Replacement Essex Minerals Local Plan 2025 - 2040 - Regulation 18 – Issues and Options

Habitats Regulations Assessment Screening Report – Appendix 3

February 2024

Essex County Council

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Version	Date	Authors	Description of changes
1.0	January 2024	Emma Simmonds and Sue Hooton	Drafted / Reviewed internally / Issued Revised due to proposed changes to Essex MLP since previous HRA was undertaken in 2021. Preferred Sites removed. Submitted Sites included.
1.1	January 2024	Hamish Jackson	Review

Title of report	Habitats Regulations Assessment Screening Report of the Draft Essex Minerals Local Plan 2025-2040 Regulation 18 Essex County Council January 2024
Client	Essex County Council
Client representative	Lauren Keeling
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Glossary

AA	Appropriate Assessment
AEOI	Adverse Effect on Integrity (of Habitats sites)
AMR	Annual Monitoring Report
CEMP	Construction Environment Management Plan
CLEUD	Certificate of Lawful Existing Use or Development
EA	Environment Agency
EMS	European Marine Site
EU	European Union
HRA	Habitats Regulations Assessment
Ha	Hectares
IROPI	Imperative Reasons of Overriding Public Interest
IRZ	Impact Risk Zone
Km	Kilometre
LPA	Local Planning Authority
LTP	Local Transport Plan
LSE	Likely Significant Effect
MAGIC	Multi Agency Geographic Information about the Natural Environment
MLP	Minerals Local Plan
NE	Natural England
NPPF	National Planning Policy Framework
NSIP	Nationally Strategic Infrastructure Project
SAC	Special Area of Conservation
SACO	Supplementary Advice on Conservation Objectives
SIP	Site Improvement Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

Appendix 3

List of Habitats Sites, Conservation Objectives and Vulnerabilities

1.1. The main HRA Screening report sets out which Habitats sites have been scoped in or out within Table 4.

1.2. The list of Habitats sites within scope, their qualifying features, conservation objectives and key vulnerabilities / factors affecting site integrity can be found in the following table.

Table 1: List Of Habitats Sites, Conservation Objectives and Vulnerabilities

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
The Stour and Orwell estuaries These estuaries straddle the eastern part of the Essex/Suffolk border in eastern England. The estuaries include extensive mud-flats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. The mud-flats hold Enteromorpha, Zostera and Salicornia spp. The site also includes an area of low-lying grazing marsh at Shotley Marshes on the south side of the Orwell. In summer, the site supports important numbers of breeding Avocet Recurvirostra avosetta, while in winter they hold major concentrations of waterbirds, especially geese, ducks and waders. The geese also feed, and waders roost, in surrounding areas of agricultural land outside the SPA. The site has close ecological links with the Hamford Water and Mid-Essex Coast SPAs, lying to the south on the same coast.				
Stour and Orwell Estuaries SPA EU Code: UK9009121	3676.92	**Qualifying features:** Annex I species: Breeding: • Pied avocet, Recurvirostra avosetta (breeding) Migratory species: • Black-tailed Godwit Limosa limosa islandica • Dunlin Calidris alpina alpina	With regard to the individual species and/or assemblage of species for which the site has been classified ("the Qualifying Features" listed below); Avoid the deterioration of the Habitats of the qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site	**Coastal squeeze:** Coastal defences are present along most of the Orwell coastline to mitigate for impacts from climate change, such as rising sea level. Unless changes are made to the management of the coastline, Habitats supporting qualifying SPA birds will be lost or degraded through coastal squeeze, sedimentation and reduced exposure. **Public access/disturbance**:

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		• Grey Plover Pluvialis squatarola • Pintail Anas acuta • Redshank Tringa totanus • Ringed Plover Charadrius hiaticula • Shelduck Tadorna tadorna • Turnstone Arenaria interpres Waterbird assemblage (non breeding): • Cormorant Phalacrocorax carbo • Pintail Anas acuta • Ringed Plover Charadrius hiaticula • Grey Plover Pluvialis squatarola • Dunlin Calidris alpina alpine • Black-tailed Godwit Limosa limosa islandica • Redshank Tringa tetanus • Shelduck Tadorna tadorna	makes a full contribution to achieving the aims of the Birds Directive. Subject to natural change, to maintain or restore: • 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 populations of the qualifying features; • The distribution of the qualifying features within the site.	Stour and Orwell Estuaries is subject to land- and water-based activities, including boating and water sports; walking; bait-digging; fishing; wildfowling; and military overflight training. These activities are likely to impact Habitats supporting breeding and overwintering water birds. 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 is required to ensure the Estuaries are appropriately managed. **Changes in species distribution:** Declines in the number of bird species present at Orwell coastline have occurred. This is likely to be the result of changes in population and distribution on an international scale, due to climate change. **Invasive species:** An increase in Spartina anglica may be affecting the growth of Spartina maritime, a key habitat feature for qualifying bird roosting and feeding

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		• Great Crested Grebe Podiceps cristatus • Curlew Numenius arquata • Dark-bellied Brent Goose Branta bernicla bernicla • Wigeon Anas Penelope • Goldeneye Bucephala clangula • Oystercatcher Haematopus ostralegus • Lapwing Vanellus vanellus • Knot Calidris canutus • Turnstone Arenaria interpres. Further information can be found via Natural England's Supplementary Advice.		areas of saltmarsh and mudflat. **Planning permission- general:** The issue of development in combination with other factors is not fully understood. To ensure management is appropriate to the SPA a better understanding of the sensitivities relating to each habitat, species and location to different types of development is required. Difficult issues highlighted by the SIP 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 from atmospheric nitrogen deposition:** Atmospheric nitrogen deposition exceeds the relevant critical loads for coastal dune Habitats used by breeding terns and hence there is a

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				risk of harmful effects. **Inappropriate coastal management:** Due to the presence of existing hard sea defences, such as sea walls there is little scope for adaptation to rising sea levels. Any freshwater Habitats behind failing seawalls are likely to be inundated by seawater, which would result in the loss of this habitat within the SPA. **Fisheries- Commercial and estuarine:** Commercial fishing activities can be very damaging to inshore marine Habitats and the bird species dependent on the communities they support. Any 'amber or green' categorised commercial fishing activities in Habitats Marine Sites are assessed by Kent and Essex Inshore Fisheries Conservation Authority (IFCA). This assessment takes into account any in-combination effects of amber activities and/or appropriate plans

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				or projects.
Stour and Orwell Estuaries Ramsar site RIS Code: UK11067	3676.92	**Ramsar criterion 2** Contains seven nationally scarce plants: • Stiff saltmarsh-grass Puccinellia rupestris • Small cord-grass Spartina maritime • Perennial glasswort Sarcocornia perennis • Lax-flowered sea lavender Limonium humile • Eelgrasses Zostera angustifolia, Z. marina and Z. noltei. **Ramsar criterion 5** Assemblages of international importance; species with peak counts in winter; 63,017 waterfowl. **Ramsar criterion 6** Species/ populations occurring at	None available.	A key threat identified by RIS was erosion. **Erosion:** Natural coastal processes exacerbated by fixed sea defences, port development and maintenance dredging. Erosion is being tackled through sediment replacement for additional erosion that can be attributed to port development and maintenance dredging. A realignment site has been created on-site to make up for the loss of habitat due to capital dredging. General background erosion has not been tackled although a Flood Management Strategy for the site is being produced.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		levels of international importance: Species with peak counts in spring/autumn: • Common redshank, Tringa totanus totanus • Species with peak counts in winter: • Dark-bellied brent goose, Branta bernicla bernicla • Northern pintail, Anas acuta • Grey plover, Pluvialis squatarola • Red knot, Calidris canutus islandica • Dunlin, Calidris alpina alpina • Black-tailed godwit, Limosa limosa islandica • Common redshank, Tringa totanus tetanus		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
The Deben Estuary The Deben Estuary lies within Suffolk Coastal District at the southern border of Suffolk. The estuaries include extensive mud-flats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. The mud-flats hold Enteromorpha, Zostera and Salicornia spp. In summer, the site supports important numbers of breeding Avocet while in winter they hold major concentrations of waterbirds, especially geese, ducks and waders. The geese also feed, and waders roost, in surrounding areas of agricultural land outside the SPA.				
Deben Estuary SPA EU Code: UK9009261	978.93	Qualifying features: • Dark-bellied brent goose Branta bernicla bernicla (Non-breeding); • Pied avocet , Recurvirostra avosetta (breeding) Further information can be found via Natural England's Supplementary Advice.	With regard to the individual species and/or assemblage of species for which the site has been classified ("the Qualifying Features" listed below); Avoid the deterioration of the habitats of the Qualifying Features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving the aims of The Birds Directive. Subject to natural change, to maintain or restore: • The extent and	**Coastal squeeze:** The Deben Estuary coastline is undergoing widespread decline in the quality of saltmarsh, and an increase in lower marsh habitats at the expense of mid and upper marsh vegetation communities. This is likely due to impacts from climate change, such as rising sea level. Unless changes are made to the management of the coastline, Habitats supporting qualifying SPA birds will be lost or degraded through coastal squeeze, sedimentation and reduced exposure. **Public access/disturbance:** The Deben Estuary is subject to land and water-based activities, including boating and water sports; walking; wildfowling; and low flying

