
Land at Altcar Moss

Shadow Habitats Regulations Assessment Screening Report

Compiled by Ecology Services Ltd.

March 2019

This report is supporting an Ecological Impact Assessment (EclA) chapter and the terminology in the EclA, refers to significant effect in terms of impacts at an international, national, regional and local level. Where terminology in this report refers to 'significant effect' it is specifically looking at the assessment under the Habitats Regulations Assessment in relation to Natura 2000 sites (European Protected Sites) and the terminology should not be confused.



Environmental Consultants

1 Church Row Chambers

Longton

Preston

Lancashire PR4 5PN.

tel: 01772 614932

fax: 01772 614930

email: info@ecologyservices.co.uk

web: www.ecologyservices.co.uk

Ref:

Written by: LR

Checked: LES

Approved: LR

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1.0 Introduction

- 1.1 This Shadow Habitats Regulations Assessment (HRA) Screening Report has been prepared by Ecology Services Limited on behalf of Aurora Energy Resources Limited (The Applicant) to inform a planning application for the construction of a temporary wellsite and associated access track, drill, hydraulically stimulate and test two (2) petroleum exploration boreholes including drilling rig (maximum height 60m) and associated plant and equipment followed by wellsite restoration, on land at Altcar Moss, Formby, West Lancashire, hereafter referred to as the 'proposed development' (see Drawing 1).

2.0 Purpose of this Report

- 2.1 This shadow HRA assessment is required to assess the effects of the proposed shale gas exploration works on land at Altcar Moss, upon Natura 2000 sites (European Protected Sites).

3.0 Habitat Regulations Assessment

- 3.1 Under Article 6 of the Habitats Directive, an assessment is required where a plan or project may give rise to significant effects upon a Natura 2000 site(s) (European site(s)). A review of Natura 2000 sites has been undertaken, none of the sites lie within the proposed development boundary, but several sites have been considered as potentially being indirectly affected by the proposals.
- 3.2 Natura 2000 is a network of areas designated to conserve natural habitats and species that are rare, endangered, vulnerable or endemic within the European Community. These include Special Areas of Conservation (SACs), designated under the Habitats Directive for their habitats and/or species of European importance, and Special Protection Areas (SPAs), classified under Directive 2009/147/EC on the Conservation of Wild Birds for rare, vulnerable and regularly occurring migratory bird species and internationally important wetlands (NB Council Directive 79/409/EEC has now been replaced by Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds). Sites of Community Importance (SCI) also need consideration including European Marine Sites. Possible SACs (pSACs) and potential SPAs (pSPAs) are also considered. In order to ensure compliance with the requirements of the Ramsar Convention, the English Government expects all competent authorities to treat listed Ramsar sites (and proposed Ramsar sites) as if they are designated European sites, as a matter of policy (ODPM Circular 06/2005). Most Ramsar sites are also a SPA or SAC, but the Ramsar features and exact boundary lines may vary from those for which the site is designated as a European site.
- 3.3 The requirements of the Habitats Directive are transposed into English law by means of the Conservation of Habitats and Species Regulations 2017. Through paragraph 3, Article 6 and Paragraph 4, Article 6 of the Habitats Directive.
- 3.4 The aim of HRA is to determine, taking into account the site's conservation objectives and qualifying criteria, whether a proposed development either in isolation or in combination with other plans, is likely to have a significant adverse effect on a Natura 2000 site (European Protected Site).

4.0 Description of the Proposals

- 4.1 The Applicant is proposing to construct a wellsite and access track, of approximately 1.72 hectares in area, within which it will drill and core a vertical borehole, followed by the drilling of a second borehole, with a horizontal section approximately 1,500m in length. Both boreholes will then undergo hydraulic fracture stimulation. Each borehole will then be separately flow tested and, subject to the results obtained, the horizontal borehole may then undergo an extended well test (up to 90 days). In the event that the exploratory works are unsuccessful, both boreholes will be decommissioned and the site restored. If successful, any future planned works would be subject to a separate planning application. For clarity, stimulation of the boreholes will involve high volume hydraulic fracture stimulation, as defined by Section 4B(1) of the Petroleum Act 1998.
- 4.2 Chapter 4 of the Environmental Statement sets out the detailed development description for each of the eight phases. A summary of each development phase is provided below.
- 4.3 **Phase 1 – Access Track and Wellsite Construction:** Construction of a new access track, followed by the construction of a level hardstanding and drilling cellar, with underlying impermeable membrane and surface water containment system.
- 4.4 **Phase 2 – Drilling and Coring of a Vertical Borehole (Borehole #1):** Mobilise surface conductor rig. Drill and set conductor casing for each borehole, to a depth of approximately 40mTVDGL, followed by demobilisation. Mobilisation of a drilling rig (mast height up to 60m) and ancillary equipment, the drilling and coring of a single vertical borehole to a depth of approximately 3,000mTVDGL.
- 4.5 **Phase 3 – Drilling of a Horizontal Borehole (Borehole #2):** Following evaluation of the geological data acquired during the Phase 2 works, a second borehole will be drilled on the application site. The second borehole will be drilled down to the target zone and then drilled horizontally within this zone for up to 1,500m followed by demobilisation of the drilling rig and ancillary equipment.
- 4.6 **Phase 4 – Hydraulic Fracture Stimulation of the Vertical and Horizontal Boreholes:** Mobilisation of a coil tubing unit and/or workover rig, hydraulic fracture stimulation equipment and well test equipment. Hydraulic fracture stimulation of each borehole will be undertaken in turn. A final hydraulic fracture plan for each borehole will be submitted, in advance of the operation, to the Oil & Gas Authority (OGA) for approval. Demobilisation of the hydraulic fracture stimulation equipment.
- 4.7 **Phase 5 - Initial Flow Testing:** A number of separate zones within the hydraulically fractured interval in the vertical borehole will be flow tested to ascertain if stabilised flow of hydrocarbons can be established from the various units within the Bowland Shale/Hodder Mudstone sequence. Each tested zone may comprise more than one fracture stage. Once initial flow testing of the vertical borehole is complete, initial flow testing of the horizontal borehole will be undertaken. Phase 5 is expected to take up to sixty (60) days. Produced gas is to be incinerated on site via shrouded ground flare. Any liquid hydrocarbons produced would be separated and stored on site prior to removal by road tanker to a refinery for sale.
- 4.8 **Phase 6 – Extended Well Test (Horizontal Borehole):** The production of hydrocarbons under flow test for a period of up to ninety (90) days. Produced gas to be incinerated on site via enclosed ground flare. Any liquid hydrocarbons produced would be separated and stored on site prior to removal by road tanker to a refinery for sale.
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- 4.9 **Phase 7 – Decommissioning and Borehole Abandonment:** Decommissioning of all surface equipment followed by borehole abandonment, including the mobilisation and demobilisation of a workover rig and/or coil tubing unit and ancillary equipment.
- 4.10 **Phase 8 – Wellsite Restoration:** Wellsite restoration to pre-development condition, as agreed with the MPA and Landowner, followed by a five (5) year aftercare scheme.
- 4.11 Further details on the phases of the development can be found in chapter 6 of the planning statement accompanying the planning application.
- 4.12 The Development will have a total duration of 5 years, which allows for any breaks between development phases.

5.0 Habitats Regulation Assessment Process

- 5.1 Habitats Regulations assessments comprise of four distinct stages, as detailed in Table 1. However, it may not be necessary to undertake all stages, if it can be determined that the works have no significant effects upon a Natura 2000 site (European Protected Site).

Table 1: Habitats Regulations Assessment Process

| Stages | Overview |
|--|---|
| Stage 1 – Screening (ALSE) | Evidence gathering stage which involves the identification of European sites that could be affected by the project, the characteristics of these sites and their conservation objectives. The information collected is then used to assess for likely impacts upon a Natura 2000 site of the proposed development alone or in combination with other plans or projects. |
| Stage 2 - Appropriate Assessment | Detailed consideration of the impact on the integrity of the Natura 2000 site of the proposed development alone or in combination. Effects are assessed in respect to the site’s conservation objectives, its structure and function, to determine adverse effects on the integrity of the Natura 2000 site. Integrity is described by OPDM Circular 06/2005: Biodiversity and Geological Conservation as “the site’s coherence, ecological structure and function across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of species for which it was classified”. A Competent Authority must undertake an Appropriate Assessment. |
| Stage 3 - Assessment of Alternative Solutions | Options identified to potentially have a negative impact should be investigated to identify if there are alternatives that have a lesser effect on the Natura 2000 site. |
| Stage 4 - Assessment where no Alternatives Exist & Negative Impacts Remain | At Stage 4, an assessment is made with regard to whether or not the proposed development is necessary for Imperative Reasons of Overriding Public Interest (IROPI), which is a difficult test to satisfy. If it is, this stage also involves the determination of compensatory measures needed to protect and maintain the overall coherence of the Natura 2000 network. |

- 5.2 This HRA Report has been produced following the recent Court of Justice of the European Union (CJEU) judgement (People over/Wind & Sweetman v Coillte Teoranta Case C323-17), dated 12th April 2018, in Ireland.
- 5.3 The ruling stated:
'Article 6(3). must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of measures intended to avoid or reduce the harmful effects of the plan or project on that site.'
- 5.4 The assessment shall take into account measures that are standardly adopted as part of the aforementioned activity, at the Screen Stage.

6.0 Identification & Description of Natura 2000 Sites

- 6.1 Identification of the Natura 2000 sites was obtained utilising the MAGIC website (<https://magic.defra.gov.uk/>) to locate the Natura 2000 sites and potential Natura 2000 sites.
- 6.2 The search included any sites within the proposed development and sites outside the proposed development, taking into consideration the designation criteria.
- 6.3 It was originally considered that Natura 2000 sites located within 10km of the proposed development was sufficient taking in to account the scale of the works. However, to take into account the functionality linkages of the Ribble & Alt Estuaries SPA and Ramsar site, the area was extended to include: Martin Mere, Dee Estuary, Mersey Estuary and Morecambe Bay & Duddon Estuary SPAs and Ramsar sites. See Table 2 below and Drawing 2. It is noted that only the features (pink-footed goose, Bewick's swan and whooper swan) associated with the interchange and functionality parts of the Ribble & Alt Estuaries are considered in the wider area.
- 6.4 While located 5.8km west of the proposed development, Liverpool Bay SPA Liverpool Bay / Bae Lerpwl SPA, located off the coast of Formby 5.8km at nearest encompasses marine areas supporting large aggregations of wintering red-throated diver and common scoter as well as important marine foraging areas of little terns breeding within The Dee Estuary SPA, and foraging areas of common terns breeding at the Mersey Narrows & North Wirral Foreshore SPA. There is no suitable habitat for these species with the study area and therefore there is no potential for likely significant effects and this site has therefore been excluded from this assessment.

Table 2: Natura 2000 Sites

| Site Name | Designation | Designation |
|--------------------------------|--------------------|--------------------|
| Ribble & Alt Estuaries | UK9005103 | SPA & Ramsar |
| Martin Mere | UK9005111 | SPA & Ramsar |
| Dee Estuary | UK9013011 | SAC, SPA & Ramsar |
| Mersey Estuary | UK9005131 | SPA & Ramsar |
| Morecambe Bay & Duddon Estuary | UK9005081 | SPA & Ramsar |
| Sefton Coast | UK0013076 | SAC |

- 6.5 The citations of each of the above sites are included at Appendix 1. Appendix 2 provides further information of the identified Natura 2000 sites, including current status, conservation threats and results of the most recent condition assessments. The below overview is taken from JNCC SPA and SAC citations and data forms.

Table 3: Natura 2000 Sites Overview

| Stages | Designation | Distance | Overview |
|------------------------|--------------|---------------------------------------|--|
| Ribble & Alt Estuaries | SPA & Ramsar | 3.8km south west, west and north west | <p><i>Ribble and Alt Estuaries SPA</i></p> <p>This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:</p> <p>During the breeding season:</p> <ul style="list-style-type: none"> - Common tern <i>Sterna hirundo</i> - Ruff <i>Philomachus pugnax</i> <p>Over winter:</p> <ul style="list-style-type: none"> - Bar-tailed godwit <i>Limosa lapponica</i> - Bewick's swan <i>Cygnus columbianus</i> - Golden plover <i>Pluvialis apricaria</i> - Whooper swan <i>Cygnus cygnus</i> <p>This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:</p> <p>During the breeding season:</p> <ul style="list-style-type: none"> - Lesser black-backed gull <i>Larus fuscus</i> <p>On passage:</p> <ul style="list-style-type: none"> - Ringed plover <i>Charadrius hiaticula</i> - Sanderling <i>Calidris alba</i> <p>Over winter:</p> <ul style="list-style-type: none"> - Black-tailed godwit <i>Limosa limosa</i> - Dunlin <i>Calidris alpina</i> - Grey plover <i>Pluvialis squatarola</i> - Red knot <i>Calidris canutus</i> - Eurasian oystercatcher <i>Haematopus ostralegus</i> - Pink-footed goose <i>Anser brachyrhynchus</i> - Northern pintail <i>Anas acuta</i> |

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| | | | <ul style="list-style-type: none"> - Common redshank <i>Tringa totanus</i> - Sanderling <i>Calidris alba</i> - Common shelduck <i>Tadorna tadorna</i> - Eurasian teal <i>Anas crecca</i> - Eurasian wigeon <i>Anas penelope</i> <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 seabirds.</p> <p>During the breeding season the area regularly supports 29,236 individual seabirds including: black headed gull <i>Chroicocephalus ridibundus</i>; lesser black-backed gull & common tern.</p> <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.</p> <p>Over winter the area regularly supports waterfowl, including grey plover <i>Pluvialis squatarola</i>, whooper swan, golden plover, bar-tailed godwit, pink-footed goose, common shelduck, Eurasian wigeon, Eurasian teal, Bewick's swan, Eurasian oystercatcher, Eurasian curlew <i>Numenius arquata</i>, red knot, sanderling, dunlin, common redshank, great cormorant <i>Phalacrocorax carbo</i>, common scoter <i>Melanitta nigra</i>, lapwing <i>Vanellus vanellus</i> and northern pintail.</p> <p><i>Ribble and Alt Estuaries Ramsar site</i> The site qualifies under Ramsar criterion 2 - This site supports up to 40% of the Great Britain population of natterjack toads <i>Bufo calamita</i>.</p> <p>The site qualifies under Ramsar criterion 5 - assemblages of international importance:</p> <p>Species with peak counts in winter: 222,038 waterfowl (5 year peak mean 1998/99-2002/2003)</p> <p>The site qualifies under Ramsar criterion 6 – species/populations occurring at levels of international importance:</p> |
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| | | | <p>Species regularly supported during the breeding season:</p> <ul style="list-style-type: none"> -Lesser black-backed gull <p>Species with peak counts in spring/autumn:</p> <ul style="list-style-type: none"> -Ringed plover -Grey plover -Red knot -Sanderling -Dunlin -Black-tailed godwit -Common redshank -Lesser black-backed gull <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> -Tundra (Bewick's) swan -Whooper swan -Pink-footed goose -Common shelduck -Eurasian wigeon -Eurasian teal -Northern pintail -Eurasian oystercatcher -Bar-tailed godwit |
| Martin Mere | SPA & Ramsar | 11.1km northeast | <p><i>Martin Mere SPA</i></p> <p>The site qualifies under Article 4.1 (79/409/EEC).</p> <p>Over winter the area regularly supports:</p> <ul style="list-style-type: none"> - Bewick's swan - Whooper swan <p>The site qualifies under Article 4.2 (79/409/EEC), as over winter the area regularly supports:</p> <ul style="list-style-type: none"> - Northern pintail - Eurasian wigeon - Pink-footed goose |

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| | | | <p><i>Martin Mere Ramsar site</i> The site qualifies under Ramsar criterion 5 - Assemblages of international importance:</p> <p>Species with peak counts in winter: 25306 waterfowl (5 year peak mean 1998/99-2002/2003)</p> <p>The site qualifies under Ramsar criterion 6 – species/populations occurring at levels of international importance.</p> <p>Species with peak counts in spring/ autumn: -Pink-footed goose</p> <p>Species with peak counts in winter: -Tundra (Bewick's) swan -Whooper swan -Eurasian wigeon -Northern pintail</p> |
| Dee Estuary | SPA & Ramsar | 17km to southwest | <p><i>Dee Estuary SPA</i> The site qualifies under Article 4.1 Qualification (79/409/EEC) as during the breeding season the area regularly supports:</p> <ul style="list-style-type: none"> - Little tern <i>Sterna albifrons</i> - Common tern - Bar-tailed godwit <p>On passage the area regularly supports:</p> <ul style="list-style-type: none"> - Sandwich tern <p>This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: Over winter the area regularly supports:</p> <ul style="list-style-type: none"> - Northern pintail - Eurasian teal - Dunlin - Red knot |

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| | | | <ul style="list-style-type: none">- Eurasian oystercatcher- Black-tailed godwit- Grey plover- Common redshank <p>On passage the area regularly supports:</p> <ul style="list-style-type: none">- Common redshank <p>Over winter the area regularly supports: 120,726 waterfowl including: common redshank, northern pintail, oystercatcher, red knot and black-tailed godwit.</p> <p><i>Dee Estuary Ramsar site</i></p> <p>The site qualifies under Ramsar criterion 1 in supporting extensive intertidal mud and sand flats (20 km by 9 km) with large expanses of saltmarsh towards the head of the estuary. Habitats Directive Annex I features present on the SAC include: Estuaries; Mudflats and sandflats not covered by seawater at low tide; Annual vegetation of drift lines; Vegetated sea cliffs of the Atlantic and Baltic coasts; <i>Salicornia</i> and other annuals colonising mud and sand; Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>); Embryonic shifting dunes; Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes"); Fixed dunes with herbaceous vegetation ("grey dunes"); and humid dune slacks.</p> <p>The site qualifies under Ramsar Criterion 2 in supporting breeding colonies of the vulnerable Natterjack toad.</p> <p>The site qualifies under Ramsar criterion 5 - Assemblages of international importance:</p> <p>Species with peak counts in winter: Non-breeding season regularly supports 120,726 individual waterbirds (5 year peak mean 1994/5 – 1998/9).</p> <p>The site qualifies under Ramsar criterion 6 – species/populations occurring at levels of international importance.</p> |
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| | | | <p>Species with peak counts in spring/autumn:</p> <ul style="list-style-type: none"> -Common redshank <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> -Eurasian teal -Common shelduck -Eurasian oystercatcher -Eurasian curlew -Northern pintail -Grey plover -Red knot -Dunlin (breeding) -Black-tailed godwit (breeding) -Bar-tailed godwit (wintering) -Common redshank |
| Mersey Estuary | SPA & Ramsar | 23km to southeast | <p><i>Mersey Estuary SPA</i></p> <p>The site qualifies under Article 4.1 Qualification (79/409/EEC).</p> <p>Over winter the area regularly supports:</p> <ul style="list-style-type: none"> - Golden plover <p>The site also qualifies under Article 4.2 Qualification (79/409/EEC) as over winter the area regularly supports:</p> <ul style="list-style-type: none"> - Northern pintail - Eurasian teal - Eurasian wigeon - Dunlin - Black-tailed godwit - Eurasian curlew - Grey plover - Great crested grebe <i>Podiceps cristatus</i> - Common shelduck - Common redshank - Lapwing |

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| | | | <p>On passage the area regularly supports:</p> <ul style="list-style-type: none"> - Ringed plover <i>Charadrius hiaticula</i> - Common redshank <p><i>Mersey Estuary Ramsar site</i> The site qualifies under</p> <p>Ramsar criterion 5 - Assemblages of international importance:</p> <p>Species with peak counts in winter: 89576 waterfowl (5 year peak mean 1998/99-2002/2003)</p> <p>Ramsar criterion 6 – species/populations occurring at levels of international importance: pecies with peak counts in spring/autumn:</p> <ul style="list-style-type: none"> -Common shelduck -Black-tailed godwit -Common redshank <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> -Eurasian teal -Northern pintail -Dunlin |
| Morecambe Bay and Duddon Estuary | SPA & Ramsar | 55km north | <p><i>Morecambe Bay and Duddon Estuary SPA</i> The site qualifies under Article 4.1 Qualification (2009/147/EC) as it is used regularly by 1% or more of the Great Britain populations of the following species listed in Annex I in any season:</p> <ul style="list-style-type: none"> -Whooper swan (non-breeding) -Little egret (non-breeding) -European golden plover (non-breeding) -Bar-tailed godwit (non-breeding) -Ruff (non-breeding) -Mediterranean gull (non-breeding) -Little tern (breeding) sandwich tern <i>Sterna sandvicensis</i>. -Common tern (breeding) |

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| | | | <p>The site also qualifies under Article 4.2 Qualification (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed in Annex I) in any season:</p> <ul style="list-style-type: none"> -Pink-footed goose (non-breeding) -Common shelduck (non-breeding) -Northern pintail (non-breeding) -Eurasian oystercatcher (non-breeding) -Grey plover (non-breeding) -Common ringed plover (non-breeding) -Eurasian curlew (non-breeding) -Black-tailed godwit (non-breeding) -Ruddy turnstone <i>Arenaria interpres</i> (non-breeding) -Red knot (non-breeding) -Sanderling (non-breeding) -Dunlin (non-breeding) -Common redshank (non-breeding) -Lesser black-backed gull (non-breeding and breeding) -European herring gull <i>Larus argentatus argentatus</i> (breeding) <p><i>Morecambe Bay Ramsar Site</i></p> <p>The Morecambe Bay Ramsar Site qualifies under Ramsar criterion 4 in that the site is a staging area for migratory waterfowl including internationally important numbers of passage ringed plover</p> <p>It qualifies under Ramsar criterion 5 - Assemblages of international importance: Species with peak counts in winter: 223,709 waterfowl (5 year peak mean 1998/99-2002/2003)</p> <p>It qualifies under Ramsar criterion 6 – species/populations occurring at levels of international importance.</p> <p>Species regularly supported during the breeding season:</p> <ul style="list-style-type: none"> -Lesser black-backed gull -Herring gull -Sandwich tern |
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| | | <p>Species with peak counts in spring/autumn:</p> <ul style="list-style-type: none">-Great cormorant-Common shelduck-Northern pintail-Common eider-Eurasian oystercatcher-Ringed plover-Grey plover-Sanderling-Eurasian curlew (breeding)-Common redshank-Ruddy turnstone-Lesser black-backed gull <p><i>Duddon Estuary Ramsar Site</i></p> <p>The Duddon Estuary Ramsar site qualifies under Ramsar criterion 2 in that it supports nationally important numbers of the rare natterjack toad, and supports a rich assemblage of wetland plants and invertebrates.</p> <p>The Estuary qualifies under Ramsar criterion 4 in supporting nationally important numbers of waterfowl during spring and autumn passage.</p> <p>The Estuary qualifies under Ramsar criterion 5 - Assemblages of international importance with species with peak counts in winter: 26,326 waterfowl (5 year peak mean 1998/99-2002/2003)</p> <p>The Estuary qualifies under Ramsar criterion 6 – species/populations occurring at levels of international importance.</p> <p>Species with peak counts in winter:</p> <ul style="list-style-type: none">-Northern pintail-Red knot-Common redshank |
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| <p>Sefton Coast</p> | <p>SAC</p> | <p>3.7km southwest, west and northwest</p> | <p>Qualifying habitats: The site is designated under Article 4(4) of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I:</p> <ul style="list-style-type: none"> - Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>). (Coastal dune heathland)* - Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>). (Dunes with creeping willow) - Embryonic shifting dunes - Fixed dunes with herbaceous vegetation ("grey dunes"). (Dune grassland)* - Humid dune slacks - Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes"). (Shifting dunes with marram) <p>Qualifying species: The site is designated under Article 4(4) of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:</p> <ul style="list-style-type: none"> - Great crested newt <i>Triturus cristatus</i> - Petalwort <i>Petalophyllum ralfsii</i> <p>*Annex 1 priority habitats denoted by an (*)</p> |
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- 6.6 In summary, the proposed development is not located within a Natura 2000 site however there is potential for several sites to be indirectly affected by the proposals.
- 6.7 It is considered that Sefton Coast SAC and the habitat features of the Dee Estuary Ramsar site will not be affected by the proposals due to the distance between the sites and the nature of the proposed development, these designated sites have therefore been omitted from further appraisal. Habitats within the proposed development site and within 500m¹ from the site are unsuitable for natterjack toads, qualifying features of the Dee Estuary, Duddon Estuary and Ribble and Alt Estuaries Ramsar sites, therefore natterjack toads are not considered further below.
- 6.8 The proposed development is located in an area of agricultural land that is used by high numbers of wintering birds which are associated with the Ribble and Alt Estuaries SPA. Habitats within the proposed development site and within 500m from the site are suitable to support the following qualifying species; wintering bird species (Bewick's swan, pink-footed goose and whooper swan). The Morecambe Bay and Duddon Estuaries SPA was originally classified as two separate SPAs and comprises two separate Ramsar sites. Habitats within the proposed development site and within 500m from the site do not support any of the qualifying species for which the Duddon Estuary Ramsar site is designated. The Duddon Estuary Ramsar site is therefore excluded from this assessment.
- 6.9 With regards the qualifying breeding bird species of the Ribble and Alt Estuaries SPA, there is no suitable breeding habitat for these species within the study area and none of the qualifying breeding bird species for the Ribble and Alt Estuaries SPA have been recorded within the study area during the surveys undertaken. The qualifying breeding bird species are therefore excluded from this assessment.
- 6.10 It is noted, that there is considerable interchange in the movements of birds between the Ribble & Alt Estuaries and Martin Mere, Dee Estuary, Mersey Estuary and Morecambe Bay & Duddon Estuaries and this shall be taken into account for species that the proposed development site is suitable to support.
- 6.11 The results of the most recent condition assessments of the component Sites of Special Scientific Interest undertaken by Natural England of the above sites are given in Table 4 below.

Table 4: Natural England Condition Assessment of Component SSSIs

| Site Name | Favourable | Unfav. - recovering | Unfav. – no change | Unfav. - declining |
|---------------------------------------|------------|---------------------|--------------------|--------------------|
| Ribble Estuary SSSI | 99.11% | 0 | 0.89% | 0 |
| Sefton Coast SSSI (incl. Alt Estuary) | 70% | 21.75% | 4.94% | 3.07% |
| Martin Mere, Burscough SSSI | 100% | 0 | 0 | 0 |
| Dee Estuary SSSI | 100% | 0 | 0 | 0 |
| Mersey Estuary SSSI | 45.99% | 53.19% | 0.47% | 0.36% |

¹ 500m survey buffer is widely used for assessing the impacts of onshore wind turbines (<https://www.gov.uk/guidance/wild-birds-surveys-and-monitoring-for-onshore-wind-farms> and SNH, 2014)

| Site Name | Favourable | Unfav. - recovering | Unfav. – no change | Unfav. - declining |
|---------------------|------------|---------------------|--------------------|--------------------|
| Morecambe Bay SSSI | 94.31% | 5.69% | 0 | 0 |
| Duddon Estuary SSSI | 93.6% | 4.12% | 1.47% | 0 |

The Conservation Objectives of European Sites

- 6.12 Under Regulation 35(3) of the Conservation of Habitats and Species Regulations 2017, the appropriate statutory nature conservation body (in this case Natural England) has a duty to communicate the conservation objectives for a European site to the relevant/competent authority responsible for that site. The information provided under Regulation 35 must also include advice on any operations which may cause deterioration of the features for which the site is designated.
- 6.13 The conservation objectives for a European site are intended to represent the aims of the Habitats and Birds Directives in relation to that site. To this end, habitats and species of European Community importance should be maintained or restored to ‘favourable conservation status’ (FCS), as defined in Article 1 of the Habitats Directive below:
- 6.14 The conservation status of a natural habitat will be taken as ‘favourable’ when:
- Its natural range and the area it covers, within that range are stable or increasing;
 - The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
 - Conservation status of typical species is favourable as defined in Article 1(i).
- 6.13 The conservation status of a species will be taken as favourable when:
- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
 - The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
 - There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.
- 6.15 Guidance from the European Commission indicates that the Habitats Directive intends FCS to be applied at the level of an individual site, as well as to habitats and species across their European range. Therefore, in order to properly express the aims of the Habitats Directive for an individual site, Managing Natura 2000 sites: the provisions of Article 6 of the Habitats Directive 92/43/EEC (European Commission 2000) 21, the conservation objectives for a site are essentially to maintain (or restore) the habitats and species of the site at (or to) FCS.
- 6.16 Conservation Objectives are included in Appendix 1, these were obtained from Natural England’s website and are for all the SPAs:

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

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- *The extent and distribution of the habitats of the qualifying features*
- *The structure and function of the habitats of the qualifying features*
- *The supporting processes on which the habitats of the qualifying features rely*
- *The population of each of the qualifying features, and,*
- *The distribution of the qualifying features within the site.*

Site Improvement Plans

6.17 Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 sites (IPENS). The Site Improvement Plans are included in Appendix 1. Each plan provides a high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the site(s) and outlines the priority measures required to improve the condition of the features. It does not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

6.18 The relevant identified threats to each site and the proposed measures are summarised in Table 5.

Table 5: Natural England Site Improvement Plan relevant pressures/ threats and proposed measures

| Site Name | Pressure or Threat | Measure |
|---|---|--|
| Sefton Ribble (Ribble & Alt Estuaries SPA, Sefton Coast SAC) | Public access/ disturbance | Raise public awareness via Landscape Partnership Scheme and the new Sefton Coastal Strategy |
| | Shooting/ scaring | Continue to support collection of data on gull numbers |
| | Invasive species | Use current and future research to determine whether action is needed |
| | Feature location/ extent/ condition unknown | Improve population data and monitor impact of activities on local populations |
| Martin Mere SPA | Hydrological changes | Restore hydrology to reduce the impacts of drainage and peat shrinkage |
| | Invasive species | Investigate the extent of, and control where appropriate, invasive non-native plants |
| | Water pollution | Control and reduce diffuse water pollution |
| Dee Estuary/ Aber Dyfrdwy & Mersey Narrows (Dee Estuary/ Aber Dyfrdwy SAC, Mersey Narrows and North Wirral Foreshore SPA and The Dee Estuary SPA) | Public access/ disturbance | Minimise disturbance through wardening, co-ordinated user group and investigation |
| | Climate change | Review likely climate change impacts and identify appropriate adaptation actions |
| | Coastal squeeze | Develop planning guidance for emergency coastal repair works |
| | Planning permission: general | Investigate cumulative, in combination and off-site effects to inform future decision making on planning |

| Site Name | Pressure or Threat | Measure |
|---|--|--|
| | | applications |
| | Transportation and service corridors | Investigate vessel movements and their impact on bird features |
| Mersey Estuary SPA | Changes in species distributions | Site-specific analysis to ascertain reasons for bird declines |
| Morecambe Bay (Morecambe Bay & Duddon Estuary SPA, Morecambe Bay SAC) | Public access/ disturbance | Activity and bird evidence gathering project to inform the identification of appropriate management |
| | Air Pollution: risk of atmospheric nitrogen deposition | Review impacts following the receipt of guidance from NE chief scientist group |
| | Water pollution | Catchment Sensitive Farming (CSF) and ongoing Asset Management Plan (AMP) programme, to reduce water pollution through advice and grants |
| | Fisheries: Commercial marine and estuarine | Review the bird/shellfish model and identify further evidence projects to inform management |
| | Fisheries: Aquaculture | Development of appropriate implementation of larger scale aquaculture within Morecambe Bay |
| | Invasive species | Work with regulators and developers to improve biosecurity measures |
| | Energy production | Identification of coordinated delivery of advice, eventually through Coastal Concordat |
| | Fisheries: Commercial marine and estuarine | Review all fisheries and where appropriate deliver management measures |
| | Changes in species distributions | Review of bird population trends locally and nationally and identify issues |

7.0 Potential Types of Impacts

7.1 The likely effects (impact pathways) of the scheme that are considered to potentially impact Natura 2000 sites are given in Table 6:

Table 6: Impact Pathways

| | |
|---|--|
| Water Quality/Hydrology | Not applicable, refer to relevant Environmental Statement Chapter. |
| Air Pollution | Not applicable, refer to relevant Environmental Statement Chapter. |
| Habitat/Species Disturbance (Noise/visual) | Disturbance of species associated with a Natura 2000 site, such as impacts to SPA birds, species in close proximity and up to 500m from the proposed development. There will be a small temporary loss of agricultural land to development. |

| | |
|----------------------|--|
| Light Spill | Light spill |
| Contamination | Not applicable |
| Seismicity | Not applicable, refer to the Seismicity Environmental Statement Chapter. |

8.0 Shadow HRA Assessment

Screening Natura 2000 Sites

- 8.1 The review of Natura 2000 sites has confirmed that the proposed development does not directly affect a Natura 2000 site.
- 8.2 The review has highlighted that the northwest region contains several SPAs associated with wintering birds and that there is considerable interchange in movements between the Ribble & Alt Estuary SPA, Morecambe Bay & Duddon Estuary SPA, Mersey Estuary SPA, Dee Estuary SPA and Martin Mere SPA and Ramsar sites.
- 8.3 The review also confirms that the proposed development, approximately 1.72 ha in size contains arable land that could be used by the following Annex 1 species; pink-footed goose, Bewick's swan and whooper swan which use agricultural land as feeding areas outside the SPA boundaries. The Ribble & Alt Estuary SPA covers an area of 12,412.31ha of land.
- 8.4 Other qualifying bird species under the River Ribble & Alt SPA such as golden plover, ruff, black-tailed and bar-tailed godwit and oystercatcher (all wintering) are using the proposed development site in such low numbers that they do not regularly exceed the 1% threshold and therefore have been excluded from further appraisal.
- 8.5 The total population of pink-footed goose in the UK is about 360,000, birds, which overwinter here (*Musgrove et al. 2013*). The UK threshold for significant effect is 3,600 (1%).
- 8.6 Numbers of pink-footed goose relevant to this assessment are listed below, the data is taken from the BTO WeBS counts between 2012 and 2017 and presents the five year average peak counts, calculated from the average of the peak counts in each year.

Table 7: Regional Assemblages of Pink-footed Goose

| Site Name | 5yr Average Peak |
|--|------------------|
| Ribble Estuary | 15,008 |
| Alt Estuary | 19,593 |
| Morecambe Bay | 25,490 |
| Mersey Estuary | 165 |
| Dee Estuary (English counties) | 5,589 |
| Martin Mere | 25,178 |
| Simonswood Peat Moss (Included as this is a major roost site locally) | 5,000 |

Total 96,023 (5yr average peak) 1% is 960

- 8.7 The total population of Bewick's swan in the UK is 7,000 birds, which overwinter here (*Musgrove et al. 2013*). The UK threshold for significant effect is 70 (1%).

Numbers of Bewick's swan relevant to this assessment are listed below, the data is taken from the BTO WeBS counts between 2012 and 2017 and presents the five year average peak counts.

Table 8: Regional Assemblages of Bewick's Swan

| Site Name | 5yr Average Peak |
|--------------------------------|------------------|
| Ribble Estuary | 19 |
| Alt Estuaries | 0 |
| Morecambe Bay | 6 |
| Mersey Estuary | 6 |
| Dee Estuary (English counties) | 18 |
| Martin Mere | 0 |

Total 49 (5yr average peak) 1% is 0.49

- 8.8 The total population of whooper swan in the UK is 15,000 birds overwinter here (*Musgrove et al. 2013*). The UK threshold for significant effect is 150 (1%).

- 8.9 Numbers of whooper swan relevant to this assessment are listed below, the data is taken from the BTO WeBS counts between 2012 and 2017 and presents the five year average peak counts.

Table 9: Regional Assemblages of Whooper Swan

| Site Name | 5yr Average Peak |
|--------------------------------|------------------|
| Ribble Estuary | 502 |
| Alt Estuaries | 8 |
| Morecambe Bay | 175 |
| Mersey Estuary | 24 |
| Dee Estuary (English counties) | 15 |
| Martin Mere | 1,504 |

Total 2,228 (5yr average peak) 1% is 22

Summary of Survey Data

- 8.10 This section provides a summary and evaluation of the survey results collected during the extensive wintering bird survey undertaken in 2013/2014 and the wintering bird survey of the proposed development site undertaken in 2015/2016. The results have been evaluated in relation to the proposed development including the access track, with a 500m buffer.

