Basildon Borough Local Plan Habitats Regulations Assessment

Draft Local Plan

Basildon Borough Council

Final report

Prepared by LUC

October 2024

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Chapter 1

Executive Summary

1.1 This Habitat Regulations Assessment (HRA) Report has been prepared by LUC, on behalf of Basildon Borough Council (the Council) in relation to the Draft version of the Basildon Local Plan (October 2024).

1.2 HRA is an iterative process, which the Council is required to undertake by law to assess the potential effects of a development plan on one or more sites afforded the highest level of protection in the UK. A plan will only progress a development plan if it considers that the plan will not adversely affect the integrity of any 'Habitats site', including Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites. The requirement for HRA does not apply to other nationally designated wildlife sites such as Sites of Special Scientific Interest or National Nature Reserves. This assessment is based on a precautionary principle, whereby if uncertainty or doubt remains, an adverse effect is assumed.

Findings

1.3 The HRA of the Draft Local Plan comprised of two stages. This included the Screening Assessment, which set out policies and impact types for which likely significant effects are predicted or cannot be ruled out prior to mitigation and avoidance measures, and an Appropriate Assessment, which considers the impacts of the Local Plan (either alone or in combination with other projects or plans) on the integrity of Habitats sites with respect to their conservation objectives and to their structure and function.

1.4 At the Screening stage, likely significant effects on Habitats sites, either alone or in combination with other policies and proposals, could not be ruled out in relation to the following plan policies:

- Policy SG1: Meeting our Growth Needs
- Policy SG3: Spatial Distribution of Growth
- Policy E1: Securing Economic Growth
- Policy HOU2: Affordable Housing
- Policy HOU3: Specialist Housing for Older People
- Policy R1: Development in Basildon Town Centre
- Policy R2: Supporting Town Centres
- Policy R6: Hotels
- Policy STAT1: Strategic Transport
- Policy INF1: Infrastructure Delivery
- Policy INF2: Securing Infrastructure Contributions
- Policy INF3: Social and Community Infrastructure

1.5 The HRA Screening stage identified that further consideration was required at the Appropriate Assessment stage to determine whether the Draft Local Plan, either alone or in-combination, would adversely affect the integrity of Habitats sites as a result of increases in physical damage and loss of functionally linked land, non-physical disturbance of functionally linked land, air pollution, recreational pressure and changes in water quantity. All other impact types were considered to have no potential to result in likely significant effects on Habitats sites as a result of the Draft Local Plan proposals.

1.6 The Appropriate Assessment stage identified whether the above likely significant effects will, in light of mitigation and avoidance measures, result in adverse effects on integrity of the European sites either alone or in-combination with other plans or projects. The findings of the Appropriate Assessment are detailed below.

1.7 It can be concluded that no adverse effect on integrity will occur for the following Habitats sites, subject to the provision of safeguarding and mitigation measures as detailed in **Chapter 6**.

- Physical damage and loss of functionally linked land only – the Appropriate Assessment concluded no adverse effect on integrity as a result of offsite physical damage and loss in relation to Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar site and Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site. A single potential site was identified as having low suitability to support qualifying bird species and therefore discounted from further consideration in terms of offsite functional land. No mitigation measures are required.
- Non-physical disturbance of functionally linked land only – the Appropriate Assessment concluded no adverse effect on integrity as a result of offsite non-physical disturbance in relation to Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar site and Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site. A single potential site was identified as having low suitability to support qualifying bird species and therefore discounted from further consideration in terms of offsite functional land. No mitigation measures are required.
- Recreational pressure – the Appropriate Assessment concluded no adverse effect on integrity as a result of recreational pressure in relation to Benfleet and Southend Marshes Ramsar site and SPA, Blackwater Estuary Ramsar site and SPA, Crouch and Roach Estuaries Ramsar site and SPA, Thames Estuary and Marshes Ramsar site and SPA, Essex Estuaries SAC and Outer Thames Estuary SPA. Mitigation is provided through the Essex Coast RAMS, as well as through open space provision and watercraft – Code of Conduct and policy protection measures in the Local Plan, including Policy NE1: Conserving and enhancing the natural environment.
- Water Quantity – the Appropriate Assessment concluded no adverse effect on integrity as a result of water quantity in relation to Essex Estuaries SAC, Abberton Reservoir Ramsar site and SPA, Stour and Orwell Estuaries Ramsar site and SPA, Colne Estuary Ramsar site and SPA, Blackwater Estuary Ramsar site and SPA, Thames Estuary and Marshes Ramsar site and SPA and Dengie Ramsar site and SPA.

Mitigation will be provided through the draft Water Resource Management Plan once adopted and through safeguarding and policy protection in the Local Plan provided this is implemented successfully and this reports recommendation to include an additional policy relating to water efficiency and management in incorporated within the Local Plan.

1.8 In the absence of AADT traffic modelling data and in line with a precautionary approach, a conclusion of no adverse effect on integrity cannot be reached in relation to the effect of air pollution on Benfleet and Southend Marshes Ramsar site and SPA.

Next Steps

1.9 HRA is an iterative process and as such is expected to be updated in light of newly available evidence and comments from key consultees. As part of consultation on the Draft Basildon Local Plan, this report should be subject to consultation with Natural England, as well as the Environment Agency, to confirm that the conclusions of the assessment are considered appropriate at this stage of plan-making.

1.10 At the next stage of plan-making, the HRA report will be updated to reflect the contents of the updated Local Plan, including specific site allocations.

Chapter 2

Introduction

2.1 Basildon Borough lies at the heart of South Essex, 30 miles east of the City of London, and covers an area of approximately 42 square miles. Basildon Borough Council has commissioned LUC to carry out a Habitats Regulations Assessment (HRA) of its emerging Local Plan which, once adopted, will replace the current Basildon Local Plan and will cover the period up to 2043.

2.2 This HRA Report relates to the Draft Basildon Local Plan which is being published for consultation from October 2024 and it should be read in conjunction with this document.

The requirement to undertake Habitats Regulations Assessment of Development Plans

2.3 The requirement to undertake HRA of development plans was confirmed by the amendments to the Habitats Regulations published for England and Wales in 2007 **[See reference** 1**]**; the currently applicable version is the Habitats Regulations 2017 **[See reference** 2**]**, as amended. When preparing the Basildon Local Plan, Basildon Borough Council is therefore required by law to carry out an HRA. The Council can commission consultants to undertake HRA work on its behalf and this (the work documented in this report) is then reported to and considered by Basildon Borough Council as the 'competent authority'. The Council will consider this work and would usually **[See reference** 3**]** only progress a plan if it considers that the plan will not adversely affect the integrity **[See reference** 4**]** of any 'Habitats site', as defined below. The requirement for authorities to comply with the Habitats Regulations when preparing a plan is

also noted in the Government's online Planning Practice Guidance **[See reference 5]** (PPG).

2.4 HRA refers to the assessment of the potential effects of a development plan on one or more sites afforded the highest level of protection in the UK: Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). These were classified under European Union (EU) legislation but since 1st January 2021 are protected in the UK by the Habitats Regulations 2017 (as amended). Although the EU Directives from which the UK's Habitats Regulations originally derived are no longer binding, the Regulations still make reference to the lists of habitats and species that the sites were designated for, which are listed in annexes to the EU Directives:

- SACs are designated for particular habitat types (specified in Annex 1 of the EU Habitats Directive **[See reference 6]**) and species (Annex II). The listed habitat types and species (excluding birds) are those considered to be most in need of conservation at a European level. Before EU exit day, designation of SACs also had regard to the coherence of the 'Natura 2000' network of Habitats sites. After EU exit day, regard is had to the importance of such sites for the coherence of the UK's 'national site network'.
- SPAs are classified for rare and vulnerable birds (Annex I of the EU Birds Directive **[See reference 7]**), and for regularly occurring migratory species not listed in Annex I.

2.5 The term 'Habitats sites' was previously commonly used in HRA to refer to 'Natura 2000' sites **[See reference 8]** and Ramsar sites (internationally designated under the Ramsar Convention). However, a Government Policy Paper **[See reference 9]** on changes to the Habitats Regulations 2017 post-Brexit states that:

- Any references to Natura 2000 in the 2017 Regulations and in guidance now refers to the new 'national site network'.
- The national site network includes existing SACs and SPAs; and new SACs and SPAs designated under these Regulations.

- Designated Wetlands of International Importance (known as Ramsar sites) do not form part of the national site network. Many Ramsar sites overlap with SACs and SPAs and may be designated for the same or different species and habitats.

2.6 Although Ramsar sites do not form part of the new national site network, a Government Guidance **[See reference** 10**]** states that:

> "Any proposals affecting the following sites would also require an HRA because these are protected by government policy:
>
> - proposed SACs
> - potential SPAs
> - Ramsar sites - wetlands of international importance (both listed and proposed)
> - areas secured as sites compensating for damage to a Habitats site."

2.7 Furthermore, the NPPF **[See reference** 11**]** and practice guidance **[See reference** 12**]** currently state that competent authorities responsible for carrying out HRA should treat Ramsar sites in the same way as SACs and SPAs. The legislative requirement for HRA does not apply to other nationally designated wildlife sites such as Sites of Special Scientific Interest or National Nature Reserves.

2.1 For simplicity, and in line with common usage, this report uses the term 'Habitats site' to refer to all types of designated site within the 'National Site Network' for which Government guidance **[See reference 13]** requires an HRA.

2.2 The overall purpose of the HRA is to conclude whether or not a proposal or policy, or whole development plan would adversely affect the integrity of the Habitats site in question. This is judged in terms of the implications of the plan for a site's 'qualifying features' (i.e. those Annex I habitats, Annex II species, and Annex I bird populations for which it has been designated). Significantly,

HRA is based on the precautionary principle. Where uncertainty or doubt remains, an adverse effect should be assumed.

Stages of Habitats Regulations Assessment

2.3 This section below summarises the Stages involved in carrying out an HRA, based on various guidance documents **[See reference** 14 **and** 15**]**.

Stage 1: Screening (the 'Significance Test')

Task

- Description of the development plan and confirmation that it is not directly connected with or necessary to the management of Habitat sites.
- Identification of potentially affected Habitat sites and their conservation objectives **[See reference** 16**]**.
- Review of other plans and projects.
- Assessment of likely significant effects of the development plan alone or in combination with other plans and projects, prior to consideration of avoidance or reduction ('mitigation') measures. In line with the CJEU judgment in Case C-323/17 People Over Wind v Coillte Teoranta, mitigation cannot be taken into consideration during Stage 1: HRA Screening.

Outcome

- Where effects are unlikely, prepare a 'finding of no significant effect report'.

- Where effects judged likely, or lack of information to prove otherwise, proceed to Stage 2.

Stage 2: Appropriate Assessment (the 'Integrity Test')

Task

- Information gathering (development plan and data on Habitat sites **[See reference** 17**]**).
- Impact prediction.
- Evaluation of development plan impacts in view of conservation objectives of Habitat sites.
- Where impacts are considered to affect qualifying features of Habitat sites directly or indirectly, identify how these effects will be avoided or reduced ('mitigation').

Outcome

- Appropriate Assessment report describing the plan, Habitat site baseline conditions, the adverse effects of the plan on the Habitat site, how these effects will be avoided through, firstly, avoidance, and secondly, mitigation, including the mechanisms and timescale for these mitigation measures.
- If effects remain after all alternatives and mitigation measures have been considered proceed to Stage 3.

Stage 3: Assessment where no alternatives exist, and adverse impacts remain taking into account mitigation

Task

- Identify and demonstrate ‘imperative reasons of overriding public interest’ (IROPI).
- Demonstrate no alternatives exist.
- Identify potential compensatory measures.

Outcome

- This Stage should be avoided if at all possible. The test of IROPI and the requirements for compensation are extremely onerous.

Requirements of the Habitats Regulations

2.4 In assessing the effects of a Local Plan in accordance with Regulation 105 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the ‘Habitats Regulations’), there are potentially two tests to be applied by the competent authority: a ‘Significance Test’, followed if necessary by an Appropriate Assessment which would inform the ‘Integrity Test’. The relevant sequence of questions is as follows:

- Step 1: Under Reg. 105(1)(b), consider whether the plan is directly connected with or necessary to the management of the sites. If not:
- Step 2: Under Reg. 105(1)(a) consider whether the plan is likely to have a significant effect on the site, either alone or in combination with other plans

or projects (the 'Significance Test'). [These two steps are undertaken as part of Stage 1: Screening shown above.] If so:

- Step 3: Under Reg. 105(1), make an Appropriate Assessment of the implications for the site in view of its current conservation objectives (the 'Integrity Test'). In so doing, it is mandatory under Reg. 105(2) to consult Natural England, and optional under Reg. 105(3) to take the opinion of the general public. [This step is undertaken during Stage 2: Appropriate Assessment shown above.]
- Step 4: In accordance with Reg.105(4), but subject to Reg.107, give effect to the land use plan only after having ascertained that the plan will not adversely affect the integrity of the Habitat site.

2.5 It is normally anticipated that an emphasis on Stages 1 and 2 of this process will, through a series of iterations, help ensure that potential adverse effects are identified and eliminated through the avoidance of likely significant effects at Stage 1, and through Appropriate Assessment at Stage 2 by the inclusion of mitigation measures designed to avoid or reduce effects. The need to consider alternatives could imply more onerous changes to a plan document. It is generally understood that so called 'imperative reasons of overriding public interest' (IROPI) are likely to be justified only very occasionally and would involve engagement with the Government.

2.6 The HRA should be undertaken by the 'competent authority', in this case Basildon Borough Council, and LUC has been commissioned to do this on its behalf. The HRA also requires close working with Natural England as the statutory nature conservation body in order to obtain the necessary information and agree the process, outcomes, and any mitigation proposals.

Case Law Changes

2.7 This HRA has been prepared in accordance with relevant case law findings, including most notably the 'People over Wind' and 'Holohan' rulings from the Court of Justice for the European Union (CJEU).

2.8 *The People over Wind, Peter Sweetman v Coillte Teoranta* (April 2018) judgment ruled that Article 6(3) of the Habitats Directive should be interpreted as meaning that mitigation measures should be assessed as part of an Appropriate Assessment and should not be taken into account at the Screening Stage. The precise wording of the ruling is as follows:

> "Article 6(3) must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the Screening Stage, to take account of measures intended to avoid or reduce the harmful effects of the plan or project on that site."

2.9 In light of the above, the HRA Screening stage does not rely upon avoidance or mitigation measures to draw conclusions as to whether the Local Plan could result in likely significant effects on Habitats sites. Instead, any such measures are considered at the Appropriate Assessment stage, as relevant.

2.10 The approach to this HRA is also consistent with the *Holohan v An Bord Pleanala* (November 2018) CJEU judgement which stated that:

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

Article 6(3) of Directive 92/43 must be interpreted as meaning that the competent authority is permitted to grant to a plan or project consent which leaves the developer free to determine subsequently certain parameters relating to the construction phase, such as the location of the construction compound and haul routes, only if that authority is certain that the development consent granted establishes conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site.

Article 6(3) of Directive 92/43 must be interpreted as meaning that, where the competent authority rejects the findings in a scientific expert opinion recommending that additional information be obtained, the 'appropriate assessment' must include an explicit and detailed statement of reasons capable of dispelling all reasonable scientific doubt concerning the effects of the work envisaged on the site concerned.

2.11 In undertaking this HRA, LUC has considered the potential for effects on species and habitats, including those not listed as qualifying features, to result in secondary effects upon the qualifying features of Habitats sites, including the potential for complex interactions and dependencies. In addition, the potential for offsite impacts, such as through impacts to functionally linked land, and/or species and habitats located beyond the boundaries of Habitats site that may be important in supporting the ecological processes of the qualifying features, has also been fully considered in this HRA.

2.12 Similarly, effects on both qualifying and supporting habitats and species on functionally linked land (FLL) or habitat have been considered in the HRA, in line with the High Court judgment in RSPB and others v Secretary of State and London Ashford Airport Ltd [2014 EWHC 1523 Admin] (paragraph 27), which stated that:

> "There is no authority on the significance of the non-statutory status of the FLL. However, the fact that the FLL was not within a protected site does not mean that the effect which a deterioration in its quality or function could have on a protected site is to be ignored. The indirect effect was still protected. Although the question of its legal status was mooted, I am satisfied …. that while no particular legal status attaches to FLL, the fact that land is functionally linked to protected land means that the indirectly adverse effects on a protected site, produced by effects on FLL, are scrutinised in the same legal framework just as are the direct effects of acts carried out on the protected site itself. That is the only sensible and purposive approach where a species or effect is not confined by a line on a map or boundary fence. This is particularly important where the boundaries of designated sites are drawn tightly as may be the UK practice."

2.13 The approach to the HRA also takes into consideration the 'Wealden' judgement and the 'Dutch Nitrogen Case' judgements from the Court of Justice for the European Union.

2.14 Wealden District Council v Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority (2017) ruled that it was not appropriate to scope out the need for a detailed assessment for an individual plan or project based on the annual average daily traffic (AADT) figures detailed in the Design Manual for Roads and Bridges or the critical loads used by Defra or Environmental Agency without considering the in-combination impacts with other plans and projects.

2.15 In light of this judgement, this HRA will therefore consider traffic growth based on the effects of development from the Local Plan in combination with other drivers of growth such as development proposed in neighbouring districts and demographic change.

2.16 The 2018 'Coöperatie Mobilisation for the Environment and Vereniging Leefmilieu (Dutch Nitrogen)' judgement stated that:

> "...the positive effects of the autonomous decrease in the nitrogen deposition…be taken into account in the appropriate assessment…, it is important that the autonomous decrease in the nitrogen deposition be monitored and, if it transpires that the decrease is less favourable than had been assumed in the appropriate assessment, that adjustments, if required, be made."

2.17 The Dutch Nitrogen judgement also states that according to previous case law:

> "…it is only when it is sufficiently certain that a measure will make an effective contribution to avoiding harm to the integrity of the site concerned, by guaranteeing beyond all reasonable doubt that the plan or project at issue will not adversely affect the integrity of that site, that such a measure may be taken into consideration in the 'appropriate assessment' within the meaning of Article 6(3) of the Habitats Directive."

2.18 The HRA of the Local Plan therefore will only considers the existence of conservation and/or preventative measures if the expected benefits of those measures are certain at the time of the assessment.

Structure of this Report

2.19 Chapter 1 provided an Executive summary and this chapter has introduced the requirement to undertake HRA of the Basildon Local Plan. The remainder of the report is structured as follows:

- **Chapter 3: Basildon Local Plan** summarises the content of the Draft Local Plan, which is the subject of this report
- **Chapter 4: Method** sets out the approach used and the specific tasks undertaken during the Screening and Appropriate Assessment stages of the HRA.
- **Chapter 5**: **Screening Assessment** describes the findings of the Screening stage of the HRA.
- **Chapter 6: Appropriate Assessment** describes the findings of the Appropriate Assessment stage of the HRA.
- **Chapter 7: Conclusions and Next Steps** summarises the HRA conclusions for the Draft Basildon Local Plan and describes the next steps to be undertaken.

Chapter 3

Basildon Local Plan

3.1 This chapter summarises the contents of the Draft Basildon Local Plan, which is the subject of this report.

3.2 Basildon District Local Plan Saved Policies were approved by the Secretary of State via a Direction issued on 20th September 2007. Originally, they were part of the Basildon District Local Plan, adopted in March 1998 with Alterations in September 1999. The Saved Polices represent the local planning polices currently applied by the Council to inform determination of planning applications in the Borough and enforce planning control. A new Basildon Local Plan is currently being prepared, which is the subject of this report. It will provide the basis for all planning decisions that are made in the Borough and it will set out the spatial policies, guidance, land use designations and site allocations against which all planning applications and development proposals across Basildon will be assessed. It will set the formal legal framework for sustainable development patterns and lay the foundations for enabling regeneration and economic growth, while protecting the most valuable built and natural environmental assets. The Local Plan will provide the policies that will contribute to the achievement of sustainable development including the provision of homes, employment land and other forms of development, identifying and delivering supporting infrastructure whilst also protecting and enhancing the natural and historic environment.

3.3 The Local Plan is being produced taking account of the National Planning Policy Framework, Planning Practice Guidance, up-to-date evidence base studies and ensuring close co-operation with neighbouring local authorities on cross-boundary issues. Regard has also been given to other plans and strategies produced by Basildon Council and other organisations.

Vision and Strategic Objectives

3.4 The Draft Local Plan presents an overall vision for Basildon Borough as follows:

> By 2043, we will have accelerated Basildon Borough's ambition. We will have developed a prosperous economy providing employment for our residents, including higher value jobs. We will have delivered a wide range of housing for all our resident's needs. By 2043, we will have delivered sustainable development, protected and enhanced our historic and natural environment and delivered on our biodiversity net gain obligations. By 2043 we will have mitigated the impact of climate change. The Borough will be safer, and residents will benefit from higher standards of health and wellbeing. There will be an improved cultural offer within our regenerated town centres with enhanced housing, retail, leisure and community facilities. There will be a higher level of educational attainment and aspiration in the Borough. We will have created more resilient communities, reflecting the diversity within the Borough.

3.5 The Vision is supported by 10 Strategic Objectives. The Strategic Objectives set out how the Council propose to deliver this vision. The Strategic Objectives form the basis of the Local Plan. They seek to ensure that growth is directed to the most sustainable locations and supported by proportionate infrastructure improvements. The Strategic Objectives set out in the Draft Local Plan are:

- SO1: Protect and enhance the quality of the Local Environment
- SO2: Improve the quality and value of the Green Belt
- SO3: Minimise our impact on the Environment
- SO4: Create vibrant and thriving town centres

- SO5: Strengthen the competitiveness of the Local Economy
- SO6: Deliver a range of new homes to meet local needs
- SO7: Mitigate against the impact of Climate Change
- SO8: Help local people maintain healthier lifestyles
- SO9: Enhance the quality of life for all
- SO10: Secure the delivery of supporting infrastructure

Policies

3.6 There are 41 policies set out within the Draft Local Plan, which are presented in the following sections:

Meeting our Growth Needs

- Policy SG1: Meeting our Growth Needs
- Policy SG2: Settlement Hierarchy
- Policy SG3: Spatial Distribution of Growth

Building a Strong Competitive Economy

- Policy E1: Securing Economic Growth
- Policy E2: Protecting Existing Employment Areas
- Policy E3: Changes of Use of Employment Land or Premises
- Policy E4: Rural Enterprise Sites
- Policy E5: Aligning Skills and Jobs

Meeting Housing Needs

- Policy HOU1: Size, Type and Quality of New Housing
- Policy HOU2: Affordable Housing
- Policy HOU3: Specialist Housing for Older People

Ensuring the Vitality of Town Centres

- Policy R1: Development in Basildon Town Centre
- Policy R2: Supporting Town Centres
- Policy R3: Primary Shopping Areas
- Policy R4: Locations for new Retail and Leisure Development outside of Town Centres
- Policy R5: Out of Town Retail and Lesure Parks
- Policy R6: Hotels

Sustainable Transport and Infrastructure

- Policy STAT1: Strategic Transport
- Policy INF1: Infrastructure Delivery
- Policy INF2: Securing Infrastructure Contributions
- Policy INF4: Social and Community Infrastructure

Meeting the Challenge of Climate Change and Flooding

- Policy CC1: Responding to Climate Change
- Policy CC2: Addressing Flood Risk
- Policy CC3: Washlands
- Policy CC4: Net Zero Carbon Development (in Operation)
- Policy CC5: Net Zero Carbon Development – Embodied Carbon

Achieving Well Designed Places

- Policy D1: Design and Place Shaping Principles
- Policy D2: Design on Major Developments

Conserving the Local Environment

- Policy GB1: Protecting the Green Belt
- Policy GB2: Grey Belt

- Policy NE1: Conserving and Enhancing the Natural Environment
- Policy NE2: Local Wildlife Sites

Conserving and Enhancing the Historic Environment

- Policy HE1: Conserving and Enhancing the Historic Environment
- Policy HE2: Conservation Areas
- Policy HE3: Listed Buildings
- Policy HE4: Scheduled Monuments and Archaeology
- Policy HE5: Non-Designated Heritage Assets

Improving Air Quality and Mitigating Pollution

- Policy AQMP1: Mitigating Air Quality and Wider Environmental Pollution Issues
- Policy AQMP2: Contaminated Land
- Policy AQMP3: Ensuring Health and Safety in Development

Protecting High Quality Agricultural Land

- Policy AQMP4: Protecting High Quality Agricultural Land

3.7 Policy SG1 sets out a commitment for 27,111 new homes and at least 55-82 ha of new employment land to be delivered by 2043, as well as 235 new Gypsy and Traveller pitches and at least 13 Travelling Showpeople Yards.

3.8 Chapter 12: Initial Proposals for Growth and Change sets out details of the suite of potential development sites for housing and employment that the Council is considering for allocation in the Local Plan. However, no sites are identified as proposed allocations at this stage of plan-making. These potential sites are located within the following areas:

- West Basildon
- Central Basildon Town
- West Basildon Town

- Billericay
- Wickford
- Bowers Gifford

Chapter 4

Method

4.1 This chapter describes the methodology that is being used for the HRA of the Basildon Borough Local Plan.

Screening Assessment

4.2 HRA Screening of the Local Plan has been undertaken in line with current available guidance and has sought to meet the requirements of the Habitats Regulations. The tasks that were undertaken during the Screening stage of the HRA are described in detail below.

4.3 The purpose of the Screening Stage is to:

- Identify all aspects of the plan that would have no effect on a Habitats site. These can be eliminated from further consideration in respect of this and other plans.
- Identify all aspects of the plan that would not be likely to have a significant effect on a Habitats site (i.e. would have some effect because of links/connectivity, but effect is not significant), either alone or in combination with other aspects of the same plan or other plans or projects. These do not require ‘Appropriate Assessment’.
- Identify those aspects of the plan where it is not possible to rule out the risk of significant effects on a Habitats site, either alone or in combination with other plans or projects. This provides a clear scope for the parts of the plan that will require Appropriate Assessment.

Identifying Habitats sites that may be affected and their Conservation Objectives

4.4 As a first step to identifying Habitats sites that could potentially be affected by a development, it is established practice in HRA to consider sites within the local planning authority area covered by the plan, and other sites that may be affected beyond this area.

4.5 A distance of 15km from the boundary of the plan area is typically used in the first instance to identify Habitats sites with the potential to be affected by the proposals within a development plan. Consideration is then given to whether any more distant Habitats sites may be connected to the plan area via effects pathways, for example through hydrological links or recreational visits by residents. The 15km distance has been agreed with Natural England for HRAs elsewhere and is considered precautionary. All Habitats sites within 15km were assessed in this HRA. In addition, there were four sites located over 15km from the plan area which were scoped in due to potential impacts on water quantity. These sites are detailed in **Table 4.1** below.

4.6 The assessment also takes into account areas that may be functionally linked to the Habitats sites. The term ‘functional linkage’ is used to refer to the role or ‘function’ that land beyond the boundary of a Habitats site might fulfil in terms of supporting the species populations for which the site was designated or classified. Such an area is therefore ‘linked’ to the site in question because it provides a (potentially important) role in maintaining or restoring a protected population at favourable conservation status.

4.7 While the boundary of a Habitats site will usually be drawn to include key supporting habitat for a qualifying species, this cannot always be the case where the population for which a site is designated or classified is particularly mobile. Individuals of the population will not necessarily remain in the site all the time. Sometimes, the mobility of qualifying species is considerable and may extend so far from the key habitat that forms the SAC or SPA that it would be entirely impractical to attempt to designate or classify all of the land or sea that

may conceivably be used by the species **[See reference** 18**]**. HRA therefore considers whether any Habitats sites make use of functionally linked habitats and the impacts that could affect those habitats.

4.8 Habitats sites identified for inclusion in the HRA are listed below in **Tables 4.1-4.3** and **Figure A.1** in **Appendix A**. Detailed information about each Habitats site is provided in **Appendix B**, described with reference to Standard Data Forms for the SPAs and SACs, and Natural England's Site Improvement Plans **[See reference** 19**]**. Natural England's conservation objectives **[See reference** 20**]** for the SPAs and SACs have also been reviewed. These state that site integrity must be maintained or restored by maintaining or restoring the habitats of qualifying features, the supporting processes on which they rely, and populations of qualifying species.

Table 4.1: Habitats sites included within this HRA - SAC

Habitats site	Distance / direction from Basildon Borough
Essex Estuaries SAC	1.4km East

Table 4.2: Habitats sites included within this HRA - SPA

Habitats site	Distance / direction from Basildon Borough
Crouch & Roach Estuaries (Mid-Essex Coast Phase 3) SPA	1.4km East
Benfleet and Southend Marshes SPA	2km South East
Thames Estuary & Marshes SPA	4km South
Outer Thames Estuary SPA	8.8km South East
Medway Estuary & Marshes SPA	11.7km South East

Habitats site	Distance / direction from Basildon Borough
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA	14km North East
Dengie SPA	24km North East
Abberton Reservoir SPA	27.7km North East
Colne Estuary SPA	31.7km North East
Stour and Orwell Estuaries SPA	49km North East

Table 4.3: Habitats sites included within this HRA - Ramsar

Habitats site	Distance / direction from Basildon Borough
Crouch & Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site	1.4km East
Benfleet and Southend Marshes Ramsar site	2km South East
Thames Estuary & Marshes Ramsar site	4km South
Medway Estuary & Marshes Ramsar site	11.7km South East
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site	14km North East
Dengie Ramsar site	24km North East
Abberton Reservoir Ramsar site	27.7km North East
Colne Estuary Ramsar site	31.7km North East
Stour and Orwell Estuaries Ramsar site	49km North East

Assessment of ‘likely significant effects’ of the Draft Basildon Local Plan

4.9 As required under Regulation 105 of the Conservation of Habitats and Species Regulations 2017 **[See reference** 21**]** (as amended), an assessment has been undertaken of the ‘likely significant effects’ of the Draft Basildon Local Plan. The assessment has been prepared in order to identify which policies or potential site allocations would be likely to have a significant effect on Habitats sites. The Screening assessment has been conducted without taking mitigation into account, in accordance with the ‘People over Wind’ judgment.

4.10 Consideration was given to the potential for the development proposed to result in significant effects associated with:

- Physical loss or damage to habitat.
- Non-physical disturbance (noise, vibration and light pollution).
- Non-toxic contamination
- Air pollution.
- Recreational pressure.
- Changes to hydrology, including water quantity and quality.

