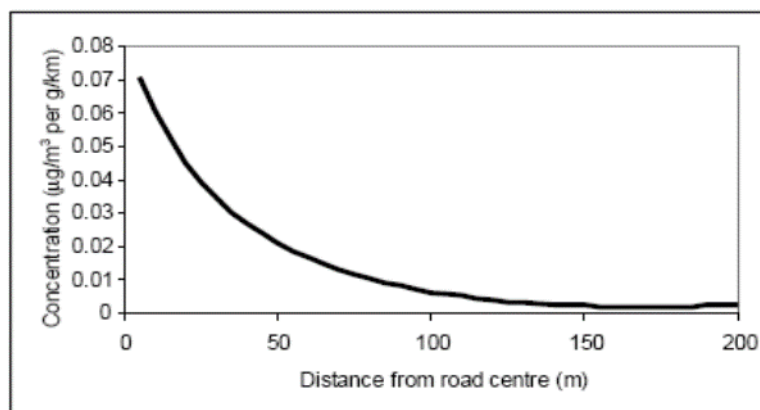


Figure 2: Traffic contribution to concentrations of pollutants at different distances from a road (Source: www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf)

4.59 This is the distance that has been used in this HRA to determine whether Habitat sites are likely to be significantly affected by development under the RNP. The main road to and from Ringstead (although it does not actually enter the parish) is the A149, which is the main focus of this HRA.

4.60 The following Habitat sites are considered sensitive to atmospheric pollution arising from the RNP:

- North Norfolk Coast SPA / Ramsar / SAC

⁷⁸ Proportions calculated based upon data presented in Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. <http://www.airquality.co.uk/archive/index.php>

⁷⁹ Wolseley, P. A.; James, P. W.; Theobald, M. R.; Sutton, M. A. 2006. Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. Lichenologist 38: 161-176

⁸⁰ Dijk, N. 2011. Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: evidence from a long-term field manipulation Global Change Biology 17: 3589-3607

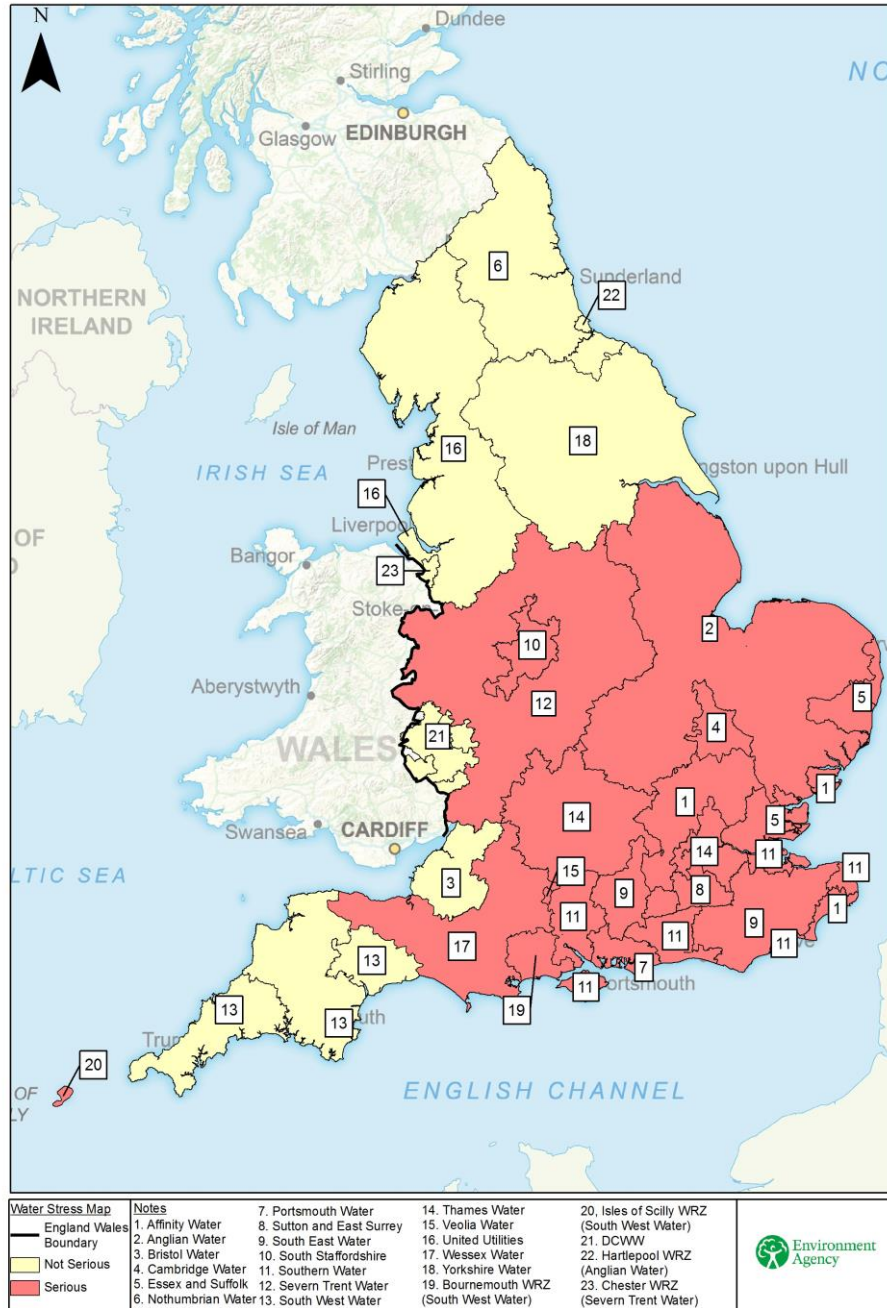
⁸¹ The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur

⁸² TAG unit A3 environmental impact appraisal (publishing.service.gov.uk) [Accessed 10/10/2023]

- The Wash & North Norfolk Coast SAC

Background to Water Resources

- 4.61 The water level, its flow rates and the mixing conditions are important determinants of the condition of Habitat sites and their qualifying features. Hydrological processes are critical in influencing habitat characteristics in wetlands and coastal waters, including current velocity, water depth, dissolved oxygen levels, salinity and water temperature. In turn these parameters determine the short- and long-term viability of plant and animal species, as well as overall ecosystem composition. Changes to the water flow rate within intertidal habitats can be associated with a multitude of further impact pathways, including substratum loss, smothering and changes in wave exposure, and often interact with coastal squeeze.
- 4.62 The unique nature of wetlands combines shallow water and conditions that are ideal for the growth of organisms at the basal level of food webs, which feed many species of birds, mammals, fish and amphibians. Overwintering, migrating and breeding wetland bird species are particularly reliant on these food sources, as they need to build up enough nutritional reserves to sustain their long migration routes or feed their hatched chicks.
- 4.63 Maintaining a steady water supply is of critical importance for many hydrologically dependent SPAs, SACs and Ramsars. For example, in many wetlands winter flooding is essential for sustaining a variety of foraging habitats for SPA / Ramsar wader and waterbird species. However, different species vary in their requirements for specific water levels. For example, some duck species (e.g. wigeon) have optimum water depth requirements of under 0.3m for successful foraging. In contrast, bittern require deep water surrounding nesting sites to help deter predators.
- 4.64 For both wetland and coastal habitats, a constant supply of freshwater is fundamental to maintaining their ecological integrity. However, while the natural fluctuation of water levels within narrow limits is desirable, excess or too little water supply might cause the water level to be outside of the required range of qualifying birds, invertebrates or plant species. There are two mechanisms through which urban development might negatively affect the water level in Habitat sites:
- The supply of new housing with potable water may require increased abstraction of water from surface water and groundwater bodies. Depending on the level of water stress in the geographic region, this may reduce the water levels in Habitat sites sharing the same catchment.
 - The proliferation of impermeable surfaces in urban areas increases the volume and speed of surface water runoff. As traditional drainage systems often cannot cope with the volume of stormwater, sewer overflows are designed to discharge excess water directly into watercourses. Often this pluvial flooding results in downstream inundation of watercourses and the potential flooding of wetland habitats.
- 4.65 It is also noted that Wells-next-the-Sea is located within an area of serious water stress (see Figure 3 overleaf), meaning that there are existing pressures on water resources that may be exacerbated by increased water abstraction.