Wintering Bird Survey 2013/2014

- 8.11 Wintering bird surveys covering approximately 50km² were undertaken during the winter period 2013/2014 as part of early stage scoping to ascertain how wintering birds, specifically pink-footed geese, used the agricultural environment. The area was compartmentalised into 5 areas and given a Vantage Point (VP) from which a surveyor was able to clearly visually assess the land within that specific area and to note (with the aid of spotting scopes and binoculars) the presence of feeding/roosting birds associated with the protected sites, along with the agri-environment on which they were situated. The numbers of geese and the associated agri-environment were then plotted on a map and notes taken using a field survey sheet. Geese that would only settle for short periods were not included, as this would not be deemed as long-term feeding/roosting activity. Fly-overs were also discounted from the final figures. A total of 20 surveys were conducted, which normally consisted of 2 dawn and 1 dusk survey per month, from September 2013 to March 2014, inclusive. Dawn surveys were conducted 30 minutes prior to sunrise to monitor geese as they left their overnight roost from either Formby Point in the west and Simonswood Moss to the south, to move inland to their feeding grounds. Pink-footed geese could easily be identified and counted either flying over or landing to feed in fields within the designated VP site areas. Dusk surveys were conducted 1 hour prior to twilight to check for geese that were still feeding or roosting within the site areas, prior to their return to coastal roosts.
- 8.12 All surveys were undertaken adopting species-specific survey techniques as prescribed by the Royal Society for the Protection of Birds (RSPB), Wildfowl and Wetlands Trust (WWT), British Trust for Ornithology (BTO) (*Gilbert 1998*) and the Wetland Bird Survey (WeBS) core counting process, with amended site-specific variations.
- 8.13 See Appendix 3 for the Wintering Bird Survey Report Specific to pink-footed geese and associated data dated 2013/14 produced by Ecology Services Ltd for full report. These surveys found that pink-footed geese are using Downholland Moss and Plex Moss with peak counts in October. The usage of the mosses varied dependent upon the month and distribution across the mosses dependent upon the changeable agricultural practices that year.
- 8.14 A review of the 2013/14 survey data (Appendix 3) has been undertaken to determine the annual mean average of pink-footed geese within 500m of the proposed development. The following records of pink-footed geese were included in the calculation (measured from the nearest point of the field within which the geese were recorded. The size of circle on the plans in Appendix 3 representing the flock size and not the spread of that flock. The flock was centred on the field at the centre of each circle). Records over 500m have been excluded
- 8.15 Included records are as follows:
- 28/10/13 – 600+ (immediately adjacent to the proposed development site)
 - 16/12/13 – 800 (280m east)
- 8.16 A flock of 600+ pink-footed geese was observed on 28th October 2013 immediately adjacent to the proposed development, all other records on that date were over 500m from the proposed development site boundary. The total of all the surveys located within 500m of the proposed development including the access route is 1,400 (peak count of 800).
- 8.17 A single flock of 80 whooper swans was recorded during one of the October 2013 surveys, just outside the survey area to the north-west of the proposed development site. The low numbers of whooper swans were considered to be transient records of birds moving from

the coastal area and to other feeding grounds situated at Martin Mere and not resulting from any agri-environment practices within the survey area. No Bewick's swans were recorded during any of the survey visits.

This large-scale survey determined that there is a correlation between the agricultural environment and the likely presence of feeding pink-footed geese at particular periods of the winter season. The agricultural landscape is very dynamic and can change dramatically from year to year.

Birds of Conservation Concern Records for WBS of the Proposed Development Site (Winter 2015/2016)

- 8.18 Wintering bird surveys were undertaken in 2015 and 2016 looking at the wintering birds and agri-environmental practices. The surveys found varying numbers of pink-footed geese in the landscape, the majority of which were 500m or more from the proposed development site.
- 8.19 A review of the information presented in the data sheets has been undertaken to determine the annual mean average of pink-footed geese within 500m of the proposed development site. The following records of pink-footed were included in the calculation. Records over 500m have been excluded.
- 8.20 Included records are as follows:
- 04/12/15 – 200 (500m northwest)
 - 11/12/15 – 250 (500m north)
 - 11/01/16 – 2500 (400m southwest) field directly west of the access track
 - 26/02/16 – 100 (500m north)
 - 26/02/16 – 50 (200m south) of the proposed development site beyond the pylon.
 - 18/03/16 – 150 (700m south, included due to access track)
- 8.21 No pink-footed geese were recorded within the proposed development site boundary. The total located within 500m of the proposed development including the access route is 3,250 (peak count of 2,500).
- 8.22 No whooper swans or Bewick's swans were recorded during the 2015/16 wintering bird survey.

Wintering Bird Survey 2018/2019

- 8.23 Wintering bird surveys covering the proposed development site and 500m buffer are being undertaken during the winter period 2018/2019 to ascertain how wintering birds, specifically pink-footed geese, whooper and Bewick's swans are using the proposed development site and wider survey area. The area was compartmentalised into 2 areas and given a Vantage Point (VP) from which a surveyor was able to clearly visually assess the land within that specific area and to note (with the aid of spotting scopes and binoculars) the presence of feeding/roosting birds associated with the protected sites, along with the agri-environment on which they were situated. The numbers of geese and the associated agri-environment were then plotted on a map and notes taken using a field survey sheet. Geese or swans that would only settle for short periods were not included, as this would not be deemed as long-term feeding/roosting activity. Fly-overs were also discounted from the final figures. A total of 26 surveys have been conducted between late September 2018 and the end of February 2019, which consisted of weekly dusk and/or dawn surveys between September to November inclusive (Autumn passage = nine visits) and fortnightly December to February inclusive (wintering visits = six visits). Fortnightly daytime observations have also

been made throughout the survey period totalling 11 site visits to date. Weekly dusk and/or dawn surveys are continuing March to mid-May (Spring passage = 10 visits) along with the fortnightly daytime observations (5 visits).

- 8.24 Dawn surveys were conducted 30 minutes prior to sunrise to monitor geese as they left their overnight roost from either Formby Point in the west and Simonswood Moss to the south, to move inland to their feeding grounds. Pink-footed geese could easily be identified and counted either flying over or landing to feed in fields within the designated VP site areas. Dusk surveys were conducted 1 hour prior to twilight to check for geese that were still feeding or roosting within the site areas, prior to their return to coastal roosts.
- 8.25 All surveys were undertaken adopting species-specific survey techniques as prescribed by the Royal Society for the Protection of Birds (RSPB), Wildfowl and Wetlands Trust (WWT), British Trust for Ornithology (BTO) (*Gilbert 1998*) and the Wetland Bird Survey (WeBS) core counting process, with amended site-specific variations.
- 8.26 See Appendix 5 for the Wintering Bird Survey plans and associated data specific to pink-footed geese, whooper and Bewick's swans. The highest counts of pink-footed geese were recorded in late September 2018 and the majority of the records were made between September and November, with only six records of pink-footed geese in the period December-February.
- 8.27 Pink-footed geese were recorded on 12 of the 26 survey visits. A total of 47 records of pink-footed geese have been made to date with the following flocks exceeding the 1% threshold for the Ribble and Alt Estuaries (measured from the nearest point of the field within which the geese were recorded; the size of circle on the plans in Appendix 5 representing the flock size and not the spread of that flock, the flock being centred on the field at the centre of each circle) in the proposed development site and 500m buffer:
- 25/09/18 – 4,000 (within same field as the proposed development site)
 - 28/09/18 – 2,200 (within same field as the proposed development site)
 - 28/09/18 – 1,450 (160m south east)
 - 10/10/18 – 500 (265m north east)
 - 11/10/18 – 740 (225m west)
 - 01/11/18 – 985 (460m south, total flock size at end of survey)
 - 01/11/18 – 1,400 (300m south east)
 - 14/01/19 – 410 (245m west)
- 8.28 During late September 2018 pink-footed geese were recorded within the same field as the proposed development site with a peak count of 4,000. The total number of pink-footed geese recorded during the surveys within 500m of the proposed development including the access route was 11,685 (peak count of 4,000).
- 8.29 Whooper swan was only recorded on 26th October 2018 when a flock of 7 was observed 270m east of the proposed development site. This is considered to be a transient record of birds moving from the coastal area and to other feeding grounds situated at Martin Mere and not resulting from any agri-environment practices within the survey area. No Bewick's swans were recorded.

Summary of Wintering Bird Survey Results

- 8.30 The peak count of pink-footed geese at the site level (proposed development site including 500m buffer) in winter 2018/19 was above the 1% National threshold during one of the 26 survey visits (approximately 4% of the visits) with the peak counts during winters and in

2013/14 (800) and 2015/16 (2,500) falling below 1% of the National threshold. The peak count in winters 2015/16 and 2018/19 was above the 1% Regional threshold and the peak count in all three winters was above the Ribble & Alt Estuaries 1% threshold (346). It should be noted that the Regional threshold was only exceeded on one occasion during a total of 33 survey visits in 2015/16 (approximately 3% of the visits) and five times during a total of 26 survey visits in 2018/19 (approximately 19% of the visits). The Ribble and Alt Estuaries threshold was exceeded twice during winter 2013/14 (approximately 10% of the visits), once in winter 2015/16 (approximately 3% of the visits) and eight times in winter 2018/19 (approximately 35% of the visits). Wintering flocks of pink-footed geese are highly mobile and move around the landscape in response to availability of food sources.

- 8.31 Considering all the survey visits across the three years, the National 1% threshold was only exceeded once in September 2018 out of a total of 60 visits over the three years (2% of visits), the Regional 1% threshold exceeded six times (once in January 2016 and five times in 2018/19, representing 10% of visits) and the Ribble and Alt Estuaries 1% threshold eleven times (once in 2013/14, twice in 2015/16 and eight times in 2018/19, representing 18% of all visits).
- 8.32 In designating SPAs, it is the mean of the peak counts over the preceding five years which is used in assessing the significance of numbers of birds at a site. The mean peak count of pink-footed geese for the three winters surveys which have been undertaken within 500m of the proposed development site is 2,433 which is below the National threshold, but above the Regional and Ribble and Alt Estuaries thresholds. The survey data shows that the proposed development site does not regularly support Nationally important numbers. In line with the criteria for designation of SPAs, based on three winters of surveying, the proposed development site can be assessed as regularly supporting Regionally and Ribble and Alt Estuaries important numbers of pink-footed geese. Table 10 summarises the results of the wintering bird surveys undertaken at the proposed development site.

Table 10: Peak counts of pink-footed geese and significance in relation to National, Regional and Ribble and Alt Estuaries SPA populations

| | 2013/14 | 2015/16 | 2018/19 |
|--|-----------|-------------|--------------|
| Peak Count (month of occurrence) | 800 (Dec) | 2,500 (Jan) | 4,000 (Sept) |
| Number of Surveys | 20 | 33 | 26 |
| No. occurrences >1% of Ribble and Alt Estuary SPA Population | 2 | 1 | 8 |
| No. occurrences >1% of Regional Population | 0 | 1 | 5 |
| No. occurrences >1% of National Population | 0 | 0 | 1 |
| | | | |
| % of surveys that exceed: | | | |
| Ribble and Alt Estuary SPA threshold | 10% | 3% | 35% |
| Regional threshold | 0 | 3% | 19% |
| National threshold | 0 | 0 | 4% |

Potential Impacts

- 8.33 As part of the Environmental Statement, several assessments have been undertaken these include the following: -
- Hydrological Assessment
 - Light Assessment
 - Noise Assessment

- Seismicity Assessment

Please refer to Environmental Statement for detailed reports.

- 8.34 Table 6 lists potential impact pathways which have been reviewed to determine impacts to SPA features.
- 8.35 The following sections review potential impact pathways in detail looking at direct and indirect impacts upon the Natura 2000 sites and the main receptors, pink-footed geese.

Direct Impacts

- 8.36 The proposed development is not directly located within any SPA. There are no direct impacts upon any of the Natura 2000 sites.

Indirect Impacts

Hydrology and flood risk

- 8.37 The hydrological and flood risk assessments within the Environmental Statement demonstrated that the proposed development will not have a detrimental impact on drainage and flooding at or from the proposed development site provided that surface water is managed appropriately. The management adopted is standard practice and has not be designed or aimed at compensating for negative effects of the project on a Natura 2000 site. Hydrology has been omitted from further appraisal.

Air Quality

- 8.38 The air quality assessment within the Environmental Statement noted that the Ribble & Alt Estuaries SPA and Sefton Coast SAC were sensitive to nitrogen and acid deposition. Maximum process contributions are considered to be insignificant based on Environment Agency assessment criteria. While the maximum process contributions at the sites with an ecological designation are above the screening criteria for nitrogen oxides, this is considered unlikely to pose any threat to or have any substantial influence on the continued attainment of critical levels.
- 8.39 Necessary assumptions made to undertake the modelling are considered to have the effect of substantially overestimating the process contribution to ambient concentrations. It is considered that the predicted process impact reported herein is a conservative assessment and the conclusions reached therefore incorporate a reasonable margin of comfort in spite of the inevitable uncertainty of such modelling studies.
- 8.40 It is likely that the construction activities associated with the development of the wellsite will give rise to dust emissions. It is expected, based on Institute of Air Quality Management methodology, that with adequate mitigation measures in place the risk of dust impact from all project operations will be 'negligible'. Mitigation measures adopted are standard practice and have not be designed or aimed at compensating for negative effects of the project on a Natura 2000 site.
- 8.41 It is not considered that air quality will significantly affect the Natura 2000 sites or the pink-footed geese utilising land around the proposed development. Air quality has been omitted from further appraisal.

Light Assessment

- 8.42 The light assessment within the Environmental Statement demonstrated that the proposed development will have a negligible effect on local residents. The flares during Phases 5 and 6 will be shrouded and enclosed respectively and are taken into account during the light

assessment calculations. The mitigation adopted is standard practice and has not been designed or aimed at compensating for negative effects of the project on a Natura 2000 sites.

- 8.43 Pink-footed geese utilise the area for feeding in the daytime, arriving at dawn and leaving at dusk. The minimal lighting impacts are not considered to have a significant effect. Lighting has been omitted from further appraisal.

Seismicity

- 8.44 The seismicity chapter of the Environmental Statement determines that in the event of the proposed development causing induced seismicity that the likely impact significance on surface structures would be neutral to slight with the proposed embedded mitigation, rising to moderate/slight without such mitigation. Similarly, with the embedded mitigation it is not considered that any induced seismicity would compromise well integrity. There is no mechanism for surface subsidence as a result of the proposed operations.
- 8.45 Therefore, it is considered that induced seismicity will not have a significant effect in the context of the environmental assessment. The mitigation adopted is standard practice and has not be designed or aimed at compensating for negative effects of the project on any Natura 2000 sites.
- 8.46 There is very little research on the impacts of seismicity and birds. Anecdotal evidence historically has suggested that certain animals can sense earthquakes moments before humans. If a seismic event occurred that could be felt by birds, the birds would most likely take flight and land after the tremor. A tremor would therefore be expected to result in a similar disturbance to a gun shot, which already frequently occurs at the proposed development site. Currently gun shots are frequent and they result in birds taking flight, they relocate to a quieter area of the moss. It is considered unlikely that a seismic event would result in a reduction of birds utilising the moss.

Disturbance of species associated with Natura 2000 sites

- 8.47 The proposed development is located within an agricultural setting that dominates the landscape. The majority of land between the River Ribble & Alt Estuaries SPA and Martin Mere SPA and Simonswood (latter two are important roost sites) comprises agricultural land available to pink-footed geese. The proposed development site forms a very small part of this landscape.
- 8.48 The potential supporting habitat has been previously assessed at up to 45,000 ha (HRA prepared for West Lancashire Borough Council (WLBC) with respect to Sutton's Farm development). This figure assumes a 10km foraging radius from the relevant SPAs. In a 2014 joint report, the RSPB, the National Trust and others suggested that pink-footed geese may forage 20km from their roosts which would clearly increase the availability of suitable supporting feeding habitat, further reducing the impact of any development.
- 8.49 Extensive wintering bird surveys and studies were conducted to inform the proposed Lower Alt Windfarm on land to the south east of the proposed development site. The studies included both collision mortality and population viability studies. The key conclusion of the population viability study was that even with an assumed annual mortality of 223 birds (99% avoidance rate) the pink-footed goose population would grow at a mean rate of 3.3% pa over the 25-year modelled period to a population of >40,000 birds. This model, which was not challenged, implies that the functional land associated with the SPA has not reached, nor is it expected to reach in the time period, its carrying capacity with respect to pink-

footed goose. Historical surveys since the 1960s have recorded a consistent increase in the UK pink-footed goose population.

- 8.50 It is not considered that the proposed development will result in any direct increase in the mortality of wintering birds.
- 8.51 Disturbance caused by development (whether during construction or operation) varies considerably depending on the construction programme, the use of heavy plant, the presence of site operators and noise levels. Forms of disturbance could include visual (drilling rigs and associated structures, human presence, vehicle movements, lighting) and audible (noise, including piling).
- 8.52 The HRA, prepared for WLBC, in respect of the Sutton's Farm development concluded that the loss of 14.1ha of functional land (direct loss and 400m disturbance zone) would have no significant effect on relevant Natura 2000 sites.
- 8.53 The proposed development including both the wellsite and the access track covers 1.72 ha. Including a 500m disturbance zone would increase this area to 178.6 ha. Assuming that up to 50% of the 45,000 ha potential supporting habitat area may be unavailable, as a result of field size, proximity to roads and settlements, then the disturbance zone calculated for the proposed development would still comprise only 0.79% of the available supporting habitat.
- 8.54 For the purposes of this assessment it is considered that the proposed development site and the disturbance zone may on occasion during the winter host greater than 1% of the National population (the 4,000 observed in September 2018 representing 1%), 4% of the Regional population (the 4,000 representing 4.2%) and 10% of the Ribble and Alt Estuaries SPA pink-footed goose population (the 4,000 represented 11.6%) but that such visits are generally transient and dependent upon a suitable food source being present.
- 8.55 While the proposed development site and 500m disturbance zone has been confirmed as regularly supporting Regionally and Ribble and Alt Estuaries important numbers of pink-footed geese, given the relatively small area affected compared with the total amount of available supporting habitat, disturbance and displacement of pink-footed geese during construction and operation is considered to have no significant effect on either the pink-footed goose population or the ability of the adjoining functional land to support the SPA.
- 8.56 The land is farmed, with tractors on the fields at all times of the year; the crops interchange from week to week, month to month and year to year. The birds move around the landscape utilising crops opportunistically and there is no one particular area that they appear to favour. This was acknowledged in a response from Natural England's Discretionary Advice Service (dated 31st October, 2014) in relation to United Utilities Southport DMZ Pipeline Project and the Ribble and Alt Estuaries and Martin Mere SPAs in October 2014. This advice acknowledged that, due to cropping rotations, the mapped locations and distances of key bird species from the route of the pipeline would only be temporary. While the land affected by the pipeline was functionally linked, it was acknowledged that it may already be affected by infrastructure causing disturbance and/ or displacement of the key bird species. The installation of the pipeline was considered to cause temporary, local displacement of the birds, however it was not considered that there would be any permanent loss of habitat.
- 8.57 There is a network of frequently used roads, that cross the agricultural land and surveyors have noted that birds tend to set themselves back approximately 50m from a road edge, but do not move when vehicles pass.

- 8.58 There are activities that seem to cause more disturbance than other activities. Shooting takes place during the wintering months; birds are disturbed by gunshot and move to quieter areas. Human disturbance also causes higher levels of effect and a single pedestrian can cause birds to take flight and move on.
- 8.59 These indirect disturbances such as agricultural practices, drainage maintenance, vehicle movements, pedestrians and shooting all take place throughout the winter period and the birds have become more habituated to certain types of indirect disturbance than others.

Noise

- 8.60 Wintering bird surveys have identified pink-footed geese being present within 500m of the proposed development and access track.
- 8.61 There has been extensive research undertaken to determine the levels of noise and effects on waterbirds.
- 8.62 The study produced by Cutts *et al.* (2008) summarises the general thresholds relating to 50dB(A) and 70dB(A) (pg 30), due to the potential effects upon birds and provide a figure of '*waterbird response to construction disturbance*'

44. '*Ambient construction noise levels should be restricted to below 70dB(A), birds will habituate to regular noise below this level. Where possible sudden irregular noise above 50dB(A) should be avoided as this causes maximum disturbance to birds*' (pg30).

- 8.63 In a previous planning response by Natural England (2011), they indicated that at levels below 55dB(A) effects would not be significant on waterfowl, but when noise levels increase, particularly approaching 70dB(A) there is a range of bird responses, which have the potential to have a significant effect on the SPA.
- 8.64 The noise assessment within the Environmental Statement produced made a series of assessments for each phase of the proposed development, taking into account traffic movements. A series of noise assessment plans have been produced which show the noise levels for each phase of development (LAeq or equivalent continuous sound level). The noise assessment plans clearly show that LAeq sound levels do not exceed 55dB beyond 500m from the proposed development at any time. Within the 500m disturbance zone, noise levels vary for different phases of the proposed development with noise levels above 55dB affecting an area between around 40m (drilling) and 400m (fracturing). With the exception of hydraulic fracturing, LAeq noise levels will only exceed 55dB within 250m of the proposed development reducing the potential disturbance zone.
- 8.65 A further assessment of LAmix noise levels due to piling during construction has been undertaken (Appendix 6) which shows that predicted noise levels also do not exceed 55dB beyond 500m from the proposed development during piling. As with hydraulic fracturing, LAmix noise levels exceeding 55dB extend to approximately 400m from the proposed development site.
- 8.66 Given the relatively small area affected compared with the total amount of available supporting habitat and that not all of the 500m disturbance zone will be affected by noise levels in excess of 55dB, disturbance and displacement of pink-footed geese during construction and operation is not considered to have a significant effect on either the pink-footed goose population or the ability of the adjoining functional land to support the SPA.

- 8.67 No areas outside the 500m buffer will experience noise levels exceeding 55dB, as a result of the works. This is in line with evidence and Natural England's previous planning response which indicate that at levels below 55dB(A), effects would not result in a significant on waterfowl.
- 8.68 Therefore, it is considered that noise levels from the proposed development will not have a likely significant effect.

Traffic

- 8.69 Pink-footed geese seem to be habituated to vehicle movements across existing road networks. They do set a buffer between the road and crops that they utilise but these are already existing. It is widely recognised that vehicles and vehicle movements tend to be tolerated much better by birds than human presence.
- 8.70 The proposed development will result in an increase in vehicle movements with a peak of up to an additional 55 HGVs per day plus 42 car movements. Birds utilise the moss in the daytime so evening vehicle movements can be eliminated. The increase in traffic flows and HGVs on Sutton's Lane would be over 100% due to the very low existing levels. Although there will be an increase in the use of vehicles it is not considered to cause any additional effect on birds than they already experience.
- 8.71 Vehicle movements associated with the proposed development will not result in any additional pressures on wintering birds across the moss.
- 8.72 The creation of a temporary access track will increase traffic across the fields to the wellsite. It is acknowledged that there will be a temporary loss of arable land to the temporary access road, with a likely 50m buffer no go zone to birds (as observed by surveyors in respect of other roads in the area), but this will not have a significant effect given the wider availability of suitable habitat.

Visual

- 8.73 A defining feature of Altcar Moss is the unrestricted long-distance views in all directions. Consequently, the wellsite and the proposed development would be visible from a relatively wide area, particular during the drilling phases when the 60m high drilling rig would be erected on the wellsite. It is not considered that the presence of static structures within the landscape will cause any disturbance to wintering birds.
- 8.74 Temporary Heras fencing will secure the site during the construction phase. Once the wellsite is constructed, temporary Heras fencing will be replaced with a 3m high steel mesh security fence with interwoven panels giving a solid appearance, vehicle access and pedestrian access gates. Additional security may be installed, including a secondary security fence around the perimeter of the active area. This fencing may offer some screening of the structures and construction activity.
- 8.75 Disturbance and temporary displacement of pink-footed geese from a relatively small development during construction and operation is not considered to have a significant effect on either the pink-footed goose population or the ability of the adjoining functional land to support the SPA.
- 8.76 Due to the short duration of the operations and the complete removal of the wellsite infrastructure and equipment at the end of the exploration period, the temporary visual changes would not be significant and there would be no residual effects.

In Combination Effects

- 8.77 The Habitats Regulations 2017 requires the assessment of likely significant effects either alone or in combination with other plans or projects. In combination effects differ from cumulative effects in EIA in that these are effects which may or may not interact with each other, but which could affect the same receptor or interest feature. Cumulative effects refer to occasions where another project could have an impact via the same pathway e.g. if both proposals caused disturbance to birds.
- 8.78 A review has been undertaken of all development plans and projects (registered applications, awaiting decision and approved applications) within a 10km buffer around the proposed development which is considered sufficiently precautionary for identifying those project types to be assessed for in combination effects. SNH Guidance on assessing impacts to pink-footed and greylag geese from small-scale wind farms in Scotland (February 2014) states that geese readily 'commute' up to 10km from their roosting and foraging sites, sometimes even travelling out to 20km (Bell, 1988). Typically, therefore, the total potential foraging area is very large. This suggests that the loss of foraging area around an individual development is likely to be extremely small, in comparison with the extent of the entire resource. A 10km buffer is therefore considered appropriate for the proposed development. A 10km buffer has been agreed by Natural England for solar developments (Fylde Borough Council Planning Application Ref. 15/0337) and was employed for the solar farm at Land at Jemmy Carr Field 1.6km to the north west of the proposed development and the cumulative effects assessment for the two wind turbines at Hillhouse waste water treatment works.
- 8.79 The following relevant plans, have been assessed for in combination effects:
- A Local Plan for Sefton, April 2017;
 - West Lancashire Local Plan 2012-2027;
 - West Lancashire Local Plan Review, Preferred Options, August 2018;
 - Joint Lancashire Minerals and Waste Development Framework Core Strategy DPD, February 2009; and
 - Review of the Joint Lancashire Minerals and Waste Local Plan, Autumn 2018.
- 8.80 **A Local Plan for Sefton, April 2017:** A Habitats Regulations Assessment (HRA) of the Sefton Local Plan was undertaken in 2015 (URS, 2015) together with a further HRA assessment of the proposed modifications to the Sefton Local Plan (Aecom, 2016). The following internationally designated sites were considered within the HRA:
- Sefton Coast Special Area of Conservation (SAC);
 - Ribble & Alt Estuaries SPA and Ramsar site;
 - Liverpool Bay SPA;
 - Mersey Narrows & North Wirral Foreshore SPA and Ramsar site; and,
 - Manchester Mosses SAC.
- 8.81 Only the potential for in combination effects upon the Ribble and Alt Estuaries SPA and Ramsar site are considered in the context of this report.
- 8.82 A test of Likely Significant Effects for Site Allocations was undertaken within the HRA and the HRA identified aspects of the emerging Local Plan with the potential to result in significant adverse effects upon the above listed internationally designated sites.

- 8.83 In its conclusion the HRA identified those Site Allocations which were to be covered by a site specific HRA accompanying any subsequent planning application and that text was included in the Local Plan setting out the requirement to provide appropriate protection to the integrity of the SPA/Ramsar site bird population. This text is included in the explanation to policy NH2 'Protection and Enhancement of Nature Sites, Priority Habitats and Species.
- 8.84 The HRA outlines:
- “Sites within sensitive areas for SPA/Ramsar birds will require a non-breeding bird survey during autumn, winter and spring to support any planning application and the provision of replacement habitat if the site is established to regularly support over 1% of the SPA/Ramsar population of that species”.*
- “Analysis of the data would need to determine the total number of waterfowl and the total number of each species of waterfowl in order to determine whether on any survey visit numbers exceeded 1% of the SPA population. Data analysis should also consider how often the 1% threshold is exceeded. If the threshold is only exceeded on a single occasion then it may not be appropriate to conclude that the site is important for the SPA”.*
- 8.85 With the inclusion of the relevant recommendations contained within the HRA, the HRA concluded that the Sefton Local Plan would contain an adequate policy framework to enable the required amount of development to occur within Sefton whilst adequately protecting internationally designated sites.
- 8.86 The HRA of the Proposed Modifications to Sefton Local Plan (Aecom, 2016) concluded that the proposed modifications, coupled with the unamended policies, would constitute a sufficient policy framework to enable the required amount of development to occur within Sefton whilst adequately protecting internationally designated sites. The Proposed Modifications to Sefton Local Plan are compliant with the Habitats Regulations and will not result in a likely significant effect either alone or in combination.
- 8.87 The conclusions of the HRA screening were accepted by Natural England.
- 8.88 The in combination effects assessment presented in this report has therefore been undertaken on the assumed basis that each development proposal under any proposed allocations would be subject to its own HRA (where required) and that consent would not be granted unless the HRA indicated that no effect on the integrity of internationally designated sites would occur. Potential in combination effects with the emerging local plan are therefore screened out with the assessment deferred to individual planning applications.
- 8.89 **West Lancashire Local Plan 2012-2027:** A Habitats Regulations Assessment (HRA) of the West Lancashire Local plan was undertaken in 2012 (URS, 2012).
- 8.90 The following internationally designated sites were considered within the HRA:
- Martin Mere SPA and Ramsar Site;
 - Ribble & Alt Estuaries SPA and Ramsar site;
 - Sefton Coast SAC;
 - Mersey Narrows & North Wirral Foreshore pSPA and pRamsar site;
 - Liverpool Bay SPA;
 - Dee Estuary SAC, SPA and Ramsar site;
 - Mersey Estuary SPA and Ramsar site;
 - Morecambe Bay SPA and Ramsar site;

- River Dee and Bala Lake SAC; and
- River Eden SAC.

8.91 Only the potential for in combination effects upon the Ribble and Alt Estuaries, Martin Mere, Dee Estuary, Mersey Estuary and Morecambe Bay SPAs and Ramsar sites are considered in the context of this report.

8.92 The HRA concluded that the Local Plan has a sufficient policy framework in place to ensure that adverse effects on the integrity of internationally designated sites can be adequately mitigated or avoided. The HRA outlines:

“Where there is reason to suspect that there may be protected species on or close to a proposed development site, planning applications should be accompanied by a survey assessing the presence of such species and, where appropriate, making provision for their needs. In particular, the HRA of the Local Plan identifies a series of sites where the potential of the site to supporting important habitat for birds associated with Martin Mere SPA cannot be ruled out at this stage. For those sites (and any others which may support suitable habitat) the applicant should submit an Ornithology Report containing sufficient information to demonstrate that consideration has been given to the potential for effects on SPA birds and, if necessary, that suitable mitigation measures will be implemented to address this to the satisfaction of the Council and ensure no adverse effect on site integrity. The report could, depending on the site, be a confirmation that no suitable habitat is in fact present and therefore no loss of supporting habitat would result.”

“This will allow the Council to screen the project against the Habitats Regulations (or current equivalent legislation) and relevant national and local policy. It is concluded that, bearing in mind the wording of policy EN2, the Local Plan contains an appropriate policy framework to avoid development resulting in loss of supporting habitat for Martin Mere SPA/Ramsar and thus a likely significant effect on the interest features of the site.”

8.93 The in combination assessment presented in this report has therefore been undertaken on the assumed basis that each development proposal under any proposed allocations would be subject to its own HRA (where required) and that consent would not be granted unless the HRA indicated that no effect on the integrity of internationally designated sites would occur. Potential in combination effects with the local plan are therefore screened out, with the assessment deferred to individual planning applications.

8.94 **West Lancashire Local Plan Review, Preferred Options, August 2018:** An HRA of the West Lancashire Local Plan Review Preferred Options was undertaken (Arcadis, 2018).

8.95 The following internationally designated sites were considered within the HRA:

- Martin Mere SPA and Ramsar site;
- Ribble & Alt Estuaries SPA and Ramsar site;
- Sefton Coast SAC;
- Mersey Narrows & North Wirral Foreshore SPA and Ramsar site;
- Liverpool Bay SPA;
- Shell Flats and Lune Deep SAC;
- Dee Estuary SAC, SPA and Ramsar site;
- Mersey Estuary SPA and Ramsar site; and
- Morecambe Bay and Duddon Estuary SPA and Morecambe Bay Ramsar site.

- 8.96 Only the potential for in combination effects upon the Ribble and Alt Estuaries, Martin Mere, Dee Estuary, Mersey Estuary and Morecambe Bay and Duddon Estuary SPAs and Ramsar sites are considered in the context of this report.
- 8.97 The detailed screening identified five policies/ allocation sites with the potential for likely significant effects upon European sites as a result of disturbance to SPA/ Ramsar site wintering birds. The outcome of the Appropriate Assessment concludes that, with mitigation measures (should it be required) in place for the five allocations associated with the four policies, and with appropriate embedded environmental policies within the Local Plan, there would be no adverse effects on the integrity of the European sites as a result of implementing these policies/ allocation sites.
- 8.98 The in combination effects screening identified the potential for in combination effects associated with disturbance/ displacement of species using adjacent functionally linked land should development occur at the same time. With the mitigation measures in place (should they be required), the allocations within the West Lancashire Local Plan Review would not lead to an additive adverse effect in terms of disturbance to SPA/ Ramsar site species utilising adjacent functionally linked land associated with the Ribble and Alt Estuaries or Martin Mere SPA/ Ramsar sites.
- 8.99 As such, there would be no adverse effects on the integrity of the European sites or on their ability to achieve their Conservation Objectives (with mitigation measures in place, where necessary) as a result of policy implementation or future development at the five allocation sites considered in the Appropriate Assessment either alone or in combination with other plans and projects.
- 8.100 **Joint Lancashire Minerals and Waste Development Framework Core Strategy DPD, February 2009:** An HRA of the Review of the Joint Lancashire Minerals and Waste Development Framework was undertaken (LCC, 2011).
- 8.101 The following internationally designated sites were considered within the HRA:
- Ribble and Alt Estuaries SPA, Ramsar site
 - Morecambe Bay SPA, SAC, Ramsar site
 - Bowland Fells SPA
 - South Pennines Moors SAC
 - Leighton Moss SPA, Ramsar site
 - North Pennine Dales Meadows SAC
 - Martin Mere SPA (Ramsar site)
 - Morecambe Bay Pavements SAC
 - Craven Limestone Complex SAC
 - River Kent SAC
 - Ingleborough Complex SAC
 - Rochdale Canal SAC
 - Manchester Mosses SAC
 - Roudsea Wood & Mosses SAC
 - Mersey Estuary SPA
 - Sefton Coast SAC
 - North Pennine Moors SAC & SPA
- 8.102 As a result of the screening process, eight site allocations were identified as potentially having a significant effect on three separate Natura 2000 sites. The eight site allocations

were subsequently assessed in more detail and it was concluded that any impacts could be mitigated against subject to the application of other policies within the plan, most notably Policy DM2 which is concerned with environmental safeguards.