4.11 This thematic/ impact category approach allows for consideration to be given to the cumulative effects of sites rather than focussing exclusively on individual developments provided for by the plan.

4.12 A risk-based approach involving the application of the precautionary principle was adopted in the assessment, such that a conclusion of ‘no significant effect’ was only reached where it was considered unlikely, based on current knowledge and the information available, that a development plan policy or potential site allocation would have a significant effect on the integrity of a Habitats site.

4.13 A Screening assessment was prepared (**Appendix C**), to document consideration of the potential for likely significant effects resulting from each policy and potential site allocation in the plan.

4.14 For some types of impacts, the potential for likely significant effects was determined on a proximity basis. This approach and the assumptions applied are described in more detail in **Chapter 4**.

Interpretation of 'likely significant effects'

4.15 Relevant case law helps to interpret when effects should be considered as a likely significant effect, when carrying out HRA of a land use plan.

4.16 In the *Waddenzee case* **[See reference** 22**]**, the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive (translated into Reg. 102 in the Habitats Regulations), 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). 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).

4.17 A relevant opinion delivered to the Court of Justice of the European Union commented that:

> "The requirement that an effect in question be 'significant' exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable

effect on the site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill."

4.18 This opinion (the 'Sweetman' case) therefore allows for the authorisation of plans and projects whose possible effects, alone or in combination, can be considered 'trivial' or de minimis; referring to such cases as those "*that have no appreciable effect on the site*". In practice such effects could be screened out as having no likely significant effect – they would be 'insignificant'.

4.19 The HRA Screening assessment therefore considers whether the Local Plan policies could have likely significant effects either alone or in combination.

Mitigation provided by the plan

4.20 Some of the potential effects of the plan could be mitigated through the implementation of other policies in the plan itself, such as the provision of green infrastructure within new developments (which could help mitigate increased pressure from recreation activities at Habitats sites). Nevertheless, in accordance with the 'People over Wind' judgment, avoidance and mitigation measures cannot be relied upon at the Screening stage, and therefore, where such measures exist, they were considered at the Appropriate Assessment stage for impacts and policies where likely significant effects, either alone or in-combination, could not be ruled out.

Assessment of potential in-combination effects

4.21 Regulation 105 of the Habitats Regulations 2017 requires an Appropriate Assessment where "*a land use plan is likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and is not directly connected with or necessary to the management of the site*".

Therefore, where likely insignificant effects are identified for the Local Plan alone, it is necessary to consider whether these may become significant effects in combination with other plans or projects.

4.22 Where the Local Plan is likely to have an effect on its own e.g. due to water pollution (due to impact pathways being present), but it is not likely to be significant, the in-combination assessment at Screening stage will need to determine whether there may also be the same types of effect from other plans or projects that could combine with the Local Plan to produce a significant effect. If so, this likely significant effect (e.g. water pollution) arising from the Local Plan in combination with other plans or projects, would then need to be considered through the Appropriate Assessment stage to determine if water pollution would have an adverse effect on integrity of the relevant Habitats site. Where the Screening assessment has concluded that there is no impact pathway between development proposed in the Local Plan and the conditions necessary to maintain qualifying features of a Habitats site, then there will be no in-combination effects to assess at the Screening or Appropriate Assessment stage. This approach accords with recent guidance on HRA **[See reference 23]**.

4.23 If impact pathways are found to exist for a particular effect but it is not likely to be significant from the Local Plan alone, the in-combination assessment will identify which other plans and programmes could result in the same impact on the same Habitats site. This will focus on planned growth (including housing, employment, transport, minerals and waste) around the affected site, or along the impact corridor, for example, if impacts could arise as a result of changes to a waterway, then planned growth in local authorities along that waterway will be considered.

4.24 The potential for in-combination impacts will therefore focus on plans prepared by local authorities that overlap with Habitats sites that are within the scope of this HRA. The findings of any associated HRA work for those plans will be reviewed where available. Where relevant, any strategic projects in the area that could have in-combination effects with the Local Plan will also be identified and reviewed.

4.25 The online HRA Handbook suggests the following plans and projects may be relevant to consider as part of the in-combination assessment:

- Applications lodged but not yet determined, including refusals subject to an outstanding appeal or legal challenge;
- Projects subject to periodic review e.g. annual licences, during the time that their renewal is under consideration;
- Projects authorised but not yet started;
- Projects started but not yet completed;
- Known projects that do not require external authorisation;
- Proposals in adopted plans; and
- Proposals in draft plans formally published or submitted for final consultation, examination or adoption.

4.26 The need for in-combination assessment also arises at the Appropriate Assessment Stage, as discussed in the Appropriate Assessment section below.

Appropriate Assessment

4.27 Following the Screening Stage, if likely significant effects on Habitats sites are unable to be ruled out, the plan-making authority is required under Regulation 105 of the Habitats Regulations to make an 'Appropriate Assessment' of the implications of the plan for Habitats sites, in view of their conservation objectives. Appropriate Assessment should consider the impacts of the plan (either alone or in combination with other projects or plans) on the integrity of Habitats sites with respect to their conservation objectives and to their structure and function **[See reference** 24**]**. This includes consideration of plans and projects with the potential for in-combination effects, where relevant.

Assessing the effects on site integrity

4.28 A site's integrity depends on it being able to sustain its 'qualifying features' (i.e. the habitats and species for which it has been designated) and to ensure their continued viability. The Holohan judgement also clarifies that effects on species and habitats not listed as qualifying features, but which could result in secondary effects upon the qualifying features of Habitats sites also need to be considered. The Appropriate Assessment therefore built upon the information set out in **Appendix B** of this report to consider the characteristics of supporting habitats and species that could be affected by impacts identified at the Screening Stage.

4.29 A high degree of integrity at a site is considered to exist where the potential to meet a site's conservation objectives is realised and where the site is capable of self-repair and renewal with a minimum of external management support.

4.30 A conclusion needs to be reached as to whether or not a plan would adversely affect the integrity of any Habitats site. Assessing the effects on the site(s) integrity involves considering whether the predicted impacts of the plan policies and/or potential site allocations (either alone or in combination) have the potential to:

- Cause delays to the achievement of conservation objectives for the site.
- Interrupt progress towards the achievement of conservation objectives for the site.
- Disrupt those factors that help to maintain the favourable conditions of the site.
- Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site.
- Cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem.

- Change the dynamics of relationships that define the structure or function of the site (e.g. relationships between soil and water, or animals and plants).
- Interfere with anticipated natural changes to the site.
- Reduce the extent of key habitats or the population of key species.
- Reduce the diversity of the site.
- Result in disturbance that could affect the population, density or balance between key species.
- Result in fragmentation.
- Result in the loss of key features **[See reference** 25**]**.

4.31 The conservation objectives for each SAC and SPA (as set out in **Appendix B**) are generally to maintain the qualifying features in favourable condition. Natural England does not define conservation objectives for Ramsar sites, but these can often be inferred from those for co-located SAC or SPA features. The Site Improvement Plans for each site provide a high-level overview of the issues (both current and predicted) affecting the condition of the designated features on the site(s) and outline the priority measures required to improve the condition of the features. An Appropriate Assessment draws on these to help to understand what is needed to maintain the integrity of the Habitats sites.

4.32 For each Habitat site where an uncertain or likely significant effect was identified in relation to the plan, the Appropriate Assessment sets out the potential impacts and makes a judgement (based on the information available) on whether the impact will have an adverse effect on the integrity of the Habitat site. Consideration was given to the potential for mitigation measures to be implemented that could reduce the likelihood or severity of the potential impacts such that there would not be an adverse effect on the integrity of the Habitat site.

Chapter 5

Screening Assessment

5.1 As described in the previous chapter, a Screening assessment was carried out in order to identify the likely significant effects of the Draft Basildon Local Plan on the scoped-in Habitats sites. The full Screening assessment, which sets out the decision-making process used for this assessment can be found in **Appendix C** and the findings are summarised below.

HRA Screening of Policies

No 'likely significant effect' predicted

5.2 The following policies are not expected to result in development and therefore will not result in significant effects on Habitats sites:

- Policy SG2: Settlement Hierarchy
- Policy E2: Protecting Existing Employment Areas
- Policy E3: Changes of Use of Employment Land or Premises
- Policy E4: Rural Enterprise Sites
- Policy E5: Aligning Skills and Jobs
- Policy HOU1: Size, Type and Quality of New Housing
- Policy R3: Primary Shopping Areas
- Policy R4: Locations for new Retail and Leisure Development outside of Town Centres
- Policy R5: Out of Town Retain and Leisure Parks
- Policy CC1: Responding to Climate Change

- Policy CC2: Addressing Flood Risk
- Policy CC3: Washlands
- Policy CC4: Net Zero Carbon Development (in Operation)
- Policy CC5: Net Zero Carbon Development: Embodied Carbon
- Policy D1: Design and Place Shaping Principles
- Policy D2: Design on Major Developments
- Policy GB1: Protecting the Green Belt
- Policy GB2: Grey Belt
- Policy NE1: Conserving and Enhancing the Natural Environment
- Policy NE2: Local Wildlife Sites
- Policy HE1: Conserving and Enhancing the Historic Environment
- Policy HE2: Conservation Areas
- Policy HE3: Listed Buildings
- Policy HE4: Scheduled Monuments and Archaeology
- Policy HE5: Non-Designated Heritage Assets
- Policy AQMP1: Mitigating Air Quality and Wider Environmental Pollution Issues
- Policy AQMP2: Contaminated Land
- Policy AQMP3: Ensuring Health and Safety in Development
- Policy AQMP4: Protecting High Quality Agricultural Land

Likely significant effects predicted

5.3 The following policies are highlighted as having potential impact pathways to Habitats sites and likely significant effects cannot be ruled out:

- Policy SG1: Meeting our Growth Needs

- Policy SG3: Spatial Distribution of Growth
- Policy E1: Securing Economic Growth
- Policy HOU2: Affordable Housing
- Policy HOU3: Specialist Housing for Older People
- Policy R1: Development in Basildon Town Centre
- Policy R2: Supporting Town Centres
- Policy R6: Hotels
- Policy STAT1: Strategic Transport
- Policy INF1: Infrastructure Delivery
- Policy INF2: Securing Infrastructure Contributions
- Policy INF3: Social and Community Infrastructure

Screening of Impacts

Physical damage and loss (onsite)

5.4 Any development resulting from the plan would take place within the boundary of Basildon Borough; therefore, only Habitats sites within the boundary could be affected by physical damage or loss of habitat within the site boundaries. The HRA identified no Habitats sites within the boundary of Basildon.

No Habitats sites were identified within the boundary of Basildon borough and therefore no likely significant effect is predicted in relation to direct physical damage and loss as a result of the Local Plan.

Physical damage and loss – Functionally linked land (offsite)

5.5 Habitat loss from development in areas outside of the Habitats site boundaries may result in likely significant effects where that habitat contributes towards maintaining the interest feature for which the Habitats site is designated. This includes land which may provide offsite movement corridors or feeding and sheltering habitat for mobile species such as bats, birds and fish. Habitats sites susceptible to the indirect effects of habitat loss are restricted to those sites with qualifying species that rely on offsite habitat. These were identified as:

- Benfleet and Southend Marshes Ramsar and SPA
- Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar and SPA
- Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar and SPA
- Outer Thames Estuary SPA
- Thames Estuary and Marshes Ramsar and SPA

5.6 Further consideration is given to these Habitats sites below.

Birds

5.7 Natural England has advised that their recognised distance for the consideration of offsite functionally linked land in relation to birds is generally 2km, but for certain species, including most notably, golden plover and lapwing, a greater distance of 15km may be appropriate. Increased distances may also be appropriate where significant landscape scale features provide important functional linkages within Habitats sites, for example, where river catchment flood plains and valleys extend considerable distances from a Habitats site. No such landscape scale features have been identified in relation to the Habitats sites scoped into this assessment and therefore the above buffers have been

considered appropriate for each of the Habitats sites designated for supporting qualifying bird species.

5.8 A 2km buffer was applied to all Habitats sites with exception to Blackwater Estuary Ramsar site (which supports golden plover), which has a 15km buffer applied.

5.9 The applied buffer of 2km or 15km were identified to overlap Basildon Borough for the following Habitats sites and therefore have been considered in more detail below:

- Benfleet and Southend Marshes Ramsar site and SPA – 2km
- Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA – 2km
- Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site – 15km

5.10 All other Habitats sites were not considered to support qualifying features susceptible to impacts from functionally linked land and/or were not considered to support qualifying species, which used functionally linked land within the borough, and therefore no likely significant effects were predicted in relation to these Habitats sites as a result of physical damage and loss of functionally linked land as a result of development in the borough.

Benfleet and Southend Marshes Ramsar site and SPA

5.11 Benfleet and Southend Marshes Ramsar site and SPA is located 2km to the east of the Borough and supports and is designated for a range of qualifying bird species.

5.12 Based on Natural England's recognised distances, a 2km buffer was applied to identify site options with potential to affect Benfleet and Southend Ramsar site and SPA site.

5.13 A review of potential site allocations being considered for inclusion in the Local Plan identified that there are no potential sites present within 2km of Benfleet and Southend Marshes Ramsar site and SPA.

No potential sites are located within 2km of Benfleet and Southend Marshes Ramsar site and SPA and therefore no likely significant effect is predicted in relation to physical damage and loss of offsite functionally linked land as a result of the Local Plan.

Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar and SPA

5.14 Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA is located 1.4km to the east of the Borough and supports and is designated for a range of qualifying bird species, invertebrate species and plants.

5.15 Based on Natural England's recognised distances, a 2km buffer was applied to identify site options with potential to affect Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA.

5.16 A review of potential sites for development identified the following potential site, which will need to be considered further at Appropriate Assessment:

- H24 – Land South of London Road, Wickford

There is potential for likely significant effect to occur in relation to Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA as a result of physical damage and loss of offsite functionally linked land and therefore requires further consideration at the Appropriate Assessment stage.

Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site

5.17 Blackwater Estuary Ramsar site is located 14km to the north east of the Borough and supports and is designated for a range of qualifying bird species, invertebrate species and plants.

5.18 Based on Natural England's recognised distances, a 15km buffer was applied to identify potential development sites that have the potential to affect Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site.

5.19 A review of the potential sites listed within the Draft Local Plan identified the following site, which will need to be considered further at the Appropriate Assessment stage:

- H24 – Land South of London Road, Wickford

There is potential for likely significant effect to occur in relation to Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site as a result of physical damage and loss of offsite functionally linked land and therefore requires further consideration at Appropriate Assessment.

Invertebrates

5.20 There is potential for qualifying invertebrate species associated with Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site, Thames Estuary and Marshes Ramsar site, Medway Estuary and Marshes Ramsar site and Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site to use functionally linked land outside of the Habitats site. However, this is expected to occur within close proximity to the site and as such a precautionary buffer of 500m has been applied in this assessment.

There are no Habitats sites located within 500m of the Borough boundary and as such no likely significant effects are predicted as a result of physical damage and loss of functionally linked land in relation to Habitats sites supporting invertebrate species and as such this has been screened out from further assessment.

Non-physical disturbance

5.21 Noise and vibration effects, e.g. during the construction of new housing or employment development, are most likely to disturb bird species and are thus a key consideration with respect to Habitats sites where these species are the qualifying features. Artificial lighting at night (e.g. from streetlamps, flood lighting and security lights) has the potential to affect species where it occurs in close proximity to key habitat areas, such as key roosting sites for SPA birds.

5.22 It has been assumed that the effects of noise, vibration and light are most likely to be significant within a distance of 500 metres. There is also evidence of 300 metres being used as a distance up to which certain bird species can be disturbed by the effects of noise; however, it has been assumed (on a precautionary basis) that the effects of noise, vibration and light pollution are capable of causing an adverse effect if development takes place within 500 metres of a Habitats site with qualifying features sensitive to these disturbances. All Habitats sites are located over 500m from the Basildon boundary at the closest point, with the closest sites 1.4km away at the closest point.

No Habitats sites are located within 500m of the boundary of Basildon Borough and therefore no likely significant effect is predicted in relation to non-physical disturbance as a result of the Local Plan.

Non-physical disturbance – Functionally Linked Land

5.23 Non-physical disturbance may also adversely affect qualifying species at functionally linked habitat. It was established in the Physical Damage and Habitat Loss – Functionally Linked Habitat section above that the following qualifying species may use functionally linked habitat within the Basildon boundary:

- Dark-bellied brent goose - Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA
- Golden plover - Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site

5.24 All other Habitats sites were either not considered to use functionally linked habitat within the Basildon Borough boundary and/or did not support qualifying features that relied on functionally linked habitat.

Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA

5.25 A review of the potential sites being considered for the Local Plan identified the following potential site which will need to be considered further at the Appropriate Assessment stage:

- H24 – Land South of London Road, Wickford

There is potential for likely significant effect to occur in relation to Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA as a result of non-physical disturbance to offsite functionally linked land and therefore requires further consideration at Appropriate Assessment.

Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar

5.26 A review of the potential sites being considered for allocation in the Local Plan identified the following potential site which will need to be considered further at the Appropriate Assessment stage:

- H24 – Land South of London Road, Wickford

There is potential for likely significant effect to occur in relation to Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site as a result of non-physical disturbance to offsite functionally linked land and therefore requires further consideration at Appropriate Assessment.

Non-toxic Contamination

5.27 Non-toxic contamination can include the creation of dust which can smother habitats preventing natural processes and may also lead to effects associated with increased sediment and dust which can potentially affect the turbidity of aquatic habitats and can also contribute to nutrient enrichment which can lead to changes in the rate of vegetative succession and habitat composition.

5.28 The effects of non-toxic contamination are most likely to be significant if development takes place within 500m of a Habitats site with qualifying features sensitive to these disturbances, such as riparian and wetland habitats, or sites designated for habitats and plant species. This is the distance that, in LUC's experience, provides a robust assessment of effects in plan-level HRA and meets with the agreement of Natural England. All Habitats sites are located over 500m from the Basildon Borough boundary at the closest point, with the closest sites 1.4km away at the closest point.

No Habitats sites are located within 500m of the boundary of Basildon Borough and therefore no likely significant effect is predicted in relation to non-toxic contamination as a result of the Local Plan.

Air pollution

5.29 Air pollution is most likely to affect Habitats sites where plant, soil and water habitats are the qualifying features but some qualifying animal species may also be affected, either directly or indirectly, by deterioration in habitat as a result of air pollution. Deposition of pollutants to the ground and vegetation can alter the characteristics of the soil, affecting the pH and nitrogen levels, which can then affect plant health, productivity and species composition.

5.30 In terms of vehicle traffic, nitrogen oxides (NOx, i.e. NO and NO2) are considered to be the key pollutants. Deposition of nitrogen compounds may lead to both soil and freshwater acidification, and NOx can cause eutrophication of soils and water. In addition to nitrogen oxides, recent studies reviewed by Air Quality Consultants **[See reference** 26**]**, have shown that ammonia emissions from road traffic can be at least as significant as NOx in making significant contribution to nitrogen deposition to sensitive habitats. Therefore, assessments which exclude traffic related ammonia emissions are likely to significant under-predict nitrogen deposition at the roadside.

5.31 Based on the Highways England Design Manual for Road and Bridges (DMRB) LA 105 Air quality (which sets out the requirements for assessing and reporting the effects of highway projects on air quality), it is assumed that air pollution from roads is unlikely to be significant beyond 200m from the road itself. Where increases in traffic volumes are forecast, this 200m buffer needs to be applied to the relevant roads in order to make a judgement about the likely geographical extent of air pollution impacts.

5.32 For highways developments within 200m of sensitive receptors, the DMRB provides the following Screening criteria to ascertain whether there are likely to be significant impacts:

- Daily traffic flows will change by 1,000 AADT (Annual Average Daily Traffic) or more; or
- Heavy duty vehicle (HDV) flows will change by 200 AADT or more; or
- There will be a change in speed band **[See reference** 27**]**; or
- Road carriageway alignment will change by 5m or more.

5.33 This, where significant increases in traffic are possible on roads within 200m of Habitats sites, traffic forecast data may be needed to determine if increases in vehicle traffic are likely to be significant. In line with the Wealden judgment **[See reference** 28**]**, the traffic growth considered by the HRA should be based on the effects of development provided for by the plan in combination with other drivers of growth such as development proposed in neighbouring districts and demographic change.

5.34 The JNCC's 'Guidance on decision-making thresholds for air pollution' **[See reference** 29**]** states that, when assessing the air pollution impacts of a development plan, 10km should be used as a zone of influence within which the plan is likely to have significant effects on air quality, i.e. Habitats Sites beyond 10km from the plan area can be screened out in relation to air pollution.

5.35 The key commuting corridors for new housing and employment development will likely include the A1012, A1013, A1014, A1015, A1016, A1023, A1060, A1089, A1099, A1114, A1158, A1159, A12, A1235, A124, A1245, A126, A127, A128, A129, A13, A130, A1306, A132, A1321, A138, A176, A228, A141 and M25, which are shown in **Figure A2** in **Appendix A**. The following Habitats sites are located within 10km of the Borough and are within 200m of one of these strategic roads:

- Benfleet and Southend Marshes Ramsar site and SPA - A1160
- Outer Thames Estuary SPA - A1160

- Medway Estuary and Marshes Ramsar site and SPA – A228
- Thames Estuary & Marshes Ramsar site and SPA - A228

5.36 Outer Thames Estuary SPA is not designated for habitats or plant species susceptible to impacts from air pollution, or qualifying bird species, which are reliant on habitats that are susceptible to air quality impacts. Therefore, Outer Thames Estuary SPA has been screened out of the assessment.

5.37 The Medway Estuary and Marshes Ramsar site and SPA and Thames Estuary & Marshes Ramsar site and SPA are located south of the River Thames, and therefore the A228 cannot be considered strategically important for people within the Borough to travel. Therefore, Medway Estuary and Marshes Ramsar site and SPA and Thames Estuary & Marshes Ramsar site and SPA have also been screened out of the assessment.

5.38 All other Habitats sites are located further than 200m from the strategic road network for Basildon Borough and/or are located further than 10km from Basildon Borough and therefore are screened out of the assessment.

There is potential for likely significant effects to occur at Benfleet and Southend Marshes Ramsar site and SPA in relation to air pollution and therefore this effect is considered further at the Appropriate Assessment stage.

Recreation

5.39 Recreational activities and human presence can result in significant effects on Habitats sites. Habitats sites with qualifying bird species are likely to be particularly susceptible to recreational disturbances from walking, dog walking, angling, wildfowling, and water sports. An increase in recreational pressure from development therefore has the potential to disturb bird populations of Ramsar sites and SPAs as a result of both terrestrial and water-based recreation. In

addition, recreation can physically damage habitat as a result of trampling, fire or vandalism and also through erosion associated with boat wash and terrestrial activities such as use of vehicles.

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

5.41 Each Habitats site will typically have a 'Zone of Influence' (ZOI) within which increases in population would be expected to result in likely significant effects. ZOIs are usually established following targeted visitor surveys and the findings are therefore typically specific to each Habitats site (and often to specific areas within a Habitats site). The findings are likely to be influenced by a number of complex and interacting factors and therefore it is not always appropriate to apply a generic or non-specific ZOI to a Habitats site.

5.42 The Essex coast Recreational Disturbance Avoidance and Mitigation Strategy (RAMS) **[See reference** 30**]** was adopted in 2019 with the aim of delivering the mitigation necessary to avoid significant adverse effects from 'in-combination' impacts of residential development that is anticipated across Essex, thus protecting the Habitats sites on the Essex coast from adverse effect on site integrity. As part of this, winter and summer visitor surveys were carried out, from which data was used to calculate ZOIs for Essex coast habitats sites. The calculated ZOIs are listed below:

- Essex Estuaries SAC - The Essex Estuaries comprise the Colne Estuary, Blackwater Estuary, Dengie, Crouch and Roach Estuaries and Foulness Estuary and so follow the respective ZOIs throughout. Only those ZOI, which overlap Basildon borough have been included in this assessment.
- Blackwater Estuary Ramsar and SPA – 22km
- Crouch and Roach Estuaries Ramsar and SPA – 4.5km
- Benfleet and Southend Marshes Ramsar and SPA– 4.3km
- Thames Estuary and Marshes Ramsar and SPA – 8.1km

5.43 In addition to the above, it was agreed during the preparation of the Essex Coastal RAMS that all Habitats sites which lie across estuaries will be excluded, given that the travel distance would be significantly greater than the ZOI established. This applies to the Medway Estuary and Marshes Ramsar site and SPA which lies along the River Medway, south of the Thames Estuary in Kent. This site is therefore screened out for assessment of recreational impacts.

5.44 Abberton Reservoir Ramsar site and SPA site was not included within the Essex RAMS. A ZOI of 13km was applied, based on visitor survey data collected by Colchester Borough Council in 2013, which is understood to be the most up to date visitor survey data for this site at the time of preparing this document. Given this site is located more than 15km from the Borough, it has been screened out of the assessment.

5.45 In addition, the Outer Thames Estuary SPA was not included within the Essex RAMS. The SPA is designated for supporting the qualifying red throated diver. There is potential for this species to be affected by disturbance from water-based recreational activities, such as sailing and fishing. Although, recreational impacts are likely to be limited as a result of proposed development within the plan area, given the potential for people to travel great distances undertake these specialist activities and in line with a precautionary approach, it is concluded that impacts as a result of recreation should be considered in more detail at the Appropriate Assessment.

5.46 Habitats sites ZOIs for which Basildon Borough falls within include:

- Benfleet and Southend Marshes Ramsar site and SPA
- Blackwater Estuary Ramsar site and SPA
- Crouch and Roach Estuaries Ramsar site and SPA
- Thames Estuary and Marshes Ramsar site and SPA
- Essex Estuaries SAC

Benfleet and Southend Marshes Ramsar site and SPA

5.47 Benfleet and Southend Marshes Ramsar site and SPA is located 2km south east of the Borough. A review of the potential sites for development identified the following potential sites as falling within the ZOI, which will need to be considered further at Appropriate Assessment:

- H9 - Land South of A13
- H10 – Land North of A13
- H26 – Land East of Noak Bridge
- E1 – Burnt Mills Extension

There is potential for likely significant effect to occur in relation to Benfleet and Southend Marshes Ramsar site and SPA in relation to recreational impacts and therefore this effect requires further consideration at the Appropriate Assessment stage.

Blackwater Estuary Ramsar and SPA

5.48 Blackwater Estuary Ramsar site and SPA is located 14km north east of the Borough. A review of the potential development sites listed within the Local Plan identified the following potential sites as falling within the ZOI, which will need to be considered further at Appropriate Assessment:

- AS4 – Land South of A127
- H1 - South East Billericay
- H2 - Land West of Great Burstead
- H3 - Land South of Great Burstead
- H4 – Land West of Laindon Road
- H9 – Land South of A13

- H10 – Land North of A13
- E2 - Dunton Boot Sale
- H17 - Land East of Wick Country Park
- H18 - Land North of Southend Road, Wickford
- H19 - Barn Hall, Wickford
- H20 – Land North of London Road, Wickford
- H21 – Land South of London Road, Wickford
- H22 - Land North of Wash Road
- H23 - Bowers Gifford including Plotlands
- H24 - Land north of Dry Street
- H25 - Gardiners Lane South
- H26 – Land East of Noak Bridge
- H28 – Land west of Castledon Road
- E1 – Burnt Mills Extension

There is potential for likely significant effects to occur at Blackwater Estuary Ramsar site and SPA in relation to recreational impacts and therefore this effect requires further consideration at the Appropriate Assessment stage.

Crouch and Roach Estuaries Ramsar site and SPA

5.49 Crouch and Roach Estuaries Ramsar site and SPA is located 1km to the north east of the Borough. A review of the potential sites for development listed within the Local Plan identified the following potential sites as falling within the ZOI, which will need to be considered further at Appropriate Assessment:

- H18 - Land North of Southend Road, Wickford
- H20 - Land North of London Road, Wickford
- H21 – Land South of London Road, Wickford
- H22 – Land North of Wash Road

There is potential for likely significant effects to occur at Crouch and Roach Estuaries Ramsar site and SPA in relation to recreational impacts and therefore this effect is considered further at the Appropriate Assessment stage.

Thames Estuary and Marshes Ramsar site and SPA

5.50 Thames Estuary and Marshes Ramsar site and SPA is located 4km to the south of the Borough. A review of the potential development sites listed within the Local Plan identified the following potential sites as falling within the ZOI, which will need to be considered further at Appropriate Assessment:

- E1 – Burnt Mills Extension
- H9 – Land South of A13
- H10 - Land North of A13
- H12 – Land adjacent to Dunton Road
- H27 – Land South of Crays Hill
- H15 – Land adjacent to Nevendon Road
- H16 – Land West of Wick Country Park
- H26 – Land East of Noak Bridge

There is potential for likely significant effects to occur at Thames Estuary and Marshes Ramsar site and SPA in relation to recreational impacts and

therefore this effect is considered further at the Appropriate Assessment stage.

Essex Estuaries SAC

5.51 Essex Estuaries SAC is located 1km to the east of the Borough. A review of the potential development sites listed within the Local Plan identified the following potential sites as falling within the ZOI, which will need to be considered further at Appropriate Assessment:

- AS4 – Land South of A127
- H1 – South East Billericay
- H2 – Land West of Great Burstead
- H3 – Land South of Great Burstead
- H4 – Land West of Laindon Road
- H9 – Land South of A13
- H10 – Land North of A13
- E2 - Dunton Boot Sale
- H17 – Land East of Wick Country Park
- H18 – Land North of Southend Road, Wickford
- H19 – Barn Hall, Wickford
- H20 – Land North of London Road, Wickford
- H21 – Land South of London Road, Wickford
- H22 - Land North of Wash Road
- H23 - Bowers Gifford including Plotlands
- H24 - Land north of Dry Street
- H25 - Gardiners Lane South

- H28 – Land west of Castledon Road
- H26 – Land East of Noak Bridge
- H27 – Land South of Crays Hill
- E1 – Burnt Mills Extension

There is potential for likely significant effects to occur at Essex Estuaries SAC in relation to recreational impacts and therefore this effect is considered further at the Appropriate Assessment stage.