4.66 The following Habitat site is considered sensitive to changes in water resources arising from the RNP:

- North Norfolk Coast SPA / Ramsar / SAC
- The Wash & North Norfolk Coast SAC

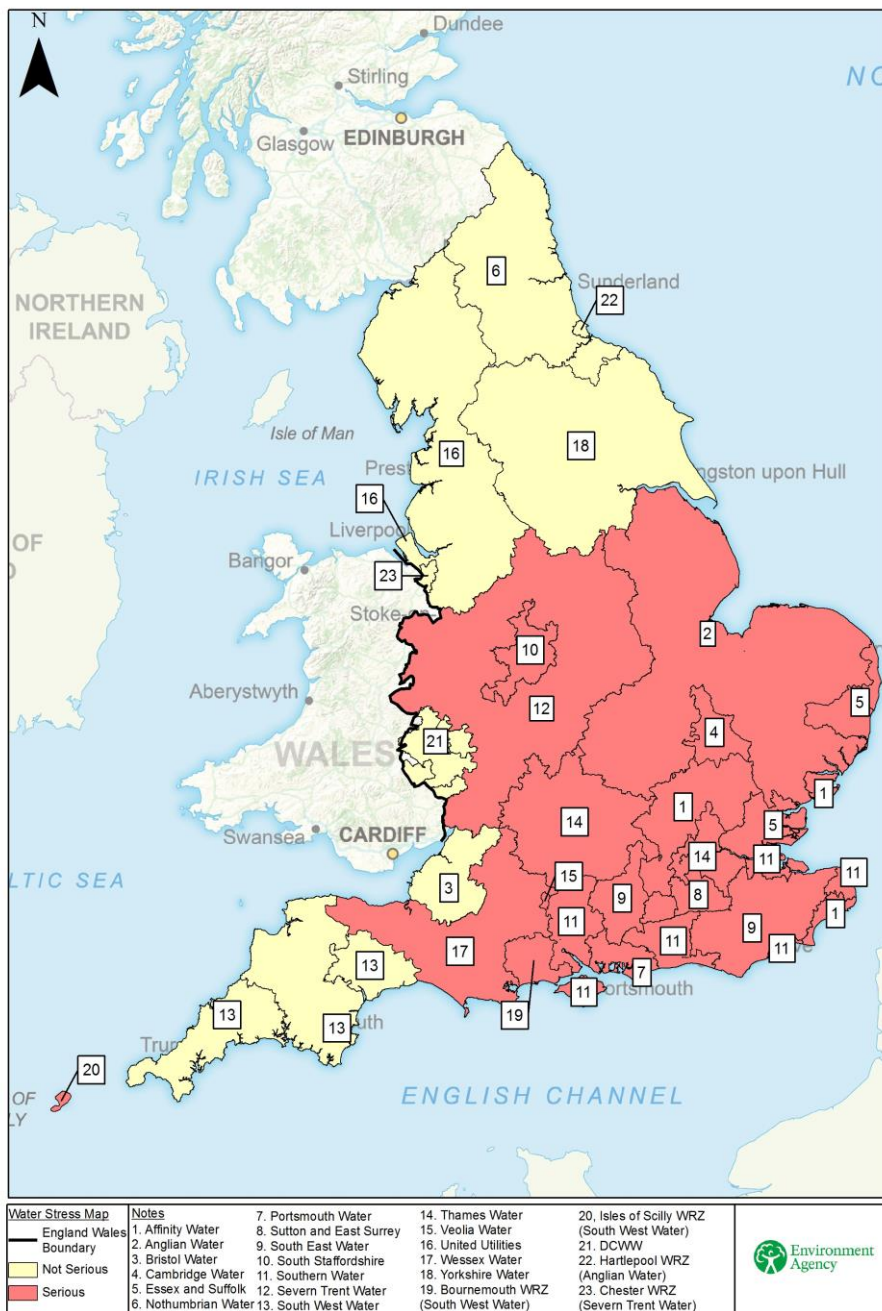


Figure 3: Areas of water stress in England and Wales⁸³

Background to Water Quality

4.67 Increased amounts of housing or business development can lead to reduced water quality of rivers and estuarine environments. Sewage and industrial effluent discharges can contribute to increased nutrients and toxic contaminants in Habitat sites leading to unfavourable conditions.

4.68 The quality of the water that feeds Habitat sites is an important determinant of the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts:

⁸³ Figure adapted from Environment Agency. 2021. Water stressed areas – final classification <https://www.gov.uk/government/publications/water-stressed-areas-2021-classification> [Accessed on the 21/02/2023]

- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour. Eutrophication, the enrichment of plant nutrients in water, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing available nitrogen.
- Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.
- For sewage treatment works close to capacity, further development may increase the risk of effluent escape into aquatic environments. In many urban areas, sewage treatment and surface water drainage systems are combined, and therefore a predicted increase in flood and storm events could increase pollution risk.

4.69 The following Habitat site is considered sensitive to negative water quality changes arising from the RNP:

- North Norfolk Coast SPA / Ramsar / SAC
- The Wash & North Norfolk Coast SAC

Summary of Impact Pathways to be Taken Forward

4.70 Having considered the impact pathways identified at paragraph 4.3, those shown in Table 5 will be taken to the next stage in the HRA process, the LSEs screening.

Table 5. Impact pathways and relevant Habitat sites.

Impact pathway	Habitat site (s) potentially affected
Recreational pressure	North Norfolk Coast SPA / Ramsar / SAC The Wash & North Norfolk Coast SAC The Wash SPA/ Ramsar
Loss of functionally linked habitat	North Norfolk Coast SPA / Ramsar The Wash SPA/ Ramsar
Noise and visual disturbance	North Norfolk Coast SPA / Ramsar The Wash SPA/ Ramsar

Impact pathway	Habitat site (s) potentially affected
Atmospheric pollution	North Norfolk Coast SPA / Ramsar / SAC The Wash & North Norfolk Coast SAC
Water resources	North Norfolk Coast SPA / Ramsar / SAC The Wash & North Norfolk Coast SAC
Water quality	North Norfolk Coast SPA / Ramsar / SAC The Wash & North Norfolk Coast SAC