- 8.103 The HRA report found the Lancashire Minerals and Waste Site Allocation and Development Management Policies DPD to have no likely significant effects on the identified Natura 2000 sites and no further assessment work was required at that stage.
- 8.104 An Additional Sites Habitats Regulations Screening Report was produced in March 2012 (LCC, 2012). This report concluded that the three additional sites will have no likely significant effects on the identified Natura 2000 site and no further assessment work was required at that stage.
- 8.105 **Review of the Joint Lancashire Minerals and Waste Local Plan, Autumn 2018:** A HRA of the Review of the Joint Lancashire Minerals and Waste Local Plan was undertaken (LCC, 2018).
- 8.106 The following internationally designated sites were considered within the HRA:
- Calf Hill and Cragg Woods SAC
 - Craven Limestone Complex SAC
 - Morecambe Bay Pavements SAC
 - Dee Estuary SAC
 - Morecambe Bay SAC, SPA and Ramsar site
 - Ingleborough Complex SAC
 - North Pennine Dales Meadows SAC
 - River Kent SAC
 - South Pennine Moors SAC and SPA
 - Rochdale Canal SAC
 - Roudsea Wood and Mosses SAC
 - Sefton Coast SAC
 - Witherslack Mosses SAC
 - Bowland Fells SPA
 - Mersey Narrows and Wirral Foreshore SPA and Ramsar site
 - Leighton Moss SPA and Ramsar site
 - Martin Mere SPA and Ramsar site
 - Ribble and Alt Estuaries SPA and Ramsar site
 - Malham Tarn Ramsar site
- 8.107 The HRA concluded that as a result of the screening process a number of policies were identified as potentially having a significant effect on some European sites, principally as a result of the uncertainty around where potential developments may come forward. These policies were subsequently assessed in more detail and it was concluded that any impacts could be mitigated against through the application of other policies within the plan, most notably Policy MW1 which is concerned with environmental safeguards. This HRA report found the Review of the Joint Lancashire Minerals and Waste Local Plan to have no likely significant effects on the identified European sites and no further assessment work was required at that stage.
- 8.108 **Consideration of projects:** Based on Natural England's requirements for the Impact Risk Zone associated with the Ribble and Alt Estuaries and Martin Mere SPAs and Ramsar Site, the following projects types have been included:

- *All Planning Applications:* All planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures.
- *Infrastructure:* Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.
- *Wind & Solar Energy:* Solar projects with footprint > 0.5Ha, all wind turbines.
- *Minerals, oil and gas:* Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
- *Rural Non-Residential:* Large non-residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha.
- *Residential:* Residential development of 10 units or more.
- *Rural Residential:* Any residential developments outside of existing settlements/urban areas with a total net gain in residential units.
- *Air Pollution:* Any industrial/agricultural development that could cause air pollution (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t).
- *Combustion:* General combustion processes > 50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.
- *Waste:* Landfill incl: inert landfill, non-hazardous landfill, hazardous landfill.
- *Composting discharges:* Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location).

8.109 The following projects have therefore been identified as having potential to result in in combination effects:

Table 11: Projects considered for potential in combination effects

| Planning reference | Site Name | Proximity to Proposed Development Site | Description |
|---------------------------|---|---|--|
| Sefton | | | |
| DC/2015/01265 | Land at tip field south of North Moss Lane, Formby | c. 1.6km to the north west | Installation of ground mounted photovoltaic solar arrays together with transformer stations; internal access track; electricity sub-station; landscaping; fencing; security measures; access gate; and ancillary infrastructure. |
| DC/2015/01266 | Land at Jemmy Carr Field north of Downholland Brook, Formby | c. 1.6km to the north west | Installation of ground mounted photovoltaic solar arrays together with transformer stations; internal access track; electricity sub-station; landscaping; fencing; security measures; access gate; and ancillary infrastructure. |
| DC/2018/00658 | Land west of Formby bypass and north of Liverpool Road | c. 2.7km to the south west | Erection of 304 dwellings with associated access, open space, drainage infrastructure, parking landscaping, infrastructure and other associated works |
| DC/2018/01271 | The Piggeries site, Southport Old Road, Formby | 3.2km to the north west | Erection of 10 dwellings with associated access, car parking and landscaping following demolition of the existing storage buildings. |
| DC/2017/00606 | Land to the south of Andrews Lane, Formby | c. 3.8km to the south west | Construction of 99 dwellings comprising a mix of houses and apartments together with the construction of access road and the laying out of open space (to include the installation of an attenuation pond) |
| DC/2017/00456 | Land north of Turnbridge Road, Maghull | 5.9km to the south east | Layout of a residential development of 39 dwellings with new access and landscaping |
| DC/2012/0400 | Land east of Birkdale Cop and south of Town Lane Kew, Southport | c. 7.4km to the north | Part (A) Erection of 669 houses and apartments; an extra care development comprising 126 homes and 44 bed respite and dementia care building; a unit comprising 216 sq m retail; associated hard and soft landscaping and new access and highways. Part (B) Outline planning permission for a business park with uses B1, B2, B8 and Sui Generis car showroom. |
| DC/2016/00534 | Southport Skip Hire 55, Crowland Street, Southport, PR9 7ZA | c. 9.7km to the north east | Hybrid application comprising 1) Application for full planning permission for the development of an energy recovery park comprising a reconfigured waste transfer station including the erection of a waste transfer building; an anaerobic digester facility including the erection of an anaerobic digester and associated operation and |

| Planning reference | Site Name | Proximity to Proposed Development Site | Description |
|-----------------------------------|--|--|---|
| Sefton | | | |
| | | | teaching building; biomass boiler facility including the erection of an associated building and boiler stack; the erection of 5 storage tanks, the erection of a weighbridge and weighbridge office building; associated ancillary buildings, infrastructure and landscaping; and formation of a landscaped bund 2) Application for outline planning permission (with all matters reserved save for access) for the development of a B2/B8 industrial warehouse with associated access, landscaping and infrastructure works. |
| Lancashire County Council | | | |
| LCC/2015/0061 and LCC/2017/0072/2 | Hillhouse Waste Water Treatment Works, Wood Lane, Great Altcar | c. 2.5km to the south west | Erection of two wind turbines and ancillary works and modification of approved drawings attached to planning permission LCC/2015/0061 to permit changes in the hub height and blade size of the proposed wind turbines and minor amendments to the site layout. |

- 8.110 The ecological assessments undertaken at each of the above sites is discussed further below. The location of the sites is shown on Drawing 3.
- 8.111 **Land at tip field:** The planning application was accompanied by a Further Ornithological Information report (Avian Ecology, 2016a) which concluded that the construction and operation of the proposed development was not expected to result in likely significant effects upon the qualifying interests of the internationally designated sites. Potential disturbance/displacement effects to pink-footed geese (and additional non-breeding qualifying interests) during the construction phase would be completely avoided through the implementation of sensitive construction measures should works be required during the wintering period.
- 8.112 **Land at Jemmy Carr Field:** The extended Phase 1 habitat survey (Western Ecology, 2015) which accompanied the planning application concluded that the site was unsuitable for pink-footed geese and it was extremely unlikely that they fed there. It was recommended that construction activities should only occur in the period May to September inclusive when pink-footed geese are overseas on their summer breeding grounds. This mitigation would ensure that the construction of the proposed solar farm would have a negligible impact on pink-footed geese associated with Downholland Moss BHS. No significant impacts on pink-footed geese during operation of the solar farm were anticipated. A subsequent Wintering Further Ornithological Information Report (Avian Ecology, 2016b) found the study area to support numbers of pink-footed geese and other qualifying interests of the internationally designated sites, however, not within the application site. The pastoral management of the application site, supporting sheep over the majority of the wintering period, was considered likely to be a factor deterring pink-footed goose use due to resource for reasons such as resource competition and flock fragmentation. The report concluded that there would be no significant effect on pink-footed geese as a result of disturbance/ displacement during construction or indirect habitat loss during operation and that a significant effect as a result of direct habitat loss during operation was extremely unlikely. No likely significant effects as a result of cumulative supporting habitats loss was predicted.
- 8.113 **Land west of Formby bypass:** the wintering bird assessment submitted as part of the planning application (Wardell Armstrong, 2018) did not record any pink-footed or whooper swans within the site. Flocks of pink-footed geese were recorded flying over the site and using immediately adjacent fields. Indirect disturbance effects were not considered significant due to the site's location in an area already subject to significant noise disturbance and public presence, being adjacent to busy roads including the A565, existing residential development and formal public rights of way around the site.
- 8.114 **Land north of Turnbridge Road, Maghull:** The ecology report submitted with the planning application (ERAP, 2016) concluded that owing to the absence of an arable crop and the relatively small and enclosed nature of the fields, the site was unlikely to attract wintering birds such as pink-footed geese and whooper swans. Due to the distance between the site and areas designated for nature conservation (at least one kilometre), and as habitats within the site were not complementary to any designated sites in the wider area, any adverse impact on any statutory or non-statutory sites was discounted.
- 8.115 A further information report relating to cumulative increase in recreational pressures to European sites (ERAP, 2017a) concluded that the proposals will not contribute significantly to any cumulative impacts as a consequence of recreational pressures to European Sites,

due to the site's small size, the limited number of additional dwellings proposed, and its location (the site is both distant (at eight kilometres) from the European Sites, and located adjacent to suitable and existing recreational facilities. It was recommended that it could be concluded that the proposal would have no impact upon the European sites present within the wider area, either by itself or in combination with the other relevant proposals.

- 8.116 In a subsequent letter to MEAS, further measures were proposed to exclude any possibility of any harm to the designated sites as a result of recreational pressures. It was concluded that the site, in isolation or in combination with other sites, would not cause a significant effect on the conservation objectives of the designated sites.
- 8.117 **Land south of Andrews Lane:** a wintering bird survey was submitted as part of the planning application (ERAP, 2017b). The results showed that the study zone (and site) was not in use by flocks of foraging pink-footed geese and was not considered to be foraging habitat on which pink-footed geese are dependant or important habitat for this species. It was considered that the pink-footed goose population in the wider area was not dependent on habitats within the study zone and therefore the proposals would not result in a loss of pink-footed goose foraging habitat.
- 8.118 A total equal to 13.6% of the total population of pink-footed goose population at the Martin Mere SPA and Ramsar site was recorded in flight over the site, and a total equal to 69.6% of the total Martin Mere SPA and Ramsar site was recorded in flight over the study zone. It was concluded that the pink-footed geese observed flying over the study zone will regularly fly over existing areas of residential housing to move between the designated sites in the wider area and those areas more typically associated with foraging geese in the wider area (including the Martin Mere SPA and Ramsar site). Therefore, it was considered that the proposed development of further housing at the site would not impact upon the flocks of pink-footed geese observed flying over the site or study zone nor cause fragmentation.
- 8.119 **The Piggeries:** The ecology report which accompanied the planning application (The Environment Partnership, 2018) concluded that the proposed development would have no direct effect on the relevant Natura 2000 sites within the Sefton Coast SSSI i.e. Sefton Coast SAC, Ribble and Alt Estuaries SPA and Ramsar site. The development is 1.5km distant from the designated site and separated by the Formby Bypass. The application site was assessed as containing no supporting habitats for any of the qualifying species e.g. pink-footed geese and whooper swans, nor was it considered that any such supporting habitat was likely to be disturbed by construction or operation of the development.
- 8.120 The 2015 HRA Report of the Sefton Local Plan and the 2016 HRA Report of the Local Plan modifications identified that recreational pressure arising from major new residential development was potentially an adverse effect on integrity of the Natura 2000 sites. The Piggeries development is a minor residential scheme (10 homes) and is below the threshold set in Sefton policy NH2 and associated supplementary planning guidance for likelihood of increased pressure. As increased traffic generation would be minimal and more than 200m from the Natura 2000 sites, it was concluded that it would not have any significant adverse effect in terms of damaging recreational pressure.
- 8.121 **Hillhouse WWTW:** The Environmental Statement (TNEI Services Ltd, 2015) which accompanied the planning application identified a minor residual effect on the Ribble and Alt Estuaries SPA and Ramsar site. No mitigation was proposed and Natural England

considered that the proposal was unlikely to have any impacts on bird species associated with the Ribble and Alt Estuaries or Martin Mere SPAs and Ramsar sites providing works are undertaken when overwintering birds are unlikely to be present on adjacent fields. The planning permission was subject to a planning condition which required details to be submitted of mitigation measures for ecological interests on adjacent farm land if construction works are to be undertaken during the over wintering period between 31st October and 31st March. Such measures were to include the erection of screening fencing or other works to reduce disturbance to birds using the adjacent farm land. The cumulative effects assessment of the proposed development, in-combination with other projects within a 10km radius, were considered likely to be negligible or minor and thus deemed to be not significant.

- 8.122 The development is now operational and only operational impacts (collision) are therefore relevant. The planning application for modification of the approved drawings was accompanied by an Ornithology Revised Collision Risk Assessment (CRA) (Arcus, 2017). The revised CRA demonstrated that the revised turbine dimensions would result in an increase of approximately 25% in the estimated collision risk to pink-footed geese, if the avoidance rate were the same. However, it has been widely accepted that wintering goose species have a very high avoidance rate. The most recent Scottish Natural Heritage Guidance (SNH, 2016) states that an avoidance rate of 99.8% is applicable for geese in relation to onshore wind farms. When this was applied, the revised CRA resulted in an estimate of approximately five pink-footed goose collisions per year based on the complete Season 3 flight activity data. As this value was much lower than the collision risk estimate assessed in the Environmental Statement, the conclusion of the assessment remained the same: a negligible impact upon the local (within 10km), Ribble and Alt Estuaries SPA and Martin Mere SPA wintering pink-footed goose populations. None of the other projects considered have potential mortality impacts, therefore no in combination effects are anticipated.
- 8.123 **Land south of Birkdale Cop and south of Town Lane** (currently under construction). The ecology report submitted with the planning application (ERAP Ltd, 2010) did not include consideration of wintering birds. As with land west of Formby Road and land south of Andrews Road, this is an urban fringe site in an area already subject to significant noise disturbance and public presence and, as such, is unlikely to cause significant additional disturbance to wintering birds during construction and operation.
- 8.124 **Southport Skip Hire 55, Energy Recovery Facility**: the ecology report (Avian Ecology 2016c) which accompanied the planning application assessed that the site offered negligible opportunities for pink-footed geese and whooper swan and the immediately surrounding arable land was considered likely to be unsuitable due to the high disturbance levels currently experienced from the operational waste transfer station and adjacent industrial estate. The report concluded that, given the urban fringe location and the existing high levels of operational use within the site, effects such as increased noise and human disturbance are considered likely to be insignificant and disturbance levels unlikely to increase beyond current levels. On completion, operational disturbance is likely to be similar to, or less than, current levels. Subsequently, effects on birds are considered likely to be negligible.
- 8.125 The air quality assessment (Smith Grant Environmental Consultants, 2016) which accompanied the planning application concluded that the process contributions for both

long-term NO₂ and SO₂ at the point of the nearest ecological site closest to the site, Hesketh Golf Links SSSI, are all substantially below the 1% screening threshold provided by Environment Agency guidance and are therefore insignificant.

- 8.126 **Land at Altcar Moss:** The hydrology assessment for the proposed shale gas exploration works on land at Altcar Moss concluded that there will not be a detrimental impact on drainage and flooding at or from the site with implementation of appropriate management of surface water. The minimal lighting impacts are also not considered to have a significant effect given that pink-footed geese utilise the area for feeding in the daytime, arriving at dawn and leaving at dusk. It is considered unlikely that a seismic event would result in a reduction of birds utilising the moss or the SPAs. No other projects in Table 11 have potential to cause in combination seismic effects. No in combination hydrological, lighting or seismic effects are therefore anticipated.
- 8.127 With regards air quality, the nearest developments are the solar parks 1.6km north west of the proposed development site. Due to the distance between the sites and negligible predicted impact of dust generation by the proposed shale gas exploration site, no significant in-combination effects from dust are anticipated. The solar parks will have no impact on air quality during operation. The majority of the other developments in Table 11 above are residential developments and no in combination effects of atmospheric pollution are therefore anticipated. The only development which could have an in combination effect of atmospheric pollution is the proposed Southport skip hire energy recovery facility 9.7km to the north east of the proposed development site. The air quality assessment which accompanied the planning application concluded that the process contributions for both long-term NO₂ and SO₂ at the point of the nearest ecological site closest to the site, Hesketh Golf Links SSSI, are all substantially below the 1% screening threshold provided by Environment Agency guidance and are therefore insignificant. The operational air quality impacts of the proposed shale gas exploration site are also considered to be not significant. Given the lack of significant impacts alone and distance between these sites, no significant in combination effects in respect of air pollution are anticipated.
- 8.128 With regards habitat loss/ displacement, temporary loss of a relatively small area of land to the proposed shale gas exploration works alone is not considered to be significant. None of the projects identified in Table 11 were considered to result in a direct loss of habitat for wintering birds associated with the designated sites, therefore no significant in combination effects are anticipated.
- 8.129 With regards noise disturbance, the noise assessment within the Environmental Statement concluded that noise levels will not exceed the 55dB threshold beyond 500m of the proposed shale gas exploration site. Regarding in combination effects, the closest projects to the proposed development site are the two solar parks 1.6km to the north-east. Due to the nature of the works and distance from the site, no in combination effects are anticipated. For the majority of the other projects in Table 11, these are all located in existing residential/ industrial areas and additional noise is not considered to be significant in relation to the existing baseline conditions.
- 8.130 No committed developments with a notable impact on the highway network within the vicinity of the proposed development site were raised by LCC during scoping or identified as part of the Transport Statement or the Traffic chapter of the Environmental Statement, therefore the assessment of cumulative development effects reflects the findings outlined in

the baseline traffic counts in Section 1.6.1 of the Traffic chapter. It is understood that there are no committed changes to highway infrastructure that should be taken into account within this ES chapter. No in combination effects as a result of road traffic are therefore anticipated.

- 8.131 The further ornithological reports which accompanied the Jemmy Carr Field and Land at Tip Field concluded that there would be no significant in-combination effects due to disturbance during construction or operation. The Environmental Statement for the Hillhouse WwTW wind turbines (currently operational) concluded that as pink footed geese did not regularly use land within 500m, there would be no significant disturbance effects during operation. All the other projects in Table 11 are all located in existing residential/ industrial areas already subject to disturbance and any additional disturbance during construction or operation is not considered to be significant. No significant in-combination effects as a result of visual disturbance are therefore anticipated.
- 8.132 In conclusion, no significant in combination effects are anticipated on the interest features of the European designated sites.

9.0 Conclusion

- 9.1 The shadow Habitats Regulations Assessment has been undertaken based on a review of the Natura 2000 sites, existing wintering bird survey and the information within the Environmental Statement.
- 9.2 The Assessment of Likely Significant Effect (ALSE) upon Natura 2000 sites found that the proposed development would not significantly affect wintering pink-footed geese, whooper or Bewick's swans by regularly exceeding the 1% National threshold at the proposed development site or within the 500m buffer and therefore there was no likely significant effect. While the proposed development site and 500m buffer has been shown to regularly support significant numbers of pink-footed geese within the 500m buffer at the Regional and Ribble and Alt Estuaries levels, disturbance and displacement of pink-footed geese from a relatively small development during construction and operation is not considered to have a significant effect on either the pink-footed goose population or the ability of the adjoining functional land to support the SPA. This is due to the small area of available habitat affected, the transient nature of food availability in the landscape, temporary disturbance effects and existing levels of disturbance from traffic, agricultural and other activities and shooting.
- 9.3 No significant in combination effects on the interest features of the European designated sites have been identified. When no likely significant effects are found there is no need to progress the Shadow Habitats Regulations Assessment further.

10.0 References

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URS (2015) Sefton Local Plan including Strategic Site Allocation Habitats Regulations Assessment.

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Appendix 1:
Natura 2000 Site Citations

NATURA 2000 – STANDARD DATA FORM

Special Protection Areas under the EC Birds Directive.

Each Natura 2000 site in the United Kingdom has its own Standard Data Form containing site-specific information. The data form for this site has been generated from the Natura 2000 Database submitted to the European Commission on the following date:

22/12/2015

The information provided here, follows the officially agreed site information format for Natura 2000 sites, as set out in the [Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011](#) (2011/484/EU).

The Standard Data Forms are generated automatically for all of the UK's Natura 2000 sites using the European Environment Agency's Natura 2000 software. The structure and format of these forms is exactly as produced by the EEA's Natura 2000 software (except for the addition of this coversheet and the end notes). The content matches exactly the data submitted to the European Commission.

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

Further technical documentation may be found here
http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

As part of the December 2015 submission, several sections of the UK's previously published Standard Data Forms have been updated. For details of the approach taken by the UK in this submission please refer to the following document:
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

More general information on Special Protection Areas (SPAs) in the United Kingdom is available from the [SPA home page on the JNCC website](#). This webpage also provides links to Standard Data Forms for all SPAs in the UK.

Date form generated by the Joint Nature Conservation Committee
25 January 2016.



NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE UK9005103
SITENAME Ribble and Alt Estuaries

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- [6. SITE MANAGEMENT](#)

1. SITE IDENTIFICATION

| | | |
|----------------------|-----------------------------------|-----------------------------|
| 1.1 Type A | 1.2 Site code UK9005103 | Back to top |
|----------------------|-----------------------------------|-----------------------------|

1.3 Site name

Ribble and Alt Estuaries

| | |
|--|-----------------------------------|
| 1.4 First Compilation date 1995-02 | 1.5 Update date 2015-12 |
|--|-----------------------------------|

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee
Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough
PE1 1JY
Email:

1.7 Site indication and designation / classification dates

| | |
|--|--|
| Date site classified as SPA: | 1995-02 |
| National legal reference of SPA designation | Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made). |

2. SITE LOCATION

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| | | | | | | | | | | | | |
|---|------|---|--|---|-------|-------|---|--|---|---|--|---|
| B | A037 | columbianus bewickii | | w | 276 | 276 | i | | G | B | | C |
| B | A038 | Cygnus cygnus | | w | 182 | 182 | i | | G | B | | C |
| B | A130 | Haematopus ostralegus | | w | 18535 | 18535 | i | | G | B | | C |
| B | A183 | Larus fuscus | | r | 1800 | 1800 | p | | G | C | | C |
| B | A179 | Larus ridibundus | | r | 11900 | 11900 | p | | G | B | | C |
| B | A157 | Limosa lapponica | | w | 20086 | 20086 | i | | G | A | | C |
| B | A616 | Limosa limosa islandica | | w | 1273 | 1273 | i | | G | C | | C |
| B | A065 | Melanitta nigra | | w | 746 | 746 | i | | G | B | | C |
| B | A160 | Numenius arquata | | w | 2046 | 2046 | i | | G | C | | C |
| B | A158 | Numenius phaeopus | | c | 697 | 697 | i | | G | B | | C |
| B | A017 | Phalacrocorax carbo | | w | 311 | 311 | i | | G | B | | C |
| B | A151 | Philomachus pugnax | | r | 1 | 1 | p | | G | B | | B |
| B | A140 | Pluvialis apricaria | | w | 3598 | 3598 | i | | G | C | | C |
| B | A141 | Pluvialis squatarola | | w | 9355 | 9355 | i | | G | B | | C |
| B | A193 | Sterna hirundo | | r | 182 | 182 | p | | G | C | | C |
| B | A048 | Tadorna tadorna | | w | 4925 | 4925 | i | | G | C | | C |
| B | A162 | Tringa totanus | | w | 2505 | 2505 | i | | G | C | | C |
| B | A162 | Tringa totanus | | c | 3247 | 3247 | i | | G | C | | C |
| B | A142 | Vanellus vanellus | | w | 16496 | 16496 | i | | G | C | | C |

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see [reference portal](#))
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

| Species | | | | Population in the site | | | | Motivation | |
|---------|--|------------|--|------------------------|--|--|--|------------|-------|
| | | Scientific | | | | | | Species | Other |

| Group | CODE | Name | S | NP | Size | | Unit | Cat. | Annex | | categories | | | | |
|-------|------|--------------------------------------|---|----|--------|--------|------|------|---------|----|------------|---|---|---|---|
| | | | | | Min | Max | | | C R V P | IV | V | A | B | C | D |
| B | SBA | Seabird assemblage | | | 29236 | 29236 | i | | | | | | | | X |
| B | WATR | Waterfowl assemblage | | | 323861 | 323861 | i | | | | | | X | | |

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see [reference portal](#))
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories:** **IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

| Habitat class | % Cover |
|----------------------------|------------|
| N07 | 1.0 |
| N03 | 17.0 |
| N02 | 82.0 |
| Total Habitat Cover | 100 |

Other Site Characteristics

1 Terrestrial: Soil & Geology: alluvium,sand,sedimentary,neutral,mud,basic,sedimentary,sand,basic,alluvium,neutral 2 Terrestrial: Geomorphology and landscape: coastal,lowland,lowland,coastal 3 Marine: Geology: mud,sedimentary,sand 4 Marine: Geomorphology: open coast (including bay),estuary,intertidal sediments (including sandflat/mudflat),intertidal sediments (including sandflat/mudflat),open coast (including bay),estuary

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: *Philomachus pugnax* (Western Africa - wintering) 9.1% of the GB breeding population Count as at late 1980s *Sterna hirundo* (Northern/Eastern Europe - breeding) 1.5% of the GB breeding population Count as at 1996 Over winter the area regularly supports: *Cygnus columbianus bewickii* (Western Siberia/North-eastern & North-western Europe) 3.9% of the GB population 5 year peak mean 1993/94 - 1997/98 *Cygnus cygnus* (Iceland/UK/Ireland) 3.3% of the GB population 5 year peak mean 1993/94 - 1997/98 *Limosa lapponica* (Western Palearctic - wintering) 37.9% of the GB population 5 year peak mean 1993/94 - 1997/98 *Pluvialis apricaria* [North-western Europe - breeding] 1.4% of the GB population 5 year peak mean 1993/94 - 1997/98 ARTICLE 4.2 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: *Larus fuscus* (Western Europe/Mediterranean/Western Africa) 1.5% of the breeding population Count as at 1993 *Larus ridibundus* (North-western Europe - breeding) 7.1% of the population in Great Britain Count as at 1996 Over winter the area regularly supports: *Anas acuta* (North-western Europe) 4.6% of the population 5 year peak mean 1993/94 - 1997/98 *Anas crecca* (North-western Europe) 1.8% of the population 5 year peak mean 1993/94 - 1997/98 *Anas penelope* (Western Siberia/North-western/North-eastern Europe) 6.8% of the population 5 year peak mean 1993/94 - 1997/98 *Anser brachyrhynchus* (Eastern Greenland/Iceland/UK) 5.2% of the population 5 year peak mean 1993/94 - 1997/98 *Aythya marila* (Northern/Western Europe) 1.0% of the population in Great Britain 5 year peak mean 1993/94 - 1997/98 *Calidris alba* (Eastern Atlantic/Western & Southern Africa - wintering) 2.9% of the population 5 year

peak mean 1993/94 - 1997/98 *Calidris alpina alpina* (Northern Siberia/Europe/Western Africa) 2.8% of the population 5 year peak mean 1993/94 - 1997/98 *Calidris canutus* (North-eastern Canada/Greenland/Iceland/North-western Europe) 19.7% of the population 5 year peak mean 1993/94 - 1997/98 *Haematopus ostralegus* (Europe & Northern/Western Africa) 2.1% of the population 5 year peak mean 1993/94 - 1997/98 *Limosa limosa islandica* (Iceland - breeding) 1.8% of the population 5 year peak mean 1993/94 - 1997/98 *Melanitta nigra* (Western Siberia/Western & Northern Europe/North-western Africa) 2.7% of the population in Great Britain 5 year peak mean 1993/94 - 1997/98 *Numenius arquata* (Europe - breeding) 1.7% of the population in Great Britain 5 year peak mean 1993/94 - 1997/98 *Phalacrocorax carbo* (North-western Europe) 2.4% of the population in Great Britain 5 year peak mean 1993/94 - 1997/98 *Pluvialis squatarola* (Eastern Atlantic - wintering) 6.2% of the population 5 year peak mean 1993/94 - 1997/98 *Tadorna tadorna* (North-western Europe) 1.6% of the population 5 year peak mean 1993/94 - 1997/98 *Tringa totanus* (Eastern Atlantic - wintering) 1.7% of the population 5 year peak mean 1993/94 - 1997/98 *Vanellus vanellus* (Europe - breeding) 0.8% of the population in Great Britain 5 year peak mean 1993/94 - 1997/98 On passage the area regularly supports: *Calidris alba* (Eastern Atlantic/Western & Southern Africa - wintering) 6.5% of the population 5 year peak mean 1993 - 1997 *Charadrius hiaticula* (Europe/Northern Africa - wintering) 3.3% of the population 5 year peak mean 1993 - 1997 *Numenius phaeopus* (Europe/Western Africa) 13.9% of the population in Great Britain 5 year peak mean 1993/94 - 1997/98 *Tringa totanus* (Eastern Atlantic - wintering) 2.2% of the population 5 year peak mean 1993 - 1997

ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS During the breeding season the area regularly supports: 29236 seabirds(5 year peak mean 1991/92-1995/96) Including: *Larus ridibundus*, *Larus fuscus*, *Sterna hirundo*, Over winter the area regularly supports: 323861 waterfowl (5 year peak mean 1991/92-1995/96) Including: *Phalacrocorax carbo*, *Cygnus columbianus bewickii*, *Cygnus cygnus*, *Anser brachyrhynchus*, *Tadorna tadorna*, *Anas penelope*, *Anas crecca*, *Anas acuta*, *Aythya marila*, *Melanitta nigra*, *Haematopus ostralegus*, *Charadrius hiaticula*, *Pluvialis apricaria* [North-western Europe - breeding], *Pluvialis squatarola*, *Vanellus vanellus*, *Calidris canutus*, *Calidris alba*, *Calidris alpina alpina*, *Limosa limosa islandica*, *Limosa lapponica*, *Numenius phaeopus*, *Numenius arquata*, *Tringa totanus*

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

| Negative Impacts | | | |
|------------------|------------------------------|-----------------------------|------------------------|
| Rank | Threats and pressures [code] | Pollution (optional) [code] | inside/outside [i o b] |
| H | M01 | | B |
| H | J02 | | B |
| H | I01 | | B |
| H | K02 | | I |
| H | H04 | | B |

| Positive Impacts | | | |
|------------------|-------------------------------|-----------------------------|------------------------|
| Rank | Activities, management [code] | Pollution (optional) [code] | inside/outside [i o b] |
| H | D05 | | I |
| H | A04 | | I |
| H | D05 | | I |
| H | A02 | | I |

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): <http://publications.naturalengland.org.uk/category/6490068894089216>

http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

<http://publications.naturalengland.org.uk/category/3212324>

5. SITE PROTECTION STATUS (optional)

[Back to top](#)

5.1 Designation types at national and regional level:

| Code | Cover [%] | Code | Cover [%] | Code | Cover [%] |
|------|-----------|------|-----------|------|-----------|
| UK01 | 37.6 | UK04 | 100.0 | | |

6. SITE MANAGEMENT

6.1 Body(ies) responsible for the site management:

[Back to top](#)

| | |
|---------------|------------------------|
| Organisation: | <u>Natural England</u> |
| Address: | <u></u> |
| Email: | <u></u> |

6.2 Management Plan(s):

An actual management plan does exist:

| | |
|-------------------------------------|------------------------|
| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | No, but in preparation |
| <input checked="" type="checkbox"/> | No |

6.3 Conservation measures (optional)

| |
|---|
| For available information, including on Conservation Objectives, see Section 4.5. |
|---|

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the [official European Union guidelines for the Standard Data Form](#). The relevant page is shown in the table below.

1.1 Site type

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| A | Designated Special Protection Area | 53 |
| B | SAC (includes candidates Special Areas of Conservation, Sites of Community Importance and designated SAC) | 53 |
| C | SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar | 53 |

3.1 Habitat representativity

| CODE | DESCRIPTION | PAGE NO |
|------|--------------------------|---------|
| A | Excellent | 57 |
| B | Good | 57 |
| C | Significant | 57 |
| D | Non-significant presence | 57 |

3.1 Habitat code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| 1110 | Sandbanks which are slightly covered by sea water all the time | 57 |
| 1130 | Estuaries | 57 |
| 1140 | Mudflats and sandflats not covered by seawater at low tide | 57 |
| 1150 | Coastal lagoons | 57 |
| 1160 | Large shallow inlets and bays | 57 |
| 1170 | Reefs | 57 |
| 1180 | Submarine structures made by leaking gases | 57 |
| 1210 | Annual vegetation of drift lines | 57 |
| 1220 | Perennial vegetation of stony banks | 57 |
| 1230 | Vegetated sea cliffs of the Atlantic and Baltic Coasts | 57 |
| 1310 | Salicornia and other annuals colonizing mud and sand | 57 |
| 1320 | Spartina swards (<i>Spartinion maritimae</i>) | 57 |
| 1330 | Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) | 57 |
| 1340 | Inland salt meadows | 57 |
| 1420 | Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) | 57 |
| 2110 | Embryonic shifting dunes | 57 |
| 2120 | Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") | 57 |
| 2130 | Fixed coastal dunes with herbaceous vegetation ("grey dunes") | 57 |
| 2140 | Decalcified fixed dunes with <i>Empetrum nigrum</i> | 57 |
| 2150 | Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) | 57 |
| 2160 | Dunes with <i>Hippophila rhamnoides</i> | 57 |
| 2170 | Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) | 57 |
| 2190 | Humid dune slacks | 57 |
| 21A0 | Machairs (* in Ireland) | 57 |
| 2250 | Coastal dunes with <i>Juniperus</i> spp. | 57 |
| 2330 | Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands | 57 |
| 3110 | Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) | 57 |
| 3130 | Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> | 57 |
| 3140 | Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. | 57 |
| 3150 | Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation | 57 |

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| 3160 | Natural dystrophic lakes and ponds | 57 |
| 3170 | Mediterranean temporary ponds | 57 |
| 3180 | Turloughs | 57 |
| 3260 | Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation | 57 |
| 4010 | Northern Atlantic wet heaths with Erica tetralix | 57 |
| 4020 | Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix | 57 |
| 4030 | European dry heaths | 57 |
| 4040 | Dry Atlantic coastal heaths with Erica vagans | 57 |
| 4060 | Alpine and Boreal heaths | 57 |
| 4080 | Sub-Arctic Salix spp. scrub | 57 |
| 5110 | Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.) | 57 |
| 5130 | Juniperus communis formations on heaths or calcareous grasslands | 57 |
| 6130 | Calaminarian grasslands of the Violetalia calaminariae | 57 |
| 6150 | Siliceous alpine and boreal grasslands | 57 |
| 6170 | Alpine and subalpine calcareous grasslands | 57 |
| 6210 | Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 57 |
| 6230 | Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) | 57 |
| 6410 | Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) | 57 |
| 6430 | Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels | 57 |
| 6510 | Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) | 57 |
| 6520 | Mountain hay meadows | 57 |
| 7110 | Active raised bogs | 57 |
| 7120 | Degraded raised bogs still capable of natural regeneration | 57 |
| 7130 | Blanket bogs (* if active bog) | 57 |
| 7140 | Transition mires and quaking bogs | 57 |
| 7150 | Depressions on peat substrates of the Rhynchosporion | 57 |
| 7210 | Calcareous fens with Cladium mariscus and species of the Caricion davallianae | 57 |
| 7220 | Petrifying springs with tufa formation (Cratoneurion) | 57 |
| 7230 | Alkaline fens | 57 |
| 7240 | Alpine pioneer formations of the Caricion bicoloris-atrofuscae | 57 |
| 8110 | Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) | 57 |
| 8120 | Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii) | 57 |
| 8210 | Calcareous rocky slopes with chasmophytic vegetation | 57 |
| 8220 | Siliceous rocky slopes with chasmophytic vegetation | 57 |
| 8240 | Limestone pavements | 57 |
| 8310 | Caves not open to the public | 57 |
| 8330 | Submerged or partially submerged sea caves | 57 |
| 9120 | Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion roburi-petraeae or Ilici-Fagenion) | 57 |
| 9130 | Asperulo-Fagetum beech forests | 57 |
| 9160 | Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 57 |
| 9180 | Tilio-Acerion forests of slopes, screes and ravines | 57 |
| 9190 | Old acidophilous oak woods with Quercus robur on sandy plains | 57 |
| 91A0 | Old sessile oak woods with Ilex and Blechnum in the British Isles | 57 |
| 91C0 | Caledonian forest | 57 |
| 91D0 | Bog woodland | 57 |
| 91E0 | Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) | 57 |
| 91J0 | Taxus baccata woods of the British Isles | 57 |

3.1 Relative surface

| CODE | DESCRIPTION | PAGE NO |
|------|-------------|---------|
| A | 15%-100% | 58 |
| B | 2%-15% | 58 |
| C | < 2% | 58 |

3.1 Conservation status habitat

| CODE | DESCRIPTION | PAGE NO |
|------|---------------------------------|---------|
| A | Excellent conservation | 59 |
| B | Good conservation | 59 |
| C | Average or reduced conservation | 59 |

3.1 Global grade habitat

| CODE | DESCRIPTION | PAGE NO |
|------|-------------------|---------|
| A | Excellent value | 59 |
| B | Good value | 59 |
| C | Significant value | 59 |