Outer Thames Estuary SPA

5.52 The Outer Thames Estuary SPA is located 8.8km to the south east of the borough. No ZOI has been defined for this Habitats site, however it is recognised that it is susceptible to impacts from recreation and therefore has been screened in for further assessment at the Appropriate Assessment stage.

There is potential for likely significant effects to occur at Outer Thames Estuary SPA in relation to recreational impacts and therefore this effect is considered further at the Appropriate Assessment stage.

Water quantity

5.53 An increase in demand for water abstraction resulting from the growth proposed in the plan could result in changes in hydrology at Habitats sites. Depending on the qualifying features and particular vulnerabilities of the Habitats sites, this could result in likely significant effects, for example, due to changes in environmental or biotic conditions, water chemistry and the extent and distribution of preferred habitat conditions.

5.54 The Borough of Basildon falls within the Essex Resource Zone, as defined within Essex and Suffolk Water Water Resources Management Plan (WRMP) as the largest possible zone in which all resources, including external transfer, can be shared and hence the zone in which all customers experience the same risk of supply failure from a resource shortfall.

5.55 The intrinsic water resources within the zone include the Essex rivers Chelmer, Blackwater, Stour and Roman River which support pumped storage reservoirs at Hanningfield and Abberton, and treatment works at Langford, Langham, Hanningfield and Layer. The remaining water sourced from inside the zone is sourced from groundwater via Chalk well and adit sources at Lindford, Stifford, Dagenham and Roding, each with on-site treatment.

5.56 Water transferred into the Essex supply area from outside the area comes from two main sources; the Chigwell raw water bulk supply from the Lea Valley reservoirs provided by Thames Water Utilities, and the Ely Ouse to Essex Transfer Scheme (EOETS). The EOETS transfers water from Denver in Norfolk via pipelines and pumping stations to the headwaters of the River Stour and the River Pant/Blackwater.

5.57 In dry periods, the Agency may operate its river supports schemes, which include the Great Ouse Groundwater Scheme (GOGS) and the Stour Augmentation Groundwater Scheme (SAGS). In addition, in 2003, Essex and Suffolk Water completed construction of an effluent recycling scheme as Landford, which intercepts effluent from Chelmsford Sewage Treatment Works and treats it to a very high degree. Once treated, it is pumped 3km upstream into the River Chelmer where it augments the natural river flows and is available for re-abstraction.

5.58 Habitats sites which are directly linked to waterbodies used to supply the borough include:

- Essex Estuaries SAC
- Abberton Reservoir Ramsar site and SPA
- Stour and Orwell Estuaries Ramsar site and SPA

- Colne Estuary Ramsar site and SPA
- Blackwater Estuary Ramsar site and SPA
- Thames Estuary and Marshes Ramsar site and SPA
- Dengie Ramsar site and SPA

There is potential for likely significant effects to occur at Essex Estuaries SAC, Abberton Reservoir Ramsar site and SPA, Stour and Orwell Estuaries SPA, Colne Estuary Ramsar site and SPA, Blackwater Estuary Ramsar site and SPA, Thames Estuary and Marshes Ramsar site and SPA and Dengie Ramsar site and SPA in relation to water quantity and therefore this effect is considered further at the Appropriate Assessment stage.

Water quality

Water treatment and discharge

5.59 Habitats can also be affected by changes in water quality such as nutrient enrichment, changes in salinity, smothering from dust, and run-off, discharge or spillage from industry, agriculture, or construction. Changes in water abstraction, discharge and land use can also affect water quality, for example a change in land use from agriculture to residential reduces direct nutrient run-off to watercourses but increases the volume of nutrients discharges from wastewater treatment works.

5.60 Nutrient pollution is an environmental issue for many areas across England. Increased levels of nitrogen and phosphorus entering aquatic environments via surface water and groundwater can severely threaten these sensitive habitats and species within a Habitats site. The elevated levels of nutrients can cause eutrophication, leading to algal blooms which disrupt normal ecosystem function and cause major changes in the aquatic community.

These algal blooms can result in reduced levels of oxygen within the water, which in turn can affect the populations of many aquatic organism including invertebrates and fish. In freshwater habitats and estuaries, poor water quality due to nutrient enrichment from elevated nitrogen and phosphorus levels is one of the primary reasons for habitats sites being in unfavourable condition.

5.61 Nutrient neutrality is a means of ensuring that a plan or project does not add to existing nutrient burdens so there is no net increase in nutrients as a result of the plan or project. Where nutrient neutrality is properly applied and the existing land use does not undermine the conservation objectives, Natural England considers that an adverse effect on integrity alone and in combination can be ruled out during Appropriate Assessment. Any development within the catchment of a Habitats site with nutrient issues will be considered further during the Appropriate Assessment stage of this HRA.

5.62 Where sites are already in unfavourable condition, extra wastewater from new developments exacerbate the issue and undermine ongoing efforts to recover these sites. However, when development is designed alongside suitable mitigation measures, that additional damage can often be avoided.

Direct pollution / run-off

5.63 Pollution from direct run-off is likely to occur where Habitats sites or functionally linked land are close to development. Distances can vary depending on topography and connectivity, but 500m is used as an initial screening distance. While some of the Habitats sites may be susceptible to this impact, no sites are located within 500m of the Borough, and therefore no likely significant effect is predicted in relation to direct pollution/ run off.

Basildon Borough does not fall within a catchment with nutrient issues, and no sites are located within 500m of the Borough where impacts may occur form direct pollution/run-off. Therefore, no likely significant effect is predicted in relation to water quality as a result of the Local Plan.

Summary of Screening of Impacts

5.64 Tables 5.1 and **5.2** below summarises the Screening conclusions reached in this HRA. Impact types for which a conclusion of no likely significant effect was reached are shown in grey. Those potential impacts where likely significant effects could not be ruled out are shown in orange and these are considered in more detail at the Appropriate Assessment stage in **Chapter 6**.

Table 5.1: Summary of Screening Assessment – Sites within 15km of Basildon Borough

Habitats site	Physical damage and loss	Non-physical disturbance	Non-toxic Contamination	Air Pollution	Recreation	Water Quantity	Water Quality
Benfleet and Southend Marshes Ramsar site and SPA	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	Potential Likely Significant Effect	Potential Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect
Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA	Potential Likely Significant Effect (Off site only)	Potential Likely Significant Effect (Offsite only)	No Likely Significant Effect	No Likely Significant Effect	Potential Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect
Thames Estuary & Marshes Ramsar site and SPA	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	Potential Likely Significant Effect	Potential Likely Significant Effect	No Likely Significant Effect

Habitats site	Physical damage and loss	Non-physical disturbance	Non-toxic Contamination	Air Pollution	Recreation	Water Quantity	Water Quality
Medway Estuary & Marshes Ramsar site and SPA	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site and SPA	Potential Likely Significant Effect to Ramsar only (Off site only)	Potential Likely Significant Effect to Ramsar only (Offsite only)	No Likely Significant Effect	No Likely Significant Effect	Potential Likely Significant Effect	Potential Likely Significant Effect	No Likely Significant Effect
Essex Estuaries SAC	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	Potential Likely Significant Effect	Potential Likely Significant Effect	No Likely Significant Effect
Outer Thames Estuary SPA	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	Potential Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect

Table 5.2: Summary of Screening Assessment - Sites Beyond 15km from Basildon Borough

Habitats site	Physical damage and loss	Non-physical disturbance	Non-toxic Contamination	Air Pollution	Recreation	Water Quantity	Water Quality
Abberton Reservoir Ramsar site and SPA	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	Potential Likely Significant Effect	No Likely Significant Effect
Colne Estuary Ramsar site and SPA	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	Potential Likely Significant Effect	No Likely Significant Effect
Stour and Orwell Estuaries Ramsar site and SPA	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	Potential Likely Significant Effect	No Likely Significant Effect
Dengie Ramsar site and SPA	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	No Likely Significant Effect	Potential Likely Significant Effect	No Likely Significant Effect

Chapter 6

Appropriate Assessment

6.1 Following the Screening Stage, the plan-making authority is required under Regulation 105 of the Habitats Regulations 2017 (as amended) to make an 'Appropriate Assessment' of the implications of the plan for Habitats sites, in view of their conservation objectives.

6.2 European Commission Guidance **[See reference** 31**]** states that the Appropriate Assessment should consider the impacts of the plan (either alone or in combination with other projects or plans) on the integrity of Habitats sites with respect to their conservation objectives and to their structure and function.

6.3 This stage seeks to determine whether implementation of the Local Plan will result in an adverse effect on the integrity of the whole Habitats site in question (many Habitats sites are made up of a number of fragments of habitat). It also considers the potential for in-combination effects from development proposed in neighbouring authorities' Local Plans or from major infrastructure projects. Consideration was given to mitigation measures that may be included in the Local Plan to reduce the likelihood and significance of effects on Habitats sites.

6.4 A Habitats site's integrity depends on it being able to sustain its 'qualifying features' (i.e. those Annex 1 habitats, Annex II species, and Annex 1 bird populations for which it has been designated) and to ensure their continued viability. A high degree of integrity is considered to exist where the potential to meet a Habitats site's conservation objectives is realised and where the Habitats site is capable of self-repair and renewal with a minimum of external management support.

6.5 Likely significant effects arising from the plan, either alone or in-combination, were identified for the following sites and impact types:

- **Physical damage and loss – functionally linked land only** – Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA; and Blackwater Estuary Ramsar and SPA.
- **Non-physical disturbance – functionally linked land only** – Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA; and Blackwater Estuary Ramsar site and SPA.
- **Air pollution** – Benfleet and Southend Marshes Ramsar site and SPA.
- **Recreation** – Benfleet and Southend Marshes Ramsar site and SPA; Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA; Thames Estuary & Marshes Ramsar site and SPA; Blackwater Estuary Ramsar site and SPA; Essex Estuaries SAC.
- **Water Quantity** – Thames Estuary & Marshes Ramsar site and SPA; Blackwater Estuary Ramsar site and SPA; Essex Estuaries SAC; Abberton Reservoir Ramsar site and SPA; Colne Estuary Ramsar site and SPA; and Stour and Orwell Estuaries Ramsar site and SPA.

6.6 Appropriate Assessment has been undertaken for these Habitats sites to determine whether the plan will result in Adverse Effects on Integrity.

6.7 The Appropriate Assessment focuses on those impacts that are judged likely to have a significant effect on the qualifying features of a Habitats site, or where insufficient certainty regarding this remained at the Screening stage. As described in **Chapter 1**, a conclusion needs to be reached as to whether or not a policy or potential site allocation in the plan would adversely affect the integrity of a Habitats site. To reach a conclusion, consideration was given to whether the predicted impacts of the proposals (either alone or in combination) have the potential to:

- Delay the achievement of conservation objectives for the site.
- Interrupt progress towards the achievement of conservation objectives for the site.
- Disrupt factors that help to maintain the favourable conditions of the site.

- Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site.

6.8 The conservation objectives for the above Habitats sites are to ensure that the integrity of the site is maintained or restored as appropriate, and to ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats.
- The structure and function (including typical species) of qualifying natural habitats.
- The supporting processes on which qualifying natural habitats rely.
- The structure and function of the habitats of qualifying species.
- The populations of qualifying species.
- The distribution of qualifying species within the site.

Physical damage and loss - functionally linked land (offsite)

Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar site / Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site

6.9 The Local Plan includes potential development sites in areas where qualifying SPA and Ramsar bird species may make use of offsite habitat for foraging, roosting and loafing. Potential sites that could result in a Likely

Significant Effect as a result of physical damage and loss were identified in the screening assessment and included the following potential site:

- H21 – Land South of London Road, Wickford.

6.10 A desk-based study was undertaken to identify potential impacts from potential sites on offsite habitat used by the qualifying bird species. The desk-based study relied on a sequential approach, whereby if a site's suitability for qualifying bird species was considered negligible or low for a specific reason (e.g. distance or habitat type) no further investigations for that site were carried out. If, following the initial review of distance and habitat, a site's potential suitability for qualifying bird species could not be ruled out, a more detailed assessment including mapping of existing relevant bird records may be required. The initial desk study included the following components to inform the assessment:

- Identification of the qualifying bird species which are susceptible to the loss of the habitat types affected and ruling out those species unlikely to utilise the habitat types located within the sites (e.g. species restricted to marine habitats).
- A review of aerial imagery and Magic Map Application to identify main habitat types and land use within each site and establish their potential value for qualifying birds.
- Recognition of factors likely to affect suitability of sites for bird species, including openness, size, shape, proximity of negative factors such as tall boundary features and urban environs, and potential existing source of disturbance.
- Consideration of the site's location within the landscape. For example, is there direct functional connectivity along flight lines between the site and the Habitats sites? Are there landscape scale features which would reduce the suitability of the site, e.g. urban areas located along flight lines?
- A review of the site's location within flood risk zones, because many of the SPA bird species favour sites which do or do not flood.

Bird Habitat Preferences

6.11 Bird habitat preferences were cross referenced against the habitat types present within each potential site to determine the suitability of potential sites for qualifying species. Known habitat preferences are summarised below, which were taken from the RSPB and British Trust for Ornithology websites. **Table 6.1** also assesses whether each bird species is susceptible to the loss of habitats located within the potential sites.

Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar site

- **Bird Species:** Dark-bellied Brent Goose
  - **Season:**

    Wintering
  - **Species Habitat Preferences (relative to season of designation):**

    On leaving breeding quarters, resorts to shallow sea coasts and estuaries, especially with extensive mudflats rich in sea grass. Strongly attached to intertidal feeding zones, but in Britain since 1970's increasing numbers have moved inland to feed on grass and cultivated crops. When not feeding, prefers to rest or sleep on sea surface.
  - **Susceptible to loss of offsite habitat as a result of the plan:**

    Yes – may utilise arable and pasture.

Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site

- **Species:** Golden Plover
  - **Season:**

    Wintering

- **Species Habitat Preferences (relative to season of designation):**

  In winter, attracted to mown grass or close-grazed pastures, and to stubbles, fallows, harvest fields, and other farmlands of open character, including floodlands. On coast, tends to neglect tidal flats of mud and sand and to prefer open ground above the foreshore, thus sharing more commonly with Lapwings than with other waders. Strong preference for short permanent pasture for feeding where invertebrate (including earthworm) abundance is highest. Will also utilise bare tilled ground but used more frequently for roosting and loafing than feeding.

  Susceptible to loss of offsite habitat as a result of the plan:

  Yes – may utilise arable and pasture.

6.12 The review of habitat types located within the potential sites, in light of individual bird species preferences, identified the following bird species as being potentially susceptible to the loss of offsite habitat associated with potential sites listed in the Draft Local Plan. This included:

- Dark-bellied brent goose
- Golden plover

6.13 Following a review of these species' habitat preferences and in line with previous discussions with Natural England with regards to recognised buffer zones within which these species are likely to rely on offsite habitats, a distance of 2km and 15km was applied for dark bellied brent goose and golden plover respectively.

Assessment of Potential Sites

6.14 Following the establishment of typical habitat preferences for each species, each potential site listed in the plan within 2km of the Crouch and Roach Estuary SPA and Ramsar site and Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site was assessed for its suitability in supporting the qualifying bird species listed above. The assessment was based on a number of

parameters, as described below. Typically, potential sites displayed varying combinations of the parameters outlined below and findings on suitability for SPA qualifying birds were therefore subject to professional judgement. The findings of the assessment of potential sites are set out below in relation to bird species that are qualifying features of the SPA.

Habitat suitability rating criteria:

- High:
  - Large sites' area of suitable habitat (e.g. lowland farmland, heathland, wetland, woodland) capable of supporting significant numbers of SPA birds; absence of any notable negative factors such as public rights of way (PRoW) and edge features; land parcel functionally linked with wider habitat and directly linked to SPA via green corridor; site may be prone to flooding (although note absence of flooding favoured by common quail and stone-curlew); typically close to SPA.
- Moderate:
  - Sites support large areas of functionally linked suitable habitat capable of attracting numbers of SPA birds which by themselves are unlikely to be significant, but which may contribute to supporting significant numbers of birds in-combination with other sites. Likely to be further from SPA, and with presence of some limiting factors.
- Low:
  - Smaller or fragmented sites; habitats present may be suitable for supporting low numbers of SPA birds on occasion but limited by negative factors such as size, distance from SPA; absence of sight lines and reductions in 'openness' as a result of edge features such as trees, scrub, and buildings; edge features likely to be close to centre of site; suitability may be compromised by existing recreational use; may be isolated within urban areas.
- Negligible:
  - Habitats present are entirely unsuitable for SPA birds, for example existing developed land or small urban infill sites.

Suitability of potential sites for qualifying bird species of Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar site and Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site

- **Potential site:** H21 – Land South of London Road, Wickford
  - **Distance from Habitat site:**

    This site is located 1.7km from the Crouch and Roach SPA and Ramsar site and 14.6km from the Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site at the closest point. The majority of the site is located beyond 2km and 15km from the SPA and Ramsar sites.

  - **Size:**

    70ha

  - **Habitats Present:**

    The site is comprised a range of habitats including a large block of woodland in the west, arable land in the centre and to the east, hedgerows, developed land in the north-west and south, and grassland with scattered scrub in the north and north-east. The A130 intersects the site in the east. The majority of arable fields are small in size with exception to the central field, which is bound by hedgerows, grassland with scattered scrub and developed land and as such was considered of limited suitability for qualifying bird species.

  - **Use of Site:**

    The site was used for a variety of functions, including sports pitch, residential housing, employment land and agriculture.

6.15 The desk-based review of the potential sites identified that based on a precautionary approach, the potential sites have low potential to support significant numbers of SPA and Ramsar qualifying bird species, either alone or cumulatively with other sites, and were therefore discounted from further consideration in terms of offsite functional land.

Conclusion

6.16 No adverse effects on the integrity of the Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar site and Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site as a result of offsite damage and loss of habitat are predicted.

Non-physical disturbance - functionally linked land

Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA / Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site

6.17 Potential sites listed in the plan which are within 500m of functionally linked land identified in relation to the SPA and Ramsar sites have potential to result in a likely significant effect on qualifying fish species as a result of disturbance from noise and vibrations and from increased light spill. The potential site within this buffer identified in the Screening Assessment was:

- H21 – Land South of London Road, Wickford

6.18 In light of the assessment undertaken under the Physical Damage and Loss of functionally linked land section above, this potential site was considered of low potential to support significant numbers of SPA and Ramsar qualifying bird species, either alone or cumulatively with other sites, and was therefore discounted from further consideration in terms of offsite functional land. Therefore, no adverse effects are considered in relation from non-physical disturbance to either Habitats site.

Conclusion

6.19 No adverse effects on the integrity of the Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar site and Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site as a result of offsite non-physical disturbance are predicted.

Air pollution

Benfleet and Southend Marshes Ramsar site and SPA

6.20 Benfleet and Southend Marshes Ramsar site and SPA is located 4km to the south of Basildon Borough. This site is designated for qualifying bird species, including red knot, ringed plover, dunlin, grey plover and dark-bellied brent goose, which indirectly rely on habitats, which are susceptible to impacts from air pollution.

6.21 The Ramsar and SPA is located within 200m of the A1160. A review of SSSI condition assessments was undertaken to confirm the current condition of the component SSSI units of the SPA and Ramsar site in those areas susceptible to the changes in air quality. This identified Unit 13 located within 200m of the A1160. This SSSI unit supported an area of intertidal mud and sandflats, which provide core feeding habitat for overwintering waterfowl. This SSSI unit was recorded as being in unfavourable recovering condition.

6.22 It is recognised that Common Standards Monitoring, which is used to monitor the condition of the component SSSIs, was not designed to recognise adverse effects associated with deposition of pollutants, and often habitats are slow to display visible signs of the effects of changes in air quality. Therefore,

the absence of apparent adverse factors does not necessarily indicate an absence of effects associated with nutrient enrichment and airborne pollutants.

6.23 In addition to this, a review site level and critical loads was undertaken of data presented on APIS **[See reference** 32**]**, which provides specific detail on whether the qualifying features of the SPA are sensitive to impacts from pollutants. There is no specific data provided in relation to the Ramsar site, however, given it is designated for the same bird species as the SPA the same sensitivities identified in this table below have been applied. Detail of this is presented in **Table 6.1** below.

Table 6.1: A summary of qualifying features sensitive to impacts from pollutants

Qualifying Feature	Nitrogen	Nutrient Nitrogen	Nitrogen Oxide	Ammonia	Acid deposition
Dark bellied brent goose	Sensitive to impacts from nitrogen	Sensitive to impacts from nutrient nitrogen	Not Sensitive	Not Sensitive	No data available for this site.
Dunlin	No data available for this site.	No data available for this site.	No data available for this site.	No data available for this site.	No data available for this site.
Red knot	Sensitive to impacts from nitrogen	Not Sensitive	Not Sensitive	Not Sensitive	No data available for this site.
Ringed plover	Sensitive to impacts from nitrogen	Not Sensitive	Not Sensitive	Not Sensitive	No data available for this site.
Grey plover	Sensitive to impacts from nitrogen	Not Sensitive	Not Sensitive	Not Sensitive	No data available for this site.

6.24 Further consideration is therefore required in relation to nitrogen, nutrient nitrogen and acid deposition for the relevant qualifying features. No specific data is available for Dunlin, however given the similar habitat preferences to the other qualifying features for the SPA, it is assumed that the same sensitivities will occur and as such have been applied in this assessment.

6.25 To fully understand the impacts of increased development resulting from the Local Plan in-combination with other plans and projects, AADT traffic modelling data, which calculates the change in trips that would result from the Local Plan, over the plan period is required to inform the Appropriate Assessment. If AADT exceeds the threshold of 1,000 AADT, air quality modelling will be required to understand whether the Local Plan will result in adverse effect on integrity and whether avoidance and mitigation measures can be applied which ensure that impacts are prevented. This approach is considered to be highly precautionary, given the nature of the habitats present within the SPA and Ramsar site, which support intertidal habitats that are subject to regular flushing by the tides and as such typically resilient to localised affects relating to air pollution.

Conclusion

6.26 In light of the above and in accordance with the precautionary principle, a conclusion of no adverse effect on integrity cannot be reached in relation to the effect of air pollution on Benfleet and Southend Marshes SPA and Ramsar site either alone or in-combination and further traffic modelling is required to inform the assessment.

Recreational pressure

6.27 The Screening Assessment concluded that population growth associated with the Local Plan has the potential to result in likely significant effects on the following Habitats Sites:

- Benfleet and Southend Marshes Ramsar site and SPA
- Blackwater Estuary Ramsar site and SPA
- Crouch and Roach Estuaries Ramsar site and SPA
- Thames Estuary and Marshes Ramsar site and SPA
- Essex Estuaries SAC
- Outer Thames Estuary SPA

6.28 Further detail on these sites has been presented below. It should be noted that the Outer Thames Estuary SPA is considered separately from the remainder of the Habitats Sites as it is not included within the Essex Coast Recreational Disturbance Avoidance and Mitigation Strategy (RAMS).

Benfleet and Southend Marshes Ramsar site and SPA / Blackwater Estuary Ramsar site and SPA / Crouch and Roach Estuaries Ramsar site and SPA / Thames Estuary and Marshes Ramsar site and SPA / Essex Estuaries SAC

6.29 The SAC, SPAs and Ramsar sites are located along the north, south and east coastline of Essex. The effects of recreational disturbance on coastal Habitats sites, and/or those with sensitive bird populations have been studied and recognised throughout the UK.

6.30 Key threats from recreational pressure to these Habitats Sites include:

- The SAC is designated for qualifying coastal and inter-tidal habitats, which are susceptible to impacts from physical damage caused by trampling and erosion associated with terrestrial recreation and wave damage from water-based recreational activities. In addition, the SAC is also vulnerable to impacts from localised nutrient enrichment and other negative factors

associated with recreation such as littering, fire and vandalism, albeit the qualifying habitats, which are regularly inundated by tidal waters are not particularly sensitive to such factors.

- The SPAs and Ramsar sites are designated for qualifying bird species, which are primarily sensitive to impacts from direct physical damage and loss of habitat from trampling and erosion and disturbance of wetland birds from recreational activities, such as walking, dog walking, exercise and wildlife watching.

6.31 In Essex, it has been identified that in the absence of mitigation adverse effects on the integrity of Habitats Sites cannot be avoided either alone or in-combination with other plans and projects as a result of increased housing growth within this region of the UK. As such, a mitigation strategy has been developed known as the Essex Coast RAMS, which was adopted in 2019 with the associated SPD was adopted in 2020. This strategy has been developed alongside Natural England and endorsed by them. This strategy identifies a detailed programme of strategic mitigation measures which are to be funded by developer contributions from residential development schemes.

6.32 As detailed in the Screening Assessment, the Essex RAMS has identified site-specific ZOIs for Habitats Sites in Essex. The following Habitats sites were identified as having ZOI, which overlap the borough, and as such will require mitigation in line with the strategy. A summary of potential sites within the overlapping ZOI for each Habitats site is presented below.

- Benfleet and Southend Marshes Ramsar site and SPA:
  - H9 - Land South of A13
  - H10 – Land North of A13
  - H26 – Land East of Noak Bridge
  - E1 – Burnt Mills Extension
- Blackwater Estuary Ramsar site and SPA:
  - AS4 – Land South of A127
  - H1 - South East Billericay

- H2 - Land West of Great Burstead
- H3 - Land South of Great Burstead
- H4 – Land West of Laindon Road
- H9 – Land South of A13
- H10 – Land North of A13
- E4 - Dunton Boot Sale
- H17 - Land East of Wick Country Park
- H18 - Land North of Southend Road, Wickford
- H19 - Barn Hall, Wickford
- H20 – Land North of London Road, Wickford
- H21 – Land South of London Road, Wickford
- H22 - Land North of Wash Road
- H23 - Bowers Gifford including Plotlands
- H24 - Land north of Dry Street
- H25 - Gardiners Lane South
- H26 – Land East of Noak Bridge
- H28 – Land west of Castledon Road
- E1 – Burnt Mills Extension

- Crouch and Roach Estuaries Ramsar site and SPA
  - H18 - Land North of Southend Road, Wickford
  - H20 – Land North of London Road, Wickford
  - H21 – Land South of London Road, Wickford
  - H22 - Land North of Wash Road
- Thames Estuary and Marshes Ramsar site and SPA
  - E1 – Burnt Mills Extension

  - H9 – Land South of A13
  - H10 - Land North of A13
  - H12 – Land adjacent to Dunton Road
  - H27 – Land South of Crays Hill
  - H15 – Land adjacent to Nevendon Road
  - H16 – Land West of Wick Country Park
  - H26 – Land East of Noak Bridge
- Essex Estuaries SAC
- AS4 – Land South of A127
- H1 – South East Billericay
- H2 – Land West of Great Burstead
- H3 – Land South of Great Burstead
- H4 – Land West of Laindon Road
- H9 – Land South of A13
- H10 – Land North of A13
- E4 - Dunton Boot Sale
- H17 – Land East of Wick Country Park
- H18 – Land North of Southend Road, Wickford
- H19 – Barn Hall, Wickford
- H20 – Land North of London Road, Wickford
- H21 – Land South of London Road, Wickford
- H22 - Land North of Wash Road
- H23 - Bowers Gifford including Plotlands
- H24 - Land north of Dry Street
- H25 - Gardiners Lane South

- H28 – Land west of Castledon Road
- H26 – Land East of Noak Bridge
- H27 – Land South of Crays Hill
- E1 – Burnt Mills Extension

6.33 In light of the above information, mitigation measures will be required to ensure sufficient level of certainty that no adverse effects on integrity arise in relation to these Habitats Sites as a result of proposed development in the Local Plan. Further detail of this is presented below.

Outer Thames Estuary SPA

6.34 The SPA is located along the east coastline of Essex and is separated from the Basildon by Castle Point, Southend-on-Sea and Rochford Local Planning Authorities. Key threats from recreation to this SPA primarily relate to water-based activities, including sailing and fishing, which have potential to result in physical disturbance of the qualifying red-throated diver.

6.35 Given the specialist nature of these activities, which is likely to attract visitors from greater distances, it is expected that increased development within Basildon itself it likely to be relatively minor. In addition, the extent of the SPA span across an area of open sea covering nearly 380,000 ha and extending 1200km from the coastline.

6.36 The qualifying species of the SPA primarily use the SPA for foraging at sea and will cover vast distances to do so whereas recreational boats would be expected to remain relatively close to the coast. Given the mobility of these species and the visibility afforded to them while feeding and loafing at sea they are unlikely to be disturbed by watercraft, which would result in an adverse effect on integrity. Furthermore, the increase in usage of watercraft is unlikely to result in any discernible increase in the numbers, distribution or frequency of watercraft navigating these waters.

6.37 In light of the information above, it can therefore be concluded that adverse effect on the integrity of the SPA will not occur as a result of proposed development in Basildon.

Mitigation

6.38 It is recommended that the following mitigation measures are implemented to ensure that there is a sufficient level of certainty that proposed development in the Local Plan will not result in an adverse effect in the integrity of these Habitats sites. These measures have been designed to ensure that the cumulative effect of increased recreational pressure is addressed for each potential site, which has potential to contribute to the increased recreational pressure on each Habitats site through the provision of specific mitigation measures.

Essex Coast Recreational Disturbance Avoidance and Mitigation Strategy

6.39 As detailed above, an Essex Coast RAMS and SPD has been adopted, which has identified a detailed programme of strategic mitigation measures which are to be funded by developer contributions from residential development schemes. Basildon Council has been listed as one of the partners of this strategy and is responsible for the delivery of the Essex Coast RAMS.

6.40 This strategy proposes the following measure to avoid and mitigate for impacts arising from increased recreational pressure in the district. This includes:

- Education and communication, including provision of information and awareness raising.
- Habitat based measures, including:
  - Directing visitors away from sensitive areas and/or provide a screen to minimise their impact

  - Establishing zones, prohibited areas and restricted access at specific times for walkers and their dogs to minimis disturbance.
  - Promote appropriate routes for cyclists to avoid disturbance at key locations.
  - Audit of car parks and capacity to identify hotspots and opportunities for “spreading the load”.
  - Enforcement of measures through rangers.
  - Habitat creation, such as saltmarsh recharge, regulated tidal exchange and artificial islands.
- Project delivery through partnership working, monitoring and review process. This includes the monitoring and review of birds and visitor surveys to ensure that mitigation measures remain effective.