5. Likely Significant Effects (LSEs) Screening

Introduction

- 5.1 When seeking to identify relevant Habitat sites, consideration has been given primarily to identified impact pathways and the source-pathway-receptor approach, rather than adopting purely a 'zones'-based approach. The source-pathway-receptor approach is a standard tool in environmental assessment. In order for an effect to occur, all three elements of this mechanism must be in place, whereas the absence of one or more of the elements means there is no possibility for an effect. Furthermore, even where an impact is predicted to occur, it may not result in significant effects (i.e., those which undermine the Conservation Objectives of a Habitat site).
- 5.2 The likely zone of impact (also referred to as the likely Zone of Influence, Zol) of a plan or project is the geographic extent over which significant ecological effects are likely to occur. The Zol of a plan or project will vary depending on the specifics of a particular proposal and must be determined on a case-by-case basis with reference to a variety of criteria, including:
- the nature, size / scale and location of the plan;
 - the connectivity between the plan and Habitat sites, for example through hydrological connections or because of the natural movement of qualifying species;
 - the sensitivity of ecological features under consideration; and,
 - the potential for in-combination effects.

Approach to Ringstead Neighbourhood Plan Policy Screening

- 5.3 There are 14 policies within the RNP. Policies were screened out of having LSEs on a Habitat site where any of the following reasons applied:
- they are environmentally positive;
 - they will not themselves lead to any development or other change;
 - they make provision for change but could have no conceivable effect on a Habitat site. This can be because there is no pathway between the policy and the qualifying features or a Habitat site, or because any effect would be positive;
 - they make provision for change but could have no significant effect on a Habitat site (i.e., the effect would not undermine the conservation objectives of a Habitat site); or,
 - the effects of a policy on any particular Habitat site cannot be ascertained because the policy is too general. For example, a policy may be screened

out if, based on absence of detail in the policy, it is not possible to identify where, when, or how the policy may be implemented, where effects may occur, or which sites, if any, may be affected.

- 5.4 Any 'criteria-based' policy (i.e., those that simply list criteria with which development needs to comply) or other general policy statements that have no spatial element were also screened out. Likewise, policies that simply 'safeguard' an existing resource (e.g., existing green infrastructure or mineral resources) by preventing other incompatible development, were also screened out.
- 5.5 The appraisal therefore focussed on those policies with a definable spatial component. Having established which policies required scrutiny by virtue of being spatially defined, consideration was given as to whether LSEs could be dismissed due to a lack of connectivity to any Habitat site for one of the following reasons:
- a potentially damaging activity may occur as a result of the policy but there is no pathway connecting it to a Habitat site (due to distance, for example);
 - there are no Habitat sites vulnerable to any of the activities that the policy will deliver; or,
 - the policy will not result in any damaging activities.

Results of Policy Screening

- 5.6 The results of the LSEs screening of policies included in the RNP are presented in Table 6. Where a policy is shaded green, there are no linking impact pathways to Habitat sites and LSEs can be excluded. Where the screening outcome is shaded orange, LSEs cannot be excluded, and the policy is screened in for AA.
- 5.7 Of the 14 RNP policies, one, Policy Policy 3: RNP1- Land off Peddars Way North, is considered to have the potential to result in LSEs, either alone or in combination with other plans and projects, as there are impact pathways linking it to Habitat sites, therefore, Appropriate Assessment is required.

Table 6. Screening table of the policies included in the Ringstead Neighbourhood Plan.