3.2 Population (abbreviated to 'Pop.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|----------------------------|---------|
| A | 15%-100% | 62 |
| B | 2%-15% | 62 |
| C | < 2% | 62 |
| D | Non-significant population | 62 |

3.2 Conservation status species (abbreviated to 'Con.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|---------------------------------|---------|
| A | Excellent conservation | 63 |
| B | Good conservation | 63 |
| C | Average or reduced conservation | 63 |

3.2 Isolation (abbreviated to 'Iso.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| A | Population (almost) Isolated | 63 |
| B | Population not-isolated, but on margins of area of distribution | 63 |
| C | Population not-isolated within extended distribution range | 63 |

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|-------------------|---------|
| A | Excellent value | 63 |
| B | Good value | 63 |
| C | Significant value | 63 |

3.3 Assemblages types

| CODE | DESCRIPTION | PAGE NO |
|------|--|------------------|
| WATR | Non breeding waterfowl assemblage | UK specific code |
| SBA | Breeding seabird assemblage | UK specific code |
| BBA | Breeding bird assemblage (applies only to sites classified pre 2000) | UK specific code |

4.1 Habitat class code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| N01 | Marine areas, Sea inlets | 65 |
| N02 | Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins) | 65 |
| N03 | Salt marshes, Salt pastures, Salt steppes | 65 |
| N04 | Coastal sand dunes, Sand beaches, Machair | 65 |
| N05 | Shingle, Sea cliffs, Islets | 65 |
| N06 | Inland water bodies (Standing water, Running water) | 65 |
| N07 | Bogs, Marshes, Water fringed vegetation, Fens | 65 |
| N08 | Heath, Scrub, Maquis and Garrigue, Phygrana | 65 |
| N09 | Dry grassland, Steppes | 65 |
| N10 | Humid grassland, Mesophile grassland | 65 |
| N11 | Alpine and sub-Alpine grassland | 65 |
| N14 | Improved grassland | 65 |
| N15 | Other arable land | 65 |
| N16 | Broad-leaved deciduous woodland | 65 |
| N17 | Coniferous woodland | 65 |
| N19 | Mixed woodland | 65 |
| N21 | Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas) | 65 |
| N22 | Inland rocks, Screes, Sands, Permanent Snow and ice | 65 |
| N23 | Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) | 65 |
| N25 | Grassland and scrub habitats (general) | 65 |
| N26 | Woodland habitats (general) | 65 |

4.3 Threats code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| A01 | Cultivation | 65 |
| A02 | Modification of cultivation practices | 65 |
| A03 | Mowing / cutting of grassland | 65 |
| A04 | Grazing | 65 |
| A05 | Livestock farming and animal breeding (without grazing) | 65 |
| A06 | Annual and perennial non-timber crops | 65 |
| A07 | Use of biocides, hormones and chemicals | 65 |
| A08 | Fertilisation | 65 |
| A10 | Restructuring agricultural land holding | 65 |
| A11 | Agriculture activities not referred to above | 65 |
| B01 | Forest planting on open ground | 65 |
| B02 | Forest and Plantation management & use | 65 |
| B03 | Forest exploitation without replanting or natural regrowth | 65 |
| B04 | Use of biocides, hormones and chemicals (forestry) | 65 |
| B06 | Grazing in forests/ woodland | 65 |
| B07 | Forestry activities not referred to above | 65 |
| C01 | Mining and quarrying | 65 |
| C02 | Exploration and extraction of oil or gas | 65 |
| C03 | Renewable abiotic energy use | 65 |
| D01 | Roads, paths and railroads | 65 |
| D02 | Utility and service lines | 65 |
| D03 | Shipping lanes, ports, marine constructions | 65 |
| D04 | Airports, flightpaths | 65 |
| D05 | Improved access to site | 65 |
| E01 | Urbanised areas, human habitation | 65 |
| E02 | Industrial or commercial areas | 65 |

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| E03 | Discharges | 65 |
| E04 | Structures, buildings in the landscape | 65 |
| E06 | Other urbanisation, industrial and similar activities | 65 |
| F01 | Marine and Freshwater Aquaculture | 65 |
| F02 | Fishing and harvesting aquatic resources | 65 |
| F03 | Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.) | 65 |
| F04 | Taking / Removal of terrestrial plants, general | 65 |
| F05 | Illegal taking/ removal of marine fauna | 65 |
| F06 | Hunting, fishing or collecting activities not referred to above | 65 |
| G01 | Outdoor sports and leisure activities, recreational activities | 65 |
| G02 | Sport and leisure structures | 65 |
| G03 | Interpretative centres | 65 |
| G04 | Military use and civil unrest | 65 |
| G05 | Other human intrusions and disturbances | 65 |
| H01 | Pollution to surface waters (limnic & terrestrial, marine & brackish) | 65 |
| H02 | Pollution to groundwater (point sources and diffuse sources) | 65 |
| H03 | Marine water pollution | 65 |
| H04 | Air pollution, air-borne pollutants | 65 |
| H05 | Soil pollution and solid waste (excluding discharges) | 65 |
| H06 | Excess energy | 65 |
| H07 | Other forms of pollution | 65 |
| I01 | Invasive non-native species | 65 |
| I02 | Problematic native species | 65 |
| I03 | Introduced genetic material, GMO | 65 |
| J01 | Fire and fire suppression | 65 |
| J02 | Human induced changes in hydraulic conditions | 65 |
| J03 | Other ecosystem modifications | 65 |
| K01 | Abiotic (slow) natural processes | 65 |
| K02 | Biocenotic evolution, succession | 65 |
| K03 | Interspecific faunal relations | 65 |
| K04 | Interspecific floral relations | 65 |
| K05 | Reduced fecundity/ genetic depression | 65 |
| L05 | Collapse of terrain, landslide | 65 |
| L07 | Storm, cyclone | 65 |
| L08 | Inundation (natural processes) | 65 |
| L10 | Other natural catastrophes | 65 |
| M01 | Changes in abiotic conditions | 65 |
| M02 | Changes in biotic conditions | 65 |
| U | Unknown threat or pressure | 65 |
| XO | Threats and pressures from outside the Member State | 65 |

5.1 Designation type codes

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| UK00 | No Protection Status | 67 |
| UK01 | National Nature Reserve | 67 |
| UK02 | Marine Nature Reserve | 67 |
| UK04 | Site of Special Scientific Interest (UK) | 67 |

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Joint Nature Conservation Committee

Monkstone House

City Road

Peterborough

Cambridgeshire PE1 1JY

UK

Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948

Email: RIS@JNCC.gov.uk

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DD MM YY

| | | |
|--|--|--|
| | | |
|--|--|--|

Designation date

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

Site Reference Number

2. Date this sheet was completed/updated:

Designated: 16 February 1995

3. Country:

UK (England)

4. Name of the Ramsar site:

Ribble and Alt Estuaries

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) *Yes*
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* ☐;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

53 42 41 N 02 58 44 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Preston

The site occupies a stretch of coastline between Liverpool and Preston on the north-west coast of England. It lies between the Mersey estuary and Morecambe Bay.

Administrative region: Lancashire; Merseyside; Sefton

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 13464.1

| | |
|------|----|
| Min. | -2 |
| Max. | 19 |
| Mean | 1 |

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

A large area including two estuaries which form part of the chain of west coast sites which fringe the Irish Sea. The site is formed by extensive sand and mudflats backed, in the north, by the saltmarsh of the Ribble Estuary and, to the south, the sand dunes of the Sefton Coast. The tidal flats and saltmarsh support internationally important populations of waterfowl in winter and the sand dunes support vegetation communities and amphibian populations of international importance.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

2, 5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 2

This site supports up to 40% of the Great Britain population of natterjack toads *Bufo calamita*.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

222038 waterfowl (5 year peak mean 1998/99-2002/2003)

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*, 4108 apparently occupied nests, representing an average of 2.7% of the breeding population (Seabird 2000 Census)
W Europe/Mediterranean/W Africa

Species with peak counts in spring/autumn:

| | |
|---|---|
| Ringed plover , <i>Charadrius hiaticula</i> , Europe/Northwest Africa | 3761 individuals, representing an average of 5.1% of the population (5 year peak mean 1998/9-2002/3 - spring peak) |
| Grey plover , <i>Pluvialis squatarola</i> , E Atlantic/W Africa -wintering | 11021 individuals, representing an average of 4.4% of the population (5 year peak mean 1998/9-2002/3 - spring peak) |
| Red knot , <i>Calidris canutus islandica</i> , W & Southern Africa (wintering) | 42692 individuals, representing an average of 9.4% of the population (5 year peak mean 1998/9-2002/3) |
| Sanderling , <i>Calidris alba</i> , Eastern Atlantic | 7401 individuals, representing an average of 6% of the population (5 year peak mean 1998/9-2002/3 - spring peak) |
| Dunlin , <i>Calidris alpina alpina</i> , W Siberia/W Europe | 38196 individuals, representing an average of 2.8% of the population (5 year peak mean 1998/9-2002/3 - spring peak) |
| Black-tailed godwit , <i>Limosa limosa islandica</i> , Iceland/W Europe | 3323 individuals, representing an average of 9.4% of the population (5 year peak mean 1998/9-2002/3) |
| Common redshank , <i>Tringa totanus totanus</i> , | 4465 individuals, representing an average of 1.7% of the population (5 year peak mean 1998/9-2002/3) |
| Lesser black-backed gull , <i>Larus fuscus graellsii</i> , | 1747 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9-2002/3) |
| Species with peak counts in winter: | |
| Tundra swan , <i>Cygnus columbianus bewickii</i> , NW Europe | 230 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9-2002/3) |
| Whooper swan , <i>Cygnus cygnus</i> , Iceland/UK/Ireland | 211 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3) |
| Pink-footed goose , <i>Anser brachyrhynchus</i> , Greenland, Iceland/UK | 6552 individuals, representing an average of 2.7% of the population (5 year peak mean 1998/9-2002/3) |

| | |
|--|---|
| Common shelduck , <i>Tadorna tadorna</i> , NW Europe | 2944 individuals, representing an average of 3.7% of the GB population (5 year peak mean 1998/9-2002/3) |
| Eurasian wigeon , <i>Anas penelope</i> , NW Europe | 69841 individuals, representing an average of 4.6% of the population (5 year peak mean 1998/9-2002/3) |
| Eurasian teal , <i>Anas crecca</i> , NW Europe | 5107 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9-2002/3) |
| Northern pintail , <i>Anas acuta</i> , NW Europe | 1497 individuals, representing an average of 2.4% of the population (5 year peak mean 1998/9-2002/3) |
| Eurasian oystercatcher , <i>Haematopus ostralegus ostralegus</i> , Europe & NW Africa -wintering | 18926 individuals, representing an average of 1.8% of the population (5 year peak mean 1998/9-2002/3) |
| Bar-tailed godwit , <i>Limosa lapponica lapponica</i> , W Palearctic | 13935 individuals, representing an average of 11.6% of the population (5 year peak mean 1998/9-2002/3) |

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

Details of bird species occurring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

| | |
|-----------------------------------|--|
| Soil & geology | basic, neutral, sand, alluvium, sedimentary |
| Geomorphology and landscape | lowland, coastal, intertidal sediments (including sandflat/mudflat), open coast (including bay), estuary |
| Nutrient status | mesotrophic |
| pH | alkaline, circumneutral |
| Salinity | brackish / mixosaline, saline / euhaline |
| Soil | mainly mineral |
| Water permanence | usually permanent |
| Summary of main climatic features | Annual averages (Blackpool, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/blackpool.html) Max. daily temperature: 12.9° C Min. daily temperature: 6.4° C Days of air frost: 40.3 Rainfall: 871.3 mm Hrs. of sunshine: 1540.3 |

General description of the Physical Features:

The Ribble and Alt Estuaries lie on the Irish Sea coast of north-west England. The site comprises two estuaries, of which the Ribble Estuary is by far the larger, together with an extensive area of sandy foreshore along the Sefton Coast. The site consists of extensive sand- and mud-flats and, particularly in the Ribble Estuary, large areas of saltmarsh. There are also areas of coastal grazing marsh located behind the sea embankments.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Ribble and Alt Estuaries lie on the Irish Sea coast of north-west England. The site comprises two estuaries, of which the Ribble Estuary is by far the larger, together with an extensive area of sandy foreshore along the Sefton Coast. The site consists of extensive sand- and mud-flats and, particularly in the Ribble Estuary, large areas of saltmarsh. There are also areas of coastal grazing marsh located behind the sea embankments.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces, Sediment trapping

19. Wetland types:

Marine/coastal wetland

| Code | Name | % Area |
|------|---|--------|
| G | Tidal flats | 75 |
| H | Salt marshes | 16 |
| E | Sand / shingle shores (including dune systems) | 8 |
| Ts | Freshwater marshes / pools: seasonal / intermittent | 1 |

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The Ribble and Alt Estuaries contain extensive areas of intertidal sand and mudflats. These are backed by, on the Ribble, one of the most extensive areas of grazed saltmarsh in Britain and, along the Sefton Coast, the largest calcareous dune complex in north-western England.

The intertidal flats support internationally important populations of waterfowl which feed on a rich invertebrate fauna and *Enteromorpha* beds.

The saltmarsh supports a range of vegetation communities typical of north-west England maintained by stable grazing regimes. However, the estuary is accreting in response to large-scale land-claim, with *Spartina anglica* dominant in the pioneer stages with *Festuca rubra* and *Puccinellia maritima* dominating the grazed sward. Natural transitions are prevented by coastal defence structures. Small areas of saltmarsh also occur in discrete locations along the Sefton Coast.

The sand dunes display a full range of plant communities and habitat types from embryo to grey dunes with transitions to dune grassland and heath. Numerous species-rich slacks can be found throughout the dune transition but generally the extent of vegetation cover and species diversity increases with distance from the sea. *Elytrigia juncea* and *Elymus arenarius* dominate the embryo dunes (NVC SD5&7), being replaced by *Ammophila arenaria* in the mobile yellow dunes (SD6); large areas of bare sand are still present. Two distinct types of vegetation dominate the extensive grey dunes, the first a *Festuca rubra/Rubus caesius* dune pasture and a *Salix repens/R. caesius*/dwarf shrub (SD9

variants). These dunes also support two large coniferous plantations which support a distinctive flora. Elsewhere, and in the absence of management, smaller areas of secondary deciduous scrub/woodland remain including *Hippophae rhamnoides* and various *Populus* spp. Dune slacks are regularly found throughout the dune complex. Normally dominated by creeping willow, they also support a diverse flora including the nationally rare liverwort, *Petalophyllum ralfsii* and dune helleborine *Epipactis dunensis* (SD15&16). Dune grassland and heath occupy fragmented locations on the extreme eastern edge of the system with *Calluna vulgaris* and *Carex arenaria* both strong characteristics.

The dune system is a candidate Special Area of Conservation for the following Annex I habitats: dunes with creeping willow; shifting dunes; humid dune slacks; shifting dunes with marram; petalwort *Petalophyllum ralfsii*; great crested newt *Triturus cristatus*; coastal dune heathland; and dune grassland ('grey dunes'). The last two are priority habitat types under the EC Habitats Directive.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

International importance

Lower plants

Petalophyllum ralfsii Petalwort (Conservation status: European Red List: Vulnerable; Habitats Directive Annex II species (S1395))

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species regularly supported during the breeding season:

| | |
|---|--|
| Black-headed gull , <i>Larus ridibundus</i> , N & C Europe | 14888 apparently occupied nests, representing an average of 11.6% of the GB population (Seabird 2000 Census) |
| Common tern , <i>Sterna hirundo hirundo</i> , N & E Europe | 182 pairs, representing an average of 1.7% of the GB population (1996) |

Species with peak counts in spring/autumn:

| | |
|--|---|
| Ruff , <i>Philomachus pugnax</i> , Europe/W Africa | 60 individuals, representing an average of 8.5% of the GB population (5 year peak mean 1998/9-2002/3) |
| Eurasian curlew , <i>Numenius arquata arquata</i> , N. a. <i>arquata</i> Europe (breeding) | 2502 individuals, representing an average of 1.7% of the GB population (5 year peak mean 1998/9-2002/3) |
| Common greenshank , <i>Tringa nebularia</i> , Europe/W Africa | 9 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3) |

Species with peak counts in winter:

| | |
|--|---|
| Red-throated diver , <i>Gavia stellata</i> , NW Europe | 56 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3) |
|--|---|

| | |
|--|--|
| Great cormorant , <i>Phalacrocorax carbo carbo</i> , NW Europe | 463 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9- 2002/3) |
| Northern shoveler , <i>Anas clypeata</i> , NW & C Europe | 200 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9- 2002/3) |
| Black (common) scoter , <i>Melanitta nigra nigra</i> , | 691 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9- 2002/3) |
| European golden plover , <i>Pluvialis apricaria</i> <i>apricaria</i> , P. a. altifrons Iceland & Faroes/E Atlantic | 3588 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9- 2002/3) |
| Spotted redshank , <i>Tringa erythropus</i> , Europe/W Africa | 2 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9- 2002/3) |
| Black-headed gull , <i>Larus ridibundus</i> , N & C Europe | 16849 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9- 2002/3) |

Species Information

Species occurring at levels of national importance:

Natterjack toad *Bufo calamita* (Habitats Directive Annex IV species (S1202)) (c. 40% GB population)

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

- Aesthetic
- Archaeological/historical site
- Environmental education/ interpretation
- Fisheries production
- Livestock grazing
- Non-consumptive recreation
- Scientific research
- Sport fishing
- Sport hunting
- Tourism
- Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

| Ownership category | On-site | Off-site |
|-------------------------------------|---------|----------|
| Non-governmental organisation (NGO) | + | + |
| Local authority, municipality etc. | + | + |
| National/Crown Estate | + | + |
| Private | + | + |
| Public/communal | + | + |

25. Current land (including water) use:

| Activity | On-site | Off-site |
|--|---------|----------|
| Nature conservation | + | + |
| Tourism | + | + |
| Recreation | + | + |
| Current scientific research | + | |
| Fishing: commercial | + | + |
| Fishing: recreational/sport | + | + |
| Gathering of shellfish | + | |
| Bait collection | + | |
| Permanent arable agriculture | | + |
| Grazing (unspecified) | + | |
| Hunting: recreational/sport | + | |
| Industry | + | |
| Sewage treatment/disposal | + | + |
| Harbour/port | | + |
| Flood control | + | + |
| Irrigation (incl. agricultural water supply) | | + |
| Mineral exploration (excl. hydrocarbons) | + | |
| Oil/gas exploration | | + |
| Oil/gas production | | + |
| Transport route | + | + |
| Urban development | | + |
| Military activities | | + |

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

| Adverse Factor Category | Reporting Category | Description of the problem (Newly reported Factors only) | On-Site | Off-Site | Major Impact? |
|-------------------------|--------------------|---|---------|----------|---------------|
| Erosion | 2 | Coastal erosion is a factor at Formby Point with an estimated loss of 4 metres per year. It is a concern because pine woodland on the sand dunes is causing coastal squeeze and therefore preventing sand dune habitats from rolling back; as such dune slack habitats for natterjack toads are declining/being lost. | + | | + |
| | | | | | |

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
 Erosion - At Ainsdale Sand Dunes National Nature Reserve English Nature have made efforts to restore dune habitat; an Environmental Impact Assessment has been carried out with a view to submitting a tree-felling application in February 2005.

Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

| Conservation measure | On-site | Off-site |
|---|---------|----------|
| Site/ Area of Special Scientific Interest (SSSI/ASSI) | + | + |
| National Nature Reserve (NNR) | + | |
| Special Protection Area (SPA) | + | |
| Land owned by a non-governmental organisation for nature conservation | + | |
| Management agreement | + | |
| Special Area of Conservation (SAC) | + | |
| Management plan in preparation | + | |

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Contemporary.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Annual natterjack toad monitoring programme: Leisure Services, Metropolitan Borough of Sefton and English Nature Ainsdale NNR.

Completed.

Flora.

National sand dune survey. Sefton coast NCC Report (Edmondson *et al.* 1989)

Bryophyte surveys (various) of Sefton Coast (M Newton).

Ribble and Alt NVC saltmarsh survey 2002 (The Environment Partnership 2003)

Fauna.

Invertebrate surveys (numerous)

Documents held by various authorities on the coast including English Nature & Metropolitan Borough of Sefton.

For a full account of reports, papers etc, reference should be made to:

The sand dunes of the Sefton Coast (Atkinson & Houston 1993).

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The Metropolitan Borough of Sefton, English Nature, National Trust and RSPB all lead guided walks onto suitable areas of the coast at all times of the year.

The entire site is reasonably well provided with fixed interpretation panels at many of the main public access points around the site.

The RSPB is developing educational/visitor facilities at its Reserve.

Southport Pier is developing into a major wildlife interpretation centre. English Nature, RSPB and Sefton Council are working on the project.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.

Infrastructure developments

There are caravan parks adjacent to the site at Formby and moorings in the Alt. No major expansion anticipated.

Land-based recreation

There is intensive recreational use of the northern beaches (Southport & Ainsdale) where traditional activities are concentrated. These include beach car parking, and, during the summer months several large-scale events. Elsewhere, recreation is more informal and less intensive - but all beach activities

on the Sefton Coast are managed by the Beach Management Plan. The golf courses are heavily used; Royal Birkdale hosted the British Open Golf Championship in 1998.

Water-based recreation

Mainly a summer activity based on the beach at Southport. Becoming more common but has, in the past, included pleasure trips on hovercraft.

Airborne recreation

Some disturbance in winter months by micro-lights, particularly to pink-footed goose populations.

Wildfowling

Occurs on extensive areas of the Ribble including the NNR. Usually controlled by agreement.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Site-relevant references

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Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • email: ramsar@ramsar.org

NATURA 2000 – STANDARD DATA FORM

Special Protection Areas under the EC Birds Directive.

Each Natura 2000 site in the United Kingdom has its own Standard Data Form containing site-specific information. The data form for this site has been generated from the Natura 2000 Database submitted to the European Commission on the following date:

22/12/2015

The information provided here, follows the officially agreed site information format for Natura 2000 sites, as set out in the [Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011](#) (2011/484/EU).

The Standard Data Forms are generated automatically for all of the UK's Natura 2000 sites using the European Environment Agency's Natura 2000 software. The structure and format of these forms is exactly as produced by the EEA's Natura 2000 software (except for the addition of this coversheet and the end notes). The content matches exactly the data submitted to the European Commission.

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

Further technical documentation may be found here
http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

As part of the December 2015 submission, several sections of the UK's previously published Standard Data Forms have been updated. For details of the approach taken by the UK in this submission please refer to the following document:
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

More general information on Special Protection Areas (SPAs) in the United Kingdom is available from the [SPA home page on the JNCC website](#). This webpage also provides links to Standard Data Forms for all SPAs in the UK.

Date form generated by the Joint Nature Conservation Committee
25 January 2016.



NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE UK9005111

SITENAME Martin Mere

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- [6. SITE MANAGEMENT](#)

1. SITE IDENTIFICATION

| | | |
|----------------------|-----------------------------------|-----------------------------|
| 1.1 Type A | 1.2 Site code UK9005111 | Back to top |
|----------------------|-----------------------------------|-----------------------------|

1.3 Site name

| |
|-------------|
| Martin Mere |
|-------------|

| | |
|--|-----------------------------------|
| 1.4 First Compilation date 1985-11 | 1.5 Update date 2015-12 |
|--|-----------------------------------|

1.6 Respondent:

| |
|---|
| Name/Organisation: Joint Nature Conservation Committee |
| Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY |
| Email: |

1.7 Site indication and designation / classification dates

| | |
|--|---|
| Date site classified as SPA: | 1985-11 |
| National legal reference of SPA designation | Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made). |

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude

-2.876944444

Latitude

53.62333333

2.2 Area [ha]:

119.75

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code

Region Name

| | |
|------|------------|
| UKD4 | Lancashire |
|------|------------|

2.6 Biogeographical Region(s)

Atlantic (100.0
%)

3. ECOLOGICAL INFORMATION

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

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| Species | | | Population in the site | | | | | | | Site assessment | | | | |
|---------|------|---|------------------------|----|---|-------|-------|------|------|-----------------|---------|-------|------|---|
| G | Code | Scientific Name | S | NP | T | Size | | Unit | Cat. | D.qual. | A B C D | A B C | | |
| | | | | | | Min | Max | | | | Pop. | Con. | Iso. | G |
| B | A054 | Anas acuta | | | w | 978 | 978 | i | | G | B | | C | |
| B | A050 | Anas penelope | | | w | 9062 | 9062 | i | | G | B | | C | |
| B | A040 | Anser brachyrhynchus | | | w | 25779 | 25779 | i | | G | B | | B | |
| B | A037 | Cygnus columbianus bewickii | | | w | 449 | 449 | i | | G | B | | C | |
| B | A038 | Cygnus cygnus | | | w | 621 | 621 | i | | G | B | | C | |

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see [reference portal](#))
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information

- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

| Species | | | | | Population in the site | | | | Motivation | | | | | |
|---------|------|--------------------------------------|---|----|------------------------|-------|------|---------|---------------|---|------------------|---|---|---|
| Group | CODE | Scientific Name | S | NP | Size | | Unit | Cat. | Species Annex | | Other categories | | | |
| | | | | | Min | Max | | C R V P | IV | V | A | B | C | D |
| B | WATR | Waterfowl assemblage | | | 46245 | 46245 | i | | | | | | X | |

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see [reference portal](#))
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories:** **IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

| Habitat class | % Cover |
|----------------------------|------------|
| N10 | 78.5 |
| N06 | 13.5 |
| N16 | 1.0 |
| N07 | 7.0 |
| Total Habitat Cover | 100 |

Other Site Characteristics

1 Terrestrial: Soil & Geology: mud,nutrient-poor,clay,sedimentary,sand,sandstone,alluvium,acidic,peat 2
Terrestrial: Geomorphology and landscape: lowland,coastal,hilly

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: *Cygnus columbianus bewickii* (Western Siberia/North-eastern & North-western Europe) 6.2% of the GB population 5 year peak mean 1991/92-1995/96 *Cygnus cygnus* (Iceland/UK/Ireland) 11.1% of the GB population 5 year peak mean 1991/92-1995/96 ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: *Anas acuta* (North-western Europe) 1.6% of the population 5 year peak mean 1991/92-1995/96 *Anas penelope* (Western Siberia/North-western/North-eastern Europe) 0.7% of the population 5 year peak mean 1991/92-1995/96 *Anser brachyrhynchus* (Eastern Greenland/Iceland/UK) 11.5% of the population 5 year peak mean 1991/92-1995/96

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

| Negative Impacts | | | |
|------------------|------------------------------|-----------------------------|------------------------|
| Rank | Threats and pressures [code] | Pollution (optional) [code] | inside/outside [i o b] |
| H | H02 | | B |
| H | I01 | | B |
| H | J02 | | B |

| Positive Impacts | | | |
|------------------|-------------------------------|-----------------------------|------------------------|
| Rank | Activities, management [code] | Pollution (optional) [code] | inside/outside [i o b] |
| H | A04 | | I |
| H | A02 | | I |

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): <http://publications.naturalengland.org.uk/category/3212324>

<http://publications.naturalengland.org.uk/category/6490068894089216>

http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

| Code | Cover [%] | Code | Cover [%] | Code | Cover [%] |
|------|-----------|------|-----------|------|-----------|
| UK04 | 100.0 | | | | |

6. SITE MANAGEMENT

[Back to top](#)

6.1 Body(ies) responsible for the site management:

| | |
|---------------|-----------------|
| Organisation: | Natural England |
| Address: | |
| Email: | |

6.2 Management Plan(s):

An actual management plan does exist:

| | |
|-------------------------------------|------------------------|
| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | No, but in preparation |
| <input checked="" type="checkbox"/> | No |

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the [official European Union guidelines for the Standard Data Form](#). The relevant page is shown in the table below.

1.1 Site type

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| A | Designated Special Protection Area | 53 |
| B | SAC (includes candidates Special Areas of Conservation, Sites of Community Importance and designated SAC) | 53 |
| C | SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar | 53 |

3.1 Habitat representativity

| CODE | DESCRIPTION | PAGE NO |
|------|--------------------------|---------|
| A | Excellent | 57 |
| B | Good | 57 |
| C | Significant | 57 |
| D | Non-significant presence | 57 |

3.1 Habitat code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| 1110 | Sandbanks which are slightly covered by sea water all the time | 57 |
| 1130 | Estuaries | 57 |
| 1140 | Mudflats and sandflats not covered by seawater at low tide | 57 |
| 1150 | Coastal lagoons | 57 |
| 1160 | Large shallow inlets and bays | 57 |
| 1170 | Reefs | 57 |
| 1180 | Submarine structures made by leaking gases | 57 |
| 1210 | Annual vegetation of drift lines | 57 |
| 1220 | Perennial vegetation of stony banks | 57 |
| 1230 | Vegetated sea cliffs of the Atlantic and Baltic Coasts | 57 |
| 1310 | Salicornia and other annuals colonizing mud and sand | 57 |
| 1320 | Spartina swards (<i>Spartinion maritimae</i>) | 57 |
| 1330 | Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) | 57 |
| 1340 | Inland salt meadows | 57 |
| 1420 | Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) | 57 |
| 2110 | Embryonic shifting dunes | 57 |
| 2120 | Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") | 57 |
| 2130 | Fixed coastal dunes with herbaceous vegetation ("grey dunes") | 57 |
| 2140 | Decalcified fixed dunes with <i>Empetrum nigrum</i> | 57 |
| 2150 | Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) | 57 |
| 2160 | Dunes with <i>Hippophila rhamnoides</i> | 57 |
| 2170 | Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) | 57 |
| 2190 | Humid dune slacks | 57 |
| 21A0 | Machairs (* in Ireland) | 57 |
| 2250 | Coastal dunes with <i>Juniperus</i> spp. | 57 |
| 2330 | Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands | 57 |
| 3110 | Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) | 57 |
| 3130 | Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> | 57 |
| 3140 | Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. | 57 |
| 3150 | Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation | 57 |

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| 3160 | Natural dystrophic lakes and ponds | 57 |
| 3170 | Mediterranean temporary ponds | 57 |
| 3180 | Turloughs | 57 |
| 3260 | Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation | 57 |
| 4010 | Northern Atlantic wet heaths with Erica tetralix | 57 |
| 4020 | Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix | 57 |
| 4030 | European dry heaths | 57 |
| 4040 | Dry Atlantic coastal heaths with Erica vagans | 57 |
| 4060 | Alpine and Boreal heaths | 57 |
| 4080 | Sub-Arctic Salix spp. scrub | 57 |
| 5110 | Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.) | 57 |
| 5130 | Juniperus communis formations on heaths or calcareous grasslands | 57 |
| 6130 | Calaminarian grasslands of the Violetalia calaminariae | 57 |
| 6150 | Siliceous alpine and boreal grasslands | 57 |
| 6170 | Alpine and subalpine calcareous grasslands | 57 |
| 6210 | Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 57 |
| 6230 | Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) | 57 |
| 6410 | Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) | 57 |
| 6430 | Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels | 57 |
| 6510 | Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) | 57 |
| 6520 | Mountain hay meadows | 57 |
| 7110 | Active raised bogs | 57 |
| 7120 | Degraded raised bogs still capable of natural regeneration | 57 |
| 7130 | Blanket bogs (* if active bog) | 57 |
| 7140 | Transition mires and quaking bogs | 57 |
| 7150 | Depressions on peat substrates of the Rhynchosporion | 57 |
| 7210 | Calcareous fens with Cladium mariscus and species of the Caricion davallianae | 57 |
| 7220 | Petrifying springs with tufa formation (Cratoneurion) | 57 |
| 7230 | Alkaline fens | 57 |
| 7240 | Alpine pioneer formations of the Caricion bicoloris-atrofuscae | 57 |
| 8110 | Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) | 57 |
| 8120 | Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii) | 57 |
| 8210 | Calcareous rocky slopes with chasmophytic vegetation | 57 |
| 8220 | Siliceous rocky slopes with chasmophytic vegetation | 57 |
| 8240 | Limestone pavements | 57 |
| 8310 | Caves not open to the public | 57 |
| 8330 | Submerged or partially submerged sea caves | 57 |
| 9120 | Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion roburi-petraeae or Ilici-Fagenion) | 57 |
| 9130 | Asperulo-Fagetum beech forests | 57 |
| 9160 | Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 57 |
| 9180 | Tilio-Acerion forests of slopes, screes and ravines | 57 |
| 9190 | Old acidophilous oak woods with Quercus robur on sandy plains | 57 |
| 91A0 | Old sessile oak woods with Ilex and Blechnum in the British Isles | 57 |
| 91C0 | Caledonian forest | 57 |
| 91D0 | Bog woodland | 57 |
| 91E0 | Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) | 57 |
| 91J0 | Taxus baccata woods of the British Isles | 57 |

3.1 Relative surface

| CODE | DESCRIPTION | PAGE NO |
|------|-------------|---------|
| A | 15%-100% | 58 |
| B | 2%-15% | 58 |
| C | < 2% | 58 |

3.1 Conservation status habitat

| CODE | DESCRIPTION | PAGE NO |
|------|---------------------------------|---------|
| A | Excellent conservation | 59 |
| B | Good conservation | 59 |
| C | Average or reduced conservation | 59 |

3.1 Global grade habitat

| CODE | DESCRIPTION | PAGE NO |
|------|-------------------|---------|
| A | Excellent value | 59 |
| B | Good value | 59 |
| C | Significant value | 59 |

3.2 Population (abbreviated to 'Pop.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|----------------------------|---------|
| A | 15%-100% | 62 |
| B | 2%-15% | 62 |
| C | < 2% | 62 |
| D | Non-significant population | 62 |

3.2 Conservation status species (abbreviated to 'Con.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|---------------------------------|---------|
| A | Excellent conservation | 63 |
| B | Good conservation | 63 |
| C | Average or reduced conservation | 63 |

3.2 Isolation (abbreviated to 'Iso.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| A | Population (almost) Isolated | 63 |
| B | Population not-isolated, but on margins of area of distribution | 63 |
| C | Population not-isolated within extended distribution range | 63 |

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|-------------------|---------|
| A | Excellent value | 63 |
| B | Good value | 63 |
| C | Significant value | 63 |

3.3 Assemblages types

| CODE | DESCRIPTION | PAGE NO |
|------|--|------------------|
| WATR | Non breeding waterfowl assemblage | UK specific code |
| SBA | Breeding seabird assemblage | UK specific code |
| BBA | Breeding bird assemblage (applies only to sites classified pre 2000) | UK specific code |

4.1 Habitat class code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| N01 | Marine areas, Sea inlets | 65 |
| N02 | Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins) | 65 |
| N03 | Salt marshes, Salt pastures, Salt steppes | 65 |
| N04 | Coastal sand dunes, Sand beaches, Machair | 65 |
| N05 | Shingle, Sea cliffs, Islets | 65 |
| N06 | Inland water bodies (Standing water, Running water) | 65 |
| N07 | Bogs, Marshes, Water fringed vegetation, Fens | 65 |
| N08 | Heath, Scrub, Maquis and Garrigue, Phygrana | 65 |
| N09 | Dry grassland, Steppes | 65 |
| N10 | Humid grassland, Mesophile grassland | 65 |
| N11 | Alpine and sub-Alpine grassland | 65 |
| N14 | Improved grassland | 65 |
| N15 | Other arable land | 65 |
| N16 | Broad-leaved deciduous woodland | 65 |
| N17 | Coniferous woodland | 65 |
| N19 | Mixed woodland | 65 |
| N21 | Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas) | 65 |
| N22 | Inland rocks, Screes, Sands, Permanent Snow and ice | 65 |
| N23 | Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) | 65 |
| N25 | Grassland and scrub habitats (general) | 65 |
| N26 | Woodland habitats (general) | 65 |

4.3 Threats code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| A01 | Cultivation | 65 |
| A02 | Modification of cultivation practices | 65 |
| A03 | Mowing / cutting of grassland | 65 |
| A04 | Grazing | 65 |
| A05 | Livestock farming and animal breeding (without grazing) | 65 |
| A06 | Annual and perennial non-timber crops | 65 |
| A07 | Use of biocides, hormones and chemicals | 65 |
| A08 | Fertilisation | 65 |
| A10 | Restructuring agricultural land holding | 65 |
| A11 | Agriculture activities not referred to above | 65 |
| B01 | Forest planting on open ground | 65 |
| B02 | Forest and Plantation management & use | 65 |
| B03 | Forest exploitation without replanting or natural regrowth | 65 |
| B04 | Use of biocides, hormones and chemicals (forestry) | 65 |
| B06 | Grazing in forests/ woodland | 65 |
| B07 | Forestry activities not referred to above | 65 |
| C01 | Mining and quarrying | 65 |
| C02 | Exploration and extraction of oil or gas | 65 |
| C03 | Renewable abiotic energy use | 65 |
| D01 | Roads, paths and railroads | 65 |
| D02 | Utility and service lines | 65 |
| D03 | Shipping lanes, ports, marine constructions | 65 |
| D04 | Airports, flightpaths | 65 |
| D05 | Improved access to site | 65 |
| E01 | Urbanised areas, human habitation | 65 |
| E02 | Industrial or commercial areas | 65 |

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| E03 | Discharges | 65 |
| E04 | Structures, buildings in the landscape | 65 |
| E06 | Other urbanisation, industrial and similar activities | 65 |
| F01 | Marine and Freshwater Aquaculture | 65 |
| F02 | Fishing and harvesting aquatic resources | 65 |
| F03 | Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc.), trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.) | 65 |
| F04 | Taking / Removal of terrestrial plants, general | 65 |
| F05 | Illegal taking/ removal of marine fauna | 65 |
| F06 | Hunting, fishing or collecting activities not referred to above | 65 |
| G01 | Outdoor sports and leisure activities, recreational activities | 65 |
| G02 | Sport and leisure structures | 65 |
| G03 | Interpretative centres | 65 |
| G04 | Military use and civil unrest | 65 |
| G05 | Other human intrusions and disturbances | 65 |
| H01 | Pollution to surface waters (limnic & terrestrial, marine & brackish) | 65 |
| H02 | Pollution to groundwater (point sources and diffuse sources) | 65 |
| H03 | Marine water pollution | 65 |
| H04 | Air pollution, air-borne pollutants | 65 |
| H05 | Soil pollution and solid waste (excluding discharges) | 65 |
| H06 | Excess energy | 65 |
| H07 | Other forms of pollution | 65 |
| I01 | Invasive non-native species | 65 |
| I02 | Problematic native species | 65 |
| I03 | Introduced genetic material, GMO | 65 |
| J01 | Fire and fire suppression | 65 |
| J02 | Human induced changes in hydraulic conditions | 65 |
| J03 | Other ecosystem modifications | 65 |
| K01 | Abiotic (slow) natural processes | 65 |
| K02 | Biocenotic evolution, succession | 65 |
| K03 | Interspecific faunal relations | 65 |
| K04 | Interspecific floral relations | 65 |
| K05 | Reduced fecundity/ genetic depression | 65 |
| L05 | Collapse of terrain, landslide | 65 |
| L07 | Storm, cyclone | 65 |
| L08 | Inundation (natural processes) | 65 |
| L10 | Other natural catastrophes | 65 |
| M01 | Changes in abiotic conditions | 65 |
| M02 | Changes in biotic conditions | 65 |
| U | Unknown threat or pressure | 65 |
| XO | Threats and pressures from outside the Member State | 65 |

5.1 Designation type codes

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| UK00 | No Protection Status | 67 |
| UK01 | National Nature Reserve | 67 |
| UK02 | Marine Nature Reserve | 67 |
| UK04 | Site of Special Scientific Interest (UK) | 67 |

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Joint Nature Conservation Committee

Monkstone House

City Road

Peterborough

Cambridgeshire PE1 1JY

UK

Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948

Email: RIS@JNCC.gov.uk

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DD MM YY

| | | |
|--|--|--|
| | | |
|--|--|--|

Designation date

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

Site Reference Number

2. Date this sheet was completed/updated:

Designated: 28 November 1985

3. Country:

UK (England)

4. Name of the Ramsar site:

Martin Mere

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) *Yes*
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* ☐;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

53 37 24 N 02 52 37 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Southport

Martin Mere lies between Ormskirk and Southport, close to the village of Burscough.