6.41 The delivery of this strategy is supported by Policy NE1: Conserving and enhancing the natural environment in the Local Plan, which outlines the requirements for all new residential development to make a financial contribution to the scheme.

Provision of Open Space and Green Infrastructure

6.42 It is recognised that given the unique nature and attraction of the coastal Habitats Sites identified in this assessment, the provision of open spaces is less effective as a mitigation measure for these sites. However, it is considered to provide an additional mechanism to contribute to reducing recreational pressure of these Habitats sites. To maximise the effectiveness of its role in contributing to mitigating for impacts associated with recreational pressure, it is recommended that the design and management of open space and green infrastructure will need to be focused towards attracting those groups of visitors, such as walkers and dog walkers, who regularly visit these Habitats sites.

6.43 This is supported by Policy D2: Design on Major Developments, which outlines the requirement for development to provide good quality access to

public open space and contribute to green infrastructure in line with existing Essex-wide standards, and through Policy INF1: Infrastructure Delivery and INF2: Securing Infrastructure Contributions, which ensure that new development makes provision and contributes to improvements, including the provision of a wide range of open space within development sites to meet amenity, recreational and functional needs.

Watercraft – Code of Conduct

6.44 In addition to the above, Essex Police support a Watercraft Code of Conduct **[See reference** 33**]**, which provides details on appropriate code of conduct on the water and how to reduce impact to wildlife in Essex waters. A code of conduct does not guarantee the avoidance of adverse effects on integrity on its own, it provides an important role in encouraging people to undertake recreational activities responsibly, particularly if promoted by RAMS rangers and linked to penalties and enforcement.

Conclusion

6.45 In light of the above, providing the Essex Coast RAMS and policy protection measures are implemented and delivered successfully, no adverse effects on integrity can be concluded in relation to recreational pressure as a result of increased development resulting from the Local Plan in relation to Benfleet and Southend Marshes Ramsar site and SPA, Blackwater Estuary Ramsar site and SPA, Crouch and Roach Estuaries Ramsar site and SPA, Thames Estuary and Marshes Ramsar site and SPA, Essex Estuaries SAC and Outer Thames Estuary SPA.

Water quantity

6.46 The Screening Assessment concluded that population growth associated with the Local Plan has the potential to result in likely significant effects on the following Habitats Sites:

- Essex Estuaries SAC
- Abberton Reservoir Ramsar and SPA
- Stour and Orwell Estuaries Ramsar and SPA
- Colne Estuary Ramsar and SPA
- Blackwater Estuary Ramsar and SPA
- Thames Estuary and Marshes Ramsar and SPA
- Dengie Ramsar and SPA

6.47 Basildon is supplied by Essex and Suffolk Water and is located wholly within the Essex Water Resource Zone (WRZ). The Essex WRZ is bound by the Thames Estuary in the south, the Essex coastline in the east and stretches as far north as Silver End and as far west as the London Boroughs of Redbridge, Barking and Havering.

6.48 The Essex WRZ supplies water from local rivers, including Chelmer, Blackwater, Stour and Roman River, which support pumped storage reservoirs at Hanningfield and Abberton. The remaining water sourced from inside the Essex WRZ is derived from groundwater via Chalk well and adit sources in the south and southwest of the zone near Stifford and Rodin.

6.49 Water transferred into the Essex supply area from outside the area comes from two main sources; the Chigwell raw water bulk supply from the Lea Valley reservoirs provided by Thames Water Utilities, and the Ely Ouse to Essex Transfer Scheme (EOETS). The EOETS transfers water from Denver in Norfolk via pipelines and pumping stations to the headwaters of the River Stour and the River Pant/Blackwater.

6.50 In dry periods, the Agency may operate its river supports schemes, which include the Great Ouse Groundwater Scheme (GOGS) and the Stour Augmentation Groundwater Scheme (SAGS).

6.51 As established in the Screening Assessment, the Habitats Sites outlined in para 6.46 are hydrologically connected to rivers and groundwater, which are abstracted from to supply the Essex WRZ, including Basildon plan area, and therefore are susceptible to changes in water quantity as a result of proposed development within the Local Plan.

Catchment Abstraction Licencing Strategy (CALS)

6.52 The Environment Agency is responsible for managing water resources in England. The Environment Agency controls how much water is abstracted with a permitting system, regulating existing licences and granting new ones. It uses the CALS process and abstraction licensing strategies to do this. The CALS process aims to aid the meeting of the environmental objectives of the Water Framework Directive by:

- Providing a water resource assessment of rivers, lakes, reservoirs, estuaries and groundwater referred to as water bodies under the Water Framework Directive (WFD).
- Identifying water bodies that fail flow conditions expected to support good ecological status.
- Preventing deterioration of water body status due to new abstractions.
- Providing results which inform River Basin Management Plans (RBMPs).

6.53 The Habitat Sites identified within this assessment are located within the Essex Catchment. The CALS process has developed a classification system in order to inform the abstraction process. This classification provides an indication of:

- The relative balance between the environmental requirements for water and how much is licensed for abstraction.

- Whether water is available for further abstraction.
- Areas where abstraction may need to be reduced.

6.54 In terms of water resource availability, this has been calculated at four different flows with Q30 being higher flows and Q90 being lower flows. The findings are presented below for each flow rate and each sub-catchment area:

- Stour System
  - Q30 (higher flows) - This identified no water availability (recent actual flows < EFI) in any of the catchments in the Stour system with exception to small number of catchments where water was noted to be available.
  - Q50 (moderate flows) – This identified no water availability (recent actual flows < EFI) in any of the catchments in the Stour system area with exception to one catchment, which was noted as having water not available (fully licence flows < EFI).
  - Q70 (below moderate flows) – This identified no water availability (recent actual flows < EFI) in any of the catchments in the Stour system with exception to one catchment, which was noted as having water not available (fully licence flows < EFI).
  - Q95 (low flows) - This identified no water availability (recent actual flows < EFI) in any of the catchments in the Stour system.
- Colne and Tendring System
  - Q30 (higher flows) - This identified no water availability (recent actual flows < EFI) in the easternmost catchments in the Colne and Tendring System. The majority of the catchment was comprised of catchments with water available and no water available (fully licence flows < EFI).
  - Q50 (moderate flows) – This identified no water availability (recent actual flows < EFI) in the catchments in the east in the Colne and Tendring System. In the east, the majority of the catchments were identified with water available with a small number noted to have no water available (fully licence flows < EFI).

- Q70 (below moderate flows) – This identified no water availability (recent actual flows < EFI) in the catchments in the east in the Colne and Tendring System and a mixture of no water available (fully licence flows < EFI) and water available in catchments in the west.
- Q95 (low flows) – This identified no water availability (recent actual flows < EFI) in the catchments in the east in the Colne and Tendring System and no water available (fully licence flows < EFI) in catchments in the west.

- Blackwater System
  - Q30 (higher flows) – This identified no water availability (recent actual flows < EFI) for the majority of catchments in the Blackwater System with exception to a small number of catchments in the east which had water available.
  - Q50 (moderate flows) – This identified no water availability (recent actual flows < EFI) for the majority of catchments in the Blackwater System with exception one catchment in the east, which had water available and a small number of catchments in the east with no water available (fully licence flows < EFI).
  - Q70 (below moderate flows) – This identified no water availability (recent actual flows < EFI) for the majority of catchments in the Blackwater System with exception one catchment in the east, which had water available and a small number of catchments in the east with no water available (fully licence flows < EFI).
  - Q95 (low flows) – This identified no water availability (recent actual flows < EFI) in all catchments in the Blackwater System with exception to one catchment in the east, which had no water available (fully licence flows < EFI).
- Dengie System
  - Q30 (higher flows) – This identified the majority of the Dengie System to have water available with a smaller area to the north with no water available (fully licence flows < EFI).

- Q50 (moderate flows) – This identified the majority of the Dengie System to have water available with smaller areas to the north and west with no water available (fully licence flows < EFI).
- Q70 (below moderate flows) – This identified the majority of the Dengie System to have a mixture of no water available (fully licence flows < EFI) and water available.
- Q95 (low flows) – This identified the majority of the Dengie System to have no water available (fully licence flows < EFI) with smaller areas to the west with no water availability (recent actual flows < EFI).

6.55 A review of water resource reliability found that in an average year resource there was consumptive abstraction available of less than 30% of the time with areas to the west of the catchment identified a mixture of at least 30-70% of the time.

Mitigation

6.56 Essex and Suffolk Water has prepared a draft Water Resource Management Plan (WRMP), which will ensure that a sufficient supply of water can be secured, and that the environment will be protected over at least a 25-year planning period. WRMPs are updated every five years and reviewed by regulators, such as Environment Agency. This takes into account growth within the supply area, including growth within Basildon as part of the Local Plan.

6.57 The draft WRMP provides detail on abstraction within the Essex WRZ. The preferred plan in the draft WRMP, includes the provision of leakage reduction, compulsory metering, smart metering and water efficiency targets. This is considered the most likely option to be taken forward as part of the WRMP.

6.58 An HRA of the draft WRMP 2024 was undertaken, which included consideration of the potential impacts of the options put forward as part of the Best Value Plan in the draft WRMP. The HRA concluded will have no adverse effects on any Habitats sites, alone or in combination. It is noted that this

assessment was based on preliminary indicative design assumptions and that further iterations of the HRA will be required once more detailed design is available.

Policy Mitigation

6.59 The following measures outlined in the Draft Local Plan will provide safeguarding and mitigation and such will need to be adhered to and implemented successfully. Specifically, Policy NE1: Conserving and enhancing the natural environment which will ensure that:

> Development proposals will be supported where they protect or enhance international, national and/or locally designated sites of importance for nature conservation, ecological and/or geological value.

6.60 Further to this, Policy CC1: Responding to Climate Change promotes the efficient use of natural resources and will ensure that the Borough is more resilient to water shortages.

6.61 At present there are no specific policies which relate to the protection of water resources and ensuring water efficiency within the Local Plan document. Given that East Anglia within which the Essex WRZ falls has been identified as a water stressed area by the Environment Agency, it is recommended that there is incorporation of a specific policy which relates to the requirements for developments to adhere to water efficiency measures and water resource management to reduce pressure on the water resources relied on by development in the Local Plan.

Conclusion

6.62 In light of the above, provided the options identified the Essex ad Suffolk draft WRMP are taken forward and that safeguard measures, including those identified as recommendations in the report, are implemented successfully, it can be concluded that no adverse effects on the integrity of Essex Estuaries SAC, Abberton Reservoir Ramsar site and SPA, Stour and Orwell Estuaries Ramsar site and SPA, Colne Estuary Ramsar site and SPA, Blackwater Estuary Ramsar site and SPA, Thames Estuary and Marshes Ramsar site and SPA and Dengie Ramsar site and SPA will occur as a result of impacts from water quantity.

Summary of Appropriate Assessment conclusions

6.63 The conclusions of the Appropriate Assessment are summarised in **Table 6.2** and **Table 6.3.** The Habitats sites that are shown as screened out with no colour indicate sites that were considered to have no likely significant effect at the Screening Stage. The Habitats sites highlighted in grey were found to have no adverse effect on integrity (AEoI) provided the mitigation measures detailed in **Chapter 6** are implemented

Table 6.2: Summary of Appropriate Assessment – Sites within 15km of Basildon Borough

Habitats Site	Physical Damage and Loss	Non-physical Disturbance	Non-toxic Contamination	Air Pollution	Recreational Pressure	Water Quantity	Water Quality
Benfleet and Southend Marshes Ramsar and SPA	Screened out	Screened out	Screened out	Potential Adverse Effect on Integrity	No Adverse Effect on Integrity	Screened out	Screened out
Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar and SPA	No Adverse Effect on Integrity	No Adverse Effect on Integrity	Screened out	Screened out	No Adverse Effect on Integrity	Screened out	Screened out
Thames Estuary & Marshes Ramsar and SPA	Screened out	Screened out	Screened out	Screened out	No Adverse Effect on Integrity	No Adverse Effect on Integrity	Screened out

Habitats Site	Physical Damage and Loss	Non-physical Disturbance	Non-toxic Contamination	Air Pollution	Recreational Pressure	Water Quantity	Water Quality
Medway Estuary & Marshes Ramsar and SPA	Screened out	Screened out	Screened out	Screened out	Screened out	Screened out	Screened out
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar and SPA	No Adverse Effect on Integrity	No Adverse Effect on Integrity	Screened out	Screened out	No Adverse Effect on Integrity	No Adverse Effect on Integrity	Screened out
Essex Estuaries SAC	Screened out	Screened out	Screened out	Screened out	No Adverse Effect on Integrity	No Adverse Effect on Integrity	Screened out
Outer Thames Estuary SPA	Screened out	Screened out	Screened out	Screened out	No Adverse Effect on Integrity	Screened out	Screened out

Table 6.3: Summary of Appropriate Assessment - Sites Beyond 15km from Basildon Borough

Habitats Site	Physical Damage and Loss	Non-physical Disturbance	Non-toxic Contamination	Air Pollution	Recreational Pressure	Water Quantity	Water Quality
Abberton reservoir Ramsar and SPA	Screened out	Screened out	Screened out	Screened out	Screened out	No Adverse Effect on Integrity	Screened out
Colne Estuary Ramsar and SPA	Screened out	Screened out	Screened out	Screened out	Screened out	No Adverse Effect on Integrity	Screened out
Stour and Orwell Estuaries Ramsar and SPA	Screened out	Screened out	Screened out	Screened out	Screened out	No Adverse Effect on Integrity	Screened out
Dengie Ramsar and SPA	Screened out	Screened out	Screened out	Screened out	Screened out	No Adverse Effect on Integrity	Screened out

Chapter 7

Conclusion and Next Steps

7.1 At the Screening Stage, likely significant effects on Habitats sites, either alone or in combination with other policies and proposals, were identified for the following Local Plan policies:

- Policy SG1: Meeting our Growth Needs
- Policy SG3: Spatial Distribution of Growth
- Policy E1: Securing Economic Growth
- Policy HOU2: Affordable Housing
- Policy HOU3: Specialist Housing for Older People
- Policy R1: Development in Basildon Town Centre
- Policy R2: Supporting Town Centres
- Policy R6: Hotels
- Policy STAT1: Strategic Transport
- Policy INF1: Infrastructure Delivery
- Policy INF2: Securing Infrastructure Contributions
- Policy INF3: Social and Community Infrastructure

7.2 The findings of the HRA Screening Assessment identified the following likely significant effects:

- **Physical damage and loss – functionally linked land only** – Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA; and Blackwater Estuary Ramsar site and SPA.
- **Non-physical disturbance – functionally linked land only** – Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA; and Blackwater Estuary Ramsar site and SPA.

- **Air pollution** – Benfleet and Southend Marshes Ramsar site and SPA.
- **Recreation** – Benfleet and Southend Marshes Ramsar site and SPA; Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site and SPA; Thames Estuary & Marshes Ramsar site and SPA; Blackwater Estuary Ramsar site and SPA; and Essex Estuaries SAC.
- **Water Quantity** – Thames Estuary & Marshes Ramsar site and SPA; Blackwater Estuary Ramsar site and SPA; Essex Estuaries SAC; Abberton Reservoir Ramsar site and SPA; Colne Estuary Ramsar site and SPA; Stour and Orwell Estuaries Ramsar site and SPA; and Dengie Ramsar site and SPA.

7.3 The Appropriate Assessment Stage identified whether the above likely significant effects will, in light of mitigation and avoidance measures, result in adverse effects on integrity of the Habitats sites either alone or in-combination with other plans or projects. The findings of the Appropriate Assessment are detailed below.

7.4 It can be concluded that no adverse effect on integrity will occur for the following Habitats sites, subject to the provision of safeguarding and mitigation measures as detailed in **Chapter 6**.

- **Physical damage and loss of functionally linked land only** – the Appropriate Assessment concluded no adverse effect on integrity as a result of offsite physical damage and loss in relation to Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar site and Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site. A single potential site was identified as having low suitability to support qualifying bird species and therefore discounted from further consideration in terms of offsite functional land. No mitigation measures are required.
- **Non-physical disturbance of functionally linked land only** – the Appropriate Assessment concluded no adverse effect on integrity as a result of offsite non-physical disturbance in relation to Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar site and Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site. A single potential site was identified as having low suitability to support qualifying

bird species and therefore discounted from further consideration in terms of offsite functional land. No mitigation measures are required.

- **Recreational pressure** – the Appropriate Assessment concluded no adverse effect on integrity as a result of recreational pressure in relation to Benfleet and Southend Marshes Ramsar site and SPA, Blackwater Estuary Ramsar site and SPA, Crouch and Roach Estuaries Ramsar site and SPA, Thames Estuary and Marshes Ramsar site and SPA, Essex Estuaries SAC and Outer Thames Estuary SPA. Mitigation is provided through the Essex Coast RAMS, as well as through open space provision and watercraft – Code of Conduct and policy protection measures in the Local Plan, including Policy NE1: Conserving and enhancing the natural environment.
- **Water Quantity** – the Appropriate Assessment concluded no adverse effect on integrity as a result of water quantity in relation to Essex Estuaries SAC, Abberton Reservoir Ramsar site and SPA, Stour and Orwell Estuaries Ramsar site and SPA, Colne Estuary Ramsar site and SPA, Blackwater Estuary Ramsar site and SPA, Thames Estuary and Marshes Ramsar site and SPA and Dengie Ramsar site and SPA. Mitigation will be provided through the draft Water Resource Management Plan once adopted and through safeguarding and policy protection in the Local Plan provided this is implemented successfully together with this reports recommendation to include an additional policy relating to water efficiency and management be incorporated within the Local Plan.

7.5 In the absence of AADT traffic modelling data and in line with a precautionary approach, a conclusion of no adverse effect on integrity cannot be reached in relation to the effect of air pollution on Benfleet and Southend Marshes Ramsar site and SPA.

Next steps

7.6 HRA is an iterative process and as such is expected to be updated in light of newly available evidence and comments from key consultees. As part of consultation on the Draft Basildon Local Plan, this report should be subject to

consultation with Natural England, as well as the Environment Agency, to confirm that the conclusions of the assessment are considered appropriate at this stage of plan-making.

7.7 At the next stage of plan-making, the HRA report will be updated to reflect the contents of the updated Local Plan, including specific site allocations. AADT traffic modelling data will be required to inform the HRA conclusions in relation to the potential for air pollution to result in adverse effects on the integrity of Benfleet and Southend Marshes Ramsar site and SPA.

LUC
October 2024

Appendix A

Figures

Basildon IIA and HRA of Local Plan
Basildon Borough Council

LUC

Figure A1: Habitats sites within 15km of Basildon

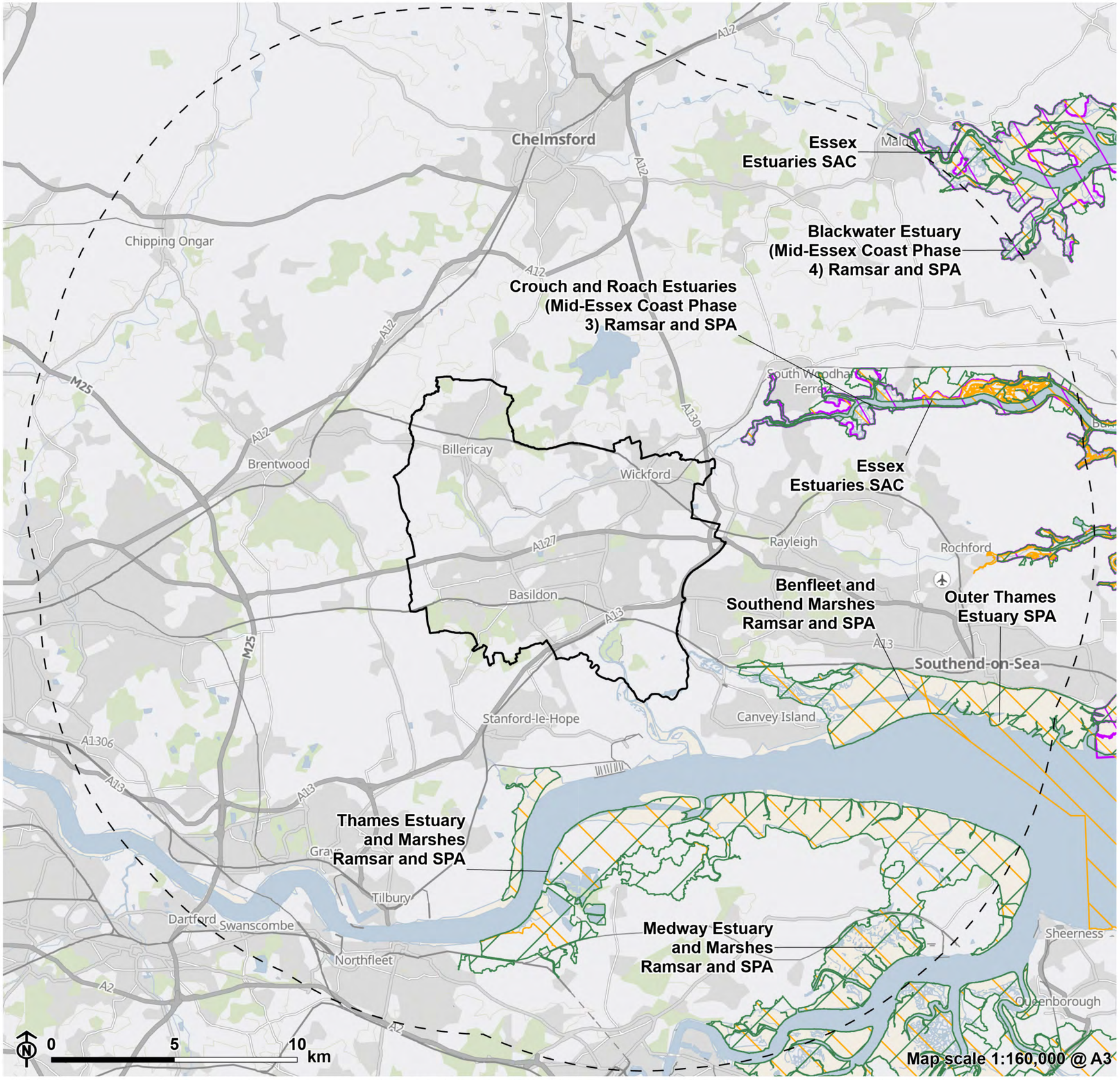

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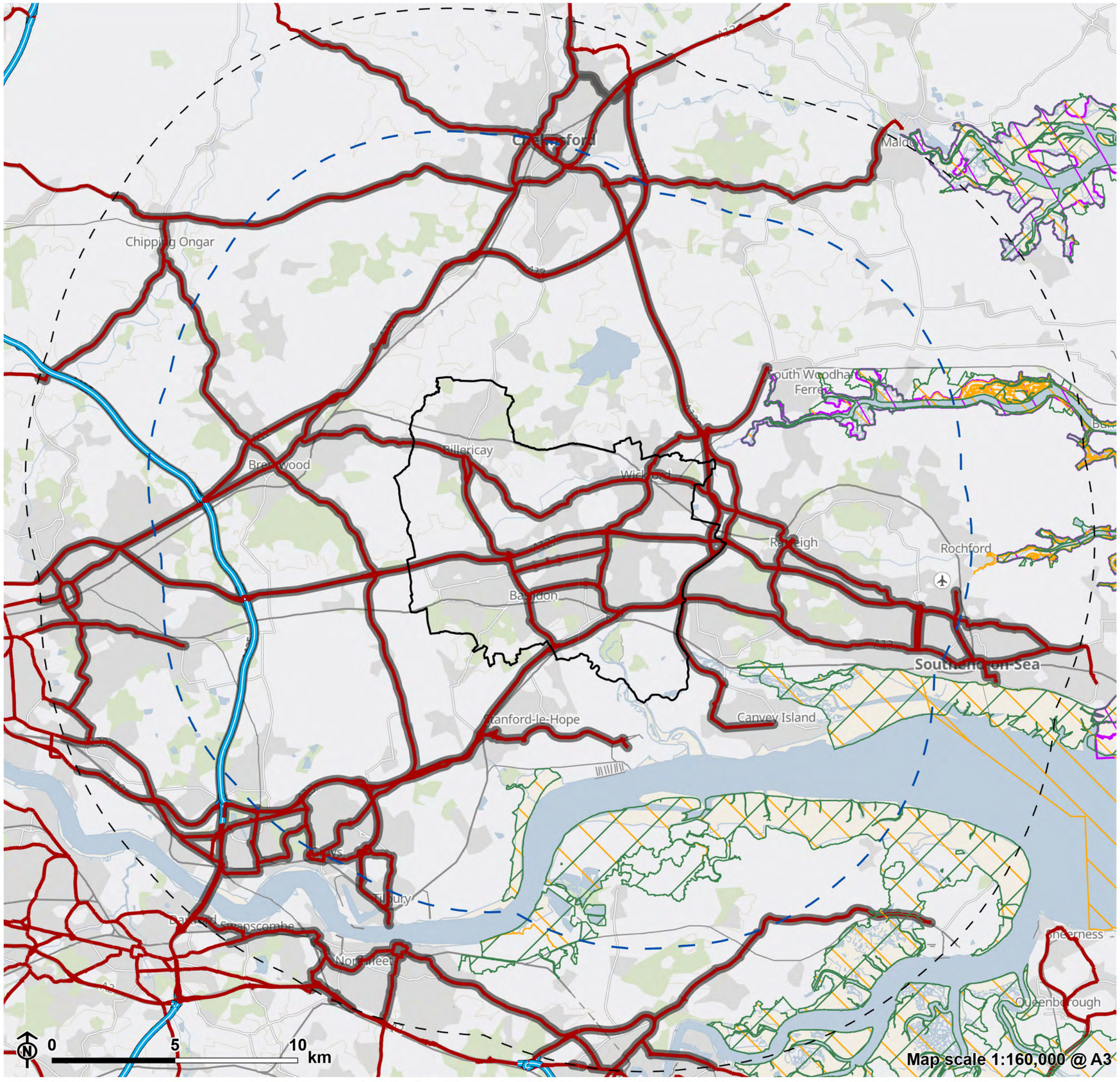
Figure A2: Strategic Roads within 15km of Basildon



- Basildon Borough Council boundary
- 10km buffer (from Basildon Borough Council boundary)
- 15km buffer (from Basildon Borough Council boundary)
- Ramsar site
- Special Protection Area
- Special Area of Conservation

OS Open Roads

- A Road
- Motorway
- OS open roads A road and Motorway 200m buffer (of roads within 15km)

Map scale 1:160,000 @ A3

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Appendix B

Habitats Site Information

B.1 This appendix contains information about the Habitats sites scoped into the HRA. Information about each site's area, the site descriptions, qualifying features and pressures and threats are drawn from Natural England's Site Improvement Plans (SIPs) **[See reference** 34**]**, Standard Data Forms or Ramsar Information Sheets available from the JNCC website **[See reference** 35**]** and Supplementary Advice Notes **[See reference** 36**]**, which advise on the sites features and how to implement the conservation objectives. Site conservation objectives are drawn from Natural England's website and are only available for SACs and SPAs **[See reference** 37**]**.

Benfleet and Southend Marshes SPA

B.2 The Greater Thames Complex consists of the Thames Estuary and Marshes SPA, the Medway Estuary SPA, the Swale SPA and Benfleet & Southend Marshes SPA. The Medway Estuary feeds into and lies on the south side of the outer Thames Estuary in Kent, south-east England. It forms a single tidal system with the Swale and joins the Thames Estuary between the Isle of Grain and the Isle of Sheppey. The Swale is an estuarine area that separates the Isle of Sheppey from the Kent mainland and joins the Medway to the west. Benfleet and Southend Marshes is an estuarine area on the Essex side of the Thames Estuary. These four sites contain a wide diversity of coastal habitats, such as grazing marsh, saltmarsh and mud/sandflat and eelgrass beds that support important numbers of waterbirds throughout the year. Wintering birds that use these estuaries include grebes, geese, ducks and waders whilst in summer breeding birds can be found, such as waders and terns. The area is also important for spring and autumn migration periods.

Area:

B.3 2283.94 ha.

Qualifying features:

B.4 Site regularly supports 34789 waterfowl over winter, including the following waterbird assemblage:

- Dark-bellied brent goose *Branta bernicla bernicla* (wintering).
- Grey plover *Pluvialis squatarola* (wintering).
- Red knot *Calidris canutus* (wintering).
- Dunlin *Calidris alpina alpine* (wintering).
- Common ringed plover *Charadrius hiaticula* (wintering).

Key vulnerabilities and environmental conditions to support site integrity:

Coastal squeeze

B.5 Coastal defences exist along much of the coastline here. Sea level rise is also occurring. It is therefore certain that if circumstances do not change, much of the supporting habitats of the SPA birds will be lost/degraded through processes such as: coastal squeeze; sedimentation rates' inability to keep pace with sea level rise; and reduced exposure (the extent and duration) of mudflats and sandflats.

Public access/disturbance

B.6 Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities, including: boating and watersports; walking; bait-digging; fishing, and wildfowling. Some activities such as powerboating, may produce physical disturbance to habitats. Public access, (especially dog walking and recreational boating) was identified as a medium risk during the 2009 EMS risk review project and this activity is still occurring. Moderate levels of disturbance in less sensitive locations may have no significant effect on the numbers of birds using the SIP area but the types, levels and locations of potentially disturbing activities are constantly changing. Managing the changes to minimise the risk of disturbance impacts will require a better understanding of which species and habitats are most susceptible, which types of activity are most disturbing, and which locations and times of year are most sensitive. There is inadequate information to provide appropriate management.

Invasive species

B.7 Non-native invasive species such as sea squirt and pacific oyster are spreading along the Kent coast and could begin to impact on the Swale. Sea squirt has been found in the Medway, and Pacific oysters are regarded as increasing in the Essex-Southend area. These species threaten habitats due to their ability to smother substrate and other sessile organisms. There is no good understanding of the overall distribution of these species in this site. Assessment is needed in key areas of ports and marinas, where introductions tend to first occur.

Changes in species distributions

B.8 There is a decline in population size for some of the bird species on some of the SPAs . These are likely to be influenced by a number of factors which may vary across the four SPAs. Some of these influences are site-based as

described in other parts of this Plan and some relate to wider, broad-scale changes such as wintering species distributions and effects from breeding grounds outside the UK. A greater understanding of the relative importance of site-based and wider influences is required in order to identify the potential for further actions that might halt declines, restore populations or identify scenarios where it is thought unlikely that site-based measures will reverse population declines.