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Housing and Design		
Policy 1: Housing Mix	<p>Housing proposals will need to reflect local housing need using the best available and proportionate evidence. The Housing Need Assessment (2022) will be acceptable evidence.</p> <p>Except for developments comprising self-build, and conversions where justified, new residential development should offer a housing mix whereby at least 90% of homes are three-bedrooms or fewer, unless evidence is provided either showing there is no longer such a local need, or the scheme is made unviable.</p>	<p>No LSEs, screened out from AA.</p> <p>The policy does not itself lead to development, but it supports developments that increases the supply of certain housing needs within the neighbourhood. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.</p>
Policy 2: Affordable Housing	<p>1. Affordable Housing delivered within Ringstead should comprise:</p> <ul style="list-style-type: none"> • 70% Affordable Rented Housing • 30% First Homes (25% First Homes at 50% discount) and 5% shared ownership (10% shared equity) <p>2. In addition to the national eligibility criteria, the following local eligibility criteria, which aims to establish a local connection as a preference, will be applied to First Homes, with the requirement to meet at least one of the following:</p> <p>i) Current residents of the Parish who rent or live with other family members;</p>	<p>No LSEs, screened out from AA.</p> <p>The policy does not itself lead to development, but it supports developments that increases the supply of certain housing needs within the neighbourhood. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	ii) Ex-residents of the Parish who rent or live with other family members and who moved away within the last three years; or iii) People who rent or live with other family members outside the Parish but who have caring responsibilities in the Parish. iv) People who are employed in the Parish. v) People who live or are employed in the locality.	with this policy, the NPPF and other relevant policies.
Housing Growth/ Site Allocation		
Policy 3: RNP1- Land off Peddars Way North	<p>Land amounting to approximately 0.6ha is allocated for affordable residential development of up to 6 dwellings for rent.</p> <p>The policy also sets out a set of criteria which any development must comply with including that any net new residential dwellings on this site must contribute to the Norfolk Green Infrastructure and Recreation Avoidance and Mitigation Strategy (GIRAMS) tariff.</p>	<p>Potential for LSE</p> <p>This policy provides the location and quantum of development and has the potential to result in the following adverse effects on Habitat sites:</p> <ul style="list-style-type: none"> Public access and disturbance/recreational pressure <p>The allocated site comprises arable land and is <2ha. It is therefore not considered functionally linked habitat.</p> <p>Also, the local plan (policy CS09) sets out that affordable housing is required for development of 5 or more dwellings. This policy framework provides scope for this to be met within the context of the local plan which has its own HRA.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Principal Residence Housing		
Policy 4: Principal residence housing	<p>Proposals for all new housing, including new single dwellings, conversions, and replacement dwellings, will only be supported where first and future occupation is restricted in perpetuity to ensure that each new dwelling is occupied only as a Principal Residence. Sufficient guarantee must be provided of such occupancy restriction through the imposition of a planning condition and Section 106 legal agreement. This Section 106 Agreement will appear on the Register of Local Land Charges.</p> <p>Occupiers of homes with a Principal Residence condition or obligation will be required to keep proof that they are satisfying the requirements as set out in this policy and will be obliged to provide this proof if/when the Borough Council of Kings Lynn and West Norfolk requests it. Registration on the local Register of Electors will not alone be sufficient for this purpose and the Parish Council will co-operate with the Borough Council to monitor compliance with the restriction and in gathering and assessing evidence of any breach that may lead to enforcement action. Precondition examples can include being registered and attending local services such as health care and educational facilities, proof of inhabitation through housing bill receipts or proof of active employment being registered to the principal address.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy and does not allocate sites for development. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.</p>
Design		
Policy 5: Design	All development, including extensions and conversions, will be expected to be consistent with the Ringstead Neighbourhood Plan Design	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy and does not allocate sites for</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<p>Guidance and Codes (2022) in general, and specifically as they apply to the following distinct character areas:</p> <ul style="list-style-type: none"> • CA1- Conservation Area • CA2- Post WW1 Development • CA3- Countryside <p>The Design Codes and the Checklist set out in Appendix B will be used to help assess all planning applications to determine their acceptability. The policy also sets out the design considerations from the Design Codes which are especially important to the area.</p> <p>-</p>	<p>development. The Design Codes and the Checklist will be used to help assess all planning applications to determine their acceptability. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.</p>
Policy 6: Extensions, Outbuildings (including Garages) and Annexes	<p>Proposals for residential annexes and outbuildings will be considered favourably provided it is designed so that it can continue to be used as part of the main dwelling, without creating an independent dwelling unit, in future.</p> <p>Proposals for outbuildings should show that they are required for purposes that are incidental to the use of the host dwelling and its occupants.</p> <p>New development, including cart lodges, must remain in the same ownership and as part of the same planning unit as the host dwelling and must share its existing access, parking, and garden. A condition will be set that requires a register to be kept and made available detailing the lettings/occupation. This would detail the type and length of lettings and can be made available to view. The subdivision of the site and use of the building as an independent dwelling would require permission in its own right.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy and does not allocate sites for development. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	In view of the importance of home working to the Parish economy, all proposals should include provision for the necessary infrastructure to enable direct connection to super high speed, Fibre to the Premises.	