Administrative region: Lancashire

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 119.89

| | |
|------|---|
| Min. | 3 |
| Max. | 4 |
| Mean | 4 |

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Martin Mere occupies part of a former lake and mire which extended over some 1300 hectares of the Lancashire Coastal Plain during the 17th century. In 1972 the Wildfowl and Wetlands Trust purchased 147 hectares of the former Holcrofts Farm, consisting mainly of rough damp pasture, with the primary aim of providing grazing and roosting opportunities for wildfowl. Since acquisition the rough grazed pastures have been transformed by means of positive management into a wildfowl refuge of international importance. Areas of open water with associated muddy margins have been created, whilst maintaining seasonally flooded marsh and reed swamp habitats via water level control. In addition large areas of semi-improved damp grassland, unimproved species rich damp grassland and rush pasture have been maintained and enhanced via appropriate grazing management. Of the pastures the most botanically important are those species rich areas supporting whorled caraway, present here at one of very few sites in northern England. Such pastures are nationally important. However, the outstanding importance of Martin Mere is as a refuge for its large and diverse wintering, passage and breeding bird community. In September 2002, an additional 63 hectares of land were purchased on the southern most part of the refuge at Woodend Farm, with the aid of the Heritage Lottery Fund, to restore arable land to a variety of wetland habitats including seasonally flooded grassland, reedbed, wet woodland and open water habitats. These are all key Biodiversity Action Plan habitats within the Lancashire Plain and Valleys Natural Area.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

25306 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

| | |
|--|--|
| Pink-footed goose , <i>Anser brachyrhynchus</i> , Greenland, Iceland/UK | 8186 individuals, representing an average of 3.4% of the population (5 year peak mean 1998/9-2002/3) |
|--|--|

Species with peak counts in winter:

| | |
|---|---|
| Tundra swan , <i>Cygnus columbianus bewickii</i> , NW Europe | 61 individuals, representing an average of 0.7% of the GB population (5 year peak mean 1998/9- 2002/3) |
| Whooper swan , <i>Cygnus cygnus</i> , Iceland/UK/Ireland | 1320 individuals, representing an average of 6.3% of the population (5 year peak mean 1998/9-2002/3) |
| Eurasian wigeon , <i>Anas penelope</i> , NW Europe | 3062 individuals, representing an average of 0.7% of the GB population (5 year peak mean 1998/9-2002/3) |
| Northern pintail , <i>Anas acuta</i> , NW Europe | 415 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9- 2002/3) |

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

Details of bird species occurring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):
Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

| | |
|-----------------------------------|--|
| Soil & geology | acidic, sand, mud, clay, alluvium, peat, nutrient-poor, sedimentary, sandstone |
| Geomorphology and landscape | lowland, coastal, floodplain |
| Nutrient status | eutrophic, highly eutrophic |
| pH | alkaline, circumneutral |
| Salinity | fresh |
| Soil | mainly organic |
| Water permanence | usually permanent, usually seasonal / intermittent |
| Summary of main climatic features | Annual averages (Blackpool, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/blackpool.html) Max. daily temperature: 12.9° C Min. daily temperature: 6.4° C Days of air frost: 40.3 Rainfall: 871.3 mm Hrs. of sunshine: 1540.3 |

General description of the Physical Features:

Martin Mere comprises open water, seasonally-flooded marsh and damp, neutral hay meadows overlying deep peat.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Martin Mere comprises open water, seasonally-flooded marsh and damp, neutral hay meadows overlying deep peat.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Other, Recharge and discharge of groundwater, Flood water storage / desynchronisation of flood peaks

19. Wetland types:

Human-made wetland, Inland wetland

| Code | Name | % Area |
|------|---|--------|
| Ts | Freshwater marshes / pools: seasonal / intermittent | 78 |
| O | Freshwater lakes: permanent | 13.7 |
| U | Peatlands (including peat bogs swamps, fens) | 7.1 |
| Xf | Freshwater, tree-dominated wetlands | 1.2 |

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Large areas of open water with muddy margins associated with seasonally flooded grazing marsh and reed swamp. There are also large areas of surrounding damp species-rich grassland and semi-improved areas of damp grassland maintained by grazing.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.**Higher Plants.**

Carum verticillatum, Rumex maritimus, Oenanthe fistulosa, Oenanthe aquatica, Lemna gibba

Lower Plants.

Leucagaricus serenus

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds**Species currently occurring at levels of national importance:****Species with peak counts in spring/autumn:**

| | |
|--|---|
| Eurasian teal , <i>Anas crecca</i> , NW Europe | 3494 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3) |
|--|---|

Species with peak counts in winter:

| | |
|---|---|
| Common shelduck , <i>Tadorna tadorna</i> , NW Europe | 936 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3) |
| Common pochard , <i>Aythya ferina</i> , NE & NW Europe | 829 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3) |
| Ruff , <i>Philomachus pugnax</i> , Europe/W Africa | 139 individuals, representing an average of 19.8% of the GB population (5 year peak mean 1998/9-2002/3) |
| Spotted redshank , <i>Tringa erythropus</i> , Europe/W Africa | 2 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1991/92-1995/96) |

Species Information

None reported

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic

Aquatic vegetation (e.g. reeds, willows, seaweed)
 Archaeological/historical site
 Environmental education/ interpretation
 Livestock grazing
 Non-consumptive recreation
 Scientific research
 Tourism

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

| Ownership category | On-site | Off-site |
|-------------------------------------|---------|----------|
| Non-governmental organisation (NGO) | + | |
| Private | | + |
| Other | + | + |

25. Current land (including water) use:

| Activity | On-site | Off-site |
|----------------------------------|---------|----------|
| Nature conservation | + | + |
| Tourism | + | + |
| Current scientific research | + | + |
| Arable agriculture (unspecified) | | + |
| Permanent arable agriculture | | + |
| Grazing (unspecified) | + | + |
| Rough or shifting grazing | + | + |
| Permanent pastoral agriculture | + | + |
| Flood control | | + |

26. Factors (past, present or potential) adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.
2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

| Adverse Factor Category | Reporting Category | Description of the problem (Newly reported Factors only) | On-Site | Off-Site | Major Impact? |
|-------------------------|--------------------|--|---------|----------|---------------|
| No factors reported | NA | | | | |
| | | | | | |

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?

Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

| Conservation measure | On-site | Off-site |
|---|---------|----------|
| Site/ Area of Special Scientific Interest (SSSI/ASSI) | + | |
| Special Protection Area (SPA) | + | |
| Land owned by a non-governmental organisation for nature conservation | + | |
| Site management statement/plan implemented | + | |

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl &

Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Considerable amounts of research continues to undertaken by the Wildfowl and Wetlands Trust at Martin Mere on the feeding/breeding and behavioural ecology of individual species of wildfowl, in addition to fresh water grazing marsh management.

Environment.

Daily weather records, water level and water quality monitoring is undertaken by wardening staff.

Habitat.

Invertebrate and plant species records are collected by volunteers on a regular basis.

Miscellaneous.

Visitor and educational usage of the Refuge is monitored on a daily basis at this extremely popular and well visited Wildfowl & Wetlands Trust Refuge.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

WWT employs a number of warden-teacher staff who undertake environmental education work and escort large numbers of school parties around the refuge throughout most of the year. Various educational programmes have also been run for adults in recent years. WWT has excellent visitor and schoolroom facilities as part of its Interpretative Centre on the Refuge.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.

The WWT Refuge at Martin Mere has excellent bird watching and interpretative facilities, including toilets a tea room/restaurant and shop for the selling of WWT goods and other commodities, as well as educational/interpretative materials and an adventure playground based on a bird theme. In addition its waterfowl collection allows close contact with many species of duck, goose and swan from all over the world.

The latter compliments large areas of refuge which remain free from disturbance for wintering, passage and breeding wildfowl and wading birds. The latter being overlooked from many well constructed tower hides. The Refuge including its waterfowl gardens are extremely well visited throughout the year by large numbers of visitors and parties of school children alike. The Refuge features in tourist literature and is well known throughout the country. People management is of the highest order and from a tourist point of view is sustainable without causing detrimental effects upon the wildlife interest of the refuge.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs,
European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol,
BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House,
Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Site-relevant references

Phase I Habitat Survey

Cranswick, PA, Waters, RJ, Musgrove, AJ & Pollitt, MS (1997) *The Wetland Bird Survey 1995–96: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge

Environment Agency (1997) *Martin Mere Water Level Management Plan*. Environment Agency

Forshaw, DW (****) *Wild geese and swans in Lancashire 1995–1998*

Gray, LC (1980) *Environmental bibliography of north-west England (vice-counties 59, 60, 69 and 70) 1850–1979*. University of Lancaster Library, Lancaster (Library Occasional Paper, No. 10)

Hale, WG (1985) *Martin Mere. Its history and natural history*. Causeway Press, Ormskirk

Huddart, D & Glasser, NF (2002) *Quaternary of northern England*. Joint Nature Conservation Committee, Peterborough (Geological Conservation Review Series, No. 25)

Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge.
www.wwt.org.uk/publications/default.asp?PubID=14

Nature Conservancy Council (1987) *Invertebrate Site Register – Lancashire*. Nature Conservancy Council

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.)
www.jncc.gov.uk/UKSPA/default.htm

Wildfowl and Wetlands Trust (****) *Draft Management Plan*. Wildfowl and Wetlands Trust

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • email: ramsar@ramsar.org

NATURA 2000 – STANDARD DATA FORM

Special Protection Areas under the EC Birds Directive.

Each Natura 2000 site in the United Kingdom has its own Standard Data Form containing site-specific information. The data form for this site has been generated from the Natura 2000 Database submitted to the European Commission on the following date:

22/12/2015

The information provided here, follows the officially agreed site information format for Natura 2000 sites, as set out in the [Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011](#) (2011/484/EU).

The Standard Data Forms are generated automatically for all of the UK's Natura 2000 sites using the European Environment Agency's Natura 2000 software. The structure and format of these forms is exactly as produced by the EEA's Natura 2000 software (except for the addition of this coversheet and the end notes). The content matches exactly the data submitted to the European Commission.

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

Further technical documentation may be found here
http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

As part of the December 2015 submission, several sections of the UK's previously published Standard Data Forms have been updated. For details of the approach taken by the UK in this submission please refer to the following document:
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

More general information on Special Protection Areas (SPAs) in the United Kingdom is available from the [SPA home page on the JNCC website](#). This webpage also provides links to Standard Data Forms for all SPAs in the UK.

Date form generated by the Joint Nature Conservation Committee
25 January 2016.



NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE UK9013011
SITENAME The Dee Estuary

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- [1. SITE IDENTIFICATION](#)
- [2. SITE LOCATION](#)
- [3. ECOLOGICAL INFORMATION](#)
- [4. SITE DESCRIPTION](#)
- [5. SITE PROTECTION STATUS AND RELATION WITH CORINE BIOTOPES](#)
- [6. SITE MANAGEMENT](#)

1. SITE IDENTIFICATION

| | | |
|----------------------|-----------------------------------|-----------------------------|
| 1.1 Type A | 1.2 Site code UK9013011 | Back to top |
|----------------------|-----------------------------------|-----------------------------|

1.3 Site name

The Dee Estuary

| | |
|--|-----------------------------------|
| 1.4 First Compilation date 1985-07 | 1.5 Update date 2015-12 |
|--|-----------------------------------|

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee
Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough
PE1 1JY
Email:

1.7 Site indication and designation / classification dates

| | |
|--|---|
| Date site classified as SPA: | 1985-07 |
| National legal reference of SPA designation | Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made). |

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude

-3.21555556

Latitude

53.30222222

2.2 Area [ha]:

14294.95

2.3 Marine area [%]

80.9

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code

Region Name

| | |
|------|----------------------------|
| UKD2 | Cheshire |
| UKL1 | West Wales and The Valleys |
| UKD5 | Merseyside |
| UKZZ | Extra-Regio |
| UKL2 | East Wales |

2.6 Biogeographical Region(s)

Atlantic (100.0
%)

3. ECOLOGICAL INFORMATION

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3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

| Species | | | Population in the site | | | | | | | Site assessment | | | | |
|---------|------|--|------------------------|----|---|-------|-------|------|------|-----------------|---------|------|-------|------|
| G | Code | Scientific Name | S | NP | T | Size | | Unit | Cat. | D.qual. | A B C D | | A B C | |
| | | | | | | Min | Max | | | | Pop. | Con. | Iso. | Glo. |
| B | A054 | Anas acuta | | | w | 5407 | 5407 | i | | G | A | | C | |
| B | A052 | Anas crecca | | | w | 5251 | 5251 | i | | G | C | | C | |
| B | A672 | Calidris alpina alpina | | | w | 27769 | 27769 | i | | G | C | | C | |
| B | A143 | Calidris canutus | | | w | 12394 | 12394 | i | | G | B | | C | |
| B | A130 | Haematopus ostralegus | | | w | 22677 | 22677 | i | | G | B | | C | |
| B | A157 | Limosa lapponica | | | w | 1150 | 1150 | i | | G | B | | C | |
| B | A616 | Limosa limosa | | | w | 1747 | 1747 | i | | G | B | | C | |

| | | | | | | | | | | | | | |
|---|------|--------------------------------------|--|--|---|------|------|---|--|---|---|--|---|
| | | islandica | | | | | | | | | | | |
| B | A160 | Numenius arquata | | | w | 3899 | 3899 | i | | G | C | | C |
| B | A141 | Pluvialis squatarola | | | w | 1643 | 1643 | i | | G | C | | C |
| B | A195 | Sterna albifrons | | | r | 69 | 69 | p | | G | B | | C |
| B | A193 | Sterna hirundo | | | r | 392 | 392 | p | | G | B | | C |
| B | A191 | Sterna sandvicensis | | | c | 957 | 957 | i | | G | B | | C |
| B | A048 | Tadorna tadorna | | | w | 7725 | 7725 | i | | G | B | | C |
| B | A162 | Tringa totanus | | | w | 5293 | 5293 | i | | G | B | | C |
| B | A162 | Tringa totanus | | | c | 8795 | 8795 | i | | G | B | | C |

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see [reference portal](#))
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

| Species | | | | | Population in the site | | | | Motivation | | | | | |
|---------|------|--------------------------------------|---|----|------------------------|-------|------|---------|---------------|---|------------------|---|---|---|
| Group | CODE | Scientific Name | S | NP | Size | | Unit | Cat. | Species Annex | | Other categories | | | |
| | | | | | Min | Max | | C R V P | IV | V | A | B | C | D |
| B | WATR | Waterfowl assemblage | | | 90518 | 90518 | i | | | | | | X | |

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see [reference portal](#))
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories:** **IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

| Habitat class | % Cover |
|----------------------------|---------|
| N03 | 17.9 |
| N16 | 0.1 |
| N04 | 0.6 |
| N15 | 0.1 |
| N07 | 0.5 |
| N14 | 2.7 |
| N06 | 0.2 |
| N09 | 0.7 |
| N01 | |
| N05 | 0.1 |
| N10 | 0.1 |
| N19 | 0.1 |
| N02 | 76.7 |
| N23 | 0.2 |
| Total Habitat Cover | NaN |

Other Site Characteristics

1 Terrestrial: Soil & Geology: sandstone 2 Terrestrial: Geomorphology and landscape: lowland,coastal 3 Marine Geology: mud,sand,sedimentary,shingle,clay,sandstone/mudstone 4 Marine: Geomorphology: intertidal sediments (including sandflat/mudflat),islands,shingle bar,cliffs,intertidal rock,subtidal sediments (including sandbank/mudbank),estuary

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: *Sterna albifrons* (Eastern Atlantic - breeding) 2.9% of the GB breeding population 5 year peak mean 1995-1999 *Sterna hirundo* (Northern/Eastern Europe - breeding) 3.2% of the population in Great Britain 5 year peak mean 1995-1999 Over winter the area regularly supports: *Limosa lapponica* (Western Palearctic - wintering) 2.2% of the GB population 5 year peak mean 1994/95-1998/99 On passage the area regularly supports: *Sterna sandvicensis* (Western Europe/Western Africa) 2.3% of the population in Great Britain 5 year peak mean 1995-1999 ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: *Anas acuta* (North-western Europe) 9.0% of the population 5 year peak mean 1994/95-1998/99 *Anas crecca* (North-western Europe) 1.3% of the population 5 year peak mean 1994/95-1998/99 *Calidris alpina alpina* (Northern Siberia/Europe/Western Africa) 2% of the population 5 year peak mean 1994/95-1998/99 *Calidris canutus* (North-eastern Canada/Greenland/Iceland/North-western Europe) 3.5% of the population 5 year peak mean 1994/95-1998/99 *Haematopus ostralegus* (Europe & Northern/Western Africa) 2.5% of the population 5 year peak mean 1994/95-1998/99 *Limosa limosa islandica* (Iceland - breeding) 2.5% of the population 5 year peak mean 1994/95-1998/99 *Numenius arquata* (Europe - breeding) 1.1% of the population 5 year peak mean 1994/95-1998/99 *Pluvialis squatarola* (Eastern Atlantic - wintering) 1.1% of the population 5 year peak mean 1994/95-1998/99 *Tadorna tadorna* (North-western Europe) 2.6% of the population 5 year peak mean 1994/95-1998/99 *Tringa totanus* (Eastern Atlantic - wintering) 3.5% of the population 5 year peak mean 1994/95-1998/99 On passage the area regularly supports: *Tringa totanus* (Eastern Atlantic - wintering) 5.9% of the population 5 year peak mean 1994/95-1998/99 ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 120726 waterfowl (5 year peak mean 1991/92-1995/96) Including: *Tadorna tadorna* , *Anas acuta* , *Haematopus ostralegus* , *Calidris canutus* , *Limosa lapponica* , *Tringa totanus*

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

| Negative Impacts | | | |
|------------------|------------------------------|-----------------------------|------------------------|
| Rank | Threats and pressures [code] | Pollution (optional) [code] | inside/outside [i o b] |
| H | I01 | | B |
| H | M01 | | B |
| H | G01 | | I |
| H | M02 | | B |

| Positive Impacts | | | |
|------------------|-------------------------------|-----------------------------|------------------------|
| Rank | Activities, management [code] | Pollution (optional) [code] | inside/outside [i o b] |
| H | A02 | | I |
| H | A04 | | I |
| H | A06 | | I |
| H | D05 | | I |
| H | A04 | | I |
| M | G03 | | B |
| H | G03 | | I |
| H | G03 | | I |
| H | D05 | | I |
| H | A02 | | I |
| H | A06 | | I |

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. The Natural Resources Wales weblink below provides access to information on its designated sites. Detailed information about this Natura 2000 site can be accessed via the Management Plan link provided in Section 6.2. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

<https://naturalresources.wales/conservation-biodiversity-and-wildlife/find-protected-areas-of-land-and-seas/designated-s>

<http://publications.naturalengland.org.uk/category/3212324>

<http://publications.naturalengland.org.uk/category/6490068894089216>

5. SITE PROTECTION STATUS (optional)

5.1 Designation types at national and regional level:

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| Code | Cover [%] | Code | Cover [%] | Code | Cover [%] |
|------|-----------|------|-----------|------|-----------|
| UK04 | 91.4 | | | | |

6. SITE MANAGEMENT

6.1 Body(ies) responsible for the site management:

[Back to top](#)

| | |
|---------------|-------------------------|
| Organisation: | Natural Resources Wales |
| Address: | |
| Email: | |

| | |
|---------------|-----------------|
| Organisation: | Natural England |
| Address: | |
| Email: | |

6.2 Management Plan(s):

An actual management plan does exist:

| | | |
|-------------------------------------|------------------------|---|
| <input checked="" type="checkbox"/> | Yes | Name: THE DEE ESTUARY Link: https://www.naturalresources.wales/media/673576/Dee%20Estuary-Reg33-Volume%201-English-091209_1.pdf |
| <input type="checkbox"/> | No, but in preparation | |
| <input type="checkbox"/> | No | |

6.3 Conservation measures (optional)

| |
|---|
| For available information, including on Conservation Objectives, see Section 4.5. |
|---|

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the [official European Union guidelines for the Standard Data Form](#). The relevant page is shown in the table below.

1.1 Site type

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| A | Designated Special Protection Area | 53 |
| B | SAC (includes candidates Special Areas of Conservation, Sites of Community Importance and designated SAC) | 53 |
| C | SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar | 53 |

3.1 Habitat representativity

| CODE | DESCRIPTION | PAGE NO |
|------|--------------------------|---------|
| A | Excellent | 57 |
| B | Good | 57 |
| C | Significant | 57 |
| D | Non-significant presence | 57 |

3.1 Habitat code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| 1110 | Sandbanks which are slightly covered by sea water all the time | 57 |
| 1130 | Estuaries | 57 |
| 1140 | Mudflats and sandflats not covered by seawater at low tide | 57 |
| 1150 | Coastal lagoons | 57 |
| 1160 | Large shallow inlets and bays | 57 |
| 1170 | Reefs | 57 |
| 1180 | Submarine structures made by leaking gases | 57 |
| 1210 | Annual vegetation of drift lines | 57 |
| 1220 | Perennial vegetation of stony banks | 57 |
| 1230 | Vegetated sea cliffs of the Atlantic and Baltic Coasts | 57 |
| 1310 | Salicornia and other annuals colonizing mud and sand | 57 |
| 1320 | Spartina swards (Spartinion maritimae) | 57 |
| 1330 | Atlantic salt meadows (Glauco-Puccinellietalia maritimae) | 57 |
| 1340 | Inland salt meadows | 57 |
| 1420 | Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi) | 57 |
| 2110 | Embryonic shifting dunes | 57 |
| 2120 | Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") | 57 |
| 2130 | Fixed coastal dunes with herbaceous vegetation ("grey dunes") | 57 |
| 2140 | Decalcified fixed dunes with <i>Empetrum nigrum</i> | 57 |
| 2150 | Atlantic decalcified fixed dunes (Calluno-Ulicetea) | 57 |
| 2160 | Dunes with <i>Hippophila rhamnoides</i> | 57 |
| 2170 | Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (Salicion arenariae) | 57 |
| 2190 | Humid dune slacks | 57 |
| 21A0 | Machairs (* in Ireland) | 57 |
| 2250 | Coastal dunes with <i>Juniperus</i> spp. | 57 |
| 2330 | Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands | 57 |
| 3110 | Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) | 57 |
| 3130 | Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea | 57 |
| 3140 | Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. | 57 |
| 3150 | Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation | 57 |

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| 3160 | Natural dystrophic lakes and ponds | 57 |
| 3170 | Mediterranean temporary ponds | 57 |
| 3180 | Turloughs | 57 |
| 3260 | Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation | 57 |
| 4010 | Northern Atlantic wet heaths with Erica tetralix | 57 |
| 4020 | Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix | 57 |
| 4030 | European dry heaths | 57 |
| 4040 | Dry Atlantic coastal heaths with Erica vagans | 57 |
| 4060 | Alpine and Boreal heaths | 57 |
| 4080 | Sub-Arctic Salix spp. scrub | 57 |
| 5110 | Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.) | 57 |
| 5130 | Juniperus communis formations on heaths or calcareous grasslands | 57 |
| 6130 | Calaminarian grasslands of the Violetalia calaminariae | 57 |
| 6150 | Siliceous alpine and boreal grasslands | 57 |
| 6170 | Alpine and subalpine calcareous grasslands | 57 |
| 6210 | Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 57 |
| 6230 | Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) | 57 |
| 6410 | Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) | 57 |
| 6430 | Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels | 57 |
| 6510 | Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) | 57 |
| 6520 | Mountain hay meadows | 57 |
| 7110 | Active raised bogs | 57 |
| 7120 | Degraded raised bogs still capable of natural regeneration | 57 |
| 7130 | Blanket bogs (* if active bog) | 57 |
| 7140 | Transition mires and quaking bogs | 57 |
| 7150 | Depressions on peat substrates of the Rhynchosporion | 57 |
| 7210 | Calcareous fens with Cladium mariscus and species of the Caricion davallianae | 57 |
| 7220 | Petrifying springs with tufa formation (Cratoneurion) | 57 |
| 7230 | Alkaline fens | 57 |
| 7240 | Alpine pioneer formations of the Caricion bicoloris-atrofuscae | 57 |
| 8110 | Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) | 57 |
| 8120 | Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii) | 57 |
| 8210 | Calcareous rocky slopes with chasmophytic vegetation | 57 |
| 8220 | Siliceous rocky slopes with chasmophytic vegetation | 57 |
| 8240 | Limestone pavements | 57 |
| 8310 | Caves not open to the public | 57 |
| 8330 | Submerged or partially submerged sea caves | 57 |
| 9120 | Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion roburi-petraeae or Ilici-Fagenion) | 57 |
| 9130 | Asperulo-Fagetum beech forests | 57 |
| 9160 | Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 57 |
| 9180 | Tilio-Acerion forests of slopes, screes and ravines | 57 |
| 9190 | Old acidophilous oak woods with Quercus robur on sandy plains | 57 |
| 91A0 | Old sessile oak woods with Ilex and Blechnum in the British Isles | 57 |
| 91C0 | Caledonian forest | 57 |
| 91D0 | Bog woodland | 57 |
| 91E0 | Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) | 57 |
| 91J0 | Taxus baccata woods of the British Isles | 57 |

3.1 Relative surface

| CODE | DESCRIPTION | PAGE NO |
|------|-------------|---------|
| A | 15%-100% | 58 |
| B | 2%-15% | 58 |
| C | < 2% | 58 |

3.1 Conservation status habitat

| CODE | DESCRIPTION | PAGE NO |
|------|---------------------------------|---------|
| A | Excellent conservation | 59 |
| B | Good conservation | 59 |
| C | Average or reduced conservation | 59 |

3.1 Global grade habitat

| CODE | DESCRIPTION | PAGE NO |
|------|-------------------|---------|
| A | Excellent value | 59 |
| B | Good value | 59 |
| C | Significant value | 59 |

3.2 Population (abbreviated to 'Pop.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|----------------------------|---------|
| A | 15%-100% | 62 |
| B | 2%-15% | 62 |
| C | < 2% | 62 |
| D | Non-significant population | 62 |

3.2 Conservation status species (abbreviated to 'Con.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|---------------------------------|---------|
| A | Excellent conservation | 63 |
| B | Good conservation | 63 |
| C | Average or reduced conservation | 63 |

3.2 Isolation (abbreviated to 'Iso.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| A | Population (almost) Isolated | 63 |
| B | Population not-isolated, but on margins of area of distribution | 63 |
| C | Population not-isolated within extended distribution range | 63 |

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|-------------------|---------|
| A | Excellent value | 63 |
| B | Good value | 63 |
| C | Significant value | 63 |

3.3 Assemblages types

| CODE | DESCRIPTION | PAGE NO |
|------|--|------------------|
| WATR | Non breeding waterfowl assemblage | UK specific code |
| SBA | Breeding seabird assemblage | UK specific code |
| BBA | Breeding bird assemblage (applies only to sites classified pre 2000) | UK specific code |

4.1 Habitat class code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| N01 | Marine areas, Sea inlets | 65 |
| N02 | Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins) | 65 |
| N03 | Salt marshes, Salt pastures, Salt steppes | 65 |
| N04 | Coastal sand dunes, Sand beaches, Machair | 65 |
| N05 | Shingle, Sea cliffs, Islets | 65 |
| N06 | Inland water bodies (Standing water, Running water) | 65 |
| N07 | Bogs, Marshes, Water fringed vegetation, Fens | 65 |
| N08 | Heath, Scrub, Maquis and Garrigue, Phygrana | 65 |
| N09 | Dry grassland, Steppes | 65 |
| N10 | Humid grassland, Mesophile grassland | 65 |
| N11 | Alpine and sub-Alpine grassland | 65 |
| N14 | Improved grassland | 65 |
| N15 | Other arable land | 65 |
| N16 | Broad-leaved deciduous woodland | 65 |
| N17 | Coniferous woodland | 65 |
| N19 | Mixed woodland | 65 |
| N21 | Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas) | 65 |
| N22 | Inland rocks, Scree, Sands, Permanent Snow and ice | 65 |
| N23 | Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) | 65 |
| N25 | Grassland and scrub habitats (general) | 65 |
| N26 | Woodland habitats (general) | 65 |

4.3 Threats code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| A01 | Cultivation | 65 |
| A02 | Modification of cultivation practices | 65 |
| A03 | Mowing / cutting of grassland | 65 |
| A04 | Grazing | 65 |
| A05 | Livestock farming and animal breeding (without grazing) | 65 |
| A06 | Annual and perennial non-timber crops | 65 |
| A07 | Use of biocides, hormones and chemicals | 65 |
| A08 | Fertilisation | 65 |
| A10 | Restructuring agricultural land holding | 65 |
| A11 | Agriculture activities not referred to above | 65 |
| B01 | Forest planting on open ground | 65 |
| B02 | Forest and Plantation management & use | 65 |
| B03 | Forest exploitation without replanting or natural regrowth | 65 |
| B04 | Use of biocides, hormones and chemicals (forestry) | 65 |
| B06 | Grazing in forests/ woodland | 65 |
| B07 | Forestry activities not referred to above | 65 |
| C01 | Mining and quarrying | 65 |
| C02 | Exploration and extraction of oil or gas | 65 |
| C03 | Renewable abiotic energy use | 65 |
| D01 | Roads, paths and railroads | 65 |
| D02 | Utility and service lines | 65 |
| D03 | Shipping lanes, ports, marine constructions | 65 |
| D04 | Airports, flightpaths | 65 |
| D05 | Improved access to site | 65 |
| E01 | Urbanised areas, human habitation | 65 |
| E02 | Industrial or commercial areas | 65 |

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| E03 | Discharges | 65 |
| E04 | Structures, buildings in the landscape | 65 |
| E06 | Other urbanisation, industrial and similar activities | 65 |
| F01 | Marine and Freshwater Aquaculture | 65 |
| F02 | Fishing and harvesting aquatic resources | 65 |
| F03 | Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.) | 65 |
| F04 | Taking / Removal of terrestrial plants, general | 65 |
| F05 | Illegal taking/ removal of marine fauna | 65 |
| F06 | Hunting, fishing or collecting activities not referred to above | 65 |
| G01 | Outdoor sports and leisure activities, recreational activities | 65 |
| G02 | Sport and leisure structures | 65 |
| G03 | Interpretative centres | 65 |
| G04 | Military use and civil unrest | 65 |
| G05 | Other human intrusions and disturbances | 65 |
| H01 | Pollution to surface waters (limnic & terrestrial, marine & brackish) | 65 |
| H02 | Pollution to groundwater (point sources and diffuse sources) | 65 |
| H03 | Marine water pollution | 65 |
| H04 | Air pollution, air-borne pollutants | 65 |
| H05 | Soil pollution and solid waste (excluding discharges) | 65 |
| H06 | Excess energy | 65 |
| H07 | Other forms of pollution | 65 |
| I01 | Invasive non-native species | 65 |
| I02 | Problematic native species | 65 |
| I03 | Introduced genetic material, GMO | 65 |
| J01 | Fire and fire suppression | 65 |
| J02 | Human induced changes in hydraulic conditions | 65 |
| J03 | Other ecosystem modifications | 65 |
| K01 | Abiotic (slow) natural processes | 65 |
| K02 | Biocenotic evolution, succession | 65 |
| K03 | Interspecific faunal relations | 65 |
| K04 | Interspecific floral relations | 65 |
| K05 | Reduced fecundity/ genetic depression | 65 |
| L05 | Collapse of terrain, landslide | 65 |
| L07 | Storm, cyclone | 65 |
| L08 | Inundation (natural processes) | 65 |
| L10 | Other natural catastrophes | 65 |
| M01 | Changes in abiotic conditions | 65 |
| M02 | Changes in biotic conditions | 65 |
| U | Unknown threat or pressure | 65 |
| XO | Threats and pressures from outside the Member State | 65 |

5.1 Designation type codes

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| UK00 | No Protection Status | 67 |
| UK01 | National Nature Reserve | 67 |
| UK02 | Marine Nature Reserve | 67 |
| UK04 | Site of Special Scientific Interest (UK) | 67 |

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

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Designation date

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|--|--|--|--|--|--|--|--|

Site Reference Number

2. Date this sheet was completed/updated:

Designated: 17 July 1985, Designated 10 December 2009

3. Country:

UK (England/Wales)

4. Name of the Ramsar site:

The Dee Estuary

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary:

(1) Additions

i. **Dee Estuary/Aber Afon Dyfrdwy Site of Special Scientific Interest (SSSI) (England/Wales)**

The Ramsar site has been extended to include virtually all the land which was included in the revised SSSI, when this was renotified in 1998. This includes additional areas of intertidal habitat as well as areas of coastal grassland, mainly in Wales. The coastal grassland is important as it contributes towards maintaining the International populations of certain key individual waterfowl

species (and the overall total waterfowl assemblage). They are particularly important for curlew, oystercatcher, redshank and black-tailed godwit.

ii. Inner Marsh Farm SSSI (22.44ha) (England/Wales)

This SSSI is managed as a nature reserve by RSPB. It is important for species such as black-tailed godwit (at all periods of the year including a non-breeding summering flock) and overwintering pintail and teal. It is also important in supporting populations of other birds for which the estuary is classified and also contributes to the overall wintering waterfowl assemblage

iii. Shotton Lagoons and Reedbeds SSSI (11.9ha) (Wales)

This SSSI supports a large and increasing population of breeding common terns, the largest in Wales and its Phragmites reedbeds. These reedbeds are also important for locally uncommon breeding species such as reed warblers. Wildfowl from the nearby estuary use the site in winter and the site contributes therefore to the overall wintering waterfowl assemblage of the Dee Estuary

iv. Gronant Dunes and Talacre Warren SSSI (518.8ha) (Wales)

This SSSI supports a range of sand dune habitats and associated flora and fauna including many rare and uncommon plant and animal species as well as shingle, swamp and saltmarsh habitats. This contiguous piece of sand dune habitat, wide sandy foreshore and its associated habitats adds to the wetland interest already found within the existing site. Both natterjack toad and sand lizard have been reintroduced to this dune system in recent years and are both now well established.