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			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 populations of the qualifying features; • The distribution of the qualifying features within the site.	aircrafts. These activities are likely to impact Habitats supporting breeding and overwintering water birds. 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 is required to ensure the Estuaries are appropriately managed **Changes in species distribution:** Spartina anglica is encroaching onto estuarine muds. This may reduce bird roosting and feeding areas of saltmarsh and mudflat. **Air Pollution- Impacts of atmospheric nitrogen deposition:** Modelled aerial deposits of nitrogen within Deben Estuary exceed the threshold limit above which the diversity of saltmarsh vegetation begins to be altered (possibly to reed) and adversely impacted. This is likely being caused by in combination impacts from land spreading and land use practices

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				with high nutrient inputs e.g. outdoor pig farms. **Water Pollution:** Inappropriate water quality may impact on the supporting habitats of SPA birds. Eutrophication may be having an influence on reed growth and saltmarsh composition. Increased flood events could lead to habitat change/loss of diversity. Nutrient run off from farming operations could exacerbate the issue. Further monitoring and management of key issues are required. **Fisheries: Commercial marine estuarine** – In combination impacts from fisheries in European Marine Sites need to be monitored and appropriately managed to avoid potential threats to site condition.
Deben Estuary Ramsar site RIS Code:	978.93	**Ramsar criterion 2** Supports a population of the mollusc Vertigo angustior (Habitats Directive Annex II (S1014); British Red Data	None available.	A key threat identified by RIS was erosion. **Erosion:** English Nature provides advice to

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
UK11017		Book Endangered). Martlesham Creek is one of only about fourteen sites in Britain where this species survives **Ramsar criterion 6 -** species/populations occurring at levels of international importance: Species with peak counts in winter: • Dark-bellied brent goose, Branta bernicla bernicla, **Noteworthy fauna:** Species currently occurring at levels of national importance: Species with peak counts in spring/autumn: • Black-tailed godwit , Limosa limosa islandica • Common greenshank, Tringa nebularia Species with peak counts in winter: • Bean goose , Anser fabalis fabalis,		the Environment Agency and coastal local authorities in relation to flood and coastal protection management. This will inform the development of the Suffolk Estuaries strategies and the second generation shoreline management plan.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		• Common shelduck , Tadorna tadorna • Pied avocet , Recurvirostra avosetta • Spotted redshank , Tringa erythropus, • Common redshank , Tringa totanus totanus, Nationally important species occurring on the site: Invertebrates: • Vertigo angustior (Nationally Scarce) • Vertigo pusilla (Nationally Scarce)		
Benfleet and Southend Marshes Benfleet and Southend Marshes is an estuarine area on the Essex side of the Thames Estuary. The site is comprised of an extensive series of saltmarshes, mudflats, and grassland which support a diverse flora and fauna, including internationally important numbers of wintering waterfowl.				
Benfleet and Southend	2283.94	**Qualifying features:** • Dark-bellied Brent goose;	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure	**Coastal squeeze:** Coastal defences exist along much of the coastline here. Sea level rise

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Marshes SPA EU Code: UK9009171		Branta bernicla bernicla (Non-breeding) • Ringed plover; Charadrius hiaticula (Non-breeding) • Grey plover; Pluvialis squatarola (Non-breeding) • Red knot; Calidris canutus (Non-breeding) • Dunlin; Calidris alpina alpina (Non-breeding) • Waterbird assemblage Further information can be found via Natural England's Supplementary Advice.	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	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:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				in this site. Assessment is needed in key areas of ports and marinas, where introductions tend to first occur. **Changes in species distribution:** 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 **Fisheries- commercial marine and**

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				estuarine: 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. 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. **Invasive species:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				management is not the solution. 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:** 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. **Air Pollution- risk of atmospheric nitrogen deposition:** Nitrogen deposition exceeds site-relevant critical loads.
Benfleet and Southend Marshes Ramsar site RIS Code:	2251.31	**Ramsar criterion 5** Assemblages of international importance; species with peak counts in winter; 32867 waterfowl (5 year	None available.	None available.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
UK11006		peak mean 1998/99-2002/2003). **Ramsar criterion 6** Species/populations occurring at levels of international importance: Species with peak counts in spring/autumn: • Branta bernicla bernicla; Dark-bellied brent goose Species with peak counts in winter: • Charadrius hiaticula; Ringed plover • Pluvialis squatarola; Grey plover Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in winter: • Calidris alpina alpina; Dunlin		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Blackwater Estuary (Mid-Essex Coast Phase 4) The Blackwater Estuary is the largest estuary in Essex north of the Thames and, is one of the largest estuarine complexes in East Anglia. Its mudflats, fringed by saltmarsh on the upper shores, support internationally and nationally important numbers of overwintering waterfowl. Shingle and shell banks and offshore islands are also a feature of the tidal flats. The surrounding terrestrial habitats; the sea wall, ancient grazing marsh and its associated fleet and ditch systems, plus semi-improved grassland are also of high conservation interest. This rich mosaic of habitats supports an outstanding assemblage of nationally scarce plants and a nationally important assemblage of rare invertebrates. There are 16 British Red Data Book species and 94 notable and local species.				
Blackwater Estuary SPA (Mid-Essex Coast Phase 4) EU Code: UK9009245	4395.15	**Qualifying features:** • Dark-bellied brent goose; Branta bernicla bernicla (Non-breeding) • Common pochard; Aythya ferina (Breeding) • Hen harrier; Circus cyaneus (Non-breeding) • Ringed plover; Charadrius hiaticula (Breeding) • Grey plover; Pluvialis squatarola (Non-breeding) • Dunlin; Calidris alpina alpina (Non-breeding) • Black-tailed godwit; Limosa	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	**Coastal Squeeze:** 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 area of the Mid Essex Coast SPAs are important for waterbirds and are also threatened by sea level rise

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		limosa islandica (Non-breeding) • Little tern; Sterna albifrons (Breeding) • Waterbird assemblage Further information can be found via Natural England's Supplementary Advice.	qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site.	because most are near or below mean high tide level, currently protected behind seawalls. **Public access /disturbance:** 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. **Planning permission: general** 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. **Changes in species distributions:**

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				Declines have occurred in the numbers of some of the waterbird species using the Essex Estuaries SIP area but these may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. **Invasive species:** 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. Invasive common cord grass may adversely affect other species and habitats, including feeding and roosting areas of SPA bird species. **Fishing:** Recreational bait digging may impact waterbirds e.g. by reducing prey availability, or damaging the intertidal mudflats and sandflats and