Natural Environment		
Policy 7: Biodiversity	<p>The special importance of the area for wildlife will be safeguarded, retained and habitats enhanced through positive action as part of the development process.</p> <p>All development proposals will need to demonstrate at least a 10% net gain in biodiversity. The policy lists seven ways by which this should be achieved.</p> <p>Proposals that will affect trees or hedgerow must be accompanied by a survey which establishes the health and age of affected trees and/or hedgerow, and, and appropriate management plan. Where the incorporation of existing trees and hedgerows in the development design or translocation is not feasible and only as a last resort, any loss of trees or hedgerow must be compensated for by adequate replacement provision of greater value than the tree or hedgerow lost. Replacement species must be native British species of local provenance.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy and does not allocate sites for development. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.</p>
Policy 8: Local Green Space	<p>This policy identifies 8 areas that are designated as Local Green Space for special protection.</p> <p>These will be protected from inappropriate development to preserve the openness and reasons for designation that make them special to the community.</p> <p>Inappropriate development on designated Local Green Space will only be allowed in very special circumstances, and such circumstances will only</p>	<p>No LSEs, screened out from AA.</p> <p>This is a safeguarding policy and does not allocate sites for development and aims to protect Local Green Space. There are no pathways linking this policy to any Habitat sites.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<p>exist where the harm resulting from the proposal is clearly outweighed by other considerations.</p> <p>New buildings (with three exceptions) are considered to be inappropriate development.</p> <p>Two types of appropriate development are identified which can be allowed as long as there is no unacceptable harm to the Local Green Space, including the reasons for designation. Substantial weight should be given to any harm resulting from proposed development, but opportunities should be sought to enhance the beneficial use of the designations, such as providing access.</p>	
Policy 9: Landscape Quality	<p>Development proposals will be required to conserve and enhance the scenic beauty and special qualities of the Norfolk Coast AONB landscape.</p> <p>The policy identifies 12 important local views. Development proposals that would adversely affect these key views will not be supported. Proposals are expected to demonstrate that they are sited and designed to be of a form and scale that avoids or mitigates any harm to the key views.</p> <p>To minimise light pollution all planning consents will be subject to the specified conditions in respect of external lighting.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a safeguarding policy and does not allocate sites for development and aims to protect important local views and minimise light pollution. There are no pathways linking this policy to any Habitat sites.</p>
Flood and Water Management		
Policy 10: Surface Water Management	Development proposals must be designed to manage flood risk effectively and not increase, and wherever possible reduce, the overall level of flood risk both to the site and elsewhere. Proposals specifically to	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy and does not allocate sites for</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<p>improve surface water drainage, such as works to reinstate an effective drainage scheme, are encouraged.</p> <p>All proposals must incorporate natural Sustainable Drainage Systems (SuDS) that are appropriate to the scale and nature of the development and designed to be an integral part of the green infrastructure (five examples are provided). Such measures will be required except where this is not technically feasible or where it can be demonstrated that other factors preclude their use.</p> <p>To mitigate against the creation of additional impermeable surfaces, there should be attenuation of greenfield (or for redevelopment sites as close to greenfield as possible) surface water runoff rates and runoff volumes within the development site boundary. These measures will be required unless the developer can provide justification to demonstrate that it is not practicable or feasible within the constraints or configuration of the site.</p>	<p>development. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.</p>
Community Infrastructure		
Policy 11: Conversion of Rural Farm Buildings	<p>Enlargement of redundant farm buildings for certain types of commercial use or community use under Use Class E will be viewed favourably such as offices, workshops, and nurseries. Uses such as storage facilities or industrial processes are not viewed as favourable.</p> <p>Extensions should not detract from the character and appearance of their immediate surroundings. Where an extension is acceptable it should be subordinate in scale to the existing building and respectful in its design detailing to the parent building.</p> <p>Proposals should have regard to the Design Codes and Guidance Document (2022) and pay particular attention to the principles within Design Code BF07 and Policy 4.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy and does not allocate sites for development. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Built and Historic Environment		
Policy 12: Ringstead Conservation Area	<p>Development proposals within Ringstead Conservation Area must have particular regard for specified criteria.</p> <p>All proposals should identify opportunities for enhancing the Conservation Area and should be supported by appropriately detailed information to allow an informed assessment of any impacts. Outline applications for new buildings in the Conservation Area will not be acceptable.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management and safeguarding policy and does not allocate sites for development. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.</p>
Non-Designated Heritage Assets		
Policy 13: Non-Designated Heritage Assets	<p>The character, integrity and appearance of existing heritage assets will be conserved and where possible enhanced, in line with their significance.</p> <p>The policy identifies 13 non-designated heritage assets of considerable local significance. Development proposals should avoid harm to these heritage assets and have regard to their character, important features, setting and relationship with surrounding buildings or uses.</p> <p>Proposals that are adjacent to the non-designated assets should demonstrate that consideration has been given to preserving three specified criteria.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management and safeguarding policy and does not allocate sites for development. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.</p>
Access and Transport		