The site also supports the only breeding population of little tern in Wales and the shingle feature used by the breeding terns also provides a high tide overwintering roost location for the Dee Estuary waterfowl populations. The roost is predominantly of waders especially the smaller species such as sanderling. Cormorant also use this roost and also roost in large numbers at the low water mark. Terns including Sandwich and common, also aggregate on the foreshore during late summer passage.

v. Red Rocks SSSI (11.38ha) (England)

Red Rocks SSSI supports sand dune, swamp particularly reedbed and saltmarsh vegetation. Where sand is accreting to seaward within the adjacent Dee Estuary SSSI, the sandhill rustic moth occurs. Natterjack toad has been reintroduced to this dune system in recent years and now successfully breeds within the site

(2) Deletions

14 small deletions from the original site boundary have been made in Wales. All these areas were removed from the SSSI boundary in 1998. These are regarded as falling within Resolution viii.21 'Defining Ramsar site boundaries more accurately in Ramsar Information Sheets.' They are all minor changes and fall within category 9 (a) 'the site boundary has been incorrectly drawn and there has been a genuine error or category 9(c) 'technology allows for a higher resolution and more accurate definition of the site boundary than was available at the time of listing'.

The changes do not substantially affect the fundamental objectives for which the site was listed and are a result of inaccuracies in the original mapping of the Dee Estuary SSSI boundary in 1983, which was used as the basis of the 1985 classification of the Ramsar Site.

(b) Area

The area of the Ramsar site is now 14302.02 ha. This is a net increase in area of 1217.17 ha from the 1985 classification. Most of the extended areas occur in Wales

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

i. Addition of Criterion 2, for *Epidalea calamita*, Natterjack Toad.

Following the decline and loss of the species in the early 1990's at Red Rock SSSI, the species was successfully reintroduced utilising spawn strings from the nearby Sefton coast and the site now supports a breeding population of the species. In addition, the species has also been successfully reintroduced to the Talacre Warren and Gronant Dunes SSSI in Wales.

ii. Bird Data

The bird data has been reassessed based on the 5 year period from 1994/5 up to 1998/9 specifically for areas within The Dee Estuary Ramsar Site, as the Dee Estuary WeBS count areas include other areas currently outside the Ramsar Site boundary, mainly in England. It also now excludes species such as turnstone which never occurred in internationally important numbers within the boundary of the original Dee Estuary Ramsar Site. Its main resort was along the North Wirral coast and into the mouth of the Mersey estuary.

iii. Ecological Changes

Implementation of various Ramsar Mission Recommendations - see last updated report on Montreux Record.

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) *Yes*
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* ☐;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary includes five existing protected areas, all of which are designated as SSSI.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

53 18 08 N 03 12 56 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Birkenhead

The Dee Estuary lies between the Wirral peninsula, in England and the Flintshire estuarine coastline of north-east Wales. The site also includes the open coast westwards in Wales from the Point of Ayr in Flintshire to Prestatyn in Denbighshire

Administrative region: Cheshire West and Chester; Sir y Fflint/ Flintshire; Sir Ddinbich/Denbighshire; Wirral Metropolitan Borough Council

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 14302.02

Min. -17

Max. 15

Mean 0

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Dee is a large funnel-shaped sheltered estuary and is one of the top ten estuaries in the UK for wintering and passage waterfowl populations. The estuary supports internationally important numbers of waterfowl and waders. The estuary is an accreting system and the extent of saltmarsh continues to expand as the estuary seeks to achieve a new equilibrium situation following large-scale historical land-claim at the head of the estuary which commenced in the 1730s. Nevertheless, the estuary still supports extensive areas of intertidal sand and mudflats as well as saltmarsh. Where land-claim has not occurred, the saltmarshes grade into transitional brackish and freshwater swamp vegetation, on the upper shore. The site includes the three sandstone islands of Hilbre with their important cliff vegetation and maritime heathland/grassland, the sand dune system between the Point of Ayr and Prestatyn in Wales and Red Rocks in England, various Welsh coastal fields historically reclaimed from the estuary but used by the Dee Estuary wintering waterfowl populations, freshwater lagoons and reedbeds at Shotton supporting the largest common tern breeding colony in Wales and freshwater lagoons at Inner Marsh Farm used by waterfowl throughout the year but particularly in winter. The two shorelines of the estuary show a marked contrast between the industrialised usage of the coastal belt in Wales and residential and recreational usage in England.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1, 2, 5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 1

Extensive intertidal mud and sand flats (20 km by 9 km) with large expanses of saltmarsh towards the head of the estuary. Habitats Directive Annex I features present on the pSAC include:

H1130 Estuaries

H1140 Mudflats and sandflats not covered by seawater at low tide

H1210 Annual vegetation of drift lines

H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts

H1310 *Salicornia* and other annuals colonising mud and sand

H1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

H2110 Embryonic shifting dunes

H2120 Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")

- H2130 Fixed dunes with herbaceous vegetation (“grey dunes”)
 H2190 Humid dune slacks

Criterion 2, it supports breeding colonies of the vulnerable Natterjack Toad, *Epidalea calamita*

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

Non-breeding season regularly supports 120,726 individual waterbirds (5 year peak mean 1994/5 – 1998/9).

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

Redshank , *Tringa totanus*, **8,795 individuals, representing an average of 5.9% of the Eastern Atlantic population (5 year peak mean 1994/95 - 1998/99)**

Species with peak counts in winter:

Teal , *Anas crecca*, NW Europe **5,251 individuals, representing an average of 1.3% of the population (5 year peak mean 1994/95 - 1998/99)**

Shelduck , *Tadorna tadorna*, NW Europe **7,725 individuals, representing an average of 2.6% of the population (5 year peak mean 1994/95 - 1998/99)**

Oystercatcher, *Haematopus ostralegus*, Europe & W Africa **22,677 individuals, representing an average of 2.5% of the population (5 year peak mean 1994/95 - 1998/99)**

Curlew , *Numenius arquata* Europe/NW Africa **3,899 individuals, representing an average of 1.1% of the Europe population (5 year peak mean 1994/95 - 1998/99)**

Pintail , *Anas acuta*, NW Europe **5,407 individuals, representing an average of 9.0% of the population (5 year peak mean 1994/95 - 1998/99)**

Grey plover , *Pluvialis squatarola*, E Atlantic **1,643 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1994/95 - 1998/99)**

Knot , *Calidris canutus islandica*, W Europe/ Canada **12,394 individuals, representing an average of 3.5% of the GB population (5 year peak mean 1994/95 - 1998/99)**

Dunlin , *Calidris alpina alpina* Europe (breeding) **27,769 individuals, representing an average of 2.0% of the population (5 year peak mean 1994/95 - 1998/99)**

Black-tailed godwit , *Limosa limosa islandica*, Iceland (breeding) **1,747 individuals, representing an average of 2.5% of the population (5 year peak mean**

Bar-tailed godwit , *Limosa lapponica* , W
European (wintering)

1994/95 - 1998/99)

**1,150 individuals, representing an average of
1.2% of the Europe population (5 year peak
mean 1994/95 - 1998/99)**

Redshank, *Tringa totanus*, Eastern Atlantic

**5,293 individuals representing an average of
3.5% Eastern Atlantic population (5 year peak
mean 1994/95 - 1998/99)**

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

Details of bird species occurring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

| | |
|-----------------------------------|--|
| Soil & geology | alluvium, clay, mud, neutral, sand, sandstone, sedimentary, shingle |
| Geomorphology and landscape | cliffs, coastal, estuary, intertidal rock, intertidal sediments (including sandflat/mudflat), island, lagoon, lowland, shingle bar, subtidal sediments (including sandbank/mudbank) |
| Nutrient status | mesotrophic |
| pH | circumneutral |
| Salinity | brackish / mixosaline, saline / euhaline |
| Soil | mainly mineral, mainly organic |
| Water permanence | usually permanent |
| Summary of main climatic features | Annual averages (Blackpool, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/blackpool.html) Max. daily temperature: 12.9° C Min. daily temperature: 6.4° C Days of air frost: 40.3 Rainfall: 871.3 mm Hrs. of sunshine: 1540.3 |

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The River Dee is 110 km long, rising in Snowdonia, Wales, and has a total catchment area above Chester Weir of approximately 1800 km². Major reservoirs in the catchment include Bala Lake/Llyn Tegid; Llyn Brenig; Llyn Celyn; Llyn Alwen. The River Dee has a number of tributaries including the Afon Tryweryn, Afon Alwen, Afon Ceiriog and Afon Alyn. From Bala

Lake, the path of the river trends generally east-south-east until it turns sharply northwards before meandering to Chester. One of the major tributaries of the Dee, the Afon Alyn, crosses carboniferous limestone with numerous sink-holes, and during the summer months long stretches of the river bed run dry. Below Chester, the river flows along a canalised artificial channel for 8 km before entering the estuary.

A significant part of this lost flow re-emerges on the west bank of the Dee estuary from an artificial tunnel originally constructed to drain metal mines on Halkyn Mountain.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces, Sediment trapping, Other, Water supply

19. Wetland types:

Marine/coastal wetland

| Code | Name | % Area |
|------|--|--------|
| G | Tidal flats | 63.9 |
| H | Salt marshes | 17.9 |
| F | Estuarine waters | 12.8 |
| D | Rocky shores | 0.2 |
| E | Sand / shingle shores (including dune systems) | 0.6 |
| J | Coastal brackish / saline lagoons | 0.0 |
| | Total Habitat Cover | 95.4 |

Inland Wetlands

| Code | Name | % Area |
|------|------------------------------------|--------|
| O | Permanent freshwater lakes | 0.2 |
| Tp | Permanant freshwater marshes/pools | 0.5 |
| W | Shrub-dominated wetlands | 0.2 |
| | Total Habitat Cover | 0.9 |

Human-made Wetlands

| Code | Name | % Area |
|------|--------------------------------------|--------|
| 4 | Seasonally flooded agricultural land | 3.5 |
| 7 | Excavations | 0.2 |
| | Total Habitat Cover | 3.7 |

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The Dee estuary contains extensive areas of intertidal sand and mudflats with large areas of saltmarsh at its head and along part of its north-eastern shore. The saltmarsh vegetation exhibits a complete succession from early pioneer vegetation colonising intertidal flats through lower, middle and upper saltmarsh types to brackish and freshwater transitions at the top of the shore. Although land-claim has led to a loss of many of these natural transitions, there are still a number of areas, particularly on the English shoreline, where transition to swamp vegetation still occurs. These are dominated usually by common reed *Phragmites australis* and sea club-rush *Bolboschoenus maritimus*. Uncommon saltmarsh species include saltmarsh flat-sedge, *Blysmus rufus*, a species close to its southern limit in North Wales together with the nationally scarce species, slender hare's-ear, *Bupleurum tenuissimum*, at its northern British limit of occurrence at the head of the estuary in Wales.

The extensive intertidal mudflats and sandflats of the Dee Estuary form the fifth-largest area within an estuary in the UK and contain many invertebrates, including worms, bivalves (e.g. cockles *Cerastoderma* sp.) and amphipods. Much of the upper part of the estuary consists of muddy fine sand dominated by *Hediste diversicolor* and *Macoma balthica*. The sediment flats in the outer estuary also have fine muddy sands but here they are dominated by *Cerastoderma edule* and *Arenicola marina*. Where water movement is greater the sediments tend to be coarser and sandier, with *Nephtys* sp. and *Bathyporeia* sp. It also supports some nationally scarce biotopes including honeycomb worm reefs, *Sabellaria alveolata* around Hilbre Island and piddock beds (*Barnea candida*) on Holocene clay banks within the estuary. These invertebrates provide an abundant food source for fish and are of particular importance for waterbirds, with over 120,000 birds overwintering on the estuary.

The saltmarshes themselves support a variety of vegetation communities characteristic of estuaries in northern and western Britain. Part of the estuary is dominated by the non-native common cordgrass *Spartina anglica* although its extent is much less than formerly. Its current extent reflects the fact that the estuary continues to accrete following historical land-claim. Species such as glasswort *Salicornia* sp. and annual seablite *Suaeda maritima* are also present in large amounts. Much of the saltmarsh remains ungrazed and this has allowed extensive stands of species intolerant of grazing, such as sea purslane *Atriplex portulacoides*, to develop.

The subtidal zone of the Dee is believed to provide an important breeding, sheltering and nursery area for coastal fish species. The Dee Estuary also supports a number of migratory fish species including river lamprey, *Lampetra fluviatilis*; sea lamprey, *Petromyzon marinus*; Atlantic salmon, *Salmo salmar*; sea trout, *S. trutta*; twaite shad, *Alosa fallax*; smelt, *Osmerus eperlanus* and eels, *Anguilla anguilla*.

The three sandstone islands which comprise the Hilbre complex, represent the only natural hard rock coast within the estuary. The coastal cliffs and maritime heathland and grassland on the plateau areas above the cliffs represent the only regional examples of these vegetative types. The sheltered eastern cliffs of Hilbre support common scurvygrass *Cochlearia officinalis* and sea campion *Silene uniflora*. The nationally scarce rock sea-lavender *Limonium britannicum* occurs, together with the regionally scarce sea spleenwort fern *Asplenium marinum*.

The sand dune system between the Point of Ayr and Prestatyn supports a range of dune habitats and typical flora and faunal species. This system is the largest remaining areas of a once extensive dune system to be found along the north east coast of Wales. A number of rare species occur including Portland spurge *Euphorbia portlandica*; dune fescue, *Vulpia membranacea*; white horehound, *Marrubium vulgare* and seaside centaury, *Centaureum littorale*. Within the dune slacks the rare liverwort, petalwort, *Petalophyllum ralfsii* occurs. Many nationally scarce invertebrates including a number of Red Data Book species such as the sandhill rustic moth, *Luperina nickerlii gueneei*, the sand wasp, *Podalonia affinis*, and the mining bee, *Colletes cunicularis* also occur. The natterjack toad, *Epidalea calamita* and sand lizard, *Lacerta agilis* have been successfully reintroduced to this system, where they historically occurred. Natterjack toads have also been successfully reintroduced to the smaller dune system at Red Rocks, where they became extinct in the early 1990's.

The Dee Estuary forms part of the complex of estuaries, which provide habitats for migratory waterbirds along the shores of Liverpool Bay, which in turn form part of the chain of such sites along the western coast of the UK. The relatively mild winter weather conditions found here compared to continental Europe can be of additional importance to the survival of wintering waterbirds during periods of severe weather. The Dee Estuary ranks amongst the top ten British estuaries for the size of its wintering waterbird population (Musgrove *et. al.*, 2001). Outside of this period, the Dee Estuary is also of particular importance as a staging area for migratory waterbirds/seabirds on autumn and spring passages. It lies on the East Atlantic Flyway route. The Dee Estuary also supports populations of the breeding seabirds, little tern, *Sterna albifrons* and common tern, *Sterna hirundo* and is used by a

number of different tern species on passage. Sandwich tern, *Sterna sandvicensis* occurs in important numbers at this time

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

Nationally important species occurring on the site.

Higher Plants.

Limonium britannicum subspecies *celticum* (endemic)

Euphorbia portlandica

Vulpia membranacea

Centaurium littorale

Equisetum variegatum

Bupleurum tenuissimum

Marrubium vulgare

b. Lower Plants

Petalophyllum ralfsii

Other species (invasive and/or non-native species)

Spartina anglica (invasive non-native species)

Hippophae rhamnoides

Rosa rugosa

Clematis vitalba

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

Birds

Species currently occurring at levels of national importance:

Species with peak counts in summer:

| | |
|---|--|
| Little tern, <i>Sterna albifrons</i> E Atlantic | 69 pairs breeding, 2.9% of the GB population (5 year peak mean 1995-1999) |
| Common tern, <i>Sterna hirundo</i> N/E Europe | 392 pairs breeding, 3.2% of the GB population (5 year peak mean 1995-1999) |
| Sandwich tern, <i>Sterna sandvicensis</i> W Europe/W Africa | 957 individuals on passage, representing an average of 2.3% of the GB population (5 year peak mean 1995-1999) |
| Redshank, <i>Tringa totanus</i> | about 200 pairs breeding. Regionally important population not reaching 1% national threshold but included on JNCC advice |

Species with peak counts in spring/autumn:

| | |
|---|---|
| Ringed plover, <i>Charadrius hiaticula</i> | 272 individuals, representing an average of 0.9 % of the GB population (5 year peak mean 1994/5-1998/9) |
| Species with peak counts in winter: Wigeon, <i>Anas penelope</i> , NW Europe | 4526 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1994/5-1998/9) |
| Sanderling, <i>Calidris alba</i> , E Atlantic | 502 individuals, representing an average of 2.2% of the GB population (5 year peak mean 1994/5-1998/9) |
| Cormorant , <i>Phalacrocorax carbo carbo</i> , NW Europe | 405 individuals, representing an average of 3.1% of the GB population (5 year peak mean 1994/5-1998/9) |
| Great Crested Grebe, <i>Podiceps cristatus</i> , NW Europe | 114 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1994/5-1998/9) |

Species Information

Birds

Birds Directive Annex 1 species which occur in less than 1% of the GB population include-

Leach's petrel *Oceanodroma leucorhoa*; Little egret *Egretta garzetta*; Bewick's swan *Cygnus columbianus bewickii*; Whooper swan *Cygnus cygnus*; Smew *Mergellus albellus*; Hen harrier *Circus cyaneus*; Merlin *Falco columbarius*; Peregrine *Falco peregrinus*; Golden plover *Pluvialis apricaria*; Ruff *Philomachus pugnax*; Wood sandpiper *Tringa glareola*; Short-eared owl *Asio flammeus* and Kingfisher *Alcedo atthis*

Other faunal information

1. Invertebrates including-

(a) terrestrial- the following Red Data Book species occur-

sandhill rustic moth *Luperina nickerlii gueneei*; sand wasp, *Podalonia affinis* and the mining bee, *Colletes cunicularis*

(b) marine- thumbnail crab, *Thia scutellata*; honeycomb worm, *Sabellaria alveolata*; white piddocks, *Barnea candida*

2. Fish including River lamprey *Lampetra fluviatilis*; Sea lamprey *Petromyzon marinus* (Habitats Directive Annex I species)

3. Mammals including Grey seal *Halichoerus grypus* (Habitats Directive Annex II, Annex IV species (S1364))

4. Reptiles including sand lizard *Lacerta agilis* (Habitats Directive Annex IV species)

Other species (invasive and/or non-native species)

Mitten crab *Eriocheir sinensis*

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

- Aesthetic
- Aquatic vegetation (e.g. reeds, willows, seaweed)
- Environmental education/ interpretation
- Fisheries production
- Livestock grazing
- Non-consumptive recreation
- Scientific research
- Sport fishing
- Sport hunting
- Tourism
- Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? **No**

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

| Ownership category | On-site | Off-site |
|-------------------------------------|---------|----------|
| Non-governmental organisation (NGO) | + | + |
| Local authority, municipality etc. | + | + |
| National/Crown Estate (EAW) | + | + |
| Private | + | + |

25. Current land (including water) use:

| Activity | On-site | Off-site |
|----------------------------------|---------|----------|
| Nature conservation | + | + |
| Tourism | + | + |
| Recreation | + | + |
| Current scientific research | + | + |
| Fishing: commercial | + | + |
| Fishing: recreational/sport | + | + |
| Gathering of shellfish | + | + |
| Bait collection | + | + |
| Arable agriculture (unspecified) | + | + |

| | | |
|--|---|---|
| Grazing (unspecified) | + | + |
| Permanent pastoral agriculture | + | + |
| Hay meadows | | + |
| Hunting: recreational/sport | + | + |
| Industrial water supply | + | + |
| Industry | + | + |
| Sewage treatment/disposal | + | + |
| Harbour/port | + | + |
| Flood control | + | + |
| Mineral exploration (excl. hydrocarbons) | | + |
| Oil/gas production | | + |
| Transport route | | + |
| Urban development | | + |
| Non-urbanised settlements | | + |
| Military activities | + | + |

26. Factors (past, present or potential) adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

| Adverse Factor Category | Reporting Category | Description of the problem (Newly reported Factors only) | On-Site | Off-Site | Major Impact? |
|---|--------------------|--|---------|----------|---------------|
| Introduction/invasion of exotic animal species | 2 | The Chinese mitten crab <i>Eriocheir sinensis</i> is an invasive non native species that was found in the Dee Estuary by the Environment Agency in 2006. The crab burrows into river and estuary banks and can cause severe erosion. It has been found upstream in the fluvial sections of the River Dee above Chester Weir too. | + | + | + |
| Introduction/invasion of non-native plant species | 1 | A programme of control including alien/alien woody species is currently underway within the Gronant Dunes and Talacre Warren SSSI. This will require ongoing work for a number of years yet | + | + | + |
| Overfishing | 2 | Review of existing fisheries byelaws excluding cockle fishery | + | + | + |
| Pollution – industrial waste | 1 | Contaminated land sites around the estuary | + | + | + |
| General disturbance from human activities | 1 | Dune systems are susceptible to destabilisation if not subject to active management to control recreational pressures from visitors and their activities | + | + | + |
| Transport infrastructure development | 2 | 1. Port of Mostyn 2. Coastal path (foot/cycle) | + | + | + |

| | | | | | |
|--|---|----------------------------------|---|---|---|
| Sand dune erosion and accretion along the North Wales open coast | 2 | Gronant Dunes and Talacre Warren | + | + | + |
|--|---|----------------------------------|---|---|---|

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?

Introduction/invasion of exotic animal species.

As yet no plan has been put in place. Data collation is underway through casual sightings but ideally a full scale investigation needs to occur to ascertain how widespread the species is.

Over fishing

Now that the Dee Cockle Regulating Order is in place, the cockle fishery should be managed in a more sustainable manner. However there is a need to review the other sea fisheries byelaws on the Dee Estuary. The Sea Fisheries Committee on the Dee Estuary was the Environment Agency Wales, who have discussed their proposed byelaw revisions with various fishing and conservation groups and had proposed to formally consult on them. This is particularly important for various fish species as there is no minimum landing size stipulated in the byelaws which could be exploited both to the detriment of the fish stocks themselves and those animals feeding on them. Additionally spawning areas need to be excluded from all fishing effort particularly in the canalised sections of the River Dee, upstream of the estuary. However the passage of the Marine Bill through the UK Parliament has stalled this process for the moment.

Transport Infrastructure Development

1. Port of Mostyn

a. Inshore Channel Dredging within the Dee Estuary

In March 2010 consent was given for maintenance of the navigable channel to the dock for three years to a depth of -4m below Chart Datum (CD) with disposal of dredgings within the estuary at Mostyn Deep to an agreed disposal pattern. This is subject to an agreed monitoring package with an annual review of the findings prepared by the Port and is subject to independent scrutiny by consultants employed by the regulators involved. This depth of dredging was agreed would not cause significant adverse impact on the estuary. The application for the dredge to -4m CD, was subject to detailed Environmental Impact Assessment .

b. Offshore Channel dredging

The Port have indicated previously that they might wish to further deepen the offshore channel along the North Wales coast at some time in the future.

c. Harbour Revision Orders (HRO)

The Port of Mostyn have proposed a Harbour Revision Order (HRO) which would extend their statutory harbour area over a larger area of the estuary than currently and it would include the main shipping channel to the port from offshore at Rhyl too. This will, if approved, give them permitted development powers in respect of their core business over this area. The EAW who are currently responsible for navigation matters on the Dee Estuary have also submitted a HRO covering the whole area of the Dee Estuary over which they are currently responsible. The HROs overlap in part particularly in relation to the Inshore Channel to the Port/Mostyn Deep disposal area. The two HROs were subject to scrutiny at the same public inquiry in November 2005. The result is still awaited.

d. New developments

Apart from the Airbus wing transshipments, the Port now serves the offshore wind farms and most of its current

traffic relates to offshore construction activities or windfarm maintenance work. The maintenance work will utilise small craft, which will not be tidally restricted. With this new work the Port are planning to undertake further developments:

- i. a new berth consuming 1ha of intertidal habitat within the site. Application submitted to Marine and Fisheries Agency . An Environment Impact Assessment has been prepared
- ii. new mooring buoys and pontoons in connection with windfarm operations including expansion of existing one platform and a further new one planned at the upstream end of the Port

2. Coastal path

In Wales there has been a proposal for a Dee coastal footpath along the whole length of the Welsh shoreline from Chester to Gronant prior to recent government announcements about a coastal footpath for Wales and coastal access in England. This was the subject of considerable debate between various interested parties in the 1990's and a number of potential problem areas were identified. These mainly related to locations of roosting bird populations at high tide along the Welsh Dee coast, although some sections of that path did cross habitats of interest too. This route was not progressed at the time as monies were not forthcoming. The route is now being progressed again following Government announcements and funding. Sections of route are being implemented in a piecemeal fashion. This piecemeal approach makes consideration of the overall impact of any route on the Ramsar site difficult.

In addition to the coastal path there is a further proposal for a coastal cyclepath following the whole of the Welsh coastline as above. As with the coastal footpath this is being developed in a piecemeal fashion.

The implications of coastal access in England are currently unclear.

Sand dune erosion and accretion along the North Wales open coast

The Gronant Dunes and Talacre Warren sand dune system shows signs of both accretion and erosion.

Erosion caused by terminal scour impacts of adjacent hard defences at the extreme western end of this system at Prestatyn has been rectified by beach nourishment with rock armour and shingle placed on the beach. Parts of the system to the west of the Prestatyn Gutter outfall onto the beach have been actively accreting such that new shingle bars forming to seaward of the dunes have developed new dune habitat, as sand has accreted on them. Further east however around Point of Ayr Lighthouse the dunes have regressed landward. A beach nourishment trial scheme with sand has slowed this regression in recent years and further nourishment schemes should be considered if suitable material is available.

If this system is to remain and not retreat it is essential that longshore drift along the coast from west to east is not interfered with by coastal defences to the west, by aggregate sand extraction or by offshore developments including channel dredging and windfarms. The second Shoreline Management Plan for cell 11a from the Great Orme to Southport currently being written needs to fully ensure that coastal processes are allowed to continue thereby maintaining the beaches and dunes. The dunes also need to be managed to ensure that they are not further threatened by recreational usage

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

| Conservation measure | On-site | Off-site |
|---|---------|----------|
| Site/ Area of Special Scientific Interest (SSSI/ASSI) | + | + |
| Ramsar site | + | + |

| | | |
|---|---|---|
| Special Protection Area (SPA) | + | + |
| Special Area of Conservation (SAC) | + | |
| Local Nature Reserve (LNR) | + | |
| Land owned by a non-governmental organisation for nature conservation | + | + |
| Other | + | + |
| Management plan in preparation | + | + |

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

Revised statement for Section 27

The management of the site is determined by a formal management plan and through other management planning processes, overseen by the statutory conservation agencies, NE and CCW. There are various management plans covering parts of the Dee Estuary Ramsar site which are reviewed periodically, approximately at five yearly intervals. In addition the site encompasses local nature reserves/nature reserves and there are management agreements with various parties. The major land owners include RSPB, MOD, Wirral Unitary Authority and the Environment Agency Wales, who manage the areas in their ownership sympathetically.

The Regulation 33 Management Plan is available on CCW & NE's websites. Although the plan requires updating from Regulation 33, to Regulation 35 under the 2010 Habitats Regulations, the management plan measures remain relevant. The plan encompasses the Ramsar, SPA and SAC sites which overlap in this area, and in terms of the Ramsar features includes all those supported below Highest Astronomical Tide (HAT). Draft objectives are in place for those site features supported above HAT (e.g. Natterjack Toad) and these should be formalised early in 2011. The combination of measures ensures the majority of the site is managed sympathetically.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored at high tide monthly throughout the year and the results are reported as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee. Low-tide counts of migratory and wintering wildfowl and waders are also undertaken periodically.

Bird ringing: On site on Hilbre Island; common terns are ringed within the Shotton Lagoons and Reedbeds SSSI at Shotton Steelworks; the little terns are ringed at Gronant Dunes

Survey work carried out by a group of regulators including CCW, EAW and the Port of Mostyn on the impacts of dredging around the port and environs are ongoing. They include regular bathymetric surveys of the sandbanks around the dredged area, infaunal transect surveys and a survey of a nationally important marine community (Piddocks (boring bivalves) in Clay) on the outer Salisbury bank.

The EAW are carrying out intertidal surveys to fulfil the requirements of the Water Framework Directive.

As part of their Cockle Regulation Order, EAW undertake cockle stock assessments on at least an annual basis to determine whether the beds should be opened to the fishermen who have permits under the Cockle Regulation Order. The stock assessment takes account of the recommendations made following previous work on 'Modelling Oystercatchers and their Food on the Dee Estuary'

A biotope mapping survey of the Dee Estuary has been carried out by CCW (2002) on the Welsh side and NE (2005) on the English side.

Regular surveys of a number important species occur including natterjack toad; sand lizard; sandhill rustic moth; mining bees;

Other animals

The populations of natterjack toad and sand lizard are monitored annually by the local rangers, the local amphibian and reptile group and other volunteers.

Flora.

Regular surveys of scarce species occur including petalwort

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Both public sector and non-governmental organisations are involved in interpretation and education. An educational CD-ROM has been prepared for use of primary schools around the Dee estuary both in England and Wales (approximately 200 schools). This has been a joint/partnership initiative led by the Dee Estuary Strategy (Estuarine Initiative). A booklet titled '*The Dee Estuary*' provides a general introduction to the site's ecological processes. This booklet was distributed to all primary and secondary schools around the estuary both in England and Wales.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The Dee Estuary is used extensively for both tourism and recreation, e.g. windsurfing, kitesurfing*, sand-yachting*, sailing.

(* restricted to outside the overwintering bird season)

General public access

Coastal cycle route on Welsh side likely to be linked up to Wirral side in future.

Jet-skiing

Water-skiing

Wildfowling (restricted to parts of the estuary)

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs,
European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol,
BS1 6EB

Head of Marine Branch, Department for Environment and Sustainability, Welsh Assembly
Government, Cathay's Park, Cardiff CF10 3NQ

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, Natural England, 1 East Parade, Sheffield, S1 2ET, UK / Site Safeguard Officer, International Designations, Countryside Council for Wales, Maes-y-Ffynnon, Penrhosgarnedd, Bangor, Gwynedd, LL57 2DW

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Site-relevant references

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- Burd, F (1989) *The saltmarsh survey of Great Britain. An inventory of British saltmarshes*. Nature Conservancy Council, Peterborough (Research & Survey in Nature Conservation, No. 17)
- Buxton, NE (1978) *The Dee estuary water storage scheme feasibility study. Vol. 4. A bibliography of ecological work on the Dee estuary*. Central Water Planning Unit, Reading
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Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**

Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • email: ramsar@ramsar.org

EC Directive 92/43 on the Conservation of Natural Habitats and of Wild Fauna and Flora

Citation for Special Area of Conservation (SAC)

| | |
|----------------------------------|---|
| Name: | Dee Estuary / Aber Dyfrdwy |
| Unitary Authority/County: | Cheshire West and Chester, Sir Ddinbych / Denbighshire, Sir y Fflint / Flintshire, Wirral |
| SAC status: | Designated on 10 December 2009 |
| Grid reference: | SJ190819 |
| SAC EU code: | UK0030131 |
| Area (ha): | 15,805.89 |
| Component SSSI: | Dee Estuary / Aber Afon Dyfrdwy Gronant Dunes and Talacre Warren North Wirral Foreshore |

Site description:

The Dee Estuary / Aber Dyfrdwy Special Area of Conservation (SAC) includes the Dee Estuary itself and areas of intertidal flats on the north-west coast of the Wirral (North Wirral Foreshore) and on the north east Wales coast, east of Prestatyn (Gronant Dunes and Talacre Warren). Gronant Dunes and Talacre Warren also includes the largest remaining area of a once extensive dune system along this section of Welsh coast

The SAC has been designated because of its size and biological interest including its saltmarshes, intertidal mudflats and sandflats, sand dunes, drift line vegetation and sea cliffs, the presence of petalwort *Petalophyllum ralfsii*, and sea lamprey *Petromyzon marinus* and river lamprey *Lampetra fluviatilis* that migrate through the area.

Upstream of an enclosing line across the mouth of the estuary between Point of Ayr (Wales) and Hilbre Point (England), the estuary is the sixth largest in the UK.

The Dee Estuary includes about the seventh largest area of saltmarsh in the UK. Of this the most extensive habitat can be described as Atlantic salt meadows. Other habitats include *Salicornia* and other annuals colonising mud and sand, of which there are comparatively large stands reflecting that the estuary is an accreting one. Unlike most western estuaries, sizeable areas of saltmarsh remain ungrazed and therefore plant species that are susceptible to grazing are widespread such as sea purslane *Atriplex portulacoides*. The saltmarsh shows a range of stages of development, from young, recently formed communities to old, well-established communities. The elaborate creek system creates a more diverse array of habitats than are found in more continuous fringing saltmarshes, such as those of Morecambe Bay. Nationally scarce plants occur in these saltmarshes, including slender hare's-ear *Bupleurum tenuissimum*.

The extensive mudflats and sandflats not covered by seawater at low tide in the Dee Estuary form the fifth largest area within an estuary in the UK. They contain many invertebrate species, including worms, bivalves such as cockles *Cerastoderma edule* and amphipods such as *Bathyporeia pilosa* and *Corophium arenarium*. Much of the upper part of the estuary consists of muddy fine sand dominated by ragworms *Hediste diversicolor* and Baltic tellins *Macoma balthica*. The sediment flats in the outer estuary also have fine muddy sands but here they are often dominated by cockles and worms. Where water movement is greater the

sediments tend to be sandy, with worms and amphipods. The invertebrates living in these sediments provide a rich source of food for birds and fish.

The dune system at Talacre Warren and Gronant Dunes exhibit a range of features from the seaward edge where accumulations of nutrient rich debris often build up along the strandline developing annual vegetation of drift lines. This provides a habitat for invertebrates and annual plants, such as sea rocket *Cakile maritima* and sea holly *Eryngium maritimum*. The sand dunes progress from the early stages of dune formation embryonic shifting dunes, and shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes'), to the more fixed dunes with herbaceous vegetation ('grey dunes'). Within the dunes, humid dune slacks occur. The latter support a rich variety of plants, including the rare petalwort *Petalophyllum ralfsii* and several species of orchid.