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				associated communities. The extent of the activity and potential impacts on site features are not currently well understood. Certain forms of commercial fishing, e.g. bottom towed fishing gear; can be very damaging to inshore marine habitats and the bird species dependent on the communities they support. **Air Pollution- risk of atmospheric nitrogen deposition:** 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.
Blackwater Estuary	4395.15	**Ramsar criterion 1**	None available.	None available.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Ramsar site (Mid-Essex Coast Phase 4) RIS Code: UK11007		Qualifies by virtue of the extent and diversity of saltmarsh habitat present. This site, and the four others in the Mid-Essex Coast complex, includes a total of 3,237 ha that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. **Ramsar criterion 2** The invertebrate fauna is well represented and includes at least 16 British Red Data Book species. In descending order of rarity these are: Endangered: • a water beetle Paracymus aeneus • Vulnerable: • Damselfly; Lestes dryas, • Flies; Aedes flavescens, Erioptera bivittata, Hybomitra expollicata • Spiders; Heliophanus auratus and Trichopterna cito;		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		Rare: • Beetles; Baris scolopacea, Philonthus punctus, Graptodytes bilineatus and Malachius vulneratus, • Flies; Campsicemus magius and Myopites eximia, the moths Idaea ochrata and Malacosoma castrensis and • Spiders; Euophrys. **Ramsar criterion 3** This site supports full and representative sequences of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance; species with peak counts in winter; 105061 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		levels of international importance: • Species with peak counts in winter: • Grey plover; Pluvialis squatarola • Dunlin; Calidris alpina alpina • Black-tailed godwit; Limosa limosa islandica • Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in winter: • Common shelduck; Tadorna tadorna • European golden plover; Pluvialis apricaria apricaria • Common redshank ; Tringa totanus tetanus		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Crouch & Roach Estuaries (Mid-Essex Coast Phase 3) The Rivers Crouch and Roach are situated in South Essex. The River Crouch occupies a shallow valley between two ridges of London Clay, whilst the River Roach is set predominantly between areas of brick earth and loams with patches of sand and gravel. The intertidal zone along the Rivers Crouch and Roach is 'squeezed' between the sea walls of both banks and the river channel. This leaves a relatively narrow strip of tidal mud unlike other estuaries in the county, which, nonetheless, is used by significant numbers of birds. One species is present in internationally important numbers, and three other species of wader and wildfowl occur in nationally important numbers. Additional interest is provided by the aquatic and terrestrial invertebrates and by an outstanding assemblage of nationally scarce plants				
Crouch & Roach Estuaries SPA (Mid-Essex Coast Phase 3) EU Code: UK9009244	1735.58	Qualifying Features: • Dark-bellied brent goose; Branta bernicla bernicla (Non-breeding) • Waterbird assemblage Further information can be found via Natural England's Supplementary Advice.	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	**Coastal Squeeze:** 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 area of the Mid Essex Coast SPAs are important for waterbirds and are

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site.	also threatened by sea level rise because most are near or below mean high tide level, currently protected behind seawalls. **Public access /disturbance:** 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. **Planning permission- general:** 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.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				Changes in species distributions: Declines have occurred in the numbers of some of the waterbird species using the Essex Estuaries SIP area but these may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. **Invasive species:** 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. Invasive common cord grass may adversely affect other species and habitats, including feeding and roosting areas of SPA bird species. **Fishing:** Recreational bait digging may impact waterbirds e.g. by reducing

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				prey availability, or damaging the intertidal mudflats and sandflats and associated communities. The extent of the activity and potential impacts on site features are not currently well understood. Certain forms of commercial fishing, e.g. bottom towed fishing gear; can be very damaging to inshore marine habitats and the bird species dependent on the communities they support. **Air Pollution- risk of atmospheric nitrogen deposition:** 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.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Crouch & Roach Estuaries Ramsar site (Mid-Essex Coast Phase 3) RIS Code: UK11058	1735.58	**Ramsar criterion 2** Supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant and animal including 13 nationally scarce plant species: • Slender Hare's Ear Bupleurum tenuissimum, • Divided Sedge Carex divisa, • Sea Barley Hordeum marinum, • Golden-Samphire Inula crithmoides, • Lax Flowered Sea-Lavender Limonium humile, • Curved Hard-Grass Parapholis incurva, • Borrer's Saltmarsh grass Puccinellia fasciculata, • Stiff Saltmarsh Grass Puccinellia rupestris, • Spiral Tasselweed Ruppia cirrhosa, • One-Flowered Glasswort	None available.	None available.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		Salicornia pusilla, • Small Cord-Grass Spartina maritima, • Shrubby Seablite Suaeda vera • Sea Clover Trifolium squamosum. Several important invertebrate species are also present on the site, including • Scarce Emerald Damselfly Lestes dryas, • Shorefly Parydroptera discomyzina, • Rare Soldier Fly Stratiomys singularior, • Large Horsefly Hybomitra expollicata, • Beetles Graptodytes bilineatus and Malachius vulneratus, • Ground Lackey Moths Malacosoma castrensis and Eucosoma catoprana. **Ramsar criterion 5**		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		Assemblages of international importance; species with peak counts in winter; 16970 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance: • Species with peak counts in winter: • Dark-bellied brent goose; Branta bernicla bernicla		
Dengie Dengie is a large and remote area of tidal mudflat and saltmarsh at the eastern end of the Dengie peninsula, between the Blackwater and Crouch Estuaries. The saltmarsh is the largest continuous example of its type in Essex. Foreshore, saltmarsh and beaches support an outstanding assemblage of rare coastal flora. It hosts internationally and nationally important wintering populations of wildfowl and waders, and in summer supports a range of breeding coastal birds including rarities. The formation of cockleshell spits and beaches is of geomorphological interest				
Dengie SPA (Mid-Essex Coast Phase 1) EU Code:	3127.23	**Qualifying features:** • Dark-bellied brent goose; Branta bernicla bernicla (Non-breeding) • Grey plover; Pluvialis	The objectives are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving	**Coastal Squeeze:** Coastal defences along much of the Essex coastline prevent intertidal habitats from shifting landward in response to rising sea levels. As a

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
UK9009242		squatarola (Non-breeding) • Hen harrier; Circus cyaneus (Non-breeding) • Knot; Calidris canutus (Non-breeding) • Waterbird assemblage (Non-breeding) Further information can be found via Natural England's Supplementary Advice.	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 populations of qualifying features • the distribution of qualifying features within the site	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 area of the Mid Essex Coast SPAs 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:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				physical disturbance to habitats. **Planning permission: general** 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. **Changes in species distributions:** Declines have occurred in the numbers of some of the waterbird species using the Essex Estuaries SIP area but these may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. **Invasive species:** An increase in Pacific oyster Crassostrea gigas settlement and colonisation within the European

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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. Invasive common cord grass may adversely affect other species and habitats, including feeding and roosting areas of SPA bird species. **Fishing:** Recreational bait digging may impact waterbirds e.g. by reducing prey availability, or damaging the intertidal mudflats and sandflats and associated communities. The extent of the activity and potential impacts on site features are not currently well understood. Certain forms of commercial fishing, e.g. bottom towed fishing gear; can be very damaging to inshore marine habitats and the bird species dependent on the communities they support. **Air Pollution- risk of atmospheric nitrogen deposition:**

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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.
Dengie Ramsar Site (Mid-Essex Coast Phase 1) EU Code: UK9009242	3127.23	**Ramsar criterion 1** Qualifies by virtue of the extent and diversity of saltmarsh habitat present. Dengie, and the four other sites in the Mid-Essex Coast Ramsar site complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. **Ramsar criterion 2** Dengie supports a number of rare plant and animal species. The Dengie	None available.	None available.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		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, • Glassworts Sarcocornia perennis and Salicornia pusilla, • Small Cord-Grass Spartina maritima, • Shrubby Sea-Blite Suaeda vera, • Eelgrasses Zostera angustifolia, Z. marina and Z. noltei. The invertebrate fauna includes the following Red Data Book species: • Weevil Baris scolopacea, • Horsefly Atylotus latistriatus and • Jumping Spider Euophrys		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		browningi. **Ramsar criterion 3** This site supports full and representative sequences of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance; species with peak counts in winter; 43828 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance: • Species with peak counts in winter: • Common redshank; Tringa totanus tetanus Species/populations identified subsequent to designation for possible future consideration under criterion 6.		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		Species with peak counts in winter: • Dark-bellied brent goose; Branta bernicla bernicla • Eurasian oystercatcher; Haematopus ostralegus ostralegus • Grey plover; Pluvialis squatarol • Bar-tailed godwit; Limosa lapponica lapponica • Red knot; Calidris canutus		
Essex Estuaries The Mid-Essex Coast comprises an extensive complex of estuaries and intertidal sand and silt flats, including several islands, shingle and shell beaches and extensive areas of saltmarsh. The proposed SPA follows the boundaries of five SSSIs: the Colne Estuary, the Blackwater Estuary, Dengie, the River Crouch Marshes and Foulness.				
Essex Estuaries SAC EU Code: UK0013690	46109.95	Qualifying features: • Sandbanks which are slightly covered by sea water all the time; Subtidal sandbanks • Estuaries • Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and	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	**Coastal Squeeze:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		sandflats. • Salicornia and other annuals colonizing mud and sand; Glasswort and other annuals colonising mud and sand • Spartina swards (Spartinion maritimae); Cord-grass swards • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural habitats rely	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 area of the Mid Essex Coast SPAs 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:** 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. **Planning permission: general**