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Policy 14: Residential Parking Standards	<p>Proposals should consider all appropriate points made under Design Code SP02 Streets and Parking, and Section 10 - Car Parking of the Design Guidance and Codes Checklist.</p> <p>The policy specifies minimum standards for the provision of off-road vehicle parking for all new residential developments.</p> <p>On-street parking should be avoided in future development wherever possible particularly in character area CA1.</p> <p>The policy also specifies requirements for on-plot side or front parking, garage parking and courtyard parking.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy and does not allocate sites for development. There are no pathways linking this policy to any Habitat sites.</p> <p>Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.</p>

Source: Ringstead Neighbourhood Plan Pre-Submission Draft March 2023

6. Appropriate Assessment In-combination

Introduction

- 6.1 The law does not prescribe how an AA should be undertaken or presented, but it must consider all impact pathways that have been screened in, whether they arise alone or in combination with other projects and plans. That analysis is the purpose of this section. The law does not require the different effects to be examined separately provided all effects are discussed.
- 6.2 The HRA screening exercise undertaken in Table 5 indicates that one policy, Policy 3: RNP1- Land off Peddars Way North, is considered to pose LSEs to Habitats sites, either alone or in combination with other projects and plans, due to contributing to the following impact pathways: recreational pressure.

Recreational Pressure

- 6.3 Although the number of dwellings is small (6) and unlikely to result in LSEs alone, there is the potential for LSEs in combination with other plans and projects. According to information on the Kings Lynn & West Norfolk Council website⁸⁴, Ringstead lies within the mitigation zones for The Wash & North Norfolk Coast SAC, Roydon Common & Dersingham Bog SAC and The Wash SPA. The closest of these are The Wash & North Norfolk Coast SAC and The Wash SPA which lie approximately 2.3km to the west of Great Ringstead parish.
- 6.4 Ringstead is designated a 'Smaller Village and Hamlet' by the 2011 Core Strategy. As such it does not have any specific site allocations or a development boundary. However, the SADMP⁸⁵ recognises that limited development is expected, and this *'would be judged against the range of policies in the Core Strategy and the Development Management Policies in this Plan.'*
- 6.5 Of particular relevance is SADMP Policy DM 19 - Green Infrastructure/Habitats Monitoring and Mitigation, which states:

"In relation to Habitats Regulations Assessment monitoring and mitigation the Council has endorsed a Monitoring and Mitigation Strategy including:

- Project level HRA to establish affected areas (SPA, SAC, RAMSAR) and a suite of measures including all/some of:*
- Provision of an agreed package of habitat protection measures, to monitor recreational pressure resulting from the new allocations and, if necessary, mitigate adverse impacts before they reach a significant threshold, in order to avoid an adverse effect on the European sites identified in the HRA. This package of measures will require specialist design and assessment, but is anticipated to include provision of:*

⁸⁴ [Habitat Mitigation \(GIRAMS\) | Borough Council of King's Lynn & West Norfolk \(west-norfolk.gov.uk\)](https://www.west-norfolk.gov.uk/downloads/file/2491/sadmp_plan_adopted_2016)

⁸⁵ Available at: https://www.west-norfolk.gov.uk/downloads/file/2491/sadmp_plan_adopted_2016

- i) *A monitoring programme, which will incorporate new and recommended further actions from the Norfolk visitor pressure study (anticipated to be completed in Spring 2016) as well as undertaking any other monitoring not covered by the County-wide study.*
- ii) *Enhanced informal recreational provision on (or in close proximity to) the allocated site [Sustainable Accessible Natural Greenspace], to limit the likelihood of additional recreational pressure (particularly in relation to exercising dogs) on nearby relevant nature conservation sites. This provision will be likely to consist of an integrated combination of:*
 1. *Informal open space (over and above the Council's normal standards for play space);*
 2. *Landscaping, including landscape planting and maintenance;*
 3. *A network of attractive pedestrian routes, and car access to these, which provide a variety of terrain, routes and links to the wider public footpath network.*
- iii) *Contribution to enhanced management of nearby designated nature conservation sites and/or alternative green space;*
- iv) *A programme of publicity to raise awareness of relevant environmental sensitivities and of alternative recreational opportunities.*

Notwithstanding the above suite of measures the Borough Council will levy an interim Habitat Mitigation Payment of £50 per house to cover monitoring/small scale mitigation at the European sites. The amount payable will be reviewed following the results of the 'Visitor Surveys at European Sites across Norfolk during 2015 and 2016'.

- 6.6 *The latest information on the Kings Lynn & West Norfolk Council website identifies that 'The Norfolk GIRAMS sets out a strategic, cross-boundary approach to mitigating the in-combination effects of development on these designated areas and allows strategic mitigation to be delivered across Norfolk. The avoidance and mitigation measures will be funded via developer contributions as part of planning permissions given for new residential and other development. This cost is identified as £210.84 per dwelling and per 6 bedspace for tourist accommodation units or per 2.5 bedspace for student accommodation units and applies to the following applications:*
- 6.7 *All new dwellings of 1+ units in current site allocations and windfall (excludes replacement dwellings and extensions)*
- *Houses in Multiple Occupancy e.g. hotels, guest houses and lodges*
 - *Student accommodation*
 - *Residential care homes and residential institutions (excludes nursing homes)*

- *Residential caravan sites/mobile homes/park homes*
- *Gypsies, travellers and travelling show people plots*
- *Residential moorings, holiday caravans, touring pitches and campsites'*

6.8 Policy 3: RNP1- Land off Peddars Way North makes specific reference to the need for the net new residential dwellings Area to contribute to this tariff.