The rocky sandstone cliffs of Hilbre Island, Little (Middle) Island and Little Eye are the only examples of vegetated sea cliffs of the Atlantic and Baltic coasts in along the north east Wales and Wirral coast. The cliffs support a range of plants, including common scurvy grass *Cochlearia officinalis*, sea campion *Silene uniflora* and the scarce rock sea lavender *Limonium britannicum celticum* and sea spleenwort *Asplenium marinum*.

Sea lamprey *Petromyzon marinus* and river lamprey *Lampetra fluviatilis* use the estuary as part of a migratory route to the River Dee. Sea and river lampreys spend their adult life in the sea or estuaries but spawn and spend the juvenile part of their life cycle in rivers. Lampreys are a primitive type of fish that have a distinctive suckered mouth, rather than jaws.

Qualifying habitats: The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I:

- Annual vegetation of drift lines
- Atlantic salt meadows
- Embryonic shifting dunes
- Estuaries
- Fixed dunes with herbaceous vegetation ('grey dunes')*
- Humid dune slacks
- Mudflats and sandflats not covered by seawater at low tide
- *Salicornia* and other annuals colonising mud and sand
- Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes')
- Vegetated sea cliffs of the Atlantic and Baltic coasts

Qualifying species: The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex II:

- Petalwort *Petalophyllum ralfsii*
- River lamprey *Lampetra fluviatilis*
- Sea lamprey *Petromyzon marinus*

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

This citation relates to a site entered in the Register of European Sites for Great Britain.
Register reference number: UK0030131
Date of registration: 10 December 2009

S G Hopkins

Signed:

On behalf of the Secretary of State for
Environment, Food and Rural Affairs

NATURA 2000 – STANDARD DATA FORM

Special Protection Areas under the EC Birds Directive.

Each Natura 2000 site in the United Kingdom has its own Standard Data Form containing site-specific information. The data form for this site has been generated from the Natura 2000 Database submitted to the European Commission on the following date:

22/12/2015

The information provided here, follows the officially agreed site information format for Natura 2000 sites, as set out in the [Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011](#) (2011/484/EU).

The Standard Data Forms are generated automatically for all of the UK's Natura 2000 sites using the European Environment Agency's Natura 2000 software. The structure and format of these forms is exactly as produced by the EEA's Natura 2000 software (except for the addition of this coversheet and the end notes). The content matches exactly the data submitted to the European Commission.

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

Further technical documentation may be found here
http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

As part of the December 2015 submission, several sections of the UK's previously published Standard Data Forms have been updated. For details of the approach taken by the UK in this submission please refer to the following document:
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

More general information on Special Protection Areas (SPAs) in the United Kingdom is available from the [SPA home page on the JNCC website](#). This webpage also provides links to Standard Data Forms for all SPAs in the UK.

Date form generated by the Joint Nature Conservation Committee
25 January 2016.



NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE UK9005131
SITENAME Mersey Estuary

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- [1. SITE IDENTIFICATION](#)
- [2. SITE LOCATION](#)
- [3. ECOLOGICAL INFORMATION](#)
- [4. SITE DESCRIPTION](#)
- [5. SITE PROTECTION STATUS AND RELATION WITH CORINE BIOTOPES](#)
- [6. SITE MANAGEMENT](#)

1. SITE IDENTIFICATION

| | | |
|----------------------|-----------------------------------|-----------------------------|
| 1.1 Type A | 1.2 Site code UK9005131 | Back to top |
|----------------------|-----------------------------------|-----------------------------|

1.3 Site name

Mersey Estuary

| | |
|--|-----------------------------------|
| 1.4 First Compilation date 1995-12 | 1.5 Update date 2015-12 |
|--|-----------------------------------|

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee
Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough
PE1 1JY
Email:

1.7 Site indication and designation / classification dates

| | |
|--|--|
| Date site classified as SPA: | 1995-12 |
| National legal reference of SPA designation | Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made). |

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude

-2.823611111

Latitude

53.31416667

2.2 Area [ha]:

5023.35

2.3 Marine area [%]

83.4

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code

Region Name

| | |
|------|------------|
| UKD5 | Merseyside |
| UKD2 | Cheshire |

2.6 Biogeographical Region(s)

Atlantic (100.0
%)

3. ECOLOGICAL INFORMATION

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

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| Species | | | Population in the site | | | | | | | Site assessment | | | | |
|---------|------|---|------------------------|----|---|-------|-------|------|------|-----------------|---------|------|-------|------|
| G | Code | Scientific Name | S | NP | T | Size | | Unit | Cat. | D.qual. | A B C D | | A B C | |
| | | | | | | Min | Max | | | | Pop. | Con. | Iso. | Glo. |
| B | A054 | Anas acuta | | | w | 1169 | 1169 | i | | G | B | | C | |
| B | A052 | Anas crecca | | | w | 11723 | 11723 | i | | G | B | | C | |
| B | A050 | Anas penelope | | | w | 11886 | 11886 | i | | G | B | | C | |
| B | A672 | Calidris alpina alpina | | | w | 48789 | 48789 | i | | G | B | | C | |
| B | A137 | Charadrius hiaticula | | | c | 505 | 505 | i | | G | C | | C | |
| B | A616 | Limosa limosa islandica | | | w | 976 | 976 | i | | G | B | | C | |
| B | A160 | Numenius arquata | | | w | 1300 | 1300 | i | | G | C | | C | |
| B | A140 | Pluvialis apricaria | | | w | 3040 | 3040 | i | | G | C | | C | |

| | | | | | | | | | | | | |
|---|------|--------------------------------------|--|---|-------|-------|---|--|---|---|--|---|
| B | A141 | Pluvialis squatarola | | w | 1010 | 1010 | i | | G | B | | C |
| B | A005 | Podiceps cristatus | | w | 136 | 136 | i | | G | C | | C |
| B | A048 | Tadorna tadorna | | w | 6746 | 6746 | i | | G | B | | C |
| B | A162 | Tringa totanus | | c | 4513 | 4513 | i | | G | B | | C |
| B | A162 | Tringa totanus | | w | 4993 | 4993 | i | | G | B | | C |
| B | A142 | Vanellus vanellus | | w | 10544 | 10544 | i | | G | C | | C |

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see [reference portal](#))
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

| Habitat class | % Cover |
|----------------------------|------------|
| N03 | 11.0 |
| N02 | 89.0 |
| Total Habitat Cover | 100 |

Other Site Characteristics

1 Terrestrial: Soil & Geology: mud,sand 2 Terrestrial: Geomorphology and landscape: coastal 3 Marine: Geology: sandstone/mudstone 4 Marine: Geomorphology: intertidal sediments (including sandflat/mudflat),estuary

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: *Pluvialis apricaria* [North-western Europe - breeding] 1.2% of the GB population 5-year peak mean, 1993/94?1997/98 ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: *Anas acuta* (North-western Europe) 1.9% of the population 5-year peak mean, 1993/94?1997/98 *Anas crecca* (North-western Europe) 2.9% of the population 5-year peak mean, 1993/94?1997/98 *Anas penelope* (Western Siberia/North-western/North-eastern Europe) 4.2% of the population in Great Britain 5-year peak mean, 1993/94?1997/98 *Calidris alpina alpina* (Northern Siberia/Europe/Western Africa) 3.6% of the population 5-year peak mean, 1993/94?1997/98 *Limosa limosa islandica* (Iceland - breeding) 1.6% of the population 5-year peak mean, 1993/94?1997/98 *Numenius arquata* (Europe - breeding) 1.1% of the population in Great Britain 5-year peak mean, 1993/94?1997/98 *Pluvialis squatarola* (Eastern Atlantic - wintering) 2.3% of the population in Great Britain 5-year peak mean, 1993/94?1997/98 *Podiceps cristatus* (North-western Europe - wintering) 1.4% of the population in Great Britain 5-year peak mean, 1993/94?1997/98 *Tadorna tadorna* (North-western Europe) 2.2% of the population 5-year peak mean, 1993/94?1997/98 *Tringa totanus* (Eastern

Atlantic - wintering) 2.8% of the population 5-year peak mean, 1993/94-1997/98 Vanellus vanellus (Europe - breeding) 0.7% of the population in Great Britain 5-year peak mean, 1993/94-1997/98 On passage the area regularly supports: Charadrius hiaticula (Europe/Northern Africa - wintering) 1.7% of the population in Great Britain 5-year peak mean, 1993-1997 Tringa totanus (Eastern Atlantic - wintering) 3.8% of the population 5-year peak mean, 1993-1997

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

| Negative Impacts | | | |
|------------------|------------------------------|-----------------------------|------------------------|
| Rank | Threats and pressures [code] | Pollution (optional) [code] | inside/outside [i o b] |
| H | M02 | | B |
| H | I01 | | B |
| H | G01 | | I |

| Positive Impacts | | | |
|------------------|-------------------------------|-----------------------------|------------------------|
| Rank | Activities, management [code] | Pollution (optional) [code] | inside/outside [i o b] |
| H | D05 | | I |
| H | A04 | | I |
| H | A02 | | I |

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification, T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): <http://publications.naturalengland.org.uk/category/3212324>
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf
<http://publications.naturalengland.org.uk/category/6490068894089216>

5. SITE PROTECTION STATUS (optional)

5.1 Designation types at national and regional level:

[Back to top](#)

| Code | Cover [%] | Code | Cover [%] | Code | Cover [%] |
|------|-----------|------|-----------|------|-----------|
| UK04 | 100.2 | | | | |

6. SITE MANAGEMENT

6.1 Body(ies) responsible for the site management:

[Back to top](#)

| | |
|---------------|-----------------|
| Organisation: | Natural England |
| Address: | |
| Email: | |

6.2 Management Plan(s):

An actual management plan does exist:

| |
|------------------------------|
| <input type="checkbox"/> Yes |
| <input type="checkbox"/> |

No, but in preparation

No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the [official European Union guidelines for the Standard Data Form](#). The relevant page is shown in the table below.

1.1 Site type

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| A | Designated Special Protection Area | 53 |
| B | SAC (includes candidates Special Areas of Conservation, Sites of Community Importance and designated SAC) | 53 |
| C | SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar | 53 |

3.1 Habitat representativity

| CODE | DESCRIPTION | PAGE NO |
|------|--------------------------|---------|
| A | Excellent | 57 |
| B | Good | 57 |
| C | Significant | 57 |
| D | Non-significant presence | 57 |

3.1 Habitat code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| 1110 | Sandbanks which are slightly covered by sea water all the time | 57 |
| 1130 | Estuaries | 57 |
| 1140 | Mudflats and sandflats not covered by seawater at low tide | 57 |
| 1150 | Coastal lagoons | 57 |
| 1160 | Large shallow inlets and bays | 57 |
| 1170 | Reefs | 57 |
| 1180 | Submarine structures made by leaking gases | 57 |
| 1210 | Annual vegetation of drift lines | 57 |
| 1220 | Perennial vegetation of stony banks | 57 |
| 1230 | Vegetated sea cliffs of the Atlantic and Baltic Coasts | 57 |
| 1310 | Salicornia and other annuals colonizing mud and sand | 57 |
| 1320 | Spartina swards (Spartinion maritimae) | 57 |
| 1330 | Atlantic salt meadows (Glauco-Puccinellietalia maritimae) | 57 |
| 1340 | Inland salt meadows | 57 |
| 1420 | Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi) | 57 |
| 2110 | Embryonic shifting dunes | 57 |
| 2120 | Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 57 |
| 2130 | Fixed coastal dunes with herbaceous vegetation ("grey dunes") | 57 |
| 2140 | Decalcified fixed dunes with Empetrum nigrum | 57 |
| 2150 | Atlantic decalcified fixed dunes (Calluno-Ulicetea) | 57 |
| 2160 | Dunes with Hippophila rhamnoides | 57 |
| 2170 | Dunes with Salix repens ssp. argentea (Salicion arenariae) | 57 |
| 2190 | Humid dune slacks | 57 |
| 21A0 | Machairs (* in Ireland) | 57 |
| 2250 | Coastal dunes with Juniperus spp. | 57 |
| 2330 | Inland dunes with open Corynephorus and Agrostis grasslands | 57 |
| 3110 | Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) | 57 |
| 3130 | Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea | 57 |
| 3140 | Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. | 57 |
| 3150 | Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation | 57 |

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| 3160 | Natural dystrophic lakes and ponds | 57 |
| 3170 | Mediterranean temporary ponds | 57 |
| 3180 | Turloughs | 57 |
| 3260 | Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation | 57 |
| 4010 | Northern Atlantic wet heaths with Erica tetralix | 57 |
| 4020 | Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix | 57 |
| 4030 | European dry heaths | 57 |
| 4040 | Dry Atlantic coastal heaths with Erica vagans | 57 |
| 4060 | Alpine and Boreal heaths | 57 |
| 4080 | Sub-Arctic Salix spp. scrub | 57 |
| 5110 | Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.) | 57 |
| 5130 | Juniperus communis formations on heaths or calcareous grasslands | 57 |
| 6130 | Calaminarian grasslands of the Violetalia calaminariae | 57 |
| 6150 | Siliceous alpine and boreal grasslands | 57 |
| 6170 | Alpine and subalpine calcareous grasslands | 57 |
| 6210 | Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 57 |
| 6230 | Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) | 57 |
| 6410 | Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) | 57 |
| 6430 | Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels | 57 |
| 6510 | Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) | 57 |
| 6520 | Mountain hay meadows | 57 |
| 7110 | Active raised bogs | 57 |
| 7120 | Degraded raised bogs still capable of natural regeneration | 57 |
| 7130 | Blanket bogs (* if active bog) | 57 |
| 7140 | Transition mires and quaking bogs | 57 |
| 7150 | Depressions on peat substrates of the Rhynchosporion | 57 |
| 7210 | Calcareous fens with Cladium mariscus and species of the Caricion davallianae | 57 |
| 7220 | Petrifying springs with tufa formation (Cratoneurion) | 57 |
| 7230 | Alkaline fens | 57 |
| 7240 | Alpine pioneer formations of the Caricion bicoloris-atrofuscae | 57 |
| 8110 | Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) | 57 |
| 8120 | Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii) | 57 |
| 8210 | Calcareous rocky slopes with chasmophytic vegetation | 57 |
| 8220 | Siliceous rocky slopes with chasmophytic vegetation | 57 |
| 8240 | Limestone pavements | 57 |
| 8310 | Caves not open to the public | 57 |
| 8330 | Submerged or partially submerged sea caves | 57 |
| 9120 | Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion) | 57 |
| 9130 | Asperulo-Fagetum beech forests | 57 |
| 9160 | Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 57 |
| 9180 | Tilio-Acerion forests of slopes, screes and ravines | 57 |
| 9190 | Old acidophilous oak woods with Quercus robur on sandy plains | 57 |
| 91A0 | Old sessile oak woods with Ilex and Blechnum in the British Isles | 57 |
| 91C0 | Caledonian forest | 57 |
| 91D0 | Bog woodland | 57 |
| 91E0 | Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) | 57 |
| 91J0 | Taxus baccata woods of the British Isles | 57 |

3.1 Relative surface

| CODE | DESCRIPTION | PAGE NO |
|------|-------------|---------|
| A | 15%-100% | 58 |
| B | 2%-15% | 58 |
| C | < 2% | 58 |

3.1 Conservation status habitat

| CODE | DESCRIPTION | PAGE NO |
|------|---------------------------------|---------|
| A | Excellent conservation | 59 |
| B | Good conservation | 59 |
| C | Average or reduced conservation | 59 |

3.1 Global grade habitat

| CODE | DESCRIPTION | PAGE NO |
|------|-------------------|---------|
| A | Excellent value | 59 |
| B | Good value | 59 |
| C | Significant value | 59 |

3.2 Population (abbreviated to 'Pop.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|----------------------------|---------|
| A | 15%-100% | 62 |
| B | 2%-15% | 62 |
| C | < 2% | 62 |
| D | Non-significant population | 62 |

3.2 Conservation status species (abbreviated to 'Con.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|---------------------------------|---------|
| A | Excellent conservation | 63 |
| B | Good conservation | 63 |
| C | Average or reduced conservation | 63 |

3.2 Isolation (abbreviated to 'Iso.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| A | Population (almost) Isolated | 63 |
| B | Population not-isolated, but on margins of area of distribution | 63 |
| C | Population not-isolated within extended distribution range | 63 |

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|-------------------|---------|
| A | Excellent value | 63 |
| B | Good value | 63 |
| C | Significant value | 63 |

3.3 Assemblages types

| CODE | DESCRIPTION | PAGE NO |
|------|--|------------------|
| WATR | Non breeding waterfowl assemblage | UK specific code |
| SBA | Breeding seabird assemblage | UK specific code |
| BBA | Breeding bird assemblage (applies only to sites classified pre 2000) | UK specific code |

4.1 Habitat class code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| N01 | Marine areas, Sea inlets | 65 |
| N02 | Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins) | 65 |
| N03 | Salt marshes, Salt pastures, Salt steppes | 65 |
| N04 | Coastal sand dunes, Sand beaches, Machair | 65 |
| N05 | Shingle, Sea cliffs, Islets | 65 |
| N06 | Inland water bodies (Standing water, Running water) | 65 |
| N07 | Bogs, Marshes, Water fringed vegetation, Fens | 65 |
| N08 | Heath, Scrub, Maquis and Garrigue, Phygrana | 65 |
| N09 | Dry grassland, Steppes | 65 |
| N10 | Humid grassland, Mesophile grassland | 65 |
| N11 | Alpine and sub-Alpine grassland | 65 |
| N14 | Improved grassland | 65 |
| N15 | Other arable land | 65 |
| N16 | Broad-leaved deciduous woodland | 65 |
| N17 | Coniferous woodland | 65 |
| N19 | Mixed woodland | 65 |
| N21 | Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas) | 65 |
| N22 | Inland rocks, Screes, Sands, Permanent Snow and ice | 65 |
| N23 | Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) | 65 |
| N25 | Grassland and scrub habitats (general) | 65 |
| N26 | Woodland habitats (general) | 65 |

4.3 Threats code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| A01 | Cultivation | 65 |
| A02 | Modification of cultivation practices | 65 |
| A03 | Mowing / cutting of grassland | 65 |
| A04 | Grazing | 65 |
| A05 | Livestock farming and animal breeding (without grazing) | 65 |
| A06 | Annual and perennial non-timber crops | 65 |
| A07 | Use of biocides, hormones and chemicals | 65 |
| A08 | Fertilisation | 65 |
| A10 | Restructuring agricultural land holding | 65 |
| A11 | Agriculture activities not referred to above | 65 |
| B01 | Forest planting on open ground | 65 |
| B02 | Forest and Plantation management & use | 65 |
| B03 | Forest exploitation without replanting or natural regrowth | 65 |
| B04 | Use of biocides, hormones and chemicals (forestry) | 65 |
| B06 | Grazing in forests/ woodland | 65 |
| B07 | Forestry activities not referred to above | 65 |
| C01 | Mining and quarrying | 65 |
| C02 | Exploration and extraction of oil or gas | 65 |
| C03 | Renewable abiotic energy use | 65 |
| D01 | Roads, paths and railroads | 65 |
| D02 | Utility and service lines | 65 |
| D03 | Shipping lanes, ports, marine constructions | 65 |
| D04 | Airports, flightpaths | 65 |
| D05 | Improved access to site | 65 |
| E01 | Urbanised areas, human habitation | 65 |
| E02 | Industrial or commercial areas | 65 |

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| E03 | Discharges | 65 |
| E04 | Structures, buildings in the landscape | 65 |
| E06 | Other urbanisation, industrial and similar activities | 65 |
| F01 | Marine and Freshwater Aquaculture | 65 |
| F02 | Fishing and harvesting aquatic resources | 65 |
| F03 | Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.) | 65 |
| F04 | Taking / Removal of terrestrial plants, general | 65 |
| F05 | Illegal taking/ removal of marine fauna | 65 |
| F06 | Hunting, fishing or collecting activities not referred to above | 65 |
| G01 | Outdoor sports and leisure activities, recreational activities | 65 |
| G02 | Sport and leisure structures | 65 |
| G03 | Interpretative centres | 65 |
| G04 | Military use and civil unrest | 65 |
| G05 | Other human intrusions and disturbances | 65 |
| H01 | Pollution to surface waters (limnic & terrestrial, marine & brackish) | 65 |
| H02 | Pollution to groundwater (point sources and diffuse sources) | 65 |
| H03 | Marine water pollution | 65 |
| H04 | Air pollution, air-borne pollutants | 65 |
| H05 | Soil pollution and solid waste (excluding discharges) | 65 |
| H06 | Excess energy | 65 |
| H07 | Other forms of pollution | 65 |
| I01 | Invasive non-native species | 65 |
| I02 | Problematic native species | 65 |
| I03 | Introduced genetic material, GMO | 65 |
| J01 | Fire and fire suppression | 65 |
| J02 | Human induced changes in hydraulic conditions | 65 |
| J03 | Other ecosystem modifications | 65 |
| K01 | Abiotic (slow) natural processes | 65 |
| K02 | Biocenotic evolution, succession | 65 |
| K03 | Interspecific faunal relations | 65 |
| K04 | Interspecific floral relations | 65 |
| K05 | Reduced fecundity/ genetic depression | 65 |
| L05 | Collapse of terrain, landslide | 65 |
| L07 | Storm, cyclone | 65 |
| L08 | Inundation (natural processes) | 65 |
| L10 | Other natural catastrophes | 65 |
| M01 | Changes in abiotic conditions | 65 |
| M02 | Changes in biotic conditions | 65 |
| U | Unknown threat or pressure | 65 |
| XO | Threats and pressures from outside the Member State | 65 |

5.1 Designation type codes

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| UK00 | No Protection Status | 67 |
| UK01 | National Nature Reserve | 67 |
| UK02 | Marine Nature Reserve | 67 |
| UK04 | Site of Special Scientific Interest (UK) | 67 |

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Joint Nature Conservation Committee

Monkstone House

City Road

Peterborough

Cambridgeshire PE1 1JY

UK

Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948

Email: RIS@JNCC.gov.uk

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DD MM YY

| | | |
|--|--|--|
| | | |
|--|--|--|

Designation date

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

Site Reference Number

2. Date this sheet was completed/updated:

Designated: 20 December 1995

3. Country:

UK (England)

4. Name of the Ramsar site:

Mersey Estuary

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) *Yes*
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* ☐;

b) **Describe briefly the type of boundary delineation applied:**

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

053 18 51 N 002 49 25 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Liverpool

Mersey Estuary is located in north-west England between the counties of Cheshire and Merseyside.

Administrative region: Cheshire; Halton; Merseyside; Liverpool; Wirral

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 5023.35

| | |
|------|----|
| Min. | -3 |
| Max. | 32 |
| Mean | 1 |

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Mersey is a large, sheltered estuary which comprises large areas of saltmarsh and extensive intertidal sand and mudflats, with limited areas of brackish marsh, rocky shoreline and boulder clay cliffs, within a rural and industrial environment. The intertidal flats and saltmarshes provide feeding and roosting sites for large and internationally important populations of waterfowl. During the winter, the site is of major importance for duck and waders. The site is also important during spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

89576 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

| | |
|---|---|
| Common shelduck , <i>Tadorna tadorna</i> , NW Europe | 12676 individuals, representing an average of 4.2% of the population (5 year peak mean 1998/9-2002/3) |
| Black-tailed godwit , <i>Limosa limosa islandica</i> , Iceland/W Europe | 2011 individuals, representing an average of 5.7% of the population (5 year peak mean 1998/9-2002/3) |
| Common redshank , <i>Tringa totanus totanus</i> , | 6651 individuals, representing an average of 2.6% of the population (5 year peak mean 1998/9-2002/3) |

Species with peak counts in winter:

| | |
|---|---|
| Eurasian teal , <i>Anas crecca</i> , NW Europe | 10613 individuals, representing an average of 2.6% of the population (5 year peak mean 1998/9-2002/3) |
| Northern pintail , <i>Anas acuta</i> , NW Europe | 565 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9-2002/3) |
| Dunlin , <i>Calidris alpina alpina</i> , W Siberia/W Europe | 48364 individuals, representing an average of 3.6% of the population (5 year peak mean 1998/9-2002/3) |

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

Details of bird species occurring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

| | |
|-----------------------------|---|
| Soil & geology | clay, mud, sand, sandstone/mudstone |
| Geomorphology and landscape | cliffs, coastal, estuary, intertidal sediments (including sandflat/mudflat), lowland, subtidal sediments (including sandbank/mudbank) |

| | |
|-----------------------------------|--|
| Nutrient status | eutrophic, mesotrophic |
| pH | no information |
| Salinity | brackish / mixosaline, saline / euhaline |
| Soil | no information |
| Water permanence | usually permanent |
| Summary of main climatic features | Annual averages (Blackpool, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/blackpool.html) Max. daily temperature: 12.9° C Min. daily temperature: 6.4° C Days of air frost: 40.3 Rainfall: 871.3 mm Hrs. of sunshine: 1540.3 |

General description of the Physical Features:

The Mersey Estuary is located on the Irish Sea coast of north-west England. It is a large, sheltered estuary which comprises large areas of saltmarsh and extensive intertidal sand- and mud-flats, with limited areas of brackish marsh, rocky shoreline and boulder clay cliffs, within a rural and industrial environment.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Mersey catchment covers an area of approximately 535 km² and includes the River Mersey and the River Bollin and their tributaries. Several canals and a large number of water bodies, including the Cheshire Meres, large reservoirs and ponds lie within the catchment. The area is heavily urbanised around Greater Manchester, contrasting with the more rural areas of Cheshire to the south and east. Water is abstracted throughout the catchments from both surface waters and groundwater for a number of uses including agricultural, industrial and public water supply. A number of public water supply reservoirs are present within the upper reaches of the catchments including Lamaload, Trentabank and Ridgegate reservoirs.

The Mersey Estuary is located on the Irish Sea coast of north-west England. It is a large, sheltered estuary which comprises large areas of saltmarsh and extensive intertidal sand- and mud-flats, with limited areas of brackish marsh, rocky shoreline and boulder clay cliffs, within a rural and industrial environment.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces, Sediment trapping, Water supply

19. Wetland types:

Marine/coastal wetland

| Code | Name | % Area |
|------|--------------|--------|
| G | Tidal flats | 89 |
| H | Salt marshes | 11 |

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Within this site the main habitat types are: Mudflats, Sandflats, Saltmarsh, Soft cliffs and Brackish marsh.

The main plant communities consists of: *Spartina anglica* saltmarsh (SM6), *Puccinellia maritima* saltmarsh (SM13), Transitional low-marsh vegetation with *Puccinellia maritima*, *Salicornia* species and *Suaeda maritima* (SM10), *Honkenya peploides*–*Cakile maritima* strandline community (SD2), *Typha latifolia* swamp (S12), *Phragmites australis*–*Urtica dioica* tall-herb fen (S26).

The estuary consists of large areas of intertidal sand and mudflats and saltmarsh. These provide feeding and roosting sites for large populations of waterfowl. Grazing of the saltmarsh by sheep and cattle adds diversity. Some parts of the northern shoreline are formed of boulder clay cliffs below which there are, in some parts, transitional areas with *Phragmites australis*.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

None reported

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds**Species currently occurring at levels of national importance:****Species with peak counts in spring/autumn:**

| | |
|--|---|
| Ringed plover , <i>Charadrius hiaticula</i> , Europe/Northwest Africa | 429 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3) |
| Eurasian curlew , <i>Numenius arquata arquata</i> , N. a. <i>arquata</i> Europe (breeding) | 2010 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3) |
| Spotted redshank , <i>Tringa erythropus</i> , Europe/W Africa | 3 individuals, representing an average of 2.2% of the GB population (5 year peak mean 1998/9-2002/3) |
| Common greenshank , <i>Tringa nebularia</i> , Europe/W Africa | 6 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3) |

Species with peak counts in winter:

| | |
|--|---|
| Eurasian wigeon , <i>Anas penelope</i> , NW Europe | 8268 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9-2002/3) |
|--|---|

Species Information

None reported

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

- Aesthetic
- Environmental education/ interpretation
- Livestock grazing
- Non-consumptive recreation
- Scientific research
- Sport hunting
- Tourism
- Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? **No**

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

| Ownership category | On-site | Off-site |
|-------------------------------------|---------|----------|
| Non-governmental organisation (NGO) | + | + |
| Local authority, municipality etc. | + | + |
| National/Crown Estate | + | + |
| Private | + | + |

25. Current land (including water) use:

| Activity | On-site | Off-site |
|-----------------------------|---------|----------|
| Nature conservation | + | + |
| Tourism | + | + |
| Current scientific research | + | + |
| Fishing: (unspecified) | | + |
| Fishing: commercial | | + |
| Fishing: recreational/sport | | + |
| Fishing: subsistence | | + |
| Bait collection | + | |
| Grazing (unspecified) | + | + |
| Hunting: recreational/sport | + | + |

| | | |
|--|---|---|
| Industrial water supply | + | + |
| Industry | + | + |
| Sewage treatment/disposal | + | + |
| Harbour/port | + | + |
| Mineral exploration (excl. hydrocarbons) | + | + |
| Oil/gas exploration | | + |
| Oil/gas production | | + |
| Transport route | + | + |
| Urban development | | + |

26. Factors (past, present or potential) adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.
2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

| Adverse Factor Category | Reporting Category | Description of the problem (Newly reported Factors only) | On-Site | Off-Site | Major Impact? |
|-------------------------|--------------------|--|---------|----------|---------------|
| No factors reported | NA | | | | |
| | | | | | |

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?

Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

| Conservation measure | On-site | Off-site |
|---|---------|----------|
| Site/ Area of Special Scientific Interest (SSSI/ASSI) | + | + |
| Special Protection Area (SPA) | + | |
| Management agreement | + | + |
| Site management statement/plan implemented | + | |
| Other | + | + |

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Environment

The Environment Agency has ongoing research/monitoring of water quality, management required under the Water Framework Directive. Research/monitoring is undertaken by departments within the University of Liverpool. The Liverpool Bay Shoreline Management Plan (Liverpool Bay Coastal Group, 1999a; 1999b; 1999c) expands knowledge of natural resources and physical processes within and affecting the estuary. In future, this will be enhanced by development of the Mersey Estuary Shoreline Management Plan which has not yet been prepared.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Both public sector and non-governmental organisations are involved in interpretation and education at the site.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities

As the waters become cleaner, more people are likely to be attracted to water-based recreational activities including sailing, canoeing, windsurfing and angling.

There is a network of footpaths in the upper estuary, with the potential to extend public access. There is also the potential for greater integration of the footpath network, and improved accessibility design.

Facilities provided

Partial footpath network. New access points, routes and country parks have been opened recently.

Seasonality

All year with main concentrations during the summer from a catchment of 2 million people.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs,
European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol,
BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House,
Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Site-relevant references

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- Weighell, AJ, Donnelly, AP & Calder, K (eds.) (2000) *Directory of the Celtic coasts and seas*. Joint Nature Conservation Committee, Peterborough

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • email: ramsar@ramsar.org

NATURA 2000 – STANDARD DATA FORM

Special Protection Areas under Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version), also known as the ‘Birds Directive’.

Each Natura 2000 site in the United Kingdom has its own Standard Data Form containing site-specific information.

The information provided here follows the officially agreed site information format for Natura 2000 sites, as set out in the [Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 \(2011/484/EU\)](#).

The Standard Data Forms are generated automatically for all of the UK’s Natura 2000 sites using the European Environment Agency’s Natura 2000 software. The structure and format of these forms is exactly as produced by the EEA’s Natura 2000 software (except for the addition of this coversheet and the end notes). The content matches exactly the data submitted to the European Commission.

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

Further technical documentation may be found here:
http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

In December 2015, several sections of the UK’s previously published Standard Data Forms were updated. For details of the approach taken by the UK in this submission please refer to the following document:

http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf.

These changes formed part of the UK Submission to the European Commission on 22/12/2015.

More general information on Special Protection Areas (SPAs) in the United Kingdom, including in Gibraltar, is available from the [SPA home page](#) on the JNCC website. This webpage also provides links to Standard Data Forms for all SPAs in the UK.

| | |
|---|----------------------------|
| Date Standard Data Form generated by the Joint Nature Conservation Committee: | 30 th June 2017 |
|---|----------------------------|



NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **UK9020326**
SITENAME **Morecambe Bay and Duddon Estuary**

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- [2. SITE LOCATION](#)
- [3. ECOLOGICAL INFORMATION](#)
- [4. SITE DESCRIPTION](#)
- [5. SITE PROTECTION STATUS AND RELATION WITH CORINE BIOTOPES](#)
- [6. SITE MANAGEMENT](#)
- [7. MAP OF THE SITE](#)

1. SITE IDENTIFICATION

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| | |
|----------------------|-----------------------------------|
| 1.1 Type A | 1.2 Site code UK9020326 |
|----------------------|-----------------------------------|

1.3 Site name

| |
|----------------------------------|
| Morecambe Bay and Duddon Estuary |
|----------------------------------|

| | |
|--|-----------------------------|
| 1.4 First Compilation date 2017-02 | 1.5 Update date - |
|--|-----------------------------|

1.6 Respondent:

| |
|---|
| Name/Organisation: Joint Nature Conservation Committee |
| Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY |
| Email: |

1.7 Site indication and designation / classification dates

| | |
|--|---|
| Date site classified as SPA: | 2017-02 |
| National legal reference of SPA designation | Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made). |
| Explanation(s): | This SPA replaces two individual sites – Morecambe Bay SPA (UK9005081) and Duddon Estuary SPA (UK9005031) |

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude
-2.9475

Latitude
54.1097

2.2 Area [ha]:

66899.0

2.3 Marine area [%]

91.1

2.5 Administrative region code and name

| NUTS level 2 code | Region Name |
|-------------------|-------------|
| UKZZ | Extra-Regio |
| UKD1 | Cumbria |
| UKD4 | Lancashire |

2.6 Biogeographical Region(s)

Atlantic (100.0
%)

3. ECOLOGICAL INFORMATION

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3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

| Species | | | | Population in the site | | | | | | Site assessment | | | | |
|---------|------|---|---|------------------------|---|-------|-------|------|------|-----------------|---------|------|-------|------|
| G | Code | Scientific Name | S | NP | T | Size | | Unit | Cat. | D.qual. | A B C D | | A B C | |
| | | | | | | Min | Max | | | | Pop. | Con. | Iso. | Glo. |
| B | A054 | Anas acuta | | | c | 2498 | 2498 | i | | G | B | | C | |
| B | A040 | Anser brachyrhynchus | | | c | 15648 | 15648 | i | | G | B | | C | |
| B | A169 | Arenaria interpres | | | c | 1359 | 1359 | i | | G | B | | C | |
| B | A144 | Calidris alba | | | c | 3600 | 3600 | i | | G | A | | C | |
| B | A672 | Calidris alpina alpina | | | c | 26982 | 26982 | i | | G | B | | C | |
| B | A143 | Calidris canutus | | | c | 32739 | 32739 | i | | G | B | | C | |
| B | A137 | Charadrius hiaticula | | | c | 1049 | 1049 | i | | G | B | | C | |
| B | A038 | Cygnus cygnus | | | w | 113 | 113 | i | | G | C | | C | |
| B | A026 | Egretta garzetta | | | w | 134 | 134 | i | | G | B | | C | |
| B | A130 | Haematopus ostralegus | | | c | 55888 | 55888 | i | | G | A | | C | |
| B | A184 | Larus argentatus | | | r | 20000 | 20000 | i | | G | B | | C | |
| B | A183 | Larus fuscus | | | c | 9450 | 9450 | i | | G | B | | C | |
| B | A183 | Larus fuscus | | | r | 9720 | 9720 | i | | G | B | | B | |
| B | A176 | Larus melanocephalus | | | w | 18 | 18 | i | | G | C | | C | |
| B | A157 | Limosa lapponica | | | w | 3046 | 3046 | i | | G | B | | C | |
| B | A616 | Limosa limosa islandica | | | c | 2413 | 2413 | i | | G | B | | C | |
| B | A160 | Numenius arquata | | | c | 12209 | 12209 | i | | G | B | | C | |

| | | | | | | | | | | | | | | |
|---|------|--------------------------------------|--|--|---|-------|-------|---|--|---|---|--|---|--|
| B | A151 | Philomachus pugnax | | | w | 8 | 8 | i | | G | C | | C | |
| B | A140 | Pluvialis apricaria | | | w | 1900 | 1900 | i | | G | C | | C | |
| B | A141 | Pluvialis squatarola | | | c | 2000 | 2000 | i | | G | C | | C | |
| B | A195 | Sterna albifrons | | | r | 84 | 84 | i | | G | B | | C | |
| B | A193 | Sterna hirundo | | | r | 570 | 570 | i | | G | C | | C | |
| B | A191 | Sterna sandvicensis | | | r | 1608 | 1608 | i | | G | B | | C | |
| B | A048 | Tadorna tadorna | | | c | 5878 | 5878 | i | | G | B | | C | |
| B | A162 | Tringa totanus | | | c | 11133 | 11133 | i | | G | B | | C | |

Group: A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles

S: in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes

NP: in case that a species is no longer present in the site enter: x (optional)

Type: p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)

Unit: i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see [reference portal](#))

Abundance categories (Cat.): C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information

Data quality: G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

| Species | | | | Population in the site | | | | Motivation | | | | | | |
|---------|------|--------------------------------------|---|------------------------|--------|--------|------|------------|---------------|---|------------------|---|---|---|
| Group | CODE | Scientific Name | S | NP | Size | | Unit | Cat. | Species Annex | | Other categories | | | |
| | | | | | Min | Max | | C R V P | IV | V | A | B | C | D |
| B | SBA | Seabird assemblage | | | 40672 | 40672 | i | | | | | | | X |
| B | WATR | Waterfowl assemblage | | | 266751 | 266751 | i | | | | | | X | |

Group: A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles

CODE: for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name

S: in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes

NP: in case that a species is no longer present in the site enter: x (optional)

Unit: i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see [reference portal](#))

Cat.: Abundance categories: C = common, R = rare, V = very rare, P = present

Motivation categories: IV, V: Annex Species (Habitats Directive), A: National Red List data; B: Endemics; C: International Conventions; D: other reasons

4. SITE DESCRIPTION

4.1 General site character

[Back to top](#)

| Habitat class | % Cover |
|---------------|---------|
| N01 | 1.6 |
| N05 | 0.1 |
| N03 | 6.2 |
| N04 | 1.5 |
| N02 | 90.4 |

| | |
|----------------------------|-----|
| N23 | 0.2 |
| Total Habitat Cover | 100 |

Other Site Characteristics

1. Terrestrial (Soil & Geology): shingle, neutral, clay, limestone, metamorphic, sedimentary, sandstone, neutral, mud, sand, sandstone, alluvium, shingle and clay. 2. Terrestrial (Geomorphology and landscape): island, floodplain, coastal, lowland, coastal, floodplain, island and lowland. 3. Marine (Geology): mud, sand, pebble, cobble, boulder, limestone/chalk, gravel, boulder, limestone/chalk, gravel and cobble. 4. Marine (Geomorphology): subtidal rock (including rocky reefs), intertidal sediments (including sandflat/mudflat), shingle bar, pools, intertidal rock, lagoon, estuary, subtidal sediments (including sandbank/mudbank), open coast (including bay), enclosed coast (including embayment), subtidal rock (including rocky reefs), lagoon, intertidal sediments (including sandflat/mudflat), open coast (including bay), shingle bar, subtidal sediments (including sandbank/mudbank), intertidal rock, enclosed coast (including embayment), pools and estuary.