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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. **Changes in species distributions:** Declines have occurred in the numbers of some of the waterbird species using the Essex Estuaries SIP area but these may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. **Invasive species:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				feeding grounds for overwintering birds. Invasive common cord grass may adversely affect other species and habitats, including feeding and roosting areas of SPA bird species. **Fishing:** Recreational bait digging may impact waterbirds e.g. by reducing prey availability, or damaging the intertidal mudflats and sandflats and associated communities. The extent of the activity and potential impacts on site features are not currently well understood. Certain forms of commercial fishing, e.g. bottom towed fishing gear; can be very damaging to inshore marine habitats and the bird species dependent on the communities they support. **Air Pollution- risk of atmospheric nitrogen deposition:** Atmospheric nitrogen deposition exceeds the relevant critical loads for coastal dune habitats used by breeding terns and hence there is a

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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.
Foulness Foulness is part of an open coast estuarine system comprising grazing marsh, saltmarsh, intertidal mudflats and sandflats which support nationally rare and nationally scarce plants, and nationally and internationally important populations of breeding, migratory and wintering waterfowl				
Foulness SPA (Mid-Essex Coast Phase 5) EU Code: UK9009246	10968.9	Qualifying features: • Hen harrier; Circus cyaneus (Non-breeding) • Dark-bellied brent goose; Branta bernicla bernicla(Non-breeding) • Eurasian oystercatcher; Haematopus ostralegus ostralegus (Non-breeding) • Grey plover; Pluvialis squatarol	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	**Coastal Squeeze:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		(Non-breeding) • Bar-tailed godwit; Limosa lapponica lapponica (Non-breeding) • Red knot; Calidris canutus (Non-breeding) • Pied avocet; Recurvirostra avosetta (Breeding) • Ringed plover; Charadrius hiaticula; (Breeding) • Common redshank; Tringa totanus (Non-breeding) • Sandwich tern; Sterna sandvicensis (Breeding) • Common tern; Sterna hirundo (Breeding) • Little tern; Sterna albifrons (Breeding) • Waterbird assemblage Further information can be found via Natural England's Supplementary Advice.	• 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.	intertidal habitat and reduce erosion rates are being implemented but more will be needed to offset future losses. Grazing marshes in the area of the Mid Essex Coast SPAs 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:** 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. **Planning permission: general** Several of the issues affecting the Essex Estuaries and the management of disturbance effects on the sites are related to each

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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. **Changes in species distributions:** Declines have occurred in the numbers of some of the waterbird species using the Essex Estuaries SIP area but these may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. **Invasive species:** 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. Invasive common cord grass may adversely affect other species and habitats, including feeding and

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				roosting areas of SPA bird species. **Fishing:** Recreational bait digging may impact waterbirds e.g. by reducing prey availability, or damaging the intertidal mudflats and sandflats and associated communities. The extent of the activity and potential impacts on site features are not currently well understood. Certain forms of commercial fishing, e.g. bottom towed fishing gear; can be very damaging to inshore marine habitats and the bird species dependent on the communities they support. **Air Pollution- risk of atmospheric nitrogen deposition:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				man-made cockle-shingle bank (at Foulness) and to disturbance (elsewhere), rather than to over-vegetation of breeding areas caused by nitrogen deposition.
Foulness Ramsar site (Mid Essex Coast Phase 5) RISCode: UK11026	10968.9	**Ramsar criterion 2** The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates. **Ramsar criterion 3** The site contains extensive saltmarsh habitat, with areas supporting full and representative sequences of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance; species with peak counts in winter; 82148 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6**	None available	None available

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		Species/populations occurring at levels of international importance: • Species with peak counts in spring/autumn: • Dark-bellied brent goose; Branta bernicla bernicla • Grey plover; Pluvialis squatarola • Red knot; Calidris canutus • Species with peak counts in winter: • Bar-tailed godwit; Limosa lapponica lapponica		

Outer Thames Estuary

The Outer Thames Estuary SPA is located on the east coast of England between the counties of Norfolk (on the north side) and Kent (on the south side) and extends into the North Sea. The site comprises areas of shallow and deeper water, high tidal current streams and a range of mobile mud, sand, silt and gravely sediments extending into the marine environment, incorporating areas of sand banks often exposed at low tide. Intertidal mud and sand flats are found further towards the coast and within creeks and inlets inland down the Blyth estuary and the Crouch and Roach estuaries. The diversity of marine habitats and associated species is reflected in existing statutory protected area designations, some of which overlap or about the SPA.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Outer Thames Estuary SPA EU Code: UK9020309	392451.66	Qualifying features: • Red-throated diver; Gavia stellata (Non-breeding) • Common tern; Sterna hirundo (Breeding) • Little tern; Sternula albifrons (Breeding)	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	**Fisheries- Commercial marine and estuarine:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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.
Thames Estuary & Marshes A complex of brackish, floodplain grazing marsh ditches, saline lagoons and intertidal saltmarsh and mudflat. These habitats together support internationally important numbers of wintering waterfowl. The saltmarsh and grazing marsh are of international importance for their diverse assemblages of wetland plants and invertebrates				

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Thames Estuary & Marshes SPA EU Code: UK9012021	4838.94	Qualifying features: • Hen harrier; Circus cyaneus (Non-breeding) • Pied avocet; Recurvirostra avosetta (Non-breeding) • Ringed plover; Charadrius hiaticula (Non-breeding) • Grey plover; Pluvialis squatarola (Non-breeding) • Red knot; Calidris canutus (Non-breeding) • Dunlin; Calidris alpina alpina (Non-breeding) • Black-tailed godwit; Limosa limosa islandica (Non-breeding) • Common redshank; Tringa totanus (Non-breeding) • Waterbird assemblage Further information can be found via Natural England's Supplementary Advice.	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.	**Coastal squeeze:** 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:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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 distribution:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				unlikely that site-based measures will reverse population declines **Fisheries- commercial marine and estuarine:** 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. 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. **Invasive species:** 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,

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				more baseline information is needed, particularly on those species for which ditch management is not the solution. 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:** 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. **Air Pollution- risk of atmospheric nitrogen deposition:** Nitrogen deposition exceeds site-relevant critical loads.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Thames Estuary & Marshes Ramsar site RIS Code: UK11069	5588.5	**Ramsar criterion 2** The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates. **Ramsar criterion 5** Assemblages of international importance; species with peak counts in winter; 45118 waterfowl (5 year peak mean 1998/99-2002/2003). **Ramsar criterion 6** Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Ringed plover; Charadrius hiaticula • Black-tailed godwit; Limosa limosa islandica	None available	None available

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		Species with peak counts in winter: • Grey plover; Pluvialis squatarola (Non-breeding) • Red knot; Calidris canutus (Non-breeding) • Dunlin; Calidris alpina alpina (Non-breeding) • Common redshank; Tringa totanus tetanus		
Hamford Water Hamford Water is a large, shallow estuarine basin comprising tidal creeks and islands, intertidal mud and sand flats, and saltmarsh supporting rare plants and internationally important species/populations of migratory waterfowl.				
Hamford Water SAC EU Code: UK0030377	2187.21	Qualifying features: • Fisher's estuarine moth Gortyna borelii lunata Further information can be found via Natural England's Supplementary Advice.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of the habitats of qualifying	**Climate change:** The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being high, taking into account the sensitivity, fragmentation, topography and management of its supporting habitats.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			species • The structure and function of the habitats of qualifying species • The supporting processes on which the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.	**Air Pollution:** The supporting habitat of this feature is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of the habitat's substrate, accelerating or damaging plant growth, altering its vegetation structure and composition (including food-plants) and reducing supporting habitat quality and population viability of this feature. **Water quality:** Hog's fennel grows along the banks of borrow-dykes and ditches and is therefore likely to be sensitive to changes in water quality. As Fisher's estuarine moth spends its pupal and some of its larval life cycle stage below ground it may be affected by ground water levels. **Succession:** Scrub encroaching is resulting in a loss of suitable grassland habitat for
Hamford Water SPA EU Code: UK9009131A	2187.21	Qualifying features: • Dark-bellied brent goose; Branta bernicla bernicla (Non-breeding) • Common shelduck; Tadorna tadorna (Non-breeding) • Eurasian teal; Anas crecca (Non-breeding) • Pied avocet; Recurvirostra	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	

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		avosetta (Non-breeding) • Ringed plover; Charadrius hiaticula (Non-breeding) • Grey plover; Pluvialis squatarola (Non-breeding) • Black-tailed godwit ; Limosa limosa islandica (Non-breeding) • Common redshank; Tringa totanus (Non-breeding) • Little tern; Sternula albifrons (Breeding) Further information can be found via Natural England's Supplementary Advice.	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.	the moth. There are efforts to control and reduce scrub at the worst affected sites. Clearing scrub and restoring grassland will also provide opportunities for landward migration of hog's fennel and Fisher's estuarine moth, away from the threats of sea level rise.
Hamford Water Ramsar site RIS Code: UK11028	2187.21	**Ramsar criterion 6** Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Ringed plover; Charadrius hiaticula • Common redshank; Tringa	None Available	None Available