Fisheries: Commercial marine and estuarine

B.9 The extent and impacts of fisheries on private grounds, particularly in the Swale Estuary, needs to be better understood. There are particular concerns regarding the dredging of shellfish within the SPAs which are a food source for the protected birds.

Invasive Species

B.10 Freshwater non-native invasive species such as pennywort, crassula, parrots feather etc. can engulf ditches, leading to loss of habitat for diving ducks. Although there are some mechanisms in place to ensure ditch management, more baseline information is needed, particularly on those species for which ditch management is not the solution

Invasive Species

B.11 Spartina anglica may be increasing at the expense of other saltmarsh habitats with adverse implications for SPA bird roost areas in Benfleet & Southend Marshes.

Vehicles: illicit

B.12 The illicit use of motor vehicles (often bikes) occurs across the area. This can cause disturbance to SPA birds. This activity was identified as a medium risk during the 2009 EMS risk review project and is still occurring. Whilst various mechanisms are in place to prevent the use of vehicles they are clearly not entirely effective.

Fisheries: Commercial marine and estuarine

B.13 Commercial fishing activities categorised as 'amber or green' under Defra's revised approach to commercial fisheries in European Marine Sites require assessment and (where appropriate) management. This assessment will be undertaken by Kent & Essex IFCA. For activities categorised as 'green', these assessments should take account of any in-combination effects of amber activities, and/or appropriate plans or projects, in the site

Air Pollution: risk of atmospheric nitrogen deposition

B.14 Nitrogen deposition exceeds site-relevant critical loads.

Natural England conservation objectives:

B.15 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified, and subject to natural change;

- 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.
- The distribution of the qualifying features within the site.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

Dark-bellied brent goose *Branta bernicla bernicla*

- Habitat preference: Tundra, on migration marshes & estuaries.
- Diet: Eelgrass (Zostera), also vegetation by grazing on land or shallow water.

Grey plover *Pluvialis squatarola*

- Habitat preference: Tundra, on migration pasture & estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs

Red knot *Calidris canutus*

- Habitat preference: Marine and Intertidal, Wetland
- Diet: Shellfish and worms

Dunlin *Calidris alpina alpine*

- Habitat preference: Tundra, moor, heath, on migration estuaries & coasts.
- Diet: Invertebrates, located by sight and touch.

Common ringed plover *Charadrius hiaticula*

- Habitats: Marine and Intertidal, Wetland, Grassland

- Diet: Flies, spiders, marine worms, crustaceans, molluscs

Benfleet and Southend Marshes Ramsar site

B.16 The Greater Thames Complex consists of the Thames Estuary and Marshes SPA, the Medway Estuary SPA, the Swale SPA and Benfleet & Southend Marshes SPA. The Medway Estuary feeds into and lies on the south side of the outer Thames Estuary in Kent, south-east England. It forms a single tidal system with the Swale and joins the Thames Estuary between the Isle of Grain and the Isle of Sheppey. The Swale is an estuarine area that separates the Isle of Sheppey from the Kent mainland and joins the Medway to the west. Benfleet and Southend Marshes is an estuarine area on the Essex side of the Thames Estuary. These four sites contain a wide diversity of coastal habitats, such as grazing marsh, saltmarsh and mud/sandflat and eelgrass beds that support important numbers of waterbirds throughout the year. Wintering birds that use these estuaries include grebes, geese, ducks and waders whilst in summer breeding birds can be found, such as waders and terns. The area is also important for spring and autumn migration periods.

Area:

B.17 2251.31 ha.

Qualifying features:

B.18 Comprise an extensive series of saltmarshes, mudflats, and grassland which support a diverse flora and fauna, including internationally important numbers of wintering waterfowl:

Qualifying species/populations (as identified as designation):

- Dark-bellied brent goose *Branta bernicla bernicla*.
- Grey plover *Pluvialis squatarola*.
- Red knot *Calidris canutus*.

B.19 Species/populations identified subsequent to designation for possible future consideration under criterion 6

- Dunlin *Calidris alpina alpina*.

Key vulnerabilities and environmental conditions to support site integrity:

B.20 As for Benfleet and Southend Marshes SPA above.

Natural England conservation objectives:

B.21 None available.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

B.22 See Benfleet and Southend Marshes SPA above

Crouch & Roach Estuaries (Mid-Essex Coast Phase 3) SPA

B.23 The Essex Estuaries SIP covers the Essex Estuaries SAC and five mid-Essex coast SPAs (Blackwater Estuary, Colne Estuary, Crouch and Roach Estuaries, Dengie and Foulness). The area is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Sub-tidal areas have a rich invertebrate fauna and there are extensive intertidal mudflats and sandflats. Four different saltmarsh features of European importance are represented as well as large areas of grazing marsh. The site is one of the most important areas for overwintering waterbirds in the UK and is of international importance for several breeding bird species.

Area:

B.24 1847.87ha

Qualifying features:

B.25 Over winter the area regularly supports:27,021 waterbirds including:

- Dark-bellied brent goose *Branta bernicla bernicla* (wintering).

Key vulnerabilities and environmental conditions to support site integrity:

Coastal squeeze

B.26 Coastal defences along much of the Essex coastline prevent intertidal habitats from shifting landward in response to rising sea levels. As a result, these habitats are being gradually degraded and reduced in extent, with knock-on effects on the waterbirds and other species they support. ‘Managed realignment’ schemes and additional intervention measures to create new areas of intertidal habitat and reduce erosion rates are being implemented but more will be needed to offset future losses. Grazing marshes in the SIP area are important for waterbirds and are also threatened by sea level rise because most are near or below mean high tide level, currently protected behind seawalls.

Public Access/Disturbance

B.27 Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities - including boating and watersports, walking, bait-digging, fishing and wildfowling - as well as low-flying aircraft. Some activities, such as powerboating, may produce physical disturbance to habitats. Moderate levels of disturbance in less sensitive locations may have no significant effect on the numbers of birds using the SIP area but the types, levels and locations of potentially disturbing activities are constantly changing. Managing the changes to minimise the risk of disturbance impacts will require a better understanding of which species and habitats are most susceptible, which types of activity are most disturbing, and which locations and times of year are most sensitive.

Fisheries: Commercial marine and estuaries

B.28 Commercial fishing activities categorised as Amber or Green under Defra's revised approach to commercial fisheries in EMSs are being assessed by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) to determine whether management is required. For activities categorised as Amber and Green these assessments should take account of any relevant in combination effects with other fishing activities. Shellfish dredging over subtidal habitats has been identified as an Amber activity and is considered a high priority for assessment and development of possible management for the site.

Planning permission: General

B.29 Several of the issues affecting the Essex Estuaries and the management of disturbance effects on the sites are related to each other, and addressing them is likely to require an improved overview of the relative sensitivities of different habitats, species and locations to different types of development (perhaps summarised as sensitivity maps and matrices for the SIP area). Difficult issues include:

(a) Assessing the cumulative effects of numerous, small and often ‘non-standard’ developments

(b) Development outside the SPA/SAC boundaries can have negative impacts, particularly on the estuaries’ birds

(c) Assessing the indirect, ‘knock-on’ effects of proposals

(d) Pressure to relax planning conditions on existing developments.

Changes in species distributions

B.30 Declines in the numbers of some of the waterbird species using the Essex Estuaries SIP area may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. For example, milder winters may be allowing birds to overwinter closer to their northern breeding grounds, or changes on the breeding grounds may be reducing breeding success. When assessing SPA condition, distinguishing these types of large-scale effect from effects produced by changes within the site itself is important.

Invasive species

B.31 An increase in Pacific oyster Crassostrea gigas settlement and colonisation within the European Marine Site (EMS) may result in areas of foreshore being covered in such numbers as to make them difficult to access and utilise as feeding grounds for overwintering birds. The importance of Pacific oysters for the local shellfish industry is recognised, however we would not like to see an overall increase in the extent of foreshore across the EMS populated by Pacific oysters. Other non-native invasive species such as the American whelk tingle Urosalpinx cinerea and Slipper limpet Crepidula fornicata are known to occupy subtidal muddy habitats, potentially impacting native communities through competition for resources and predation.

Fisheries: Recreational marine and estuarine

B.32 Recreational bait digging may impact waterbirds by reducing prey availability and creating disturbance in intertidal feeding areas. It could also damage the intertidal mudflats and sandflats and associated sub-features and communities, such as eelgrass beds. The extent of the activity and potential impacts on site features are not currently well understood.

Fisheries: Commercial marine and estuarine

B.33 Bottom towed fishing gear (i.e. any fishing instrument designed to take sea fisheries resources from the seabed) has been categorised as a 'Red' for the interest features listed, specifically the seagrass beds Zostera spp, a sub-feature of the SAC, as part of Defra's revised approach to commercial fisheries management in European Marine Sites (EMS). Appropriate management measures will be implemented and enforced by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) who have put in place the 'Bottom Towed Fishing Gear Byelaw' within the SAC to prohibit the above fishing gear being used over the majority of known seagrass beds.

Fisheries: Commercial marine and estuarine

B.34 Marine fisheries carried out under private rights, or under management defined in Several or Hybrid Orders, fall outside Defra's revised approach to commercial fisheries management in EMSs. A variety of fishing gears are used in these fisheries (e.g. Hydraulic and non-hydraulic dredging and shore based activities (e.g. shellfish collection)) which may be applying pressure to site features, including abrasion of the seabed, visual disturbance, and habitat structure changes. Potential impacts need to be better understood and assessed with potential management introduced if required.

Invasive Species

B.35 The invasive Common cord-grass Spartina anglica occurs widely within this site, as well as native Small cord-grass Spartina maritima in certain locations, and the site is designated for H1320 Spartina swards. There is a need to improve understanding of the dynamics of S.anglica on the site in order to determine if changes in the species' distribution adversely affect other species and habitats, including feeding and roosting areas of SPA bird species.

Air Pollution: risk of atmospheric nitrogen deposition

B.36 Atmospheric nitrogen deposition exceeds the relevant critical loads for coastal dune habitats used by breeding terns and hence there is a risk of harmful effects. However, on the Essex estuaries declines in the numbers of breeding terns appear to be due mainly to erosion of a man-made cockle-shingle bank (at Foulness) and to disturbance (elsewhere), rather than to over-vegetation of breeding areas caused by nitrogen deposition.

Natural England conservation objectives:

B.37 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified, and subject to natural change;

B.38 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.
- The distribution of the qualifying features within the site.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

B.39 Dark-bellied brent goose *Branta bernicla bernicla*

- Habitat preference: Tundra, on migration marshes & estuaries.

- Diet: Eelgrass (Zostera), also vegetation by grazing on land or shallow water.

Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site

B.40 The Essex Estuaries SIP covers the Essex Estuaries SAC and five mid-Essex coast SPAs (Blackwater Estuary, Colne Estuary, Crouch and Roach Estuaries, Dengie and Foulness). The area is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Sub-tidal areas have a rich invertebrate fauna and there are extensive intertidal mudflats and sandflats. Four different saltmarsh features of European importance are represented as well as large areas of grazing marsh. The site is one of the most important areas for overwintering waterbirds in the UK and is of international importance for several breeding bird species.

Area:

B.41 1735.58 ha.

Qualifying features:

B.42 Supports an appreciable assemblage of rare, vulnerable or endangered including 13 nationally scarce plant species:

- slender hare's ear *Bupleurum tenuissimum*; divided sedge *Carex divisa*; sea barley *Hordeum marinum*; golden-samphire *Inula crithmoides*; laxflowered sea-lavender *Limonium humile*; curved hard-grass *Parapholis incurve*; Borrer's saltmarsh grass *Puccinellia fasciculate*; stiff saltmarsh grass *Puccinellia rupestris*; spiral tasselweed *Ruppia cirrhosa*; one-

flowered glasswort *Salicornia pusilla*; small cord-grass *Spartina maritime*; shrubby seablite *Suaeda vera*; sea clover *Trifolium squamosum*.

B.43 Several important invertebrate species also present including

- scarce emerald damselfly *Lestes dryas*; the shorefly *Parydroptera discomyzina*; the rare soldier fly *Stratiomys singularior*; the large horsefly *Hybomitra expollicata*; beetles *Graptodytes bilineatus*, *Malachius vulneratus*; the ground lackey moth, *Malacosoma castrensis* and *Eucosoma catoprana*.

B.44 Qualifying Species/populations (as identified at designation)

- Dark-bellied brent goose *Branta bernicla Bernicla*.

Key vulnerabilities and environmental conditions to support site integrity:

B.45 As for Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA above.

Natural England conservation objectives:

B.46 None available.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

B.47 Information below on plants was sourced from the Online Plant Atlas 2020 **[See reference** 38**]**.

Slender hare's ear *Bupleurum tenuissimum*

- A slender, often diminutive, annual herb that is primarily a colonist of thinly vegetated or disturbed coastal sites, including coastal banks, sea-walls, drained estuarine marshes and the margins of brackish ditches. Inland populations grew on commons and roadsides, as well as open grassland on base-rich clays; it still grows on commons near Malvern (Worcestershire) and on a Cambridgeshire road verge. Lowland **[See reference** 39**]**.

Divided Sedge *Carex divisa*

- A rhizomatous perennial sedge of brackish ditches, marshes and damp grasslands near the sea, usually growing in inorganic soils. It avoids areas of standing water. Although largely a coastal plant, it still occurs in a small number of inland sites. Lowland **[See reference** 40**]**.

Sea Barley *Hordeum marinum*

- An annual grass of barish places by the sea, on the trampled margins of dried-up pools and ditches in grazing marshes, on tracks and sea-walls, and in the uppermost parts of saltmarshes; also, very locally, beside salt-treated roads inland. Lowland.

Golden-samphire *Inula crithmoides*

- A perennial herb of sea-cliffs where it grows on ledges, in crevices and in open turf on calcareous or base-rich rocks, where it is often rooted in soil enriched with calcareous shell sand. In south-eastern England it also occurs in saltmarshes, growing in low-marsh sites on coarse sand and above this on moderately organic soils, frequently where drift-litter accumulates. Lowland.

Lax-flowered Sea-lavender *Limonium humile*

- A perennial herb of ungrazed or lightly grazed muddy estuarine saltmarshes, often growing in close proximity to its more common relative,

L. vulgare **[See reference** 41**]**, but replacing it in some areas, most notably in Ireland. It rarely occurs on rocky cliffs. Lowland.

Curved Hard-grass *Parapholis incurve*

- An annual of bare places by the sea, including gravelly mud banks, shingle ridges, rock ledges and cliff-tops, and the uppermost parts of saltmarshes; also in artificial habitats such as sea-walls and wooden mooring stays. There are rare occurrences around docks and inland as a wool and ballast alien and more recently along salt-treated road verges. Lowland.

Borrer's Saltmarsh-grass *Puccinellia fasciculata*

- A tufted short-lived perennial grass of bare places by the sea, in grazing marshes around cattle-poached pools and depressions, on earthen sea-walls, vehicle tracks and the mud dredged from ditches. It also occurs rarely beside salt-treated roads inland. Lowland.

Stiff saltmarsh grass *Puccinellia rupestris*

- An annual or biennial grass of bare saline soils above the tidal limit, behind sea-walls, on tracks and in grazing marshes around cattle-trodden pools and depressions, and sometimes on firm muddy shingle and in rock crevices. P. rupestris occurs rarely inland by saline springs and salt-treated roads. Lowland.

Spiral tasselweed *Ruppia cirrhosa*

- A perennial aquatic which occurs in similar habitats to R. maritima **[See reference** 42**]**, including coastal lakes, tidal inlets, creeks and brackish ditches. It usually grows in deeper water than that species and tolerates more saline conditions, even growing with Zostera species. Lowland.

One-flowered glasswort *Salicornia pusilla*

- A late-germinating and flowering annual herb restricted to the uppermost parts of saltmarshes, growing on low hummocks of firm mud or sand in

salt-pans and on the drift-line; also behind sea-walls in areas subject to saltwater seepage and kept open by vehicles or livestock. Lowland.

Small Cord-grass *Spartina maritima*

- A perennial grass of tidal mud-flats, generally at higher elevations than S. anglica, such as in saltmarsh creeks and pans, and on bare ground behind sea-walls. It rarely sets seed in Britain, relying instead on vegetative spread by means of extensively creeping rhizomes. Lowland.

Shrubby seablite *Suaeda vera*

- An evergreen shrub of shingle drift-lines and the dry upper zones of saltmarshes, especially where these adjoin shingle banks or sand dunes; also along sea-wall drift-lines and, more rarely, beside brackish creeks and ditches in coastal grazing marshes. There are also two roadside records, one not far from the coast in Essex (Smith, 2013) **[See reference** 43**]**, the other – more remarkably – an unconfirmed record from the central reservation of the M6 in Warwickshire (Leach & Martin, 2014) **[See reference** 44**]**. Lowland.

Sea clover *Trifolium squamosum*

- An annual herb of the dry, uppermost parts of saltmarshes, brackish meadows and by tidal rivers and creeks. It is rarely found inland in open grassland on calcareous soils, and as a casual of waste places and by railways. Lowland.

B.48 Please see Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA above for information regarding the dark-bellied brent goose.

Thames Estuary & Marshes SPA

B.49 The Greater Thames Complex consists of the Thames Estuary and Marshes SPA, the Medway Estuary SPA, the Swale SPA and Benfleet & Southend Marshes SPA. The Medway Estuary feeds into and lies on the south side of the outer Thames Estuary in Kent, south-east England. It forms a single tidal system with the Swale and joins the Thames Estuary between the Isle of Grain and the Isle of Sheppey. The Swale is an estuarine area that separates the Isle of Sheppey from the Kent mainland and joins the Medway to the west. Benfleet and Southend Marshes is an estuarine area on the Essex side of the Thames Estuary. These four sites contain a wide diversity of coastal habitats, such as grazing marsh, saltmarsh and mud/sandflat and eelgrass beds that support important numbers of waterbirds throughout the year. Wintering birds that use these estuaries include grebes, geese, ducks and waders whilst in summer breeding birds can be found, such as waders and terns. The area is also important for spring and autumn migration periods.

Area:

B.50 4802.47ha

Qualifying features:

B.51 Supports the following internationally important waterbird assemblage:

- Hen harrier *Circus cyaneus* (wintering).
- Pied avocet *Recurvirostra avosett* (wintering).
- Ringed plover *Charadrius hiaticula*, (concentration).
- Grey plover *Pluvialis squatarola*, (wintering).
- Red knot *Calidris canutus*, (wintering).

- Dunlin *Calidris alpina alpine* (wintering).
- Black-tailed godwit *Limosa limosa islandica* (wintering).
- Common redshank *Tringa totanus* (wintering).

Key vulnerabilities and environmental conditions to support site integrity:

Coastal squeeze

B.52 Coastal defences exist along much of the coastline here. Sea level rise is also occuring. It is therefore certain that if circumstances do not change, much of the supporting habitats of the SPA birds will be lost/degraded through processes such as: coastal squeeze; sedimentation rates' inability to keep pace with sea level rise; and reduced exposure (the extent and duration) of mudflats and sandflats.

Public access/disturbance

B.53 Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities, including: boating and watersports; walking; bait-digging; fishing, and wildfowling. Some activities such as powerboating, may produce physical disturbance to habitats. Public access, (especially dog walking and recreational boating) was identified as a medium risk during the 2009 EMS risk review project and this activity is still occuring. Moderate levels of disturbance in less sensitive locations may have no significant effect on the numbers of birds using the SIP area but the types, levels and locations of potentially disturbing activities are constantly changing. Managing the changes to minimise the risk of disturbance impacts will require a better understanding of which species and habitats are most susceptible, which types of activity are most disturbing, and which locations and times of year are

most sensitive.There is inadequate information to provide appropriate management.

Invasive species

B.54 Non-native invasive species such as sea squirt and pacific oyster are spreading along the Kent coast and could begin to impact on the Swale. Sea squirt has been found in the Medway, and Pacific oysters are regarded as increasing in the Essex-Southend area. These species threaten habitats due to their ability to smother substrate and other sessile organisms. There is no good understanding of the overall distribution of these species in this site. Assessment is needed in key areas of ports and marinas, where introductions tend to first occur.

Changes in species distributions

B.55 There is a decline in population size for some of the bird species on some of the SPAs (Cook et al. 2013*). These are likely to be influenced by a number of factors which may vary across the four SPAs. Some of these influences are site-based as described in other parts of this Plan and some relate to wider, broad-scale changes such as wintering species distributions and effects from breeding grounds outside the UK. A greater understanding of the relative importance of site-based and wider influences is required in order to identify the potential for further actions that might halt declines, restore populations or identify scenarios where it is thought unlikely that site-based measures will reverse population declines. *Cook A.S.C.P., Barimore C., Holt C.A., Read W.J. & Austin G.E. 2013. Wetland Bird Survey Alerts 2009/2010: Changes in numbers of wintering waterbirds in the Constituent Countries of the United Kingdom, Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs). BTO Research Report 641. BTO, Thetford.

Fisheries: Commercial marine and estuarine

B.56 The extent and impacts of fisheries on private grounds, particularly in the Swale Estuary, needs to be better understood. There are particular concerns regarding the dredging of shellfish within the SPAs which are a food source for the protected birds.

Invasive Species

B.57 Freshwater non-native invasive species such as pennywort, crassula, parrots feather etc. can engulf ditches, leading to loss of habitat for diving ducks. Although there are some mechnisms in place to ensure ditch management, more baseline information is needed, particularly on those species for which ditch management is not the solution

Invasive Species

B.58 Spartina anglica may be increasing at the expense of other saltmarsh habitats with adverse implications for SPA bird roost areas in Benfleet & Southend Marshes.

Vehicles: illicit

B.59 The illicit use of motor vehicles (often bikes) occurs across the area. This can cause disturbance to SPA birds. This activity was identified as a medium risk during the 2009 EMS risk review project and is still occuring. Whilst various mechanisms are in place to prevent the use of vehicles they are clearly not entirely effective.

Fisheries: Commercial marine and estuarine

B.60 Commercial fishing activities categorised as 'amber or green' under Defra's revised approach to commercial fisheries in European Marine Sites require assessment and (where appropriate) management. This assessment will be undertaken by Kent & Essex IFCA. For activities categorised as 'green', these assessments should take account of any in-combination effects of amber activities, and/or appropriate plans or projects, in the site

Air Pollution: risk of atmospheric nitrogen deposition

B.61 Nitrogen deposition exceeds site-relevant critical loads.

Natural England conservation objectives:

B.62 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified, and subject to natural change;

B.63 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.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

Hen harrier *Circus cyaneus*

- Habitat preference: Moor, marsh, steppe and fields.
- Diet: Mostly, small birds, nestlings and small rodents.

Pied avocet *Recurvirostra avosett*

- Habitat preference: Marine and Intertidal, Wetland, Grassland
- Diet: Aquatic insects and their larvae, crustaceans and worms.

Ringed plover *Charadrius hiaticula*

- Habitat preference: Sandy areas with low vegetation, on migration estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs.

Grey plover *Pluvialis squatarola*

- Habitat preference: Tundra, on migration pasture & estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs.

Red knot *Calidris canutus*

- Habitat preference: Marine and Intertidal, Wetland
- Diet: Shellfish and worms

Dunlin *Calidris alpina alpine*

- Habitat preference: Tundra, moor, heath, on migration estuaries & coasts.

- Diet: Invertebrates, located by sight and touch.

Black-tailed godwit *Limosa limosa isalndica*

- Habitat preference: Marshy grassland & steppe, on migration mudflats.
- Diet: Invertebrates, also some plant material, located by touch and sight

Common redshank *Tringa tetanus*

- Habitat preference: Rivers, wet grassland, moors & estuaries.
- Diet: Invertebrates, esp earthworms, cranefly larvae (inland) crustaceans, molluscs, marine worms (estuaries).

Thames Estuary and Marshes Ramsar site

B.64 The Greater Thames Complex consists of the Thames Estuary and Marshes SPA, the Medway Estuary SPA, the Swale SPA and Benfleet & Southend Marshes SPA. The Medway Estuary feeds into and lies on the south side of the outer Thames Estuary in Kent, south-east England. It forms a single tidal system with the Swale and joins the Thames Estuary between the Isle of Grain and the Isle of Sheppey. The Swale is an estuarine area that separates the Isle of Sheppey from the Kent mainland and joins the Medway to the west. Benfleet and Southend Marshes is an estuarine area on the Essex side of the Thames Estuary. These four sites contain a wide diversity of coastal habitats, such as grazing marsh, saltmarsh and mud/sandflat and eelgrass beds that support important numbers of waterbirds throughout the year. Wintering birds that use these estuaries include grebes, geese, ducks and waders whilst in summer breeding birds can be found, such as waders and terns. The area is also important for spring and autumn migration periods.

Area:

B.65 5588.59ha

Qualifying features:

B.66 The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats.

B.67 The site also supports more than 20 British Red Data Book invertebrates.

B.68 Assemblages of international importance 45118 waterfowl including the following species:

- Ringed plover *Charadrius hiaticula*.
- Black-tailed godwit *Limosa limosa islandica.*
- Grey plover *Pluvialis squatarola.*
- Red knot *Calidris canutus islandica.*
- Dunlin *Calidris alpina alpine.*
- Common redshank *Tringa totanus tetanus.*

Key vulnerabilities and environmental conditions to support site integrity:

B.69 As for Thames Estuary and Marshes SPA above.

Natural England conservation objectives:

B.70 None available.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

B.71 See Thames Estuary and Marshes SPA above.

Medway Estuary & Marshes SPA

B.72 The Greater Thames Complex consists of the Thames Estuary and Marshes SPA, the Medway Estuary SPA, the Swale SPA and Benfleet & Southend Marshes SPA. The Medway Estuary feeds into and lies on the south side of the outer Thames Estuary in Kent, south-east England. It forms a single tidal system with the Swale and joins the Thames Estuary between the Isle of Grain and the Isle of Sheppey. The Swale is an estuarine area that separates the Isle of Sheppey from the Kent mainland and joins the Medway to the west. Benfleet and Southend Marshes is an estuarine area on the Essex side of the Thames Estuary. These four sites contain a wide diversity of coastal habitats, such as grazing marsh, saltmarsh and mud/sandflat and eelgrass beds that support important numbers of waterbirds throughout the year. Wintering birds that use these estuaries include grebes, geese, ducks and waders whilst in summer breeding birds can be found, such as waders and terns . The area is also important for spring and autumn migration periods.

Area:

B.73 4686.32 ha.

Qualifying features:

B.74 Supports the following Waterbird assemblage/breeding bird assemblage:

- Dark-bellied brent goose *Branta bernicla bernicla* (wintering).
- Common shelduck *Tadorna tadorna* (wintering).
- Northern pintail *Anas acuta* (wintering).
- Pied avocet *Recurvirostra avosetta* (wintering).
- Pied avocet *Recurvirostra avosetta* (reproducing).

- Ringed plover *Charadrius hiaticula* (wintering).
- Grey plover *Pluvialis squatarola* (wintering).
- Red knot *Calidris canutus*, (wintering).
- Dunlin *Calidris alpina alpine* (wintering).
- Common redshank *Tringa totanus* (wintering).
- Red-throated loon *Gavia stellata* (wintering).
- Great crested grebe *Podiceps cristatus* (wintering).
- Great cormorant *Phalacrocorax carbo* (wintering).
- Bewick's Swan *Cygnus columbianus bewickii* (wintering).
- Eurasian wigeon *Anas Penelope* (wintering).
- Eurasian teal *Anas crecca* (wintering).
- Mallard *Anas platyrhynchos* (wintering).
- Northern shoveler *Anas clypeata* (wintering).
- Comon pochard *Aythya farina* (wintering).
- Eurasian oystercatcher *Haematopus ostralegus* (wintering).
- Black-tailed godwit *Limosa limosa islandica* (wintering).
- Eurasian curlew *Numenius Arquata* (wintering).
- Common greenshank *Tringa nebularia* (wintering).
- Ruddy turnstone *Arenaria interpres* (wintering).
- Hen harrier *Circus cyaneus* (wintering)
- Merlin *falco columbarius* (wintering)
- Little tern *sterna albifrons* (reproducing).
- Common tern *sterna hirundo* (reproducing).

Key vulnerabilities and environmental conditions to support site integrity:

Coastal squeeze

B.75 Coastal defences exist along much of the coastline here. Sea level rise is also occurring. It is therefore certain that if circumstances do not change, much of the supporting habitats of the SPA birds will be lost/degraded through processes such as: coastal squeeze; sedimentation rates' inability to keep pace with sea level rise; and reduced exposure (the extent and duration) of mudflats and sandflats.

Public access/disturbance

B.76 Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities, including: boating and watersports; walking; bait-digging; fishing, and wildfowling. Some activities such as powerboating, may produce physical disturbance to habitats. Public access, (especially dog walking and recreational boating) was identified as a medium risk during the 2009 EMS risk review project and this activity is still occurring. Moderate levels of disturbance in less sensitive locations may have no significant effect on the numbers of birds using the SIP area but the types, levels and locations of potentially disturbing activities are constantly changing. Managing the changes to minimise the risk of disturbance impacts will require a better understanding of which species and habitats are most susceptible, which types of activity are most disturbing, and which locations and times of year are most sensitive. There is inadequate information to provide appropriate management.

Invasive species

B.77 Non-native invasive species such as sea squirt and pacific oyster are spreading along the Kent coast and could begin to impact on the Swale. Sea squirt has been found in the Medway, and Pacific oysters are regarded as increasing in the Essex-Southend area. These species threaten habitats due to their ability to smother substrate and other sessile organisms. There is no good understanding of the overall distribution of these species in this site. Assessment is needed in key areas of ports and marinas, where introductions tend to first occur.

Changes in species distributions

B.78 There is a decline in population size for some of the bird species on some of the SPAs . These are likely to be influenced by a number of factors which may vary across the four SPAs. Some of these influences are site-based as described in other parts of this Plan and some relate to wider, broad-scale changes such as wintering species distributions and effects from breeding grounds outside the UK. A greater understanding of the relative importance of site-based and wider influences is required in order to identify the potential for further actions that might halt declines, restore populations or identify scenarios where it is thought unlikely that site-based measures will reverse population declines.