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (2009/147/EC) Over winter the site regularly supports *Cygnus Cygnus*: 113 individuals, 1.0 % of GB population (5 year peak mean 2009/10 – 2013/14); *Egretta garzetta*: 134 individuals, 3.0 % of GB population (5 year peak mean 2009/10 – 2013/14); *Pluvialis apricaria*: 1,900 individuals, 1.0 % of GB population (Morecambe Bay SPA 1991 citation value); *Calidris pugnax*: 8 individuals, 1.0 % of GB population (5 year peak mean 2009/10 – 2013/14); *Limosa lapponica*: 3,046 individuals, 8.0 % of GB population (5 year peak mean 2009/10 – 2013/14); and *Larus melancephalus*: 18 individuals, 1.0 % of GB population (5 year peak mean 2009/10 – 2013/14). During the breeding season the site regularly supports *Sterna hirundo*: 570 individuals, 2.0 % of the population in Great Britain (Morecambe Bay SPA 1991 citation value); *Sterna sandvicensis*: 1,608 individuals, 5.7 % of GB population (summed SMP data from original Morecambe Bay SPA and Duddon Estuary SPA); and *Sternula albifrons*: 84 individuals, 2.2 % of GB population (RSPB data 2010 – 2014). ARTICLE 4.2 QUALIFICATION (79/409/EEC) On passage the site regularly supports *Anser brachyrhynchus*: 15,648 individuals, 4.5 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); *Tadorna tadorna*: 5,878 individuals, 2.0 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); *Haematopus ostralegus*: 55,888 individuals, 6.8 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); *Charadrius hiaticula*: 1,049 individuals, 1.4 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); *Pluvialis squatarola*: 2,000 individuals, 1.0 % of biogeographical population (Morecambe Bay SPA 1991 citation value); *Calidris canutus*: 32,739 individuals, 7.3 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); *Calidris alba*: 3,600 individuals, 3.0 % of biogeographical population (Morecambe Bay SPA citation 1991); *Calidris alpina alpina*: 26,982 individuals, 2.0 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); *Limosa limosa*: 2,413 individuals, 4.0 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); *Numenius arquata*: 12,209 individuals, 1.5 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); *Anas acuta*: 2,498 individuals, 4.2 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); *Arenaria interpres*: 1,359 individuals, 1.0 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); *Tringa totanus*: 11,133 individuals, 4.6 % of biogeographical population (5 year peak mean 2009/10 – 2013/14); and *Larus fuscus*: 9,450 individuals, 1.7 % of biogeographical population (5 year peak mean 2009/10 – 2013/14). During the breeding season the site regularly supports *Larus fuscus*: 9,720 individuals, 2.7 % of biogeographic population (Seabird monitoring programme database 2011 – 2015) and *Larus argentatus argentatus*: 20,000 individuals, 1.0 % of biogeographic population (Morecambe Bay SPA 1991 citation value). ARTICLE 4.2 QUALIFICATION (2009/147/EC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS The site qualifies as it is regularly used by over 20,000 seabirds in any season, including *Larus argentatus argentatus*, *Larus fuscus*, *Sterna sandvicensis*, *Sterna hirundo* and *Sternula albifrons*. The site qualifies as it is regularly used by over 20,000 waterbirds in any season (266,751 individuals recorded 5 year peak mean 2009/10 – 2013/14). The main components of the assemblage include all qualifying features listed above, as well as the following species present in numbers exceeding 1 % of the GB total population, and/or exceeding 2,000 individuals: *Ardea alba*, *Platalea leucorodia*, *Branta bernicla*, *Anas penelope*, *Anas crecca*, *Anas carolinensis*, *Anas platyrhynchos*, *Aythya collaris*, *Somateria mollissima*, *Bucephala clangula*, *Mergus serrator*, *Phalacrocorax carbo*, *Vanellus vanellus*, *Calidris minuta*, *Tringa erythropus*, *Tringa nebularia*, *Chroicocephalus ridibundus*, *Larus canus* and *Larus argentatus argentatus* (non-breeding).

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

| Negative Impacts | | | |
|------------------|------------------------------|-----------------------------|------------------------|
| Rank | Threats and pressures [code] | Pollution (optional) [code] | inside/outside [i o b] |
| M | K03 | | i |
| H | F02 | | i |
| M | D04 | | i |
| H | H03 | X | b |
| H | M02 | | b |
| M | H04 | X | i |
| M | M01 | | b |
| H | G01 | | i |

| Positive Impacts | | | |
|------------------|-------------------------------|-----------------------------|------------------------|
| Rank | Activities, management [code] | Pollution (optional) [code] | inside/outside [i o b] |
| M | A06 | | b |
| M | A04 | | i |
| M | A02 | | i |
| M | G03 | | i |
| M | D05 | | i |
| M | G05 | | i |

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites.

Link(s): <http://publications.naturalengland.org.uk/category/3212324>
<http://publications.naturalengland.org.uk/category/6490068894089216>

5. SITE PROTECTION STATUS (optional)

5.1 Designation types at national and regional level:

[Back to top](#)

| Code | Cover [%] | Code | Cover [%] | Code | Cover [%] |
|------|-----------|------|-----------|------|-----------|
| UK04 | 66.9 | UK01 | 1.4 | UK05 | 0.1 |

6. SITE MANAGEMENT

6.1 Body(ies) responsible for the site management:

[Back to top](#)

| | |
|---------------|--|
| Organisation: | Natural England, Marine Management Organisation, North Western Inshore Fisheries Conservation Authority, Local Authorities, Crown Estate, National Trust |
| Address: | |
| Email: | |

6.2 Management Plan(s):

An actual management plan does exist:

| |
|---|
| <input type="checkbox"/> Yes |
| <input type="checkbox"/> No, but in preparation |
| <input checked="" type="checkbox"/> No |

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

7. MAP OF THE SITES

[Back to top](#)

INSPIRE ID:

Map delivered as PDF in electronic format (optional)

Yes No

Reference(s) to the original map used for the digitalisation of the electronic boundaries (optional).

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the [official European Union guidelines for the Standard Data Form](#). The relevant page is shown in the table below.

1.1 Site type

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| A | Designated Special Protection Area | 53 |
| B | SAC (includes candidates Special Areas of Conservation, Sites of Community Importance and designated SAC) | 53 |
| C | SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar | 53 |

3.1 Habitat representativity

| CODE | DESCRIPTION | PAGE NO |
|------|--------------------------|---------|
| A | Excellent | 57 |
| B | Good | 57 |
| C | Significant | 57 |
| D | Non-significant presence | 57 |

3.1 Habitat code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| 1110 | Sandbanks which are slightly covered by sea water all the time | 57 |
| 1130 | Estuaries | 57 |
| 1140 | Mudflats and sandflats not covered by seawater at low tide | 57 |
| 1150 | Coastal lagoons | 57 |
| 1160 | Large shallow inlets and bays | 57 |
| 1170 | Reefs | 57 |
| 1180 | Submarine structures made by leaking gases | 57 |
| 1210 | Annual vegetation of drift lines | 57 |
| 1220 | Perennial vegetation of stony banks | 57 |
| 1230 | Vegetated sea cliffs of the Atlantic and Baltic Coasts | 57 |
| 1310 | Salicornia and other annuals colonizing mud and sand | 57 |
| 1320 | Spartina swards (<i>Spartinion maritimae</i>) | 57 |
| 1330 | Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) | 57 |
| 1340 | Inland salt meadows | 57 |
| 1420 | Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) | 57 |
| 2110 | Embryonic shifting dunes | 57 |
| 2120 | Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") | 57 |
| 2130 | Fixed coastal dunes with herbaceous vegetation ("grey dunes") | 57 |
| 2140 | Decalcified fixed dunes with <i>Empetrum nigrum</i> | 57 |
| 2150 | Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) | 57 |
| 2160 | Dunes with <i>Hippophae rhamnoides</i> | 57 |
| 2170 | Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) | 57 |
| 2190 | Humid dune slacks | 57 |
| 21A0 | Machairs (* in Ireland) | 57 |
| 2250 | Coastal dunes with <i>Juniperus</i> spp. | 57 |
| 2330 | Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands | 57 |
| 3110 | Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) | 57 |
| 3130 | Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> | 57 |
| 3140 | Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. | 57 |
| 3150 | Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation | 57 |

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| 3160 | Natural dystrophic lakes and ponds | 57 |
| 3170 | Mediterranean temporary ponds | 57 |
| 3180 | Turloughs | 57 |
| 3260 | Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation | 57 |
| 4010 | Northern Atlantic wet heaths with Erica tetralix | 57 |
| 4020 | Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix | 57 |
| 4030 | European dry heaths | 57 |
| 4040 | Dry Atlantic coastal heaths with Erica vagans | 57 |
| 4060 | Alpine and Boreal heaths | 57 |
| 4080 | Sub-Arctic Salix spp. scrub | 57 |
| 5110 | Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.) | 57 |
| 5130 | Juniperus communis formations on heaths or calcareous grasslands | 57 |
| 6130 | Calaminarian grasslands of the Violetalia calaminariae | 57 |
| 6150 | Siliceous alpine and boreal grasslands | 57 |
| 6170 | Alpine and subalpine calcareous grasslands | 57 |
| 6210 | Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 57 |
| 6230 | Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) | 57 |
| 6410 | Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) | 57 |
| 6430 | Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels | 57 |
| 6510 | Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) | 57 |
| 6520 | Mountain hay meadows | 57 |
| 7110 | Active raised bogs | 57 |
| 7120 | Degraded raised bogs still capable of natural regeneration | 57 |
| 7130 | Blanket bogs (* if active bog) | 57 |
| 7140 | Transition mires and quaking bogs | 57 |
| 7150 | Depressions on peat substrates of the Rhynchosporion | 57 |
| 7210 | Calcareous fens with Cladium mariscus and species of the Caricion davallianae | 57 |
| 7220 | Petrifying springs with tufa formation (Cratoneurion) | 57 |
| 7230 | Alkaline fens | 57 |
| 7240 | Alpine pioneer formations of the Caricion bicoloris-atrofuscae | 57 |
| 8110 | Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) | 57 |
| 8120 | Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii) | 57 |
| 8210 | Calcareous rocky slopes with chasmophytic vegetation | 57 |
| 8220 | Siliceous rocky slopes with chasmophytic vegetation | 57 |
| 8240 | Limestone pavements | 57 |
| 8310 | Caves not open to the public | 57 |
| 8330 | Submerged or partially submerged sea caves | 57 |
| 9120 | Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion) | 57 |
| 9130 | Asperulo-Fagetum beech forests | 57 |
| 9160 | Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 57 |
| 9180 | Tilio-Acerion forests of slopes, screes and ravines | 57 |
| 9190 | Old acidophilous oak woods with Quercus robur on sandy plains | 57 |
| 91A0 | Old sessile oak woods with Ilex and Blechnum in the British Isles | 57 |
| 91C0 | Caledonian forest | 57 |
| 91D0 | Bog woodland | 57 |
| 91E0 | Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) | 57 |
| 91J0 | Taxus baccata woods of the British Isles | 57 |

3.1 Relative surface

| CODE | DESCRIPTION | PAGE NO |
|------|-------------|---------|
| A | 15%-100% | 58 |
| B | 2%-15% | 58 |
| C | < 2% | 58 |

3.1 Conservation status habitat

| CODE | DESCRIPTION | PAGE NO |
|------|---------------------------------|---------|
| A | Excellent conservation | 59 |
| B | Good conservation | 59 |
| C | Average or reduced conservation | 59 |

3.1 Global grade habitat

| CODE | DESCRIPTION | PAGE NO |
|------|-------------------|---------|
| A | Excellent value | 59 |
| B | Good value | 59 |
| C | Significant value | 59 |

3.2 Population (abbreviated to 'Pop.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|----------------------------|---------|
| A | 15%-100% | 62 |
| B | 2%-15% | 62 |
| C | < 2% | 62 |
| D | Non-significant population | 62 |

3.2 Conservation status species (abbreviated to 'Con.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|---------------------------------|---------|
| A | Excellent conservation | 63 |
| B | Good conservation | 63 |
| C | Average or reduced conservation | 63 |

3.2 Isolation (abbreviated to 'Iso.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| A | Population (almost) Isolated | 63 |
| B | Population not-isolated, but on margins of area of distribution | 63 |
| C | Population not-isolated within extended distribution range | 63 |

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

| CODE | DESCRIPTION | PAGE NO |
|------|-------------------|---------|
| A | Excellent value | 63 |
| B | Good value | 63 |
| C | Significant value | 63 |

3.3 Assemblages types

| CODE | DESCRIPTION | PAGE NO |
|------|--|------------------|
| WATR | Non breeding waterfowl assemblage | UK specific code |
| SBA | Breeding seabird assemblage | UK specific code |
| BBA | Breeding bird assemblage (applies only to sites classified pre 2000) | UK specific code |

4.1 Habitat class code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| N01 | Marine areas, Sea inlets | 65 |
| N02 | Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins) | 65 |
| N03 | Salt marshes, Salt pastures, Salt steppes | 65 |
| N04 | Coastal sand dunes, Sand beaches, Machair | 65 |
| N05 | Shingle, Sea cliffs, Islets | 65 |
| N06 | Inland water bodies (Standing water, Running water) | 65 |
| N07 | Bogs, Marshes, Water fringed vegetation, Fens | 65 |
| N08 | Heath, Scrub, Maquis and Garrigue, Phygrana | 65 |
| N09 | Dry grassland, Steppes | 65 |
| N10 | Humid grassland, Mesophile grassland | 65 |
| N11 | Alpine and sub-Alpine grassland | 65 |
| N14 | Improved grassland | 65 |
| N15 | Other arable land | 65 |
| N16 | Broad-leaved deciduous woodland | 65 |
| N17 | Coniferous woodland | 65 |
| N19 | Mixed woodland | 65 |
| N21 | Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas) | 65 |
| N22 | Inland rocks, Scree, Sands, Permanent Snow and ice | 65 |
| N23 | Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) | 65 |
| N25 | Grassland and scrub habitats (general) | 65 |
| N26 | Woodland habitats (general) | 65 |

4.3 Threats code

| CODE | DESCRIPTION | PAGE NO |
|------|--|---------|
| A01 | Cultivation | 65 |
| A02 | Modification of cultivation practices | 65 |
| A03 | Mowing / cutting of grassland | 65 |
| A04 | Grazing | 65 |
| A05 | Livestock farming and animal breeding (without grazing) | 65 |
| A06 | Annual and perennial non-timber crops | 65 |
| A07 | Use of biocides, hormones and chemicals | 65 |
| A08 | Fertilisation | 65 |
| A10 | Restructuring agricultural land holding | 65 |
| A11 | Agriculture activities not referred to above | 65 |
| B01 | Forest planting on open ground | 65 |
| B02 | Forest and Plantation management & use | 65 |
| B03 | Forest exploitation without replanting or natural regrowth | 65 |
| B04 | Use of biocides, hormones and chemicals (forestry) | 65 |
| B06 | Grazing in forests/ woodland | 65 |
| B07 | Forestry activities not referred to above | 65 |
| C01 | Mining and quarrying | 65 |
| C02 | Exploration and extraction of oil or gas | 65 |
| C03 | Renewable abiotic energy use | 65 |
| D01 | Roads, paths and railroads | 65 |
| D02 | Utility and service lines | 65 |
| D03 | Shipping lanes, ports, marine constructions | 65 |
| D04 | Airports, flightpaths | 65 |
| D05 | Improved access to site | 65 |
| E01 | Urbanised areas, human habitation | 65 |
| E02 | Industrial or commercial areas | 65 |

| CODE | DESCRIPTION | PAGE NO |
|------|---|---------|
| E03 | Discharges | 65 |
| E04 | Structures, buildings in the landscape | 65 |
| E06 | Other urbanisation, industrial and similar activities | 65 |
| F01 | Marine and Freshwater Aquaculture | 65 |
| F02 | Fishing and harvesting aquatic resources | 65 |
| F03 | Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.) | 65 |
| F04 | Taking / Removal of terrestrial plants, general | 65 |
| F05 | Illegal taking/ removal of marine fauna | 65 |
| F06 | Hunting, fishing or collecting activities not referred to above | 65 |
| G01 | Outdoor sports and leisure activities, recreational activities | 65 |
| G02 | Sport and leisure structures | 65 |
| G03 | Interpretative centres | 65 |
| G04 | Military use and civil unrest | 65 |
| G05 | Other human intrusions and disturbances | 65 |
| H01 | Pollution to surface waters (limnic & terrestrial, marine & brackish) | 65 |
| H02 | Pollution to groundwater (point sources and diffuse sources) | 65 |
| H03 | Marine water pollution | 65 |
| H04 | Air pollution, air-borne pollutants | 65 |
| H05 | Soil pollution and solid waste (excluding discharges) | 65 |
| H06 | Excess energy | 65 |
| H07 | Other forms of pollution | 65 |
| I01 | Invasive non-native species | 65 |
| I02 | Problematic native species | 65 |
| I03 | Introduced genetic material, GMO | 65 |
| J01 | Fire and fire suppression | 65 |
| J02 | Human induced changes in hydraulic conditions | 65 |
| J03 | Other ecosystem modifications | 65 |
| K01 | Abiotic (slow) natural processes | 65 |
| K02 | Biocenotic evolution, succession | 65 |
| K03 | Interspecific faunal relations | 65 |
| K04 | Interspecific floral relations | 65 |
| K05 | Reduced fecundity/ genetic depression | 65 |
| L05 | Collapse of terrain, landslide | 65 |
| L07 | Storm, cyclone | 65 |
| L08 | Inundation (natural processes) | 65 |
| L10 | Other natural catastrophes | 65 |
| M01 | Changes in abiotic conditions | 65 |
| M02 | Changes in biotic conditions | 65 |
| U | Unknown threat or pressure | 65 |
| XO | Threats and pressures from outside the Member State | 65 |

5.1 Designation type codes

| CODE | DESCRIPTION | PAGE NO |
|-------------|---|----------------|
| UK00 | No Protection Status | 67 |
| UK01 | National Nature Reserve | 67 |
| UK02 | Marine Nature Reserve | 67 |
| UK04 | Site of Special Scientific Interest (UK) | 67 |
| UK01 | Marine Conservation Zone | 67 |
| UK02 | Nature Conservation Marine Protected Area | 67 |
| UK04 | Demonstration and Research Marine Protected Area | 67 |
| UK05 | Fisheries Management Area | 67 |
| UK06 | National Nature Reserve | 67 |
| UK07 | Marine Nature Reserve | 67 |
| UK21 | Site of Special Scientific Interest (UK) | 67 |
| UK30 | Land owned by a non-governmental organisation for nature conservation | 67 |
| UK83 | Area of Outstanding Natural Beauty (NI) | 67 |
| UK84 | Marine Consultation Area | 67 |
| UK85 | Area of Outstanding Natural Beauty | 67 |
| UK86 | Special Area (Channel Islands) | 67 |
| UK87 | Voluntary Reserve | 67 |
| UK88 | Regional Park | 67 |
| UK91 | National Scenic Area | 67 |
| UK92 | Heritage Coast | 67 |
| UK93 | Forest Park | 67 |
| UK96 | Local Nature Reserve | 67 |
| UK97 | National Park | 67 |
| UK98 | Area of Special Scientific Interest (NI) | 67 |

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Joint Nature Conservation Committee

Monkstone House

City Road

Peterborough

Cambridgeshire PE1 1JY

UK

Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948

Email: RIS@JNCC.gov.uk

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DD MM YY

| | | |
|--|--|--|
| | | |
|--|--|--|

Designation date

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

Site Reference Number

2. Date this sheet was completed/updated:

Designated: 04 October 1996

3. Country:

UK (England)

4. Name of the Ramsar site:

Morecambe Bay

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) *Yes*
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* ☐;

b) **Describe briefly the type of boundary delineation applied:**

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

54 07 19 N 02 57 21 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Morecambe

Morecambe Bay is located within the counties of Cumbria and Lancashire in north-west England

Administrative region: Cumbria; Lancashire

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 37404.6

| | |
|------|----|
| Min. | -3 |
| Max. | 8 |
| Mean | 0 |

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Morecambe Bay lies between the coasts of South Cumbria and Lancashire, and represents the largest continuous intertidal area in Britain. Morecambe Bay comprises the estuaries of five rivers and the accretion of mudflats behind Walney Island. The area is of intertidal mud and sandflats, with associated saltmarshes, shingle beaches and other coastal habitats. It is a component in the chain of west coast estuaries of outstanding importance for passage and overwintering waterfowl (supporting the third-largest number of wintering waterfowl in Britain), and breeding waterfowl, gulls and terns.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

4, 5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 4

The site is a staging area for migratory waterfowl including internationally important numbers of passage ringed plover *Charadrius hiaticula*.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

223709 waterfowl (5 year peak mean 1998/99-2002/2003)

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*, W Europe/Mediterranean/W Africa 19666 apparently occupied nests, representing an average of 13.3% of the breeding population (Seabird 2000 Census)

Herring gull , *Larus argentatus argentatus*, NW Europe and Iceland/W Europe) 10431 apparently occupied nests, representing an average of 2.8% of the breeding population (Seabird 2000 Census)

Sandwich tern , *Sterna (Thalasseus) sandvicensis sandvicensis*, W Europe 290 pairs, representing an average of 2.8% of the GB population (5 year mean for 1992 to 1996)

Species with peak counts in spring/autumn:

Great cormorant , *Phalacrocorax carbo carbo*, NW Europe 967 individuals, representing an average of 4.2% of the GB population (5 year peak mean 1998/9-2002/3)

Common shelduck , *Tadorna tadorna*, NW Europe 7032 individuals, representing an average of 2.3% of the population (5 year peak mean 1998/9-2002/3)

Northern pintail , *Anas acuta*, NW Europe 3743 individuals, representing an average of 6.2% of the population (5 year peak mean 1998/9-2002/3)

Common eider , *Somateria mollissima mollissima*, NW Europe 5657 individuals, representing an average of 7.7% of the GB population (5 year peak mean 1998/9-2002/3)

Eurasian oystercatcher , *Haematopus ostralegus ostralegus*, Europe & NW Africa -wintering 66577 individuals, representing an average of 6.5% of the population (5 year peak mean 1998/9-2002/3)

Ringed plover , *Charadrius hiaticula*, Europe/Northwest Africa 1041 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9-2002/3)

Grey plover , *Pluvialis squatarola*, E Atlantic/W Africa -wintering 1655 individuals, representing an average of 3.1% of the GB population (5 year peak mean 1998/9-2002/3)

Sanderling , *Calidris alba*, Eastern Atlantic 703 individuals, representing an average of 3.4% of the GB population (5 year peak mean 1998/9-2002/3 - spring peak)

Eurasian curlew , *Numenius arquata arquata*, N. a. arquata Europe (breeding) 20018 individuals, representing an average of 4.7% of the population (5 year peak mean 1998/9-2002/3)

| | |
|--|---|
| Common redshank , <i>Tringa totanus totanus</i> , | 8816 individuals, representing an average of 3.5% of the population (5 year peak mean 1998/9-2002/3) |
| Ruddy turnstone , <i>Arenaria interpres interpres</i> , NE Canada, Greenland/W Europe & NW Africa | 1371 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9-2002/3) |
| Lesser black-backed gull , <i>Larus fuscus graellsii</i> , | 40393 individuals, representing an average of 7.6% of the population (5 year peak mean 1998/9-2002/3) |

Species with peak counts in winter:

| | |
|---|---|
| Great crested grebe , <i>Podiceps cristatus cristatus</i> , NW Europe | 217 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3) |
| Pink-footed goose , <i>Anser brachyrhynchus</i> , Greenland, Iceland/UK | 3665 individuals, representing an average of 1.5% of the population (5 year peak mean 1998/9-2002/3) |
| Eurasian wigeon , <i>Anas penelope</i> , NW Europe | 6133 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3) |
| Common goldeneye , <i>Bucephala clangula clangula</i> , NW & C Europe | 285 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3) |
| Red-breasted merganser , <i>Mergus serrator</i> , NW & C Europe | 327 individuals, representing an average of 3.3% of the GB population (5 year peak mean 1998/9-2002/3) |
| European golden plover , <i>Pluvialis apricaria apricaria</i> , P. a. altifrons Iceland & Faroes/E Atlantic | 4073 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3) |
| Northern lapwing , <i>Vanellus vanellus</i> , Europe - breeding | 16492 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3) |
| Red knot , <i>Calidris canutus islandica</i> , W & Southern Africa (wintering) | 66335 individuals, representing an average of 14.7% of the population (5 year peak mean 1998/9-2002/3) |
| Dunlin , <i>Calidris alpina alpina</i> , W Siberia/W Europe | 26416 individuals, representing an average of 1.9% of the population (5 year peak mean 1998/9-2002/3) |
| Bar-tailed godwit , <i>Limosa lapponica lapponica</i> , W Palearctic | 4579 individuals, representing an average of 3.8% of the population (5 year peak mean 1998/9-2002/3) |

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

See Sections 21/22 for details of noteworthy species

Details of bird species occurring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

| | |
|-----------------------------------|--|
| Soil & geology | biogenic reef, boulder, clay, cobble, gravel, limestone, mud, neutral, pebble, sand, sandstone, sedimentary, shingle |
| Geomorphology and landscape | coastal, enclosed coast (including embayment), estuary, floodplain, intertidal sediments (including sandflat/mudflat), island, lagoon, lowland, open coast (including bay), pools, shingle bar, subtidal rock (including rocky reefs), subtidal sediments (including sandbank/mudbank) |
| Nutrient status | mesotrophic |
| pH | circumneutral |
| Salinity | saline / euhaline |
| Soil | mainly mineral |
| Water permanence | usually permanent |
| Summary of main climatic features | Annual averages (Blackpool, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/blackpool.html) Max. daily temperature: 12.9° C Min. daily temperature: 6.4° C Days of air frost: 40.3 Rainfall: 871.3 mm Hrs. of sunshine: 1540.3 |

General description of the Physical Features:

Morecambe Bay is one of the largest estuarine systems in the UK and is fed by five main river channels (the Leven, Kent, Keer, Lune and Wyre) which drain through the intertidal flats of sand and mud. Mussel *Mytilus edulis* beds and banks of shingle are present, and locally there are stony outcrops. The whole system is dynamic, with shifting channels and phases of erosion and accretion affecting the estuarine deposits and surrounding saltmarshes.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Morecambe Bay is one of the largest estuarine systems in the UK and is fed by five main river channels (the Leven, Kent, Keer, Lune and Wyre) which drain through the intertidal flats of sand and mud. Mussel *Mytilus edulis* beds and banks of shingle are present, and locally there are stony outcrops. The whole system is dynamic, with shifting channels and phases of erosion and accretion affecting the estuarine deposits and surrounding saltmarshes.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces, Sediment trapping, Flood water storage / desynchronisation of flood peaks

19. Wetland types:

Human-made wetland, Marine/coastal wetland

| Code | Name | % Area |
|------|--|--------|
| G | Tidal flats | 77.7 |
| F | Estuarine waters | 13 |
| H | Salt marshes | 8.4 |
| B | Marine beds (e.g. sea grass beds) | 0.4 |
| E | Sand / shingle shores (including dune systems) | 0.3 |
| 6 | Reservoirs / barrages / dams | 0.2 |

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The main habitat types of the Morecambe Bay Ramsar site are: Intertidal mudflats and sandflats, saltmarsh, shingle, rocky scars, sand dunes.

A large shallow estuary, with extensive intertidal mudflats, saltmarshes, subtidal sediments and rocky shorelines.

There are small areas of eelgrass *Zostera* beds and vegetated shingle. There is also the presence of the honeycomb worm *Sabellaria alveolata*.

The saltmarshes are traditionally heavily grazed and provide important wildfowl habitat.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

None reported

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds**Species currently occurring at levels of national importance:****Species regularly supported during the breeding season:**

Black-headed gull, *Larus ridibundus*, N & C
Europe

1620 apparently occupied nests, representing an average of 1.2% of the GB population (Seabird 2000 Census)

Species with peak counts in spring/autumn:

Ruff, *Philomachus pugnax*, Europe/W Africa

33 individuals, representing an average of 4.7% of the GB population (5 year peak mean 1998/9-2002/3)

| | |
|--|--|
| Whimbrel , <i>Numenius phaeopus</i> , Europe/Western Africa | 226 individuals, representing an average of 7.5% of the GB population (5 year peak mean 1998/9-2002/3 - spring peak) |
| Spotted redshank , <i>Tringa erythropus</i> , Europe/W Africa | 8 individuals, representing an average of 5.8% of the GB population (5 year peak mean 1998/9-2002/3) |
| Common greenshank , <i>Tringa nebularia</i> , Europe/W Africa | 79 individuals, representing an average of 13.2% of the GB population (5 year peak mean 1998/9-2002/3) |
| Black-headed gull , <i>Larus ridibundus</i> , N & C Europe | 19907 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3) |
| Species with peak counts in winter: | |
| Eurasian teal , <i>Anas crecca</i> , NW Europe | 2363 individuals, representing an average of 1.2% of the GB population (5 year peak mean 1998/9-2002/3) |
| Black-tailed godwit , <i>Limosa limosa islandica</i> , Iceland/W Europe | 218 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9-2002/3) |

Species Information

None reported

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

- Aesthetic
- Aquatic vegetation (e.g. reeds, willows, seaweed)
- Archaeological/historical site
- Environmental education/ interpretation
- Fisheries production
- Livestock grazing
- Non-consumptive recreation
- Scientific research
- Sport fishing
- Sport hunting
- Subsistence fishing
- Tourism
- Traditional cultural
- Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

| Ownership category | On-site | Off-site |
|-------------------------------------|---------|----------|
| Non-governmental organisation (NGO) | + | + |
| National/Crown Estate | + | + |
| Private | + | + |

25. Current land (including water) use:

| Activity | On-site | Off-site |
|---|---------|----------|
| Nature conservation | + | + |
| Tourism | + | + |
| Recreation | + | + |
| Current scientific research | + | + |
| Collection of non-timber natural products: commercial | + | |
| Commercial forestry | | + |
| Fishing: commercial | + | + |
| Fishing: recreational/sport | + | |
| Fishing: subsistence | + | |
| Marine/saltwater aquaculture | + | |
| Gathering of shellfish | + | |
| Shell collection | + | |
| Bait collection | + | |
| Arable agriculture (unspecified) | | + |
| Shifting arable agriculture | | + |
| Permanent arable agriculture | | + |
| Grazing (unspecified) | + | + |
| Permanent pastoral agriculture | + | + |
| Hunting: recreational/sport | + | + |
| Industrial water supply | + | |
| Industry | + | + |
| Sewage treatment/disposal | + | + |
| Harbour/port | + | + |
| Flood control | + | + |
| Mineral exploration (excl. hydrocarbons) | | + |
| Oil/gas exploration | | + |
| Oil/gas production | | + |
| Transport route | + | + |
| Domestic water supply | | + |
| Urban development | | + |
| Non-urbanised settlements | | + |

26. Factors (past, present or potential) adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.
2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

| Adverse Factor Category | Reporting Category | Description of the problem (Newly reported Factors only) | On-Site | Off-Site | Major Impact? |
|-------------------------|--------------------|--|---------|----------|---------------|
| No factors reported | NA | | | | |
| | | | | | |

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?

Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

| Conservation measure | On-site | Off-site |
|---|---------|----------|
| Site/ Area of Special Scientific Interest (SSSI/ASSI) | + | |
| National Nature Reserve (NNR) | + | + |
| Special Protection Area (SPA) | + | |
| Land owned by a non-governmental organisation for nature conservation | + | + |
| Site management statement/plan implemented | + | |
| Area of Outstanding National Beauty (AONB) | + | + |
| Special Area of Conservation (SAC) | + | |

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Habitat.

Baseline habitat review/survey being completed by English Nature for European Marine Site Management Scheme.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

None reported

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities.

Angling, wildfowling, bait collection, walking, watersports (including sailing, windsurfing) and birdwatching.

Facilities provided.

There are interpretative facilities at South Walney, Foulney and Leighton Moss reserves, and in the nearby town of Morecambe.

Seasonality.

Wildfowling occurs from 1 September to 20 February.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Site-relevant references

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Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • email: ramsar@ramsar.org

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Joint Nature Conservation Committee

Monkstone House

City Road

Peterborough

Cambridgeshire PE1 1JY

UK

Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948

Email: RIS@JNCC.gov.uk

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

Designated: 16 March 1998

3. Country:

UK (England)

4. Name of the Ramsar site:

Duddon