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		totanus tetanus Species with peak counts in winter: • Dark-bellied brent goose; Branta bernicla bernicla • Black-tailed godwit; Limosa limosa islandica Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in winter: • Grey plover; Pluvialis squatarola (Non-breeding)		
Abberton Reservoir Abberton Reservoir is a large storage reservoir built in a long shallow valley. It is the largest freshwater body in Essex and is one of the most important reservoirs in Britain for wildfowl. It is less than 8km from the coast and its primary role is as a roost for the local estuarine wildfowl population.				
Abberton Reservoir SPA EU Code:	718.31	Qualifying features: • Great crested grebe; Podiceps cristatus (Non-breeding) • Great cormorant;	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	**Air quality:** The structure and function of the habitats which support this SPA feature may be sensitive to changes

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
UK9009141		Phalacrocorax carbo (Breeding) • Mute swan; Cygnus olor; (Non-breeding) • Eurasian wigeon; Anas penelope (Non-breeding) • Gadwall; Anas strepera; (Non-breeding) • Eurasian teal; Anas crecca (Non-breeding) • Northern shoveler; Anas clypeata (Non-breeding) • Common pochard; Aythya ferina (Non-breeding) • Tufted duck; Aythya fuligula (Non-breeding) • Common goldeneye; Bucephala clangula (Non-breeding) • Common coot; Fulica atra (Non-breeding) • Waterbird assemblage Further information can be found via Natural England's Supplementary	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.	in air quality. Exceeding critical values for air pollutants may result in changes to the chemical status of its habitat substrate, accelerating or damaging plant growth, altering vegetation structure and composition and thereby affecting the quality and availability of nesting, feeding or roosting habitats. **Management:** The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of prey may adversely affect the population. **Water quality/quantity:** For many SPA features which are dependent on wetland habitats supported by surface water, maintaining the quality and quantity

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		Advice.		of water supply will be critical, especially at certain times of year during key stages of their life cycle. Poor water quality and inadequate quantities of water can adversely affect the availability and suitability of breeding, rearing, feeding and roosting habitats. Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the SPA Conservation Objectives but in some cases more stringent standards may be needed to support the SPA feature. Further site-specific investigations may be required to establish appropriate standards for the SPA.
Abberton Reservoir Ramsar RIS Code: UK11001	718.31	**Ramsar criterion 5** Assemblages of international importance; species with peak counts in winter; 23787 waterfowl (5 year peak mean 1998/99-2002/2003)	None available.	None available.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		Ramsar criterion 6 Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Gadwall , Anas strepera strepera • Northern shoveler , Anas clypeata • Species with peak counts in winter: • Eurasian wigeon , Anas Penelope Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in winter: • Mute swan, Cygnus olor, • Common pochard, Aythya farina		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Colne Estuary Colne Estuary is a comparatively short and branching estuary, with five tidal arms which flow into the main river channel. The estuary has a narrow intertidal zone predominantly composed of flats of fine silt with mudflat communities typical of south-eastern estuaries. The estuary is of international importance for wintering Brent Geese and Black-tailed Godwit and of national importance for breeding Little Terns and five other species of wintering waders and wildfowl. The variety of habitats which include mudflat, saltmarsh, grazing marsh, sand and shingle spits, disused gravel pits and reedbeds, support outstanding assemblages of invertebrates and plants.				
Colne Estuary SPA EU code: UK9009243	2701.43	**Qualifying features:** • Dark-bellied brent goose; Branta bernicla bernicla (Non-breeding) • Common pochard; Aythya ferina (Breeding) • Hen harrier; Circus cyaneus (Non-breeding) • Ringed plover; Charadrius hiaticula (Breeding) • Common redshank; Tringa totanus (Non-breeding) • Little tern; Sterna albifrons (Breeding) • Waterbird assemblage	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	**Coastal Squeeze:** 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 area of the Mid Essex Coast SPAs are important for waterbirds and are also threatened by sea level rise because most are near or below

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site.	mean high tide level, currently protected behind seawalls. **Public access /disturbance:** 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. **Planning permission- general:** 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. **Changes in species distributions:**

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				Declines have occurred in the numbers of some of the waterbird species using the Essex Estuaries SIP area but these may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. **Invasive species:** 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. Invasive common cord grass may adversely affect other species and habitats, including feeding and roosting areas of SPA bird species. **Fishing:** Recreational bait digging may impact waterbirds e.g. by reducing prey availability, or damaging the intertidal mudflats and sandflats and

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				associated communities. The extent of the activity and potential impacts on site features are not currently well understood. Certain forms of commercial fishing, e.g. bottom towed fishing gear; can be very damaging to inshore marine habitats and the bird species dependent on the communities they support. **Air Pollution- risk of atmospheric nitrogen deposition:** 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.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Colne Estuary Ramsar Site RIS Code: UK11015	2701.43	**Ramsar criterion 1** The site is important due to the extent and diversity of saltmarsh present. This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain. **Ramsar criterion 2** The site supports 12 species of nationally scarce plants and at least 38 British Red Data Book invertebrate species. **Ramsar criterion 3** This site supports full and representative sequences of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance; species with peak counts in winter; 32041 waterfowl (5 year	None available.	None available.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		peak mean 1998/99-2002/2003) **Ramsar criterion 6** Qualifying Species/populations (as identified at designation): • Species with peak counts in winter: • Dark-bellied brent goose; Branta bernicla bernicla, • Common redshank; Tringa totanus totanus, Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in winter: • Black-tailed godwit ; Limosa limosa islandica		

Epping Forest

Epping Forest is a large ancient wood-pasture with habitats of high nature conservation value including ancient semi-natural woodland, old grassland plains, wet and dry heathland and scattered wetland. The semi-natural woodland is particularly extensive but the Forest plains are also a major feature and contain a variety of unimproved acid grasslands.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
The semi-natural woodlands of Epping Forest include important beech Fagus sylvatica forests on acid soils, which are important for a range of rare epiphytic species, including the moss Zygodon forsteri. The long history of pollarding, and resultant large number of veteran trees, ensures that the site is also rich in fungi and invertebrates associated with decaying timber. Records of stag beetle Lucanus cervus are widespread and frequent. Areas of acidic grassland transitional with heathland are generally dominated by a mixture of fine-leaved grasses. In marshier areas, purple moor-grass Molinia caerulea frequently becomes dominant. Broad-leaved herbs typical of acidic grassland and heathland are frequent, including heather Calluna vulgaris. The site also contains an example of wet dwarf-shrub heath with both heather and cross-leaved heath Erica tetralix.				
Epping Forest SAC EU Code: UK0012720	1630.74	Qualifying features: • Northern Atlantic wet heaths with Erica tetralix; Wet heathland with cross-leaved heath • European dry heaths • Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion); Beech forests on acid soils • Stag beetle; Lucanus cervus Further information can be found via Natural England's Supplementary Advice.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: • The extent and distribution of qualifying natural habitats and habitats of qualifying species • The structure and function (including typical species) of qualifying natural habitats • The structure and	**Air Quality:** This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it. Nitrogen deposition exceeds site-relevant critical loads for ecosystem protection. Some parts of the site are assessed as in unfavourable condition for reasons linked to air pollution impacts. **Under-grazing:**