Fisheries: Commercial marine and estuarine

B.79 The extent and impacts of fisheries on private grounds, particularly in the Swale Estuary, needs to be better understood. There are particular concerns regarding the dredging of shellfish within the SPAs which are a food source for the protected birds.

Invasive Species

B.80 Freshwater non-native invasive species such as pennywort, crassula, parrots feather etc. can engulf ditches, leading to loss of habitat for diving ducks. Although there are some mechnisms in place to ensure ditch management, more baseline information is needed, particularly on those species for which ditch management is not the solution

Invasive Species

B.81 Spartina anglica may be increasing at the expense of other saltmarsh habitats with adverse implications for SPA bird roost areas in Benfleet & Southend Marshes.

Vehicles: illicit

B.82 The illicit use of motor vehicles (often bikes) occurs across the area. This can cause disturbance to SPA birds. This activity was identified as a medium risk during the 2009 EMS risk review project and is still occuring. Whilst various mechanisms are in place to prevent the use of vehicles they are clearly not entirely effective.

Fisheries: Commercial marine and estuarine

B.83 Commercial fishing activities categorised as ‘amber or green’ under Defra’s revised approach to commercial fisheries in European Marine Sites require assessment and (where appropriate) management. This assessment will be undertaken by Kent & Essex IFCA. For activities categorised as ‘green’, these assessments should take account of any in-combination effects of amber activities, and/or appropriate plans or projects, in the site

Air Pollution: risk of atmospheric nitrogen deposition

B.84 Nitrogen deposition exceeds site-relevant critical loads.

Natural England conservation objectives:

B.85 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified, and subject to natural change;

B.86 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.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

Dark-bellied brent goose *Branta bernicla bernicla*

- Habitat preference: Tundra, on migration marshes & estuaries.
- Diet: Eelgrass (Zostera), also vegetation by grazing on land or shallow water.

Common shelduck *Tadorna tadorna*

- Habitat: Marine and Intertidal, Farmland, Wetland, Grassland
- Diet:Invertebrates, small shellfish, aquatic snails.

Northern pintail *Anas acuta*

- Habitat preference: Lakes, rivers, marsh & tundra.
- Diet: Omnivorous, feeds on mud bottom at depths of 10-30cm.

Pied avocet *Recurvirostra avosett*

- Habitat preference: Marine and Intertidal, Wetland, Grassland
- Diet: Aquatic insects and their larvae, crustaceans and worms.

Ringed plover *Charadrius hiaticula*

- Habitat preference: Sandy areas with low vegetation, on migration estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs.

Grey plover *Pluvialis squatarola*

- Habitat preference: Tundra, on migration pasture & estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs.

Red knot *Calidris canutus*

- Habitat preference: Marine and Intertidal, Wetland
- Diet: Shellfish and worms

Dunlin *Calidris alpina alpine*

- Habitat preference: undra, moor, heath, on migration estuaries & coasts.

- Diet: Invertebrates, located by sight and touch.

Common redshank *Tringa tetanus*

- Habitat preference: Rivers, wet grassland, moors & estuaries.
- Diet: Invertebrates, esp earthworms, cranefly larvae (inland) crustaceans, molluscs, marine worms (estuaries).

Red-throated loon *Gavia stellata*

- Habitat: Marine and Intertidal, Wetland
- Diet: Fish

Great crested grebe *Podiceps cristatus*

- Habitat: Urban and Suburban, Marine and Intertidal, Wetland
- Diet: Mainly fish

Great cormorant *Phalacrocorax carbo*

- Habitat:Urban and Suburban, Marine and Intertidal, Wetland
- Diet: fish

Bewicks swan *Cygnus columbianus bewickii*

- Habitat:Marine and Intertidal, Farmland, Wetland
- Diet:In the UK, Bewick's Swans feed in fields on leftover potatoes and grain. On their breeding grounds they eat aquatic plants and grass.

Eurasian wigeon *Anas Penelope*

- Habitat:Marine and Intertidal, Wetland, Grassland
- Diet:Aquatic plants, grasses, roots.

Eurasian teal *Anas crecca*

- Habitat preference: Lakes, marshes, ponds & shallow streams.
- Diet: Omnivorous, mostly seeds in winter, feeds mostly at night in shallow water.

Mallard *Anas platyrhynchos*

- Habitat:Urban and Suburban, Marine and Intertidal, Farmland, Wetland, Grassland
- Diet:Seeds, acorns and berries, plants, insects and shellfish.

Northern shoveler *Anas clypeata*

- Habitat preference: Shallow lakes, marsh, reedbed & wet meadow.
- Diet: Omnivorous, esp. small insects, crustaceans, molluscs, seeds; filters particles with sideways sweeping of bill.

Common pochard *Aythya farina*

- Habitat:Urban and Suburban, Marine and Intertidal, Wetland
- Diet:Plants and seeds, snails, small fish and insects.

Eurasian oystercatcher *Haematopus ostralegus*

- Habitat:Upland, Marine and Intertidal, Farmland, Wetland, Grassland
- Diet:Mussels and cockles on the coast, mainly worms inland.

Black-tailed godwit *Limosa limosa islandica*

- Habitat preference: Marshy grassland & steppe, on migration mudflats.
- Diet: Invertebrates, also some plant material, located by touch and sight

Eurasian curlew *Numenius arquata*

- Habitat preference: Marsh, grassland, on migration mudflats.
- Diet: Omnivorous, though principally invertebrates located by touch.

Common greenshank *Tringa nebularia*

- Habitat:Marine and Intertidal, Wetland
- Diet:Worms, snails and fish

Ruddy turnstone *Arenaria interpres*

- Habitat:Marine and Intertidal, Wetland
- Diet:Insects, crustaceans and molluscs.

Hen harrier *Circus cyanus*

- Habitat preference: Moor, marsh, steppe and fields.
- Diet: Mostly, small birds, nestlings and small rodents.

Merlin *Falco columbarius*

- Habitat preference: Moor, heath, desert, open coniferous forest.
- Diet: Mostly small birds, caught in open country, usually by pursuit low over ground.

Little Tern: *Sterna albifrons*

- Habitat preference: nest exclusively on the coast in well-camouflaged shallow scrapes on sand and shingle beaches, spits or inshore islets.
- Diet: fish, crustacean and invertebrates.

Common Tern *Sterna hirundo*

- Habitat preference: shallow water, along coasts, at freshwater inland lakes and in estuaries.

- Diet: mainly eat fish, but also consume shrimps and other crustaceans, small squid, marine worms, and leeches.

Medway Estuary and Marshes Ramsar site

B.87 The Greater Thames Complex consists of the Thames Estuary and Marshes SPA, the Medway Estuary SPA, the Swale SPA and Benfleet & Southend Marshes SPA. The Medway Estuary feeds into and lies on the south side of the outer Thames Estuary in Kent, south-east England. It forms a single tidal system with the Swale and joins the Thames Estuary between the Isle of Grain and the Isle of Sheppey. The Swale is an estuarine area that separates the Isle of Sheppey from the Kent mainland and joins the Medway to the west. Benfleet and Southend Marshes is an estuarine area on the Essex side of the Thames Estuary. These four sites contain a wide diversity of coastal habitats, such as grazing marsh, saltmarsh and mud/sandflat and eelgrass beds that support important numbers of waterbirds throughout the year. Wintering birds that use these estuaries include grebes, geese, ducks and waders whilst in summer breeding birds can be found, such as waders and terns . The area is also important for spring and autumn migration periods.

Area:

B.88 4696.74ha

Qualifying features:

B.89 Site holds several nationally scarce plants, including

- sea barley *Hordeum marinum*; curved hard-grass, *Parapholis incurve*; annual beard-grass *Polypogon monspeliensis*; Borrer's saltmarsh-grass *Puccinellia fasciculate*; slender hare`s-ear *Bupleurum tenuissimum*; sea clover *Trifolium squamosum*; saltmarsh goose-foot *Chenopodium chenopodioides*; golden samphire *Inula crithmoides*; perennial glasswort *Sarcocornia perennis*; and one-flowered glasswort *Salicornia pusilla*.

B.90 A total of at least twelve British Red Data Book species of wetland invertebrates have been recorded on the site including

- ground beetle *Polistichus connexus*; a fly *Cephalops perspicuus*; a dancefly *Poecilobothrus ducalis*; a fly *Anagnota collini*; a weevil *Baris scolopacea*; a water beetle *Berosus spinosus*; a beetle *Malachius vulneratus*; a rove beetle *Philonthus punctus*; the ground lackey moth *Malacosoma castrensis*; a horsefly *Atylotus latistriatuus*; a fly *Campsicnemus magius*; a solider beetle *Cantharis fusca*; a cranefly *Limonia danica*.

B.91 A significant number of non-wetland British Red Data Book species also occur.

B.92 The Site also supports the following internationally important waterbird assemblage:

- Grey plover *Pluvialis squatarola*.
- Common redshank *Tringa totanus totanus*.
- Dark-bellied brent goose *Branta bernicla bernicla*.
- Common shelduck *Tadorna tadorna*.
- Northern pintail *Anas acuta*.
- Ringed plover *Charadrius hiaticula*.
- Red knot *Calidris canutus islándica*.
- Dunlin *Calidris alpina alpina*.

B.93 Species/populations identified subsequent to designation for possible future consideration under criterion 6:

B.94 Black-tailed godwit *Limosa limosa islandica*.

Key vulnerabilities and environmental conditions to support site integrity:

B.95 As for Medway Estuary and Marshes SPA above.

Natural England conservation objectives:

B.96 None available.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

B.97 Information below on plants was sourced from the Online Plant Atlas 2020.

Perennial glasswort *Sarcocornia perennis*

- A woody perennial subshrub of saltmarshes, especially in bare or sparsely vegetated areas on firm, muddy sand and gravel. S. perennis occurs on eroding lower parts of saltmarshes, at higher elevations on saltmarsh drift-lines and on shell and shingle banks; sometimes also on bare ground behind sea-walls. Lowland.

Annual Beard-grass *Polypogon monspeliensis*

- A native annual grass of barish places by the sea, in damp, cattle-trodden grazing marshes, at the edges of dried-up brackish pools and ditches, and in the uppermost parts of saltmarshes. It is also found around docks and inland as an introduction from birdseed and grass-seed, and formerly from wool shoddy when used as an agricultural fertilizer. Seeds may also be dispersed by birds and vehicles. Lowland.

Saltmarsh Goosefoot *Chenopodium chenopodioides*

- An annual herb of dry, brackish mud of ditches, salt-pans and hoof-marks in the upper part of saltmarshes and in coastal grazing marshes. Lowland.

Sea Barley *Hordeum marinum*

- An annual grass of barish places by the sea, on the trampled margins of dried-up pools and ditches in grazing marshes, on tracks and sea-walls, and in the uppermost parts of saltmarshes; also, very locally, beside salt-treated roads inland. Lowland.

Curved Hard-grass *Parapholis incurve*

- An annual of bare places by the sea, including gravelly mud banks, shingle ridges, rock ledges and cliff-tops, and the uppermost parts of saltmarshes; also in artificial habitats such as sea-walls and wooden mooring stays. There are rare occurrences around docks and inland as a wool and ballast alien and more recently along salt-treated road verges. Lowland.

Borrer's Saltmarsh-grass *Puccinellia fasciculata*

- A tufted short-lived perennial grass of bare places by the sea, in grazing marshes around cattle-poached pools and depressions, on earthen sea-walls, vehicle tracks and the mud dredged from ditches. It also occurs rarely beside salt-treated roads inland. Lowland.

Slender hare's ear *Bupleurum tenuissimum*

- A slender, often diminutive, annual herb that is primarily a colonist of thinly vegetated or disturbed coastal sites, including coastal banks, sea-walls, drained estuarine marshes and the margins of brackish ditches. Inland populations grew on commons and roadsides, as well as open grassland on base-rich clays; it still grows on commons near Malvern (Worcestershire) and on a Cambridgeshire road verge. Lowland.

Sea clover *Trifolium squamosum*

- An annual herb of the dry, uppermost parts of saltmarshes, brackish meadows and by tidal rivers and creeks. It is rarely found inland in open grassland on calcareous soils, and as a casual of waste places and by railways. Lowland.

Golden-samphire *Inula crithmoides*

- A perennial herb of sea-cliffs where it grows on ledges, in crevices and in open turf on calcareous or base-rich rocks, where it is often rooted in soil enriched with calcareous shell sand. In south-eastern England it also occurs in saltmarshes, growing in low-marsh sites on coarse sand and above this on moderately organic soils, frequently where drift-litter accumulates. Lowland.

One-flowered glasswort *Salicornia pusilla*

- A late-germinating and flowering annual herb restricted to the uppermost parts of saltmarshes, growing on low hummocks of firm mud or sand in salt-pans and on the drift-line; also behind sea-walls in areas subject to saltwater seepage and kept open by vehicles or livestock. Lowland.

B.98 Please see above for details regarding bird species.

Blackwater Estuary (Mid-Essex Coast Phase 4) SPA

B.99 The Essex Estuaries SIP covers the Essex Estuaries SAC and five mid-Essex coast SPAs (Blackwater Estuary, Colne Estuary, Crouch and Roach Estuaries, Dengie and Foulness). The area is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Sub-tidal areas have a rich invertebrate fauna and there are extensive intertidal mudflats and sandflats. Four different saltmarsh features of European importance are represented as well as large areas of grazing marsh. The site is one of the most important areas for overwintering waterbirds in the UK and is of international importance for several breeding bird species.

Area:

B.100 4403.38 ha.

Qualifying features:

B.101 Qualifying Features (Waterbird assemblage):

- Dark-bellied brent goose Branta bernicla bernicla (wintering).
- Common pochard Aythya ferina (reproducing).
- Hen harrier Circus cyaneus (wintering).
- Grey plover Pluvialis squatarola (wintering).
- Dunlin Calidris alpina alpina (wintering).
- Black-tailed godwit Limosa limosa islandica (wintering).
- Little tern Sterna albifrons (reproducing).

- Ringed plover Charadrius hiaticula (wintering and reproducing).

Key vulnerabilities and environmental conditions to support site integrity:

Coastal squeeze

B.102 Coastal defences along much of the Essex coastline prevent intertidal habitats from shifting landward in response to rising sea levels. As a result, these habitats are being gradually degraded and reduced in extent, with knock-on effects on the waterbirds and other species they support. 'Managed realignment' schemes and additional intervention measures to create new areas of intertidal habitat and reduce erosion rates are being implemented but more will be needed to offset future losses. Grazing marshes in the SIP area are important for waterbirds and are also threatened by sea level rise because most are near or below mean high tide level, currently protected behind seawalls.

Public Access/Disturbance

B.103 Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities - including boating and watersports, walking, bait-digging, fishing and wildfowling - as well as low-flying aircraft. Some activities, such as powerboating, may produce physical disturbance to habitats. Moderate levels of disturbance in less sensitive locations may have no significant effect on the numbers of birds using the SIP area but the types, levels and locations of potentially disturbing activities are constantly changing. Managing the changes to minimise the risk of disturbance impacts will require a better understanding of which species and habitats are most susceptible, which types of activity are most disturbing, and which locations and times of year are most sensitive.

Fisheries: Commercial marine and estuaries

B.104 Commercial fishing activities categorised as Amber or Green under Defra's revised approach to commercial fisheries in EMSs are being assessed by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) to determine whether management is required. For activities categorised as Amber and Green these assessments should take account of any relevant in combination effects with other fishing activities. Shellfish dredging over subtidal habitats has been identified as an Amber activity and is considered a high priority for assessment and development of possible management for the site.

Planning permission: General

B.105 Several of the issues affecting the Essex Estuaries and the management of disturbance effects on the sites are related to each other, and addressing them is likely to require an improved overview of the relative sensitivities of different habitats, species and locations to different types of development (perhaps summarised as sensitivity maps and matrices for the SIP area). Difficult issues include:

(a) Assessing the cumulative effects of numerous, small and often ‘non-standard’ developments

(b) Development outside the SPA/SAC boundaries can have negative impacts, particularly on the estuaries’ birds

(c) Assessing the indirect, ‘knock-on’ effects of proposals

(d) Pressure to relax planning conditions on existing developments.

Changes in species distributions

B.106 Declines in the numbers of some of the waterbird species using the Essex Estuaries SIP area may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. For example, milder winters may be allowing birds to overwinter closer to their northern breeding grounds, or changes on the breeding grounds may be reducing breeding success. When assessing SPA condition, distinguishing these types of large-scale effect from effects produced by changes within the site itself is important.

Invasive species

B.107 An increase in Pacific oyster Crassostrea gigas settlement and colonisation within the European Marine Site (EMS) may result in areas of foreshore being covered in such numbers as to make them difficult to access and utilise as feeding grounds for overwintering birds. The importance of Pacific oysters for the local shellfish industry is recognised, however we would not like to see an overall increase in the extent of foreshore across the EMS populated by Pacific oysters. Other non-native invasive species such as the American whelk tingle Urosalpinx cinerea and Slipper limpet Crepidula fornicata are known to occupy subtidal muddy habitats, potentially impacting native communities through competition for resources and predation.

Fisheries: Recreational marine and estuarine

B.108 Recreational bait digging may impact waterbirds by reducing prey availability and creating disturbance in intertidal feeding areas. It could also damage the intertidal mudflats and sandflats and associated sub-features and communities, such as eelgrass beds. The extent of the activity and potential impacts on site features are not currently well understood.

Fisheries: Commercial marine and estuarine

B.109 Bottom towed fishing gear (i.e. any fishing instrument designed to take sea fisheries resources from the seabed) has been categorised as a 'Red' for the interest features listed, specifically the seagrass beds Zostera spp, a sub-feature of the SAC, as part of Defra's revised approach to commercial fisheries management in European Marine Sites (EMS). Appropriate management measures will be implemented and enforced by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) who have put in place the 'Bottom Towed Fishing Gear Byelaw' within the SAC to prohibit the above fishing gear being used over the majority of known seagrass beds.

Fisheries: Commercial marine and estuarine

B.110 Marine fisheries carried out under private rights, or under management defined in Several or Hybrid Orders, fall outside Defra's revised approach to commercial fisheries management in EMSs. A variety of fishing gears are used in these fisheries (e.g. Hydraulic and non-hydraulic dredging and shore based activities (e.g. shellfish collection)) which may be applying pressure to site features, including abrasion of the seabed, visual disturbance, and habitat structure changes. Potential impacts need to be better understood and assessed with potential management introduced if required.

Invasive Species

B.111 The invasive Common cord-grass Spartina anglica occurs widely within this site, as well as native Small cord-grass Spartina maritima in certain locations, and the site is designated for H1320 Spartina swards. There is a need to improve understanding of the dynamics of S.anglica on the site in order to determine if changes in the species' distribution adversely affect other species and habitats, including feeding and roosting areas of SPA bird species.

Air Pollution: risk of atmospheric nitrogen deposition

B.112 Atmospheric nitrogen deposition exceeds the relevant critical loads for coastal dune habitats used by breeding terns and hence there is a risk of harmful effects. However, on the Essex estuaries declines in the numbers of breeding terns appear to be due mainly to erosion of a man-made cockle-shingle bank (at Foulness) and to disturbance (elsewhere), rather than to over-vegetation of breeding areas caused by nitrogen deposition.

Natural England conservation objectives:

B.113 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified, and subject to natural change;

B.114 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.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

Dark-bellied brent goose *Branta bernicla bernicla*

- Habitat preference: Tundra, on migration marshes & estuaries.

- Diet: Eelgrass (Zostera), also vegetation by grazing on land or shallow water.

Common pochard *Aythya farina*

- Habitat:Urban and Suburban, Marine and Intertidal, Wetland
- Diet:Plants and seeds, snails, small fish and insects.

Hen harrier *Circus cyanus*

- Habitat preference: Moor, marsh, steppe and fields.
- Diet: Mostly, small birds, nestlings and small rodents.

Grey plover *Pluvialis squatarola*

- Habitat preference: Tundra, on migration pasture & estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs.

Dunlin *Calidris alpina alpine*

- Habitat preference: undra, moor, heath, on migration estuaries & coasts.
- Diet: Invertebrates, located by sight and touch.

Black-tailed godwit *Limosa limosa islandica*

- Habitat preference: Marshy grassland & steppe, on migration mudflats.
- Diet: Invertebrates, also some plant material, located by touch and sight

Little Tern *Sterna albifrons*

- Habitat preference: nest exclusively on the coast in well-camouflaged shallow scrapes on sand and shingle beaches, spits or inshore islets.
- Diet: fish, crustacean and invertebrates.

Ringed plover *Charadrius hiaticula*

- Habitat preference: Sandy areas with low vegetation, on migration estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs.

Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site

B.115 The Essex Estuaries SIP covers the Essex Estuaries SAC and five mid-Essex coast SPAs (Blackwater Estuary, Colne Estuary, Crouch and Roach Estuaries, Dengie and Foulness). The area is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Sub-tidal areas have a rich invertebrate fauna and there are extensive intertidal mudflats and sandflats. Four different saltmarsh features of European importance are represented as well as large areas of grazing marsh. The site is one of the most important areas for overwintering waterbirds in the UK and is of international importance for several breeding bird species.

Area:

B.116 4395.15 ha.

Qualifying features:

B.117 Represents 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain.

B.118 Invertebrate fauna includes at least 16 British Red Data Book species: water beetle *Paracymus aeneus*; damselfly *Lestes dryas*; flies *Aedes flavescens*, *Erioptera bivittata*, *Hybomitra expollicata*; spiders *Heliophanus auratus* and *Trichopterna cito*; beetles *Baris scolopacea*, *Philonthus punctus*, *Graptodytes bilineatus* and *Malachius vulneratus*; flies *Campsicemus magius*, *Myopites eximia*; moths *Idaea ochrata* and *Malacosoma castrensis*; spider *Euophrys*.

B.119 Supports a full and representative sequences of saltmarsh plant communities covering the range of variation in Britain.

B.120 Supports the following internationally important wildfowl assemblage:

- Dark-bellied brent goose *Branta bernicla bernicla*.
- Grey plover *Pluvialis squatarola*.
- Dunlin *Calidris alpina alpine*.
- Black-tailed godwit *Limosa limosa islandica*.

Species identified subsequent to designation for possible future consideration under criterion 6

- Common shelduck *Tadorna tadorna*.
- European golden plover *Pluvialis apricaria apricaria*.
- Common redshank *Tringa totanus tetanus*.

Key vulnerabilities and environmental conditions to support site integrity:

B.121 As for Blackwater Estuary (Mid-Essex Coast Phase 4) SPA above.

Natural England conservation objectives:

B.122 None available.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

Common shelduck *Tadorna tadorna*

- Habitat: Marine and Intertidal, Farmland, Wetland, Grassland
- Diet:Invertebrates, small shellfish, aquatic snails.

European golden plover, *Pluvialis apricaria apricaria*;

- Habitat: Upland, Marine and Intertidal, Farmland, Heathland, Wetland, Grassland
- Diet:Worms, beetles and insects.

Common redshank *Tringa tetanus*

- Habitat preference: Rivers, wet grassland, moors & estuaries.
- Diet: Invertebrates, esp earthworms, cranefly larvae (inland) crustaceans, molluscs, marine worms (estuaries).

B.123 Please see Blackwater Estuary (Mid-Essex Coast Phase 4) SPA above for remaining species.

Essex Estuaries SAC

B.124 The Essex Estuaries SIP covers the Essex Estuaries SAC and five mid-Essex coast SPAs (Blackwater Estuary, Colne Estuary, Crouch and Roach Estuaries, Dengie and Foulness). The area is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Sub-tidal areas have a rich invertebrate fauna and there are extensive intertidal mudflats and sandflats. Four different saltmarsh features of European importance are represented as well as large areas of grazing marsh. The site is one of the most important areas for overwintering waterbirds in the UK and is of international importance for several breeding bird species.

Area:

B.125 46109.95

Qualifying features:

B.126 Annex 1 habitats that are a primary reason for selection of this site:

- Estuaries.
- Mudfalts and sandflats not covered by seawater at low tide.
- Salicornia and other animals colonising mud and sand.
- Spartina swards (*Spartinion maritimae*).
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*).
- Mediterranean and thermo-Atlantic halophilous scrubs.

B.127 Annex 1 habitats present as a qualifying feature:

B.128 Sandbanks which are slightly covered by seawater all the time.

Key vulnerabilities and environmental conditions to support site integrity:

Coastal squeeze

B.129 Coastal defences along much of the Essex coastline prevent intertidal habitats from shifting landward in response to rising sea levels. As a result, these habitats are being gradually degraded and reduced in extent, with knock-on effects on the waterbirds and other species they support. 'Managed realignment' schemes and additional intervention measures to create new areas of intertidal habitat and reduce erosion rates are being implemented but more will be needed to offset future losses. Grazing marshes in the SIP area are important for waterbirds and are also threatened by sea level rise because most are near or below mean high tide level, currently protected behind seawalls.

Public Access/Disturbance

B.130 Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities - including boating and watersports, walking, bait-digging, fishing and wildfowling - as well as low-flying aircraft. Some activities, such as powerboating, may produce physical disturbance to habitats. Moderate levels of disturbance in less sensitive locations may have no significant effect on the numbers of birds using the SIP area but the types, levels and locations of potentially disturbing activities are constantly changing. Managing the changes to minimise the risk of disturbance impacts will require a better understanding of which species and habitats are most susceptible, which types of activity are most disturbing, and which locations and times of year are most sensitive.

Fisheries: Commercial marine and estuaries

B.131 Commercial fishing activities categorised as Amber or Green under Defra's revised approach to commercial fisheries in EMSs are being assessed by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) to determine whether management is required. For activities categorised as Amber and Green these assessments should take account of any relevant in combination effects with other fishing activities. Shellfish dredging over subtidal habitats has been identified as an Amber activity and is considered a high priority for assessment and development of possible management for the site.

Planning permission: General

B.132 Several of the issues affecting the Essex Estuaries and the management of disturbance effects on the sites are related to each other, and addressing them is likely to require an improved overview of the relative sensitivities of different habitats, species and locations to different types of development (perhaps summarised as sensitivity maps and matrices for the SIP area). Difficult issues include:

(a) Assessing the cumulative effects of numerous, small and often ‘non-standard’ developments

(b) Development outside the SPA/SAC boundaries can have negative impacts, particularly on the estuaries’ birds

(c) Assessing the indirect, ‘knock-on’ effects of proposals

(d) Pressure to relax planning conditions on existing developments.

Changes in species distributions

B.133 Declines in the numbers of some of the waterbird species using the Essex Estuaries SIP area may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. For example, milder winters may be allowing birds to overwinter closer to their northern breeding grounds, or changes on the breeding grounds may be reducing breeding success. When assessing SPA condition, distinguishing these types of large-scale effect from effects produced by changes within the site itself is important.

Invasive species

B.134 An increase in Pacific oyster Crassostrea gigas settlement and colonisation within the European Marine Site (EMS) may result in areas of foreshore being covered in such numbers as to make them difficult to access and utilise as feeding grounds for overwintering birds. The importance of Pacific oysters for the local shellfish industry is recognised, however we would not like to see an overall increase in the extent of foreshore across the EMS populated by Pacific oysters. Other non-native invasive species such as the American whelk tingle *Urosalpinx cinerea* and Slipper limpet *Crepidula fornicata* are known to occupy subtidal muddy habitats, potentially impacting native communities through competition for resources and predation.

Fisheries: Recreational marine and estuarine

B.135 Recreational bait digging may impact waterbirds by reducing prey availability and creating disturbance in intertidal feeding areas. It could also damage the intertidal mudflats and sandflats and associated sub-features and communities, such as eelgrass beds. The extent of the activity and potential impacts on site features are not currently well understood.

Fisheries: Commercial marine and estuarine

B.136 Bottom towed fishing gear (i.e. any fishing instrument designed to take sea fisheries resources from the seabed) has been categorised as a 'Red' for the interest features listed, specifically the seagrass beds Zostera spp, a sub-feature of the SAC, as part of Defra's revised approach to commercial fisheries management in European Marine Sites (EMS). Appropriate management measures will be implemented and enforced by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) who have put in place the 'Bottom Towed Fishing Gear Byelaw' within the SAC to prohibit the above fishing gear being used over the majority of known seagrass beds.

Fisheries: Commercial marine and estuarine

B.137 Marine fisheries carried out under private rights, or under management defined in Several or Hybrid Orders, fall outside Defra's revised approach to commercial fisheries management in EMSs. A variety of fishing gears are used in these fisheries (e.g. Hydraulic and non hydraulic dredging and shore based activities (e.g. shellfish collection)) which may be applying pressure to site features, including abrasion of the seabed, visual disturbance, and habitat structure changes. Potential impacts need to be better understood and assessed with potential management introduced if required.

Invasive Species

B.138 The invasive Common cord-grass *Spartina anglica* occurs widely within this site, as well as native Small cord-grass Spartina maritima in certain locations, and the site is designated for H1320 Spartina swards. There is a need to improve understanding of the dynamics of S.anglica on the site in order to determine if changes in the species' distribution adversely affect other species and habitats, including feeding and roosting areas of SPA bird species.

Air Pollution: risk of atmospheric nitrogen deposition

B.139 Atmospheric nitrogen deposition exceeds the relevant critical loads for coastal dune habitats used by breeding terns and hence there is a risk of harmful effects. However, on the Essex estuaries declines in the numbers of breeding terns appear to be due mainly to erosion of a man-made cockle-shingle bank (at Foulness) and to disturbance (elsewhere), rather than to over-vegetation of breeding areas caused by nitrogen deposition.

Natural England conservation objectives:

B.140 With regard to the SAC and the natural habitats and/or species for which the site has been designated, and subject to natural change; ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats.
- The structure and function (including typical species) of qualifying natural habitats.
- The supporting processes on which qualifying natural habitats rely.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

B.141 The following has been identified in the supplementary advice **[See reference** 45**]**.

B.142 The qualifying habitats of the SAC are reliant a range of coastal factors, including salinity, sedimentation, tide, sea level, turbidity and elevation, which influence the interdependent intertidal, subtidal and terrestrial habitats. These

factors influence the complex interdependent intertidal, subtidal and terrestrial habitats present along the coast.

B.143 Additional factors are provided below for each habitat (where relevant).