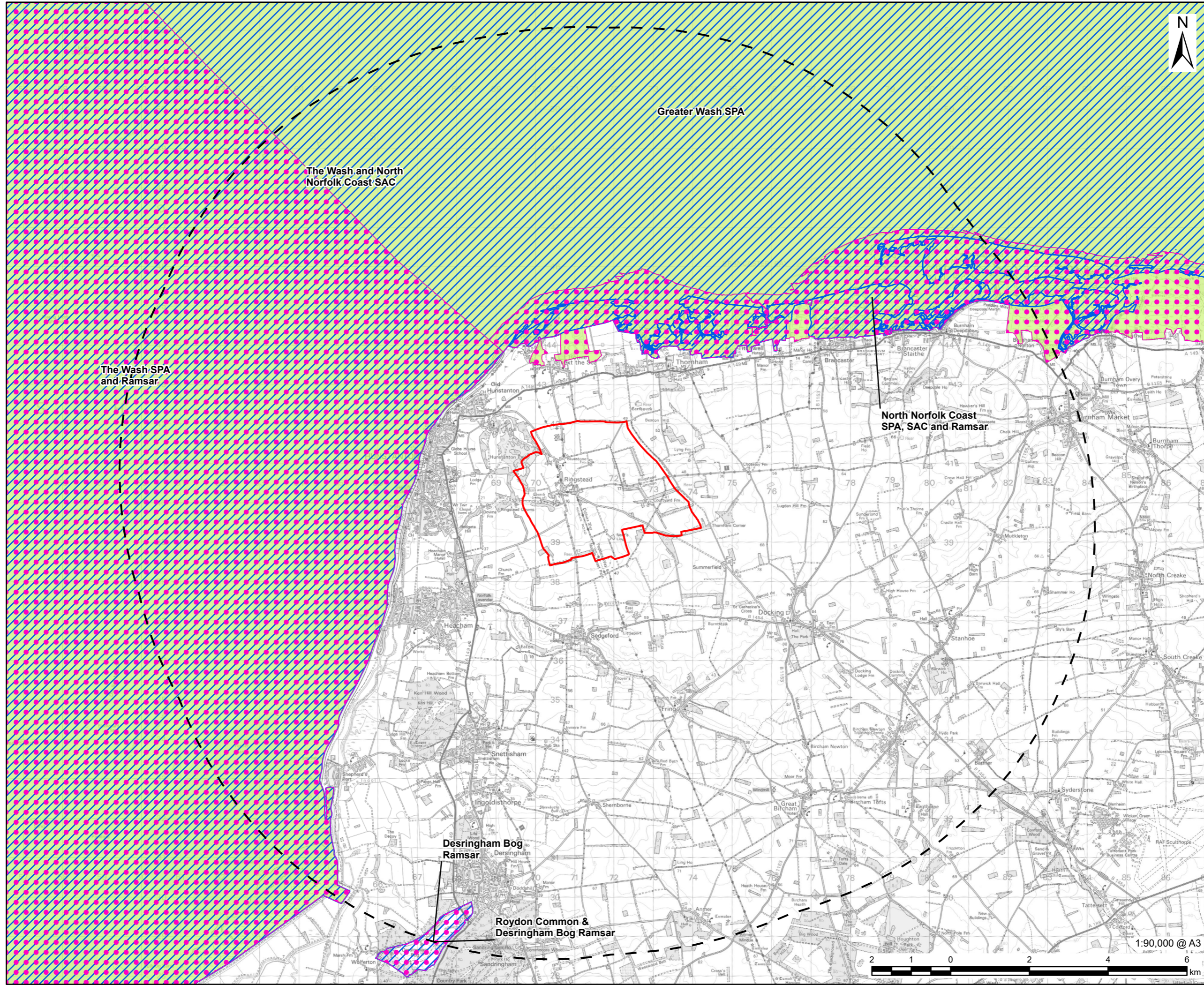
6.9 **It is therefore concluded after appropriate assessment that the RNP does not result in adverse effects on the integrity of The Wash & North Norfolk Coast SAC, Roydon Common & Dersingham Bog SAC and The Wash SPA alone or in-combination.**

7. Conclusions

- 7.1 This HRA undertook ToLSEs screening of the RNP (Pre-submission Draft March 2023). All NP policies were assessed in relation to the following Habitat sites:
- North Norfolk Coast SAC
 - The Wash & North Norfolk Coast SAC
 - North Norfolk Coast SPA / Ramsar
 - The Wash SPA/ Ramsar
- 7.2 Following ToLSEs screening, it was concluded that one policy, Policy 3: RNP1- Land off Peddars Way North, had the potential to cause a likely significant effect and was discussed with regards to recreational impacts upon Habitat sites.
- 7.3 The SADMP was considered to provide protective policies (e.g. Policy DM 19 - Green Infrastructure/Habitats Monitoring and Mitigation) for Habitat sites. However, since a net new allocation is being made within the recreational pressure zone of influence of several Norfolk European sites it falls within the ambit of the Green Infrastructure and Recreation Avoidance and Mitigation Strategy (GIRAMS). Policy 3: RNP1- Land off Peddars Way North requires a contribution for net new residential dwellings to contribute to the GIRAMS tariff.
- 7.4 With that requirement in place, it can be concluded that the RNP will not adversely impact Habitat sites either alone or in-combination with other plans and projects.

Appendix A

A.1 Map of Habitat sites in Relation to Ringstead Parish



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ISSUE PURPOSE
FINAL

PROJECT NUMBER
60571087

FIGURE TITLE
European Sites

FIGURE NUMBER
A1