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			function of the habitats of qualifying species • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.	The quality and diversity of the SAC features requires targeted management best achieved through grazing to: minimise scrub invasion; minimise robust grass domination, and maximise the species diversity of heathland plant communities. **Changes in Species Distribution:** Beech tree health and recruitment may not be coping sufficiently with environmental conditions to sustain its presence and representation within the SAC feature. This may be linked to climate change as well as other factors such as air quality, recreational pressure and water availability. **Public Access/Disturbance:** Epping Forest is subject to high recreational pressure. There is a high general level of footfall in Epping Forest throughout the year, including periods of significant use, and resulting in a diverse range of impacts which include mountain biking and unmanaged fires.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				Population and visitor numbers are likely to continue to increase **Hydrology:** Wet heath is dependent on suitable ground water levels. There is a threat of prolonged drying out through climate change. **Water Pollution:** Surface run-off of poor quality water from roads with elevated levels of pollutants, nutrients and salinity may be affecting wet heath, probably mostly around the edges. **Invasive Species:** Heather beetle has locally impacted on some heathland areas. Vigilance is required to survey it and increase awareness of its likely effects and signs of impact. **Diseases:** Tree diseases such as Phytopthora present a real threat to Beech.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Eversden and Wimpole Woods The site comprises a mixture of ancient coppice woodland (Eversden Wood) and high forest woods likely to be of more recent origin (Wimpole Woods). A colony of barbastelle bats Barbastella barbastellus is associated with the trees in Wimpole Woods. These trees are used as a summer maternity roost where the female bats gather to give birth and rear their young. Most of the roost sites are within tree crevices. The bats also use the site as a foraging area. Some of the woodland is also used as a flight path when bats forage outside the site.				
Eversden and Wimpole Woods SAC EU Code: UK0030331	66.22	Qualifying features: • Barbastelle bat; Barbastella barbastellus Further information can be found via Natural England's Supplementary Advice.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of the habitats of qualifying species • The structure and function of the habitats of qualifying species • The supporting processes on which the habitats of qualifying	**Offsite habitat availability/management:** The bats have a limited area in which to roost and forage within the site and it is unclear which habitats they use in the wider countryside. In order to maintain a sustainable population, additional suitable habitat should be identified and to maintain/improve its value, suitable long-term management secured. **Feature location/ extent/ condition unknown:** Two transects within the site are monitored each year as part of the National Bat Monitoring Programme (NBMP). However there is some evidence that there could be other

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.	Barbastelle roosts or important foraging sites close to but not within the site. If this is the case then potentially important sites for the bats in the area are not protected. **Forestry and woodland management:** The woodland upon which the bats depend must be maintained in the medium to longer term by ensuring that tall trees, especially oak, grow up to replace those currently in place. **Air Pollution- impact of atmospheric nitrogen deposition:** Nitrogen deposition exceeds site-relevant critical loads.
Lee Valley The Lee Valley comprises a series of embanked water supply reservoirs, sewage treatment lagoons and former gravel pits along approximately 24 km of the valley. These water bodies support internationally important numbers of wintering gadwall and shoveler and nationally important numbers of several other bird species. The site also contains a range of wetland and valley bottom habitats, both man-made and semi-natural, which support a diverse range of wetland fauna and flora.				

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Lee Valley SPA EU Code: UK9012111	451.29	**Qualifying features:** • Botaurus stellaris; Great bittern (Non-breeding) • Anas strepera; Gadwall (Non-breeding) • Anas clypeata; Northern shoveler (Non-breeding)	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of the habitats of qualifying species • The structure and function of the habitats of qualifying species • The supporting processes on which the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.	**Water Pollution:** The vegetation and invertebrates provide food for the ducks, while fish provide food for the bitterns; and the habitat mosaic needs to vary from clear open water with abundant aquatic vegetation to moderately eutrophic conditions. Changes in water quality need to be managed to prevent loss of suitable habitat and food sources. **Hydrological changes:** Reservoir levels linked to operational requirements and all water bodies subject to natural fluctuations accounting for abstraction and climatic change. **Public Access/Disturbance:** Areas of the SPA are subject to a range of recreational pressures including watersports, angling and dog walking. This has the potential to affect SPA populations directly or indirectly.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				Inappropriate scrub control: The reedbed habitats, muddy fringes, and bankside all provide habitat as part of the mosaic for the SPA birds. Scrub control is necessary to ensure these habitats are maintained. **Fisheries: Fish stocking:** Fish population and species composition needs to be appropriate to ensure suitable habitats including food resource and water quality are maintained for SPA bird species. **Invasive species:** Azolla and/or invasive aquatic blanket weeds will adversely affect aquatic habitat (food sources). **Inappropriate cutting/mowing:** The reedbed requires rotational management for bittern. This is dependent upon funding availability.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				Air Pollution: risk of atmospheric nitrogen Deposition: Nitrogen deposition exceeds site relevant critical loads.
Lee Valley Ramsar Site RIS Code: UK11034	447.87	**Ramsar Criterion 2** The site supports the nationally scarce plant species whorled water - milfoil Myriophyllum verticillatum and the rare or vulnerable invertebrate Micronecta minutissima (a water-boatman). **Ramsar criterion 6** • Qualifying Species/populations (as identified at designation): • Species with peak counts in spring/autumn: • Northern shoveler , Anas clypeata • Species with peak counts in winter: • Gadwall , Anas strepera strepera	None available	None available

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity

Staverton Park and The Thicks

Staverton Park and The Thicks,, Wantisden is representative of old acidophilous oak woods in the eastern part of its range, and its ancient oaks Quercus spp. have rich invertebrate and epiphytic lichen assemblages. Despite being in the most 'continental' part of southern Britain, the epiphytic lichen flora of this site includes rare and Atlantic species, such as Haemotomma elatinum, Lecidea cinnabarina, Thelotrema lepadinum, Graphis elegans and Stenocybe septata. Part of the site includes an area of old holly Ilex aquifolium trees that are probably the largest in Britain. The site has a very well-documented history and good conservation of woodland structure and function.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Staverton Park and the Thicks SAC EU code: UK0012741	84.28	**Qualifying features:** • Old acidophilous oak woods with Quercus robur on sandy plains; Dry oak-dominated woodland	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural habitats rely	**Air pollution:** This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it **Climate change:** The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being moderate, taking into account the sensitivity, fragmentation, topography and management of its habitats.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Orfordness and Shingle Street Orfordness is an extensive shingle structure consisting of a foreland, a 15 km-long spit and a series of recurves running from north to south. It supports some of the largest and most natural sequences in the UK of shingle vegetation affected by salt spray. The southern end has a particularly fine series of undisturbed ridges, with zonation of communities determined by the ridge pattern. Pioneer communities with sea pea Lathyrus japonicus and false oat-grass Arrhenatherum elatius grassland occur. The nationally rare starlet sea anemone Nematostella vectensis is also found at the site.				
Orfordness and Shingle Street SPA EU code: UK0014780	888	**Qualifying features** • Coastal lagoons • Annual vegetation of drift lines • Perennial vegetation of stony banks; Coastal shingle vegetation outside the reach of waves Further information can be found via Natural England's Supplementary Advice.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural	**Inappropriate coastal management:** Maintaining coastal defences at Bawdsey and Slaughden is leading to increased shingle recharge requirements at Slaughden, and loss of shingle beach at southern end of SAC at Bawdsey.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			habitats rely	
Alde-Ore Estuaries This estuary, made up of three rivers, is the only bar-built estuary in the UK with a shingle bar. This bar has been extending rapidly along the coast since 1530, pushing the mouth of the estuary progressively south-westwards. The eastwards-running Alde River originally entered the sea at Aldeburgh, but now turns south along the inner side of the Orfordness shingle spit. It is relatively wide and shallow, with extensive intertidal mudflats on both sides of the channel in its upper reaches and saltmarsh accreting along its fringes. The smaller Butley River has extensive areas of saltmarsh and a reedbed community bordering intertidal mudflats. There is a range of littoral sediment and rock biotopes (the latter on sea defences) that are of high diversity and species richness for estuaries in eastern England. The estuary contains large areas of shallow water over subtidal sediments, and extensive mudflats and saltmarshes exposed at low water. Its diverse and species-rich intertidal sand and mudflat biotopes grade naturally along many lengths of the shore into vegetated or dynamic shingle habitat, saltmarsh, grassland and reedbed.				
Alde-Ore and Butley Estuaries SAC EU Code: UK0030076	1561.53	Qualifying features: • Estuaries • Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Further information can be found via Natural England's Supplementary Advice.	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	**Hydrological changes:** Flood wall breaches in December 2013 (due to tidal surge) have led to flooding of Hazelwood Marshes and Lantern Marshes south (both currently intertidal). This has led to a loss of nesting habitat and saline lagoons. **Public Access/Disturbance:** Human disturbance to nesting birds on beaches, notably on Orfordness and Shingle Street, by people accessing the southern end of the ness by boat, plus walkers along