- Sandbanks which are slightly covered by seawater all the time.
- Reef-building species such as *Sabellaria spinulosa* help to stabilise the sediment, allowing the colonisation of sessile animals.

Abberton Reservoir SPA

B.144 Abberton Reservoir is a large water storage reservoir close to the Essex coast. It is one of the most important reservoirs in the country for overwintering waterfowl and also supports substantial aggregations of moulting birds in early autumn and a large colony of tree-nesting cormorants. Causeways divide the reservoir into three sections. Currently the water level of the main, eastern section is being raised by 3 metres to increase storage capacity. As part of the level-raising scheme, the original concrete banks have been removed and the shoreline re-profiled, creating extensive new areas of shallow wetland habitat for the site's waterfowl.

Area:

B.145 718.31 ha

Qualifying features:

B.146 Supports the following internationally important waterbird assemblage:

- Great crested grebe *Podiceps cristatus* (wintering).
- Great cormorant *Phalacrocorax carbo* (reproducing).
- Mute swan *Cygnus olor* (wintering).
- Eurasian wigeon *Anas Penelope* (wintering).
- Gadwall *Anas strepera* (wintering).
- Eurasian teal *Anas crecca* (wintering).
- Northern shoveler *Anas clypeata* (wintering).
- Common pochard *Aythya ferina* (wintering).
- Tufted duck *Aythya fuligula* (wintering).

- Common goldeneye *Bucephala clangula* (wintering).
- Common coot *Fulica atra* (wintering).

Key vulnerabilities and environmental conditions to support site integrity:

Siltation

B.147 Silt entering the reservoir via Layer Brook is gradually accumulating in the western and central sections. This increases water turbidity and reduces light penetration, limiting the growth of the submerged aquatic plants on which the reservoir's fauna – including many of the waterbirds – largely depends. Siltation also reduces the water depth and increases the already high nutrient load. Now that concrete banks have been removed as part of the water-level raising scheme, siltation in the eastern section might also increase as a result of wave action until the earth banks have become vegetated. Essex and Suffolk Water is monitoring water quality, aquatic vegetation and bird numbers and carrying out a programme of work to accelerate vegetation colonisation of the new earth banks.

Public access/disturbance

B.148 Human disturbance to feeding and resting waterbirds reduces their energy intake and increases energy expenditure. This can be critical if the birds are already stressed by severe weather or other factors. Disturbance at ground level is well controlled by Essex & Suffolk Water, though there is occasional trespassing. Disturbance from the air by low-flying civilian and military aircraft occurs several times each year and is more difficult to manage.

Planning Permission: general

B.149 The reservoir's waterbirds often fly over surrounding farmland on their way to and from the nearby Blackwater and Colne estuaries. Some species also use the surrounding fields for feeding. Inappropriate development in the vicinity could therefore have adverse effects on them. Planning legislation and the Habitats Regulations provide regulatory mechanisms but for some new types of development, published data from well-designed impact studies at comparable sites appears to be limited.

Changes in species distributions

B.150 The reservoir's breeding colony of tree-nesting cormorants has declined from a peak of over 500 pairs in the mid-1990s to about 160 pairs in 2010. Reasons for the decline are unknown. Possibilities include a reduction in suitable nest sites, predation (possibly linked to lower water levels in the central section), cormorant control measures at fisheries, or a decline in summer food supply within foraging distance of the colony.

Bird strike

B.151 Mute swans, and possibly other species, have been killed as a result of colliding with overhead power lines near the reservoir.

Water pollution

B.152 Water stored in the reservoir is high in nutrients (eutrophic) as it comes from intensively farmed catchment areas. As a result, algal blooms are regular in summer. In some years these may include toxic blue-green algae that can kill wildfowl, though no significant mortality has been recorded.

Air Pollution: risk of atmospheric nitrogen deposition

B.153 The site is identified as at risk from air pollution as Nitrogen deposition levels exceed the site-relevant critical load for ecosystem protection. However the site's Nitrogen load is likely to be dominated by levels in the water entering the reservoir (mainly from the distant Ouse catchment) rather than direct deposition.

Natural England conservation objectives:

B.154 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified, and subject to natural change;

B.155 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.
- The distribution of the qualifying features within the site.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

Great crested grebe *Podiceps cristatus*

- Habitat: Urban and Suburban, Marine and Intertidal, Wetland

- Diet: Mainly fish

Great cormorant *Phalacrocorax carbo*

- Habitat:Urban and Suburban, Marine and Intertidal, Wetland
- Diet: fish

Mute swan *Cygnus olor*

- Habitat:Urban and Suburban, Marine and Intertidal, Farmland, Wetland, Grassland
- Diet:Water plants, insects and snails.

Eurasian wigeon *Anas Penelope*

- Habitat:Marine and Intertidal, Wetland, Grassland
- Diet:Aquatic plants, grasses, roots.

Gadwall *Anas strepera*

- Habitat preference: Marshes, lakes, on migration also rivers, estuaries.
- Diet: Leaves, shoots, mostly while swimming with head under water.

Eurasian teal *Anas crecca*

- Habitat preference: Lakes, marshes, ponds & shallow streams.
- Diet: Omnivorous, mostly seeds in winter, feeds mostly at night in shallow water.

Northern shoveler *Anas clypeata*

- Habitat preference: Shallow lakes, marsh, reedbed & wet meadow.
- Diet: Omnivorous, esp. small insects, crustaceans, molluscs, seeds; filters particles with sideways sweeping of bill.

Common pochard *Aythya farina*

- Habitat:Urban and Suburban, Marine and Intertidal, Wetland
- Diet:Plants and seeds, snails, small fish and insects.

Tufted duck *Aythya fuligula*

- Habitat:Urban and Suburban, Marine and Intertidal, Wetland
- Diet:Molluscs, insects and some plants.

Common goldeneye *Bucephala clangula*

- Habitat:Marine and Intertidal, Wetland
- Diet:Mussels, insect larvae, small fish and plants

Common coot *Fulica atra*

- Habitat:Urban and Suburban, Marine and Intertidal, Wetland, Grassland
- Diet:Vegetation, seeds, snails and insect larvae.

Abberton Reservoir Ramsar site

B.156 Abberton Reservoir is a large water storage reservoir close to the Essex coast. It is one of the most important reservoirs in the country for overwintering waterfowl and also supports substantial aggregations of moulting birds in early autumn and a large colony of tree-nesting cormorants. Causeways divide the reservoir into three sections. Currently the water level of the main, eastern section is being raised by 3 metres to increase storage capacity. As part of the level-raising scheme, the original concrete banks have been removed and the shoreline re-profiled, creating extensive new areas of shallow wetland habitat for the site's waterfowl.

Area:

B.157 726.2 ha.

Qualifying features:

B.158 Supports 23787 waterfowl (5 year peak mean 1998/99-2002/2003), including the following internationally important waterbird assemblage:

- Gadwall *Anas strepera strepera*.
- Northern shoveler *Anas clypeata*.
- Eurasian wigeon *Anas Penelope*.

B.159 Species/populations identified subsequent to designation for possible future consideration under criterion 6

- Mute swan *Cygnus olor*.
- Common pochard *Aythya farina*.

Key vulnerabilities and environmental conditions to support site integrity:

B.160 As for Abberton Reservoir SPA above.

Natural England conservation objectives:

B.161 None available.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

B.162 Please see Abberton Reservoir SPA above.

Colne Estuary (Mid-Essex Coast Phase 2) SPA

B.163 The Essex Estuaries SIP covers the Essex Estuaries SAC and five mid-Essex coast SPAs (Blackwater Estuary, Colne Estuary, Crouch and Roach Estuaries, Dengie and Foulness). The area is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Sub-tidal areas have a rich invertebrate fauna and there are extensive intertidal mudflats and sandflats. Four different saltmarsh features of European importance are represented as well as large areas of grazing marsh. The site is one of the most important areas for overwintering waterbirds in the UK and is of international importance for several breeding bird species.

Area:

B.164 2701.43 ha.

Qualifying features:

- Common pochard *Aythya ferina* (reproducing).
- Brent Goose *Branta bernicla bernicla* (wintering).
- Common ringed plover *Charadrius hiaticula* (reproducing).
- Hen Harrier *Circus cyaneus* (wintering).
- Little Tern *Sterna albifrons* (reproducing).
- Common redshank *tringa totanus* (wintering).

Key vulnerabilities and environmental conditions to support site integrity:

Coastal squeeze

B.165 Coastal defences along much of the Essex coastline prevent intertidal habitats from shifting landward in response to rising sea levels. As a result, these habitats are being gradually degraded and reduced in extent, with knock-on effects on the waterbirds and other species they support. 'Managed realignment' schemes and additional intervention measures to create new areas of intertidal habitat and reduce erosion rates are being implemented but more will be needed to offset future losses. Grazing marshes in the SIP area are important for waterbirds and are also threatened by sea level rise because most are near or below mean high tide level, currently protected behind seawalls.

Public Access/Disturbance

B.166 Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities - including boating and watersports, walking, bait-digging, fishing and wildfowling - as well as low-flying aircraft. Some activities, such as powerboating, may produce physical disturbance to habitats. Moderate levels of disturbance in less sensitive locations may have no significant effect on the numbers of birds using the SIP area but the types, levels and locations of potentially disturbing activities are constantly changing. Managing the changes to minimise the risk of disturbance impacts will require a better understanding of which species and habitats are most susceptible, which types of activity are most disturbing, and which locations and times of year are most sensitive.

Fisheries: Commercial marine and estuaries

B.167 Commercial fishing activities categorised as Amber or Green under Defra's revised approach to commercial fisheries in EMSs are being assessed by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) to determine whether management is required. For activities categorised as Amber and Green these assessments should take account of any relevant in combination effects with other fishing activities. Shellfish dredging over subtidal habitats has been identified as an Amber activity and is considered a high priority for assessment and development of possible management for the site.

Planning permission: General

B.168 Several of the issues affecting the Essex Estuaries and the management of disturbance effects on the sites are related to each other, and addressing them is likely to require an improved overview of the relative sensitivities of different habitats, species and locations to different types of development (perhaps summarised as sensitivity maps and matrices for the SIP area). Difficult issues include:

(a) Assessing the cumulative effects of numerous, small and often ‘non-standard’ developments

(b) Development outside the SPA/SAC boundaries can have negative impacts, particularly on the estuaries’ birds

(c) Assessing the indirect, ‘knock-on’ effects of proposals

(d) Pressure to relax planning conditions on existing developments.

Changes in species distributions

B.169 Declines in the numbers of some of the waterbird species using the Essex Estuaries SIP area may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. For example, milder winters may be allowing birds to overwinter closer to their northern breeding grounds, or changes on the breeding grounds may be reducing breeding success. When assessing SPA condition, distinguishing these types of large-scale effect from effects produced by changes within the site itself is important.

Invasive species

B.170 An increase in Pacific oyster Crassostrea gigas settlement and colonisation within the European Marine Site (EMS) may result in areas of foreshore being covered in such numbers as to make them difficult to access and utilise as feeding grounds for overwintering birds. The importance of Pacific oysters for the local shellfish industry is recognised, however we would not like to see an overall increase in the extent of foreshore across the EMS populated by Pacific oysters. Other non-native invasive species such as the American whelk tingle *Urosalpinx cinerea* and Slipper limpet *Crepidula fornicata* are known to occupy subtidal muddy habitats, potentially impacting native communities through competition for resources and predation.

Fisheries: Recreational marine and estuarine

B.171 Recreational bait digging may impact waterbirds by reducing prey availability and creating disturbance in intertidal feeding areas. It could also damage the intertidal mudflats and sandflats and associated sub-features and communities, such as eelgrass beds. The extent of the activity and potential impacts on site features are not currently well understood.

Fisheries: Commercial marine and estuarine

B.172 Bottom towed fishing gear (i.e. any fishing instrument designed to take sea fisheries resources from the seabed) has been categorised as a 'Red' for the interest features listed, specifically the seagrass beds Zostera spp, a sub-feature of the SAC, as part of Defra's revised approach to commercial fisheries management in European Marine Sites (EMS). Appropriate management measures will be implemented and enforced by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) who have put in place the 'Bottom Towed Fishing Gear Byelaw' within the SAC to prohibit the above fishing gear being used over the majority of known seagrass beds.

Fisheries: Commercial marine and estuarine

B.173 Marine fisheries carried out under private rights, or under management defined in Several or Hybrid Orders, fall outside Defra's revised approach to commercial fisheries management in EMSs. A variety of fishing gears are used in these fisheries (e.g. Hydraulic and non-hydraulic dredging and shore based activities (e.g. shellfish collection)) which may be applying pressure to site features, including abrasion of the seabed, visual disturbance, and habitat structure changes. Potential impacts need to be better understood and assessed with potential management introduced if required.

Invasive Species

B.174 The invasive Common cord-grass Spartina anglica occurs widely within this site, as well as native Small cord-grass Spartina maritima in certain locations, and the site is designated for H1320 Spartina swards. There is a need to improve understanding of the dynamics of S.anglica on the site in order to determine if changes in the species' distribution adversely affect other species and habitats, including feeding and roosting areas of SPA bird species.

Air Pollution: risk of atmospheric nitrogen deposition

B.175 Atmospheric nitrogen deposition exceeds the relevant critical loads for coastal dune habitats used by breeding terns and hence there is a risk of harmful effects. However, on the Essex estuaries declines in the numbers of breeding terns appear to be due mainly to erosion of a man-made cockle-shingle bank (at Foulness) and to disturbance (elsewhere), rather than to over-vegetation of breeding areas caused by nitrogen deposition.

Natural England conservation objectives:

B.176 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified, and subject to natural change;

B.177 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.
- The distribution of the qualifying features within the site.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

B.178 Common pochard *Aythya farina*

- Habitat:Urban and Suburban, Marine and Intertidal, Wetland

- Diet:Plants and seeds, snails, small fish and insects.

B.179 Dark-bellied brent goose *Branta bernicla bernicla*

- Habitat preference: Tundra, on migration marshes & estuaries.
- Diet: Eelgrass (Zostera), also vegetation by grazing on land or shallow water.

B.180 Ringed plover *Charadrius hiaticula*

- Habitat preference: Sandy areas with low vegetation, on migration estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs.

B.181 Hen harrier *Circus cyanus*

- Habitat preference: Moor, marsh, steppe and fields.
- Diet: Mostly, small birds, nestlings and small rodents.

B.182 Little Tern *Sterna albifrons*

- Habitat preference: nest exclusively on the coast in well-camouflaged shallow scrapes on sand and shingle beaches, spits or inshore islets.
- Diet: fish, crustacean and invertebrates.

B.183 Common redshank *Tringa totanus*

- Habitat preference: Rivers, wet grassland, moors & estuaries.
- Diet: Invertebrates, esp earthworms, cranefly larvae (inland) crustaceans, molluscs, marine worms (estuaries).

Colne Estuary (Mid-Essex Coast Phase 2) Ramsar site

B.184 The Essex Estuaries SIP covers the Essex Estuaries SAC and five mid-Essex coast SPAs (Blackwater Estuary, Colne Estuary, Crouch and Roach Estuaries, Dengie and Foulness). The area is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Sub-tidal areas have a rich invertebrate fauna and there are extensive intertidal mudflats and sandflats. Four different saltmarsh features of European importance are represented as well as large areas of grazing marsh. The site is one of the most important areas for overwintering waterbirds in the UK and is of international importance for several breeding bird species.

Area:

B.185 2701.43 ha.

Qualifying features:

B.186 The site is important due to the extent and diversity of saltmarsh present.

B.187 The site supports 12 species of nationally scarce plants and at least 38 British Red Data Book invertebrate species.

B.188 This site supports a full and representative sequences of saltmarsh plant communities covering the range of variation in Britain.

B.189 Qualifying Species/populations (as identified at designation):

- Dark-bellied brent goose *Branta bernicla bernicla.*

- Common redshank *Tringa totanus totanus.*

B.190 Species/populations identified subsequent to designation for possible future consideration under criterion 6:

- Black-tailed godwit *Limosa limosa islandica*.

Key vulnerabilities and environmental conditions to support site integrity:

B.191 As for Colne Estuary (Mid-Essex Coast Phase 2) SPA above.

Natural England conservation objectives:

B.192 None available.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

Black-tailed godwit *Limosa limosa islandica*

- Habitat preference: Marshy grassland & steppe, on migration mudflats.
- Diet: Invertebrates, also some plant material, located by touch and sight

B.193 Please see Colne Estuary (Mid-Essex Coast Phase 2) SPA above for remaining bird species.

Outer Thames Estuary SPA

B.194 The Outer Thames Estuary Special Protection Area was designated to protect the red-throated diver Gavia stellata population and its supporting habitats (subtidal sands) in favourable condition. The main part of the site is the outer part of the estuary (east of a line north from Sheerness, Kent to Shoebury Ness, Essex); a separate area extending south along the coast of E Norfolk (from Caister-on-Sea) to Woodbridge, Suffolk and lying mainly within the 12 nautical mile zone, except for two small areas which extend slightly into the 12 nm zone offshore from about Lowestoft; and a third area lying slightly further north and partly within 12 nm, but also with a larger area extending well beyond the 12 nm zone).

Area:

B.195 393,612 ha.

Qualifying features:

B.196 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them include:

- Red throated loon *Gavia stellata* (wintering).
- Little tern *Sterna albifrons* (reproducing).
- Common tern *Sterna hirundo* (reproducing).

Key vulnerabilities and environmental conditions to support site integrity:

Fisheries: Commercial marine and estuarine

B.197 Commercial fishing activities categorised as 'amber or green' under Defra's revised approach to commercial fisheries in European Marine Sites (EMS) require assessment and (where appropriate) management. This assessment will be undertaken by the Eastern IFCA and the Kent & Essex IFCA, and the Marine Management Organisation. For activities categorised as 'green', these assessments should take account of any in-combination effects of amber activities, and/or appropriate plans or projects, in the site. The gear types being assessed are towed demersal gear and dredges, and suction dredges for cockles as well as static/passive fishing gear methods such as set gillnets and drift netting represent potentially the most serious direct risk from fishing activity to the birds themselves. Disturbance and displacement effects may arise from boat movements associated with fishing activities. Removal of fish and larger molluscs can have a significant impact on the structure and functioning of benthic communities. Entanglement in static fishing nets is an important cause of death for red-throated divers in the UK waters. Netting is widespread across the sandbanks but is seasonal and occurs primarily when the Red-throated diver population is not at its peak. The scale of by-catch within the site has been assessed by the Kent & Essex IFCA, and was not found to be problematic and so can be deemed to be low-risk.

Natural England conservation objectives:

B.198 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

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

Red throated loon *Gavia stellata*

- Habitat: Marine and Intertidal, Wetland
- Diet:Fish

Little Tern *Sterna albifrons*

- Habitat preference: nest exclusively on the coast in well-camouflaged shallow scrapes on sand and shingle beaches, spits or inshore islets.
- Diet: fish, crustacean and invertebrates.

Common Tern *Sterna hirundo*

- Habitat preference: shallow water, along coasts, at freshwater inland lakes and in estuaries.
- Diet: mainly eat fish, but also consume shrimps and other crustaceans, small squid, marine worms, and leeches.

Stour and Orwell Estuaries SPA

B.199 The Stour and Orwell estuaries straddle the eastern part of the Essex/Suffolk border. The estuaries include extensive mud-flats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. The site also includes areas of low-lying grazing marsh at Shotley Marshes on the south side of the Orwell and at Cattawade Marshes at the head of the Stour. In summer, the site supports important numbers of breeding Avocet Recurvirostra avosetta, while in winter it holds major concentrations of waterbirds, especially geese, ducks and waders.

Area:

B.200 3667.37 ha.

Qualifying features:

B.201 Species referred to in Article 4 of the Directive 2009/147/EX and listed in Annex II of Directive 92/43EEC include

- Northern pintail *Anas acuta* (wintering).
- Eurasian wigeon *Anas Penelope* (wintering).
- Gadwall *Anas strepera* (wintering).
- Ruddy Turnstone *Arenaria interpres* (wintering).
- Greater Scaup *Athya marila* (wintering).
- Dark-bellied Brent Goose *Branta bernicla bernicla* (wintering).
- Common goldeneye *Bucephala clangula* (wintering).
- Dunlin *Calidris alpina alpina* (wintering).
- Red knot, *Calidris canutus* (wintering).

- Common ringed plover *Charadrius hiaticula* (wintering and concentration).
- Mute swan *Cygnus olor* (wintering).
- Black-tailed godwit *limosa limosa islandica* (wintering).
- Eurasian curlew *Numenius arquata* (wintering).
- Cormorant *Phalacrocorax carbo* (wintering).
- European Golden Plover *pluvialis apricaria* (wintering).
- Grey Plover *Pluvialis squatarola* (wintering).
- Great Crested Grebe *Podiceps cristatus* (wintering).
- Pied avocet *Recurvirostra avosetta* (breeding).
- Shelduck, *Tadorna tadorna* (wintering).
- Redshank *Tringa totanus* (concentration and wintering).
- Lapwing *Vanellus vanellus* (wintering).

Key vulnerabilities and environmental conditions to support site integrity:

Coastal squeeze

B.202 Coastal defences exist along much of the Orwell coastline. Sea level rise is also occurring. It is therefore certain, that if circumstances do not change, much of the supporting habitats of the SPA birds will be lost/degraded through processes such as coastal squeeze; sedimentation rates inability to keep pace with sea level rise; and reduced exposure (extent and duration) of mudflats/sandflats. Seawalls afford little scope for natural adaption to sea level rise.

Public access/disturbance

B.203 Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities, including: boating and watersports; walking; bait-digging; fishing; wildfowling, and military overflight training. Some activities, such as powerboating, may produce physical disturbance to habitats. Moderate levels of disturbance in less sensitive locations may have no significant effect on the numbers of birds using the SIP area but the types, levels and locations of potentially disturbing activities are constantly changing. A better understanding will be required of: which species and habitats are most susceptible; which types of activity are most disturbing; and which locations and times of year are most sensitive in order to manage change, with intervention as necessary in order to minimise the risks of disturbance impacts.

Changes in species distributions

B.204 Numbers of some species of birds are declining on the Stour and Orwell Estuaries. This may be related to international changes in distribution and/or population levels related to climate change. This includes climatic variables and habitat quality issues at breeding grounds outside of the UK.

Invasive species

B.205 The growth in Spartina anglica may be impacting on Spartina maritima (part of the supporting habitat feature), adversely impacting on bird roosting and feeding areas of saltmarsh and mudflat.

Planning Permission: general

B.206 Several of the issues affecting the Stour and Orwell Estuaries and the management of disturbance effects on the sites are related to each other. Addressing them is likely to require an improved overview of the relative sensitivities of different habitats, species and locations to different types of development (perhaps summarised as sensitivity maps and matrices for the SIP area). Difficult issues include; a) Assessing the cumulative effects of numerous, small and often 'non-standard' developments. b) Development outside the SPA boundary can have negative impacts, particularly on the estuaries' birds. c) Assessing the indirect, 'knock-on' effects of proposals. d) Pressure to relax planning conditions on existing developments.

Air Pollution: impact of atmospheric nitrogen deposition

B.207 Nitrogen deposition exceeds the site-relevant critical load for ecosystem protection and hence there is a risk of harmful effects, but the sensitive features are currently considered to be in favourable condition on the site. This requires further investigation.

Inappropriate coastal management

B.208 Freshwater habitat areas behind failing seawall walls could be inundated by seawater which would remove this habitat from the site

Fisheries: Commercial marine and estuarine

B.209 Commercial fishing activities categorised as ‘amber or green’ under Defra’s revised approach to commercial fisheries in European Marine Sites (EMS) require assessment and (where appropriate) management. This

assessment will be undertaken by Kent & Essex IFCA and Eastern IFCA. For activities categorised as 'green', these assessments should take account of any in-combination effects of amber activities, and/or appropriate plans or projects, in the site.

Natural England conservation objectives:

B.210 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified, and subject to natural change;

B.211 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.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

Northern pintail *Anas acuta*

- Habitat preference: Lakes, rivers, marsh & tundra.
- Diet: Omnivorous, feeds on mud bottom at depths of 10-30cm.

Eurasian wigeon *Anas Penelope*

- Habitat: Marine and Intertidal, Wetland, Grassland
- Diet: Aquatic plants, grasses, roots.

Gadwall *Anas strepera*

- Habitat: Marine and Intertidal, Wetland, Grassland
- Diet: Stems, leaves and seeds.

Ruddy turnstone *Arenaria interpres*

- Habitat: Marine and Intertidal, Wetland
- Diet: Insects, crustaceans and molluscs

Greater Scaup *Athya marila*

- Habitat: Marine and Intertidal, Wetland
- Diet: Shellfish, crustacea and small insects.

Dark-bellied brent goose *Branta bernicla bernicla*

- Habitat preference: Tundra, on migration marshes & estuaries.
- Diet: Eelgrass (Zostera), also vegetation by grazing on land or shallow water.

Common goldeneye *Bucephala clangula*

- Habitat: Marine and Intertidal, Wetland
- Diet: Mussels, insect larvae, small fish and plants

Dunlin *Calidris alpina alpine*

- Habitat preference: Tundra, moor, heath, on migration estuaries & coasts.
- Diet: Invertebrates, located by sight and touch.

Red knot *Calidris canutus*

- Habitat preference: Marine and Intertidal, Wetland
- Diet: Shellfish and worms

Ringed plover *Charadrius hiaticula*

- Habitat preference: Sandy areas with low vegetation, on migration estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and mollusc.

Mute swan *Cygnus olor*

- Habitat: Urban and Suburban, Marine and Intertidal, Farmland, Wetland, Grassland
- Diet: Water plants, insects and snails.

Black-tailed godwit *Limosa limosa islandica*

- Habitat preference: Marshy grassland & steppe, on migration mudflats.
- Diet: Invertebrates, also some plant material, located by touch and sight

Eurasian curlew *Numenius arquata*

- Habitat preference: Marsh, grassland, on migration mudflats.
- Diet: Omnivorous, though principally invertebrates located by touch.

Great cormorant *Phalacrocorax carbo*

- Habitat: Urban and Suburban, Marine and Intertidal, Wetland
- Diet: fish

European golden plover *Pluvialis apricaria apricaria*

- Habitat: Upland, Marine and Intertidal, Farmland, Heathland, Wetland, Grassland
- Diet: Worms, beetles and insects.

Grey plover *Pluvialis squatarola*

- Habitat preference: Tundra, on migration pasture & estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs.

Great crested grebe *Podiceps cristatus*

- Habitat: Urban and Suburban, Marine and Intertidal, Wetland
- Diet: Mainly fish

Pied avocet *Recurvirostra avosett*

- Habitat preference: Marine and Intertidal, Wetland, Grassland
- Diet: Aquatic insects and their larvae, crustaceans and worms.

Common shelduck *Tadorna tadorna*

- Habitat: Marine and Intertidal, Farmland, Wetland, Grassland
- Diet: Invertebrates, small shellfish, aquatic snails.

Common redshank *Tringa totanus*

- Habitat preference: Rivers, wet grassland, moors & estuaries.
- Diet: Invertebrates, esp earthworms, cranefly larvae (inland) crustaceans, molluscs, marine worms (estuaries).

Northern lapwing *Vanellus vanellus*

- Habitat: Upland, Marine and Intertidal, Farmland, Wetland, Grassland

- Diet: Worms and insects.

Stour and Orwell Estuaries Ramsar site

B.212 The Stour and Orwell estuaries straddle the eastern part of the Essex/Suffolk border. The estuaries include extensive mud-flats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. The site also includes areas of low-lying grazing marsh at Shotley Marshes on the south side of the Orwell and at Cattawade Marshes at the head of the Stour. In summer, the site supports important numbers of breeding Avocet Recurvirostra avosetta, while in winter it holds major concentrations of waterbirds, especially geese, ducks and waders.

Area:

B.213 3676.92 ha.

Qualifying features:

B.214 Contains seven nationally scarce plants: stiff saltmarsh-grass *Puccinellia rupestris*; small cord-grass *Spartina maritima*; perennial glasswort *Sarcocornia perennis*; lax-flowered sea lavender *Limonium humile*; and the eelgrasses *Zostera angustifolia*, Z. *marina* and Z. *noltei*.

B.215 Contains five British Red Data Book invertebrates: the muscid fly *Phaonia fusca*; the horsefly *Haematopota grandis*; two spiders, *Arctosa fulvolineata* and *Baryphema duffeyi*; and the Endangered swollen spire snail *Mercuria confusa*.

B.216 Qualifying Species/populations (as identified at designation):

- Common redshank *Tringa totanus totanus*.
- Dark-bellied brent goose *Branta bernicla bernicla*.
- Northern pintail *Anas acuta*.

- Grey plover *Pluvialis squatarola*.
- Red knot *Calidris canutus islandica*.
- Dunlin *Calidris aplpina alpina*.
- Black-tailed godwit *Limosa limosa islandica*.
- Common redshank *Tringa totanus totanus*.

Key vulnerabilities and environmental conditions to support site integrity:

B.217 As for Stour and Orwell Estuaries SPA above.

Natural England conservation objectives:

B.218 None available.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

B.219 Information below on plants was sourced from the Online Plant Atlas 2020.

Stiff saltmarsh grass *Puccinellia rupestris*

- An annual or biennial grass of bare saline soils above the tidal limit, behind sea-walls, on tracks and in grazing marshes around cattle-trodden pools and depressions, and sometimes on firm muddy shingle and in rock crevices. P. rupestris occurs rarely inland by saline springs and salt-treated roads. Lowland.

Small Cord-grass *Spartina maritima*

- A perennial grass of tidal mud-flats, generally at higher elevations than S. anglica, such as in saltmarsh creeks and pans, and on bare ground behind sea-walls. It rarely sets seed in Britain, relying instead on vegetative spread by means of extensively creeping rhizomes. Lowland.

Perennial glasswort *Sarcocornia perennis*

- A woody perennial subshrub of saltmarshes, especially in bare or sparsely vegetated areas on firm, muddy sand and gravel. S. perennis occurs on eroding lower parts of saltmarshes, at higher elevations on saltmarsh drift-lines and on shell and shingle banks; sometimes also on bare ground behind sea-walls. Lowland.