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			qualifying natural habitats, and • The supporting processes on which qualifying natural habitats rely	beach from Aldeburgh, and recreational beach users at Shingle Street. Human trampling affects vegetated shingle habitat. Military and private aircraft (paramotors, helicopters and planes) regularly fly low over the site leading to disturbance of SPA features, wintering and breeding birds. **Coastal squeeze:** Seawalls afford little scope for natural adaption of the estuary to sea level rise through roll back of habitat. Saltmarsh is at risk of being squeezed in the future (although currently the estuary is perceived as in balance) and limited areas of natural habitat transition within the site could be lost. The developing policy of the Alde and Ore Estuary Partnership should consider scope for natural adaption to sea level rise. **Inappropriate coastal management:** Maintaining coastal defences at Bawdsey and Slaughden is leading to increased shingle recharge
Alde-Ore Estuaries SPA EU Code: UK9009112	2403.50	Qualifying features: • Avocet, Recurvirostra avosetta • Lesser black-backed gull, Larus fuscus • Little tern, Sterna albifrons • Marsh Harrier, Circus aeruginosus • Redshank, Tringa totanus • Ruff, Philomachus pugnax • Sandwich tern, Sterna sandvicensi	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	

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			• The population of each of the qualifying features, and, • The distribution of the qualifying features within the site.	requirements at Slaughden, and loss of shingle beach at southern end of SAC at Bawdsey. **Inappropriate pest control:** Fox predation/disturbance is a key issue for breeding birds on Orfordness, particularly Lesser black backed gulls. Foxes can cause gulls and other breeding birds to abandon nesting sites, and predate adult birds and chicks. **Changes in species distributions:** There are negative population trends in bird species using the site. Breeding locations are moving within and away from the designated site, possibly due to habitat change on site, as a reaction to other species and due to draw of other adjacent hinterland habitat. This requires further investigation and possible mitigation. **Invasive species:** Spartina is encroaching on estuarine muds. With Spartina at the front, and reed encroaching at

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				the back, saltmarsh could be squeezed out. **Air Pollution- impact of atmospheric nitrogen deposition:** Air pollution impacts on vegetation diversity. Aerial deposits of nitrogen may exceed the site relevant critical load (20 – 30 kg N ha-1 yr-1) above which the diversity of saltmarsh vegetation begins to be altered (possibly to reed) and adversely impacted. Many land use practices contribute to this problem locally including land spreading, outdoor pigs, high nutrient inputs on fields. **Fisheries:** Commercial marine and estuarine – There are many different fishing pressures close to shore that may include bycatch of juvenile fish and disturbance of fish nursery areas that could potentially have an impact on Little tern Stern.
Alde-Ore Estuary Ramsar site	2,547	**Ramsar criterion 2:** The site supports a number of nationally-scarce plant species and	None available.	None available.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
EU code: UK11002		British Red Data Book invertebrates **Ramsar criterion 3:** The site supports a notable assemblage of breeding and wintering wetland birds. **Ramsar criterion 6:** Species/populations occurring at levels of international importance: Qualifying Species/populations (as identified at designation): Species regularly supported during the breeding season: • Lesser black-backed gull, Larus fuscus graellsii, • Species with peak counts in winter: • Pied avocet, Recurvirostra avosetta • Common redshank, Tringa totanus totanus		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Margate and Long Sands Margate and Long Sands starts to the north of the Thanet coast of Kent and proceeds in a north-easterly direction to the outer reaches of the Thames Estuary. It contains a number of Annex I Sandbanks slightly covered by seawater at all times, the largest of which is Long Sands itself. The sandbanks are composed of well-sorted sandy sediments, with muddier and more gravelly sediments in the troughs between banks, and the upper crests of some of the larger banks dry out at low tide. The banks are tidally-influenced estuary mouth sandbanks, the southern banks aligned approximately east-west in the direction of tidal currents entering the Thames Estuary from the English Channel whereas Long Sand is aligned in a north east - south west orientation with influence from the North Sea.				
Margate and Long Sands candidate SAC EU Code: UK0030371	64876.85	**Qualifying Features:** H1110 Sandbanks which are slightly covered by sea water all the time	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which the	**Fisheries: Commercial marine and estuarine:** 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 the Marine Management Organisation (MMO). 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. Fishing activities within the site include set and drift-net tramelling

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			qualifying natural habitats rely	netting, potting, and trawling.
Devils Dyke The Devil's Dyke holds an extensive area of species-rich chalk grassland of a type characteristic to chalklands of south, central and eastern England. The Dyke is an ancient linear earthwork comprising a deep ditch and high bank. It was originally colonised by plants from adjacent grassland (much of which is now arable) and remains as one of the few areas still supporting these vegetation communities. The species-rich grassland is dominated by upright brome Bromopsis erecta and a range of typical chalk herbs are present including salad burnet Sanguisorba minor, dropwort Filipendula vulgaris and rock-rose Helianthemum nummularium. Some uncommon plants such as purple milk-vetch Astragalus danicus, bastard toadflax Thesium humifusum and the pasque flower Pulsatilla vulgaris are also present. It is the only known UK semi-natural dry grassland site for lizard orchid Himantoglossum hircinum.				
Devils Dyke SAC EU Code: UK0030037	8.02	**Qualifying features:** H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) (important orchid sites). Dry grasslands and scrublands on chalk or limestone, including important orchid sites)	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	**Inappropriate scrub control:** There is some scrub encroachment which is beginning to become damaging on some parts of the site and is likely to cause the notified grassland to deteriorate. Grassland vegetation management is currently managed by hand cutting as grazing cannot be carried out due to equestrian practices which have taken place for centuries. The current HLS agreement does not provide sufficient funding to allow appropriate management of the sward because of the steepness of

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			habitats, and • The supporting processes on which qualifying natural habitats rely	the site. **Air Pollution- impact of atmospheric nitrogen deposition:** 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.
Medway Estuary and Marshes Located in north Kent, the Medway Estuary and Marshes SPA covers an area of 46.84 km2, including both marine and terrestrial areas. The river Medway forms a single tidal system with the river Swale, joining the Thames Estuary between the Isle of Grain and Sheerness. There is a diverse mix of intertidal habitats, including saltmarshes, mudflats, shell beaches and eelgrass beds. These habitats support a diverse range of water birds throughout the year, including breeding waders and terns in the summer and important numbers of geese, ducks, grebes and waders in winter.				
Medway Estuary and Marshes SPA EU Code: UK9012031	4,748.8	**Qualifying features:** • A046a Branta bernicla bernicla; Dark-bellied brent goose (Non-breeding) • A048 Tadorna tadorna; Common shelduck (Non-	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:	**Coastal squeeze:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		breeding) • A054 Anas acuta; Northern pintail (Non-breeding) • A132 Recurvirostra avosetta; Pied avocet (Breeding) • A132 Recurvirostra avosetta; Pied avocet (Non-breeding) • A137 Charadrius hiaticula; Ringed plover (Non-breeding) • A141 Pluvialis squatarola; Grey plover (Non-breeding) • A143 Calidris canutus; Red knot (Non-breeding) • A149 Calidris alpina alpina; Dunlin (Non-breeding) • A162 Tringa totanus; Common redshank (Non-breeding) • A195 Sterna albifrons; Little tern (Breeding) • Waterbird assemblage • Breeding bird assemblage	• 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.	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:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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:** 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 distribution:**

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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 **Fisheries- commercial marine and estuarine:** The extent and impacts of fisheries on private grounds, particularly in the Swale Estuary, needs to be better understood. There are

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				particular concerns regarding the dredging of shellfish within the SPAs which are a food source for the protected birds. 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. **Invasive species:** 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. Spartina anglica may be increasing at the expense of other saltmarsh habitats with adverse implications for SPA bird roost areas in Benfleet

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				& Southend Marshes. **Vehicles- Illicit:** 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. **Air Pollution- risk of atmospheric nitrogen deposition:** Nitrogen deposition exceeds site-relevant critical loads.