Lax-flowered Sea-lavender *Limonium humile*

- A perennial herb of ungrazed or lightly grazed muddy estuarine saltmarshes, often growing in close proximity to its more common relative, L. vulgare, but replacing it in some areas, most notably in Ireland. It rarely occurs on rocky cliffs. Lowland.

Eelgrass *Zostera marina*

- A rhizomatous perennial of tidal mudflats, in estuaries and coastal lagoons and in the subtidal zone, on substrates of gravel, sand, sandy mud and mud. It is usually found below the half-tide mark and descends to depths of about 4 metres. Plants with narrower leaves, often found in shallower, more turbid water in the upper parts of the tidal range, were formerly treated as Z. angustifolia and mapped as such in the 2002 Atlas but are now regarded as conspecific with Z. marina. Lowland.

Dwarf Eelgrass *Zosetra noltei*

- Although a coastal species, this rhizomatous perennial is found at higher levels of the shore than Z. marina. It grows in the inter-tidal zone in sheltered estuaries, bays and harbours, where it is found on mixed substrates of sand and mud. Plants are often concentrated in pools or

runnels on the shore. Compared with other European seagrasses, it is a small, rapidly growing species producing shoots with a short lifespan and small fruits; it is thus well adapted to withstand disturbance and to respond to improving environmental conditions (Borum et al., 2004). Lowland.

Dengie SPA

B.220 The Essex Estuaries SIP covers the Essex Estuaries SAC and five mid-Essex coast SPAs (Blackwater Estuary, Colne Estuary, Crouch and Roach Estuaries, Dengie and Foulness). The area is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Sub-tidal areas have a rich invertebrate fauna and there are extensive intertidal mudflats and sandflats. Four different saltmarsh features of European importance are represented as well as large areas of grazing marsh. The site is one of the most important areas for overwintering waterbirds in the UK and is of international importance for several breeding bird species.

Area

- 3133.94ha

Qualifying features

- Dark-bellied Brent Goose *Branta bernicla*
- Knot *Calidris canutis*
- Hen Harrier *Circus cyaneus*
- Grey Plover *Pluvialis squatarola*

Key vulnerabilities and environmental conditions to support site integrity

Coastal squeeze

B.221 Coastal defences along much of the Essex coastline prevent intertidal habitats from shifting landward in response to rising sea levels. As a result, these habitats are being gradually degraded and reduced in extent, with knock-on effects on the waterbirds and other species they support. 'Managed realignment' schemes and additional intervention measures to create new areas of intertidal habitat and reduce erosion rates are being implemented but more will be needed to offset future losses. Grazing marshes in the SIP area are important for waterbirds and are also threatened by sea level rise because most are near or below mean high tide level, currently protected behind seawalls.

Public Access/Disturbance

B.222 Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities - including boating and watersports, walking, bait-digging, fishing and wildfowling - as well as low-flying aircraft. Some activities, such as powerboating, may produce physical disturbance to habitats. Moderate levels of disturbance in less sensitive locations may have no significant effect on the numbers of birds using the SIP area but the types, levels and locations of potentially disturbing activities are constantly changing. Managing the changes to minimise the risk of disturbance impacts will require a better understanding of which species and habitats are most susceptible, which types of activity are most disturbing, and which locations and times of year are most sensitive.

Fisheries: Commercial marine and estuaries

B.223 Commercial fishing activities categorised as Amber or Green under Defra's revised approach to commercial fisheries in EMSs are being assessed by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) to determine whether management is required. For activities categorised as Amber and Green these assessments should take account of any relevant in combination effects with other fishing activities. Shellfish dredging over subtidal habitats has been identified as an Amber activity and is considered a high priority for assessment and development of possible management for the site.

Planning permission: General

B.224 Several of the issues affecting the Essex Estuaries and the management of disturbance effects on the sites are related to each other, and addressing them is likely to require an improved overview of the relative sensitivities of different habitats, species and locations to different types of development (perhaps summarised as sensitivity maps and matrices for the SIP area). Difficult issues include:

(a) Assessing the cumulative effects of numerous, small and often ‘non-standard’ developments

(b) Development outside the SPA/SAC boundaries can have negative impacts, particularly on the estuaries’ birds

(c) Assessing the indirect, ‘knock-on’ effects of proposals

(d) Pressure to relax planning conditions on existing developments.

Changes in species distributions

B.225 Declines in the numbers of some of the waterbird species using the Essex Estuaries SIP area may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. For example, milder winters may be allowing birds to overwinter closer to their northern breeding grounds, or changes on the breeding grounds may be reducing breeding success. When assessing SPA condition, distinguishing these types of large-scale effect from effects produced by changes within the site itself is important.

Invasive species

B.226 An increase in Pacific oyster Crassostrea gigas settlement and colonisation within the European Marine Site (EMS) may result in areas of foreshore being covered in such numbers as to make them difficult to access and utilise as feeding grounds for overwintering birds. The importance of Pacific oysters for the local shellfish industry is recognised, however we would not like to see an overall increase in the extent of foreshore across the EMS populated by Pacific oysters. Other non-native invasive species such as the American whelk tingle Urosalpinx cinerea and Slipper limpet Crepidula fornicata are known to occupy subtidal muddy habitats, potentially impacting native communities through competition for resources and predation.

Fisheries: Recreational marine and estuarine

B.227 Recreational bait digging may impact waterbirds by reducing prey availability and creating disturbance in intertidal feeding areas. It could also damage the intertidal mudflats and sandflats and associated sub-features and communities, such as eelgrass beds. The extent of the activity and potential impacts on site features are not currently well understood.

Fisheries: Commercial marine and estuarine

B.228 Bottom towed fishing gear (i.e. any fishing instrument designed to take sea fisheries resources from the seabed) has been categorised as a 'Red' for the interest features listed, specifically the seagrass beds Zostera spp, a sub-feature of the SAC, as part of Defra's revised approach to commercial fisheries management in European Marine Sites (EMS). Appropriate management measures will be implemented and enforced by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) who have put in place the 'Bottom Towed Fishing Gear Byelaw' within the SAC to prohibit the above fishing gear being used over the majority of known seagrass beds.

Fisheries: Commercial marine and estuarine

B.229 Marine fisheries carried out under private rights, or under management defined in Several or Hybrid Orders, fall outside Defra's revised approach to commercial fisheries management in EMSs. A variety of fishing gears are used in these fisheries (e.g. Hydraulic and non-hydraulic dredging and shore based activities (e.g. shellfish collection)) which may be applying pressure to site features, including abrasion of the seabed, visual disturbance, and habitat structure changes. Potential impacts need to be better understood and assessed with potential management introduced if required.

Invasive Species

B.230 The invasive Common cord-grass Spartina anglica occurs widely within this site, as well as native Small cord-grass Spartina maritima in certain locations, and the site is designated for H1320 Spartina swards. There is a need to improve understanding of the dynamics of S.anglica on the site in order to determine if changes in the species' distribution adversely affect other species and habitats, including feeding and roosting areas of SPA bird species.

Air Pollution: risk of atmospheric nitrogen deposition

B.231 Atmospheric nitrogen deposition exceeds the relevant critical loads for coastal dune habitats used by breeding terns and hence there is a risk of harmful effects. However, on the Essex estuaries declines in the numbers of breeding terns appear to be due mainly to erosion of a man-made cockle-shingle bank (at Foulness) and to disturbance (elsewhere), rather than to over-vegetation of breeding areas caused by nitrogen deposition.

Natural England conservation objectives:

B.232 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

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

Dark-bellied brent goose *Branta bernicla bernicla*

- Habitat preference: Tundra, on migration marshes & estuaries.
- Diet: Eelgrass (Zostera), also vegetation by grazing on land or shallow water.

Red knot *Calidris canutus*

- Habitat preference: Marine and Intertidal, Wetland
- Diet: Shellfish and worms

Hen harrier *Circus cyaneus*

- Habitat preference: Moor, marsh, steppe and fields.
- Diet: Mostly, small birds, nestlings and small rodents.

Grey plover *Pluvialis squatarola*

- Habitat preference: Tundra, on migration pasture & estuaries.
- Diet: Summer, invertebrates, Winter primarily marine worms, crustaceans and molluscs

Dengie Ramsar site

B.233 Refer to Dengie SPA above.

Area

- 3127.23ha

Qualifying features

- Dengie supports a number of rare plant and animal species. The Dengie has 11 species of nationally scarce plants: sea kale *Crambe maritima*, sea barley *Hordeum marinum*, golden samphire *Inula crithmoides*, lax flowered sea lavender *Limonium humile*, the glassworts *Sarcocornia perennis* and Salicornia pusilla, small cord-grass Spartina maritima, shrubby sea-blite *Suaeda vera*, and the eelgrasses *Zostera angustifolia*, *Z. marina* and *Z. nolte*i. The invertebrate fauna includes the following Red Data Book species: a weevil *Baris scolopacea*, a horsefly *Atylotus latistriatus* and a jumping spider *Euophrys browningi*
- This site supports a full and representative sequences of saltmarsh plant communities covering the range of variation in Britain.
- Dark-bellied Brent Goose *Branta bernicula*
- Knot *Calidris canutis*
- Bar-tailed godwit Limosa *lapponica lapponica*
- Grey Plover *Pluvialis squatarola*

Key vulnerabilities and environmental conditions to support site integrity

B.234 As for Dengie SPA above.

Natural England conservation objectives:

B.235 None available.

Non-qualifying habitats and species upon which the qualifying habitats and/or species depend:

B.236 Information below on plants was sourced from the Online Plant Atlas 2020.

Sea kale *Crambe maritima*

- A long-lived perennial herb of coastal shingle and boulder beaches, very occasionally found on sand dunes where these overlay shingle, and on sea-cliffs. It reproduces by seed and from detached pieces of root. Lowland.

Sea Barley *Hordeum marinum*

- An annual grass of barish places by the sea, on the trampled margins of dried-up pools and ditches in grazing marshes, on tracks and sea-walls, and in the uppermost parts of saltmarshes; also, very locally, beside salt-treated roads inland. Lowland.

Golden-samphire *Inula crithmoides*

- A perennial herb of sea-cliffs where it grows on ledges, in crevices and in open turf on calcareous or base-rich rocks, where it is often rooted in soil enriched with calcareous shell sand. In south-eastern England it also occurs in saltmarshes, growing in low-marsh sites on coarse sand and above this on moderately organic soils, frequently where drift-litter accumulates. Lowland.

Shrubby sea-blite *Suaeda vera*

- An evergreen shrub of shingle drift-lines and the dry upper zones of saltmarshes, especially where these adjoin shingle banks or sand dunes; also along sea-wall drift-lines and, more rarely, beside brackish creeks and ditches in coastal grazing marshes. There are also two roadside records, one not far from the coast in Essex (Smith, 2013), the other – more remarkably – an unconfirmed record from the central reservation of the M6 in Warwickshire (Leach & Martin, 2014). Lowland.

Dwarf Eelgrass *Zostera angustifolia*

- Although a coastal species, this rhizomatous perennial is found at higher levels of the shore than Z. marina. It grows in the inter-tidal zone in sheltered estuaries, bays and harbours, where it is found on mixed substrates of sand and mud. Plants are often concentrated in pools or runnels on the shore. Compared with other European seagrasses, it is a small, rapidly growing species producing shoots with a short lifespan and small fruits; it is thus well adapted to withstand disturbance and to respond to improving environmental conditions (Borum et al., 2004). Lowland.

Small Cord-grass *Spartina maritima*

- A perennial grass of tidal mud-flats, generally at higher elevations than S. anglica, such as in saltmarsh creeks and pans, and on bare ground behind sea-walls. It rarely sets seed in Britain, relying instead on vegetative spread by means of extensively creeping rhizomes. Lowland.

Perennial glasswort *Sarcocornia perennis*

- A woody perennial subshrub of saltmarshes, especially in bare or sparsely vegetated areas on firm, muddy sand and gravel. S. perennis occurs on eroding lower parts of saltmarshes, at higher elevations on saltmarsh drift-lines and on shell and shingle banks; sometimes also on bare ground behind sea-walls. Lowland.

Lax-flowered Sea-lavender *Limonium humile*

- A perennial herb of ungrazed or lightly grazed muddy estuarine saltmarshes, often growing in close proximity to its more common relative, L. vulgare, but replacing it in some areas, most notably in Ireland. It rarely occurs on rocky cliffs. Lowland.

Eelgrass *Zostera marina*

- A rhizomatous perennial of tidal mudflats, in estuaries and coastal lagoons and in the subtidal zone, on substrates of gravel, sand, sandy mud and mud. It is usually found below the half-tide mark and descends to depths of about 4 metres. Plants with narrower leaves, often found in shallower, more turbid water in the upper parts of the tidal range, were formerly treated as Z. angustifolia and mapped as such in the 2002 Atlas but are now regarded as conspecific with Z. marina. Lowland.

Dwarf Eelgrass *Zosetra noltei*

- Although a coastal species, this rhizomatous perennial is found at higher levels of the shore than Z. marina. It grows in the inter-tidal zone in sheltered estuaries, bays and harbours, where it is found on mixed substrates of sand and mud. Plants are often concentrated in pools or runnels on the shore. Compared with other European seagrasses, it is a small, rapidly growing species producing shoots with a short lifespan and small fruits; it is thus well adapted to withstand disturbance and to respond to improving environmental conditions (Borum et al., 2004). Lowland.

Bar-tailed godwit Limosa *lapponica lapponica*

- Habitat: Marine and Intertidal, Wetland, Grassland
- Diet: Mainly shellfish, marine snails and worms and shrimps.

Refer to Dengie SPA for details on qualifying bird species.

Appendix C

Screening Assessment

C.1 The following section below shows which types of impacts on Habitats sites could potentially result from each of the policies and potential site allocations in the Basildon Local Plan.

Policy SG1: Meeting our Growth Needs

C.2 This policy sets out how Basildon Borough needs grow and change over the next 20 years. It sets out policies for delivering new housing and employment space. This will allow sufficient land to be identified for housing to meet the needs of current and future residents and allow space for businesses to grow and thrive.

Likely activities (operation) to result as a consequence of the proposal

- This policy makes provision for a minimum of 27,111 dwellings in order to meet the assessed housing need calculated using the Standard Method and makes provision for a minimum of 10,420 affordable homes. This policy also will deliver a minimum of 55-81 Ha of new employment land. The policy also include provision of new Gypsy and Traveller pitches and Travelling Showpeople yard.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land

- Air pollution
- Recreational input
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy defines the overall quantum of housing development (including Gypsy and Traveller sites) and provision of employment land. Therefore, the policy will contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy SG2: Settlement Hierarchy

- This policy sets out how growth will be distributed throughout the borough in order to deliver sustainable development.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensures that new housing and employment allocations will be located in the most sustainable locations, according to the settlement hierarchy. Therefore this policy relates to the location of housing and employment land, and will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No.

Policy SG3: Spatial Distribution of Growth

- This policy sets out how growth will be distributed throughout the Borough in the most sustainable locations.

Likely activities (operation) to result as a consequence of the proposal

- This policy will provide for at least 663 dwellings within specific Plotland locations, and for residential and employment development to be distributed through densification of the existing urban area and as urban extensions.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution
- Recreational input
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy will provide housing development and employment land growth and therefore, the policy will contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy E1: Securing Economic Growth

- This policy ensures the council will deliver sustainable economic growth within the borough.

Likely activities (operation) to result as a consequence of the proposal

- This policy includes for the provision for 65-82ha of employment land and ensures that existing and new employment land is accessed by frequent and high quality sustainable and active travel modes. The policy will provide local employment opportunities which make the best use of brownfield sites and will allocate rural enterprise sites within the Green Belt to protect local employment floorspace in rural locations.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy makes provision for employment land and will therefore contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, and water quantity and quality.

Policy E2: Protecting Existing Employment Areas

- Within the Employment Areas and new employment site allocations, as shown on the Policies Map, the Council will seek to provide and retain Class E(g), B2 and B8 Use Classes or other 'sui generis' uses of a similar employment nature.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to the provision and retention of use classes, and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy E3: Changes of Use of Employment Land or Premises

- This policy stipulates specific criteria which must be adhered to when proposals involve a change of use of premises from E(g), B2 and B8 uses. The policy additionally relates to promoting infrastructure improvements in the designated employment area and measures to promote sustainable and active travel opportunities to and within the designated employment aera.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to proposals which will involve a change of use of the employment land or premises, and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy E4: Rural Enterprise Sites

- This policy refers to the retention of existing Rural Enterprise Sites for B and E(G) Class employment purposes and other employment-generating uses. The policy additional stipulates the types of development which will

be accepted within the Rural Enterprise Sites, provided they meet specific criteria detailed within the policy.

Likely activities (operation) to result as a consequence of the proposal

- This policy does permit development within existing rural enterprise sites including extension or expansion of an existing business or intensification of employment uses within the defined site boundary. This policy however will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy E5: Aligning Skills and Jobs

- This policy requires that all major development proposals which comprise of residential, B or E(g) class employment uses, retail or sui generis uses will be required to work with the Council and its partners to secure improvements to skills levels and employment amongst local residents. For example, this will include the provision of apprenticeship/training posts for local young people.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensures that applicants of major development proposals are providing improvements to the skills levels and employment of local residents. Therefore, this policy will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy HOU1: Size, Type and Quality of New Housing

- This policy relates to the size, type and quality of new housing which will be provided within the borough e.g. 100% of new dwellings should be constructed to meet the requirements of Part M, Category 2 (Accessible and adaptable dwellings) (M4(2)) of Schedule 1 of the Building Regulations 2010 or any subsequent Government standard.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to the size, type and quality of housing which will be built and therefore does not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy HOU2: Affordable Housing

- This policy relates to the provision of new affordable housing within the borough.

Likely activities (operation) to result as a consequence of the proposal

- Under this policy, the council will make provision for at least 10,420 new affordable homes within the borough.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution
- Recreational input
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy defines the requirement for affordable housing within the borough. Therefore, the policy will contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy HOU3: Specialist Housing for Older People

- This policy relates to the provision of additional specialist accommodation for older people throughout the plan period.

Likely activities (operation) to result as a consequence of the proposal

- Under this policy, the council will seek to secure at least 1,365 units of additional specialist accommodation for older people throughout the plan period.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution
- Recreational input
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy defines the requirement for specialist accommodation for older people within the borough. Therefore, the policy will contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy R1: Development in Basildon Town Centre

- This policy ensures that Basildon Town Centre will be developed and sustained as the main town centre in the borough. It will be shaped and managed to deliver regeneration, ensure investment, economic growth and success.

Likely activities (operation) to result as a consequence of the proposal

- This policy supports development which sustains Basildon Town Centre including for example, development which contributes to its role as a public transport hub for the borough and provides necessary infrastructure including public transport services, pedestrian and cycle facilities, green spaces and affordable housing.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution
- Recreational input

- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy will result in development within the borough and therefore will contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy R2: Supporting Town Centres

- This policy relates to supporting and regenerating Basildon Town Centre and protecting, supporting and where necessary regenerating the secondary tier of centres and local centres to ensure they continue to cater for the needs of the communities they serve.

Likely activities (operation) to result as a consequence of the proposal

- This policy supports new development for retail, leisure and other main town centre uses (as defined by the NPPF Glossary) within Basildon, Laindon, Wickford, Pitsea and Billericay town centres. Residential proposals will also be supported where they can contribute to the vitality of the Town Centre.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution

- Recreational input
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy supports development in town centres for retail, leisure and other main town centre uses as well as residential proposals. Therefore will contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy R3: Primary Shopping Areas

- This policy ensures that proposals for development within Primary Shopping Areas (PSA) within the borough adhere to specific criteria e.g. to sustain and enhance the general vitality of the centre.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensures that development occurring within Primary Shopping Areas, align with the objectives of the council in these areas, however the policy does not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy R4: Locations for new Retail and Leisure Development outside of Town Centres

- This policy states that retail and leisure uses should be predominantly located within designated town centres and sequential testing will be required for planning applications for main town centre uses that are not in an existing town centre, or where the proposal does not accord within the Local Plan.

Likely activities (operation) to result as a consequence of the proposal

- This policy prioritises town centres to be the location of development of town centre uses, then in edge of centre locations and only if suitable sites are not available will out of centre sites be considered. Therefore, this policy relates to the location of development, however will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy R5: Out of Town Retail and Leisure Parks

- This policy refers to the seven key out-of-town retail and leisure location and states that any new facilities should be directed to town centres first, following a sequential approach in line with national and local plan policy objectives.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensures that development for out-of-town retail and leisure parks adhere to the correct processes in order to be supported, therefore the policy will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy R6: Hotels

- This policy ensures that the employment and leisure economy is supported through appropriate hotel provision.

Likely activities (operation) to result as a consequence of the proposal

- This policy encourages the upgrading and expansion of existing hotels in certain scenarios and provides detail on where new hotels should be located. This policy will likely result in hotel construction.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution
- Recreational input
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy will likely result in the construction of hotels and therefore will contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy STAT1: Strategic Transport

- This policy ensures that the provision of improved accessibility to jobs, services and facilities via an enhanced and better integrates transport network.

Likely activities (operation) to result as a consequence of the proposal

- This policy will ensure enhance the integrated transport network, by a variety of means such as ensuring that new development provides or contributes towards necessary transport infrastructure, including local and strategic highways mitigation and sustainable and active travel services, routes and facilities. This policy will therefore result in the construction of transport infrastructure.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution
- Recreational input
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy will likely result in the construction of transport infrastructure and therefore will contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy INF1: Infrastructure Delivery

- This policy ensures that new development fully mitigate their impact on infrastructure, services and the environment. The infrastructure necessary

to support new development will be determined by the Council in conjunction with the relevant provider.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensues that growth in the borough is supported by the necessary infrastructures, and therefore ensures that new development mitigate their impact on infrastructure, services and the environment.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution
- Recreational input
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy will result in construction of additional infrastructure and will therefore contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy INF2: Securing Infrastructure Contributions

- This policy relates to ensuring that there is sufficient infrastructure capacity for new developments and securing appropriate mitigation measures for these.

Likely activities (operation) to result as a consequence of the proposal

- This policy may require developers to provide necessary infrastructure as part of their development proposals.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution
- Recreational input
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy may result in the construction of infrastructure to support new developments and therefore will contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy INF3: Social and Community Infrastructure

- This policy relates to the provision of viable community facilities which play an important role in the social infrastructure of the borough.

Likely activities (operation) to result as a consequence of the proposal

- This policy supports the provision of new social and community infrastructure, particularly where it makes an efficient use of land, and promote the dual use and/or co-location of facilities.

Potential Effects if proposal is implemented

- Physical damage and loss – Functionally linked land (offsite)
- Non-physical disturbance – Functionally Linked Land
- Air pollution
- Recreational input
- Water quantity
- Water quality

Is the policy likely to have significant effects?

- Yes. This policy supports the provision of new social and community infrastructure within the borough, and therefore will result in development. This will contribute to effects, including physical damage and loss to functionally linked land (offsite), non-physical disturbance to functionally linked land, air pollution, recreation and water quantity and quality.

Policy CC1: Responding to Climate Change

- This policy details specific criteria which development should adhere to, in order to mitigate and adapt to climate change, e.g. have good access to services and active and sustainable transport modes.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensures that development within the borough is mitigating and adapting to climate change, therefore this policy will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy CC2: Addressing Flood Risk

- This policy relates to ensuring that new development within Basildon Borough does not increase the number of people and properties at risk of flooding, managing existing flood risk and addressing the implications of climate change on flood risk.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to addressing flood risk in relation to new development and will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy CC3: Washlands

- This policy ensures the protection of land within the washlands from development, due to the importance of the washlands in providing flood and storm water storage as part of the drainage systems within the borough. Development in the washlands will only be permitted in exceptional circumstances and must be mitigated against.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensures the protection of the washlands against development, and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy CC4: Net Zero Carbon Development (in Operation)

- This policy specifies that all new buildings (1 dwelling and above for residential or 100sqm or more of non-residential floor space) must be designed and built to be Net Zero Carbon in operation. They must be ultra-low energy buildings, be fossil fuel free, and generate renewable energy on-site to at least match annual energy use.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensure that all new buildings are built to be Net Zero Carbon in operation, however it will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy CC5: Net Zero Carbon Development: Embodied Carbon

- This policy ensures that proposals for large scale new-build developments (a minimum of 100 dwellings or a minimum of 5,000m2 of commercial floor space) must submit a Whole Life-Cycle Carbon Assessment that demonstrates targets have been met in relation to 'upfront' embodied carbon emissions and total embodied carbon.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to Whole Life-Cycle Carbon Assessments for proposals for large scale new-build developments and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy D1:Design and Place Shaping Principles

- This policy relates to the design of new developments and states that all development must be compatible with its surroundings and should have regard to the context of the site and surrounding area. E.g. Proposals should respond appropriately to the local patterns of development, including street plots and blocks, spaces between buildings and boundary treatments; building form, including size, scale, massing, density, details and materials; topography; existing natural, historic and built assets and features that contribute positively to local character and distinctiveness; existing landmarks and focal points; existing views into, out of, or through the site.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to the design of new development and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

C.3 No

Policy D2: Design on Major Developments

- This policy requires all major developments to be of high-quality built form and urban design e.g. through respecting the natural environment of biodiversity and amenity interests through the provision of a range of green spaces.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to the design of major development and therefore will not directly result in development.

Potential Effects if proposal is implemented

C.4 N/A

Is the policy likely to have significant effects?

- No

Policy GB1: Protecting the Green Belt

- This policy relates to protecting the Green Belt against inappropriate development.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to protection of the Green Belt, and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy GB2: Grey Belt

- This policy states ‘the extent of Grey Belt land is defined on the Policies Map. Applications which involve development on Grey Belt land will be assessed using the relevant nationally applicable criteria’

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to assessment of application for development within the grey belt, however will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy NE1: Conserving and Enhancing the Natural Environment

- This policy ensures that new development conserves and enhances the natural environment e.g. Development proposals will be supported where they protect or enhance international, national and/or locally designated sites of importance for nature conservation, ecological and/or geological value.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to protection and enhancement of the natural environment and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy NE2: Local Wildlife Sites

- This policy states that the council will seek the conservation and enhancement of Local Wildlife Sites and will support proposals which ensure the active management and improvement of biodiversity interest at these sites.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to the conservation and enhancement of Local Wildlife Sites and therefore will not result directly in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy HE1:Conserving and Enhancing the Historic Environment

- This policy relates to the protection, conservation and enhancement of the Borough's historic environment.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to the protection, conservation and enhancement of the borough's historic environment and ensures that development proposals are sensitively designed, so they do not result in harm to the historic environment. Therefore, this policy will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy HE2: Conservation Areas

- This policy relates to protection of Conservation Areas within the borough and stipulates that any development within or affecting the setting of the borough's Conservation Areas, including views in or out, should preserve or enhance the character or appearance of the Conservation Area.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensures protection and enhancement of Conservation Areas within the borough and therefore will not directly in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy HE3: Listed Buildings

- This policy relates to the protection of listed buildings.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to the protection of listed buildings and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy HE4: Scheduled Monuments and Archaeology

- This policy ensures that proposed development protects scheduled monuments, archaeological remains and important archaeological sites within the borough.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensures the protection of schedules monuments and archaeology within the borough, and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy HE5: Non-Designated Heritage Assets

- This policy ensures that proposals for development to a non-designated heritage asset (NDHA) are designed sensitively and sympathetically and not adversely affect the appearance or character of the asset.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to protection of NDHAs, and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy AQMP1: Mitigating Air Quality and Wider Environmental Pollution Issues

- This policy ensures that development does not result in significant adverse effects upon the environment, the health of residents and residential amenity by reason of pollution to land, air or water, noise and/or vibration levels, loss of light to and/or overshadowing of any nearby property, overbearing impact on any nearby property, adverse impact on air quality from odour, fumes, dust, smoke or other sources and light pollution from artificial light or glare.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to protection of the environment, the health of residents and residential amenity and therefore will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy AQMP2: Contaminated Land

- This policy relates to the provision of sufficient information when development is proposed on contaminated land and the requirement for remediation of a contaminated site.

Likely activities (operation) to result as a consequence of the proposal

- This policy ensures that contaminated land where development is proposed, is remediated so that the site does not pose a threat to public health or that of the environment, nor pose a threat of pollution to controlled waters including ground water. Therefore this policy will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy AQMP3: Ensuring Health and Safety in Development

- This policy states ‘Anglian Water may be consulted on development proposals falling within 400m of a water recycling centre. In such instances, the applications will need to be accompanied by Odour Plume Modelling to determine the impacts for potential occupiers of the development. Where the modelling shows that odour arising from the

water recycling centre is likely to pose a nuisance to future occupiers, the application will be refused unless satisfactory mitigation measures can be applied'.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to the prevention of odour arising from a water recycling centre causing a nuisance to future occupiers of a proposed development. Therefore, this policy will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

Policy AQMP4: Protecting High Quality Agricultural Land

- This policy states that ‘Development proposals on agricultural land that is classified as grade 3 will be required to carry out an Agricultural Land Classification site survey to distinguish whether the land is grade 3a or 3b’.

Likely activities (operation) to result as a consequence of the proposal

- This policy relates to the requirement for survey to distinguish whether grade 3 agricultural land is grade 3a or 3b, when development is proposed within it. Therefore, this policy will not directly result in development.

Potential Effects if proposal is implemented

- N/A

Is the policy likely to have significant effects?

- No

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Report produced by LUC

Bristol
12th Floor, Beacon Tower, Colston Street, Bristol BS1 4XE
0117 929 1997
bristol@landuse.co.uk

Cardiff
16A, 15th Floor, Brunel House, 2 Fitzalan Rd, Cardiff CF24 0EB
0292 032 9006
cardiff@landuse.co.uk

Edinburgh
Atholl Exchange, 6 Canning Street, Edinburgh EH3 8EG
0131 202 1616
edinburgh@landuse.co.uk

Glasgow
37 Otago Street, Glasgow G12 8JJ
0141 334 9595
glasgow@landuse.co.uk

London
250 Waterloo Road, London SE1 8RD
020 7383 5784
london@landuse.co.uk

Manchester
6th Floor, 55 King Street, Manchester M2 4LQ
0161 537 5960
manchester@landuse.co.uk

Sheffield
32 Eyre Street, Sheffield, S1 4QZ
0114 392 2366
sheffield@landuse.co.uk

landuse.co.uk

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