North Downs Woodlands

This site consists of mature beech Fagus sylvatica forests and yew Taxus baccata woods on steep slopes. The stands lie within a mosaic of scrub, other woodland types and areas of unimproved grassland on thin chalk soils. The beech and yew woodland is on thin chalk soils and where the ground flora is not shaded dog's mercury Mercurialis perennis predominates. Associated with it is stinking iris Iris foetidissima and several very scarce species such as lady orchid Orchis purpurea and stinking hellebore Helleborus foetidus. The chalk grassland, on warm south-facing slopes, is dominated by upright brome Bromopsis erecta and sheep's-fescue Festuca ovina but supports many other plants which are characteristic of unimproved downland, including the nationally rare ground pine Ajuga chamaepitys.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
North Downs Woodland SAC EU Code: UK0030225	287.58	**Qualifying features:** • H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia); Dry grasslands and scrublands on chalk or limestone • H9130. Asperulo-Fagetum beech forests; Beech forests on neutral to rich soils • H91J0. Taxus baccata woods of the British Isles; Yew-dominated woodland*	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of the qualifying natural habitats • The structure and function (including typical species) of the qualifying natural habitats, and, • The supporting processes on which the qualifying natural habitats rely	**Public Access and Disturbance:** Off-road vehicles as well as all-terrain bikes are having an impact on parts of the woodland. Vehicle damage is associated with vehicles coming off the Public Rights of Way (PRoW) into the woodland. All-terrain bikes favour Yew woodland where there is no understorey and the creation of tracks by bikes is eroding soil around the roots of Yews. **Forestry and woodland management:** Beech regeneration is insufficient to retain canopy cover in the long term. In addition, Beech saplings are susceptible to squirrel damage. **Invasive species:** Invasive Sycamore has the potential to regenerate in woodland gaps reducing overall extent of SAC feature. This is more of an issue in Beech stands than in Yew woodland where Yew tends to eventually succeed in dominating

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				the canopy. **Air Pollution- risk of atmospheric nitrogen deposition:** Nitrogen deposition exceeds site relevant critical loads.
Peter's Pit Peter's Pit is an old chalk quarry with adjoining soil-stripped fields on the North Downs, with scattered ponds situated amongst grassland, scrub and woodland. The ponds have widely fluctuating water levels and support large breeding populations of great crested newt Triturus cristatus. The site has an undulating terrain in which many rain fed ponds, of various sizes, have developed. Those which dry up early in the season are of less interest, but five ponds are sufficiently large to support very substantial populations of amphibians, particularly the great crested newt. The value of the site for newts is enhanced by the presence, around the edges and between the ponds, of areas of scrub with loose rock which serve as day and winter refuges. Aquatic vegetation provides shelter in the pond environment.				
Peters Pit SAC EU: UK0030237	28.30	**Qualifying features:** Great crested newt Triturus cristatus	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: • The extent and distribution of the habitats of qualifying	No current issues affecting the Natura 2000 feature(s) have been identified on this site.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			species • The structure and function of the habitats of qualifying species • The supporting processes on which the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.	
Queendown Warren The grassland of this site is on the south-facing slope of a dry chalk valley. It is largely dominated by upright brome Bromopsis erecta and sheep's-fescue Festuca ovina with numerous plants characteristic of grazed but otherwise undisturbed chalk grassland. Among the more interesting species are chalk milkwort Polygala calcarea, squinancywort Asperula cynanchica, horseshoe vetch Hippocrepis comosa and the nationally rare meadow clary Salvia pratensis. The site contains an important assemblage of rare and scarce orchids, including early spider-orchid Ophrys sphegodes, burnt orchid Orchis ustulata and man orchid Aceras anthropophorum. It is rich entomologically and two characteristic species, the adonis blue butterfly Lysandra bellargus and the rufous grasshopper Gomphocerippus rufus occur here.				
Queendown Warren SAC	14.28	**Qualifying features:** Semi-natural dry grasslands and	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure	**Species decline:** Numbers of Early Spider-orchid have declined from 10 years ago.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
EU Code: UK0012833		scrubland facies: on calcareous substrates (Festuco-Brometalia) (important orchid sites). (Dry grasslands and scrublands on chalk or limestone, including important orchid sites	that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural habitats rely	Trials are underway to assess the impact of rabbit grazing on the orchid population. There is also a concern with potential effects of air pollution, climate change, lack of genetic diversity or lack of pollinating insects. **Habitat fragmentation:** The small size and relative isolation of the site raises concern for the long-term genetic viability of some of the orchid populations. **Air Pollution- risk of atmospheric nitrogen deposition:** 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.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
The Swale SPA and Ramsar A complex of brackish and freshwater, floodplain grazing marsh with ditches, and intertidal saltmarsh and mudflat. These habitats together support internationally important numbers of wintering waterfowl. Rare wetland birds breed in important numbers. The saltmarsh and grazing marsh are of international importance for their diverse assemblages of wetland plants and invertebrates.				
The Swale SPA EU Code: UK9012011	6515	**Qualifying features:** • A046a Branta bernicla bernicla; Dark-bellied brent goose (Non-breeding) • A149 Calidris alpina alpina; Dunlin (Non-breeding) • Breeding bird assemblage • Waterbird assemblage	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	**Coastal squeeze:** 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:** 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			of the qualifying features, and, • The distribution of the qualifying features within the site.	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:** 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.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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 distribution: 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

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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:** 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. 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. **Invasive species:** Freshwater non-native invasive

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				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. 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:** 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. **Air Pollution- risk of atmospheric nitrogen deposition:**

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				Nitrogen deposition exceeds site-relevant critical loads.
The Swale Ramsar	6515	**Qualifying features:** **Ramsar criterion 2** The site supports a number of species of rare plants and animals. The site holds several nationally scarce plants, including sea barley Hordeum marinum, curved hard-grass Parapholis incurva, annual beard-grass Polypogon monspeliensis, Borrer's saltmarsh-grass Puccinellia fasciculata, 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. A total of at least twelve species of wetland invertebrates have been recorded on the site. These include a ground beetle Polistichus connexus, a fly Cephalops perspicuus, a	None available.	On-site erosion has been identified as a factor affecting the sites integrity.

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		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, and a cranefly Limonia danica. A significant number of non-wetland British Red Data Book species also occur. **Ramsar criterion 5** Assemblages of international importance: Species with peak counts in winter: • 47637 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Qualifying Species/populations (as identified at designation): Species with peak counts in		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
		spring/autumn: • Grey plover, Pluvialis squatarola, • Common redshank, Tringa totanus totanus, Species with peak counts in winter: • Dark-bellied brent goose, Branta bernicla bernicla, • Common shelduck, Tadorna tadorna • Northern pintail, Anas acuta • Ringed plover, Charadrius hiaticula, • Red knot, Calidris canutus islandica, • Dunlin, Calidris alpina alpina,		

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
Wormley-Hoddesdon Park Woods Wormley Hoddesdonpark Woods has large stands of almost pure hornbeam Carpinus betulus (former coppice), with sessile oak Quercus petraea standards. Areas dominated by bluebell Hyacinthoides non-scripta do occur, but elsewhere there are stands of great wood-rush Luzula sylvatica with carpets of the mosses Dicranum majus and Leucobryum glaucum. Locally, a bryophyte community more typical of continental Europe occurs, including the mosses Dicranum montanum, D. flagellare and D. tauricum.				
Wormley-Hoddesdon Park Woods SAC EU Code: UK0013696	335.53	**Qualifying features:** Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli. (Oak-hornbeam forests)	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural	**Disease:** Acute Oak Decline (AOD) is present in at least two parts of the site and affects both native oak species, which are key components of this woodland type. Oaks can be killed by AOD within 5 years of symptoms appearing. Research is underway on the causal agents and spread of the disease. Based on current knowledge AOD has the potential in the long-term to cause high oak mortality right across the site. **Invasive species:** Several tree and shrub species not native to the site are present. Where they are not being actively controlled, they are gradually spreading. The more invasive of these include sycamore, turkey oak,

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
			habitats rely	rhododendron and snowberry. **Air Pollution- risk of atmospheric nitrogen deposition:** 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. **Deer:** Browsing and grazing by deer can reduce tree regeneration (from seedlings or coppice stools) and damage the woodland understorey and ground flora. At this site, deer damage levels are currently only moderate and do not appear to be affecting tree regeneration, habitat structure or species composition greatly. However, subtle damaging effects can be difficult to identify and monitor, and deer populations can increase rapidly. **Illicit vehicles:**

Site name	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)	Key vulnerabilities / factors affecting site integrity
				Illegal use of restricted byways and bridleways by off-road vehicles causes localised but sometimes severe rutting and soil compaction, damaging the woodland ground flora, shrubs and trees. Fly-tipping damages the ground flora directly and can introduce toxins and alien species. **Forestry and woodland management:** The larger woodland units with public access are under appropriate management but some of the smaller, privately-owned units are not. Though it is quite acceptable for a significant proportion of the site to be left as 'minimum intervention' high forest, in some circumstances a lack of active management can lead to adverse effects. These include a reduction in structural and species diversity (particularly in previously coppiced areas), the loss of temporary and permanent open space, the over-shading and deterioration of veteran pollards, and the spread of invasive

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				species. **Public access/disturbance:** The site is a large, attractive area of ancient woodland with extensive public access and close to large urban centres, so it is heavily used by the public for recreational purposes. Sensitive management of access points and routes by the site's main owners has been largely successful in mitigating the potential adverse effects of this high level of use. However, visitor numbers continue to increase, the types of use can change unpredictably and less obvious adverse effects on important flora and fauna could be missed during routine, 'general purpose' monitoring.

Essex County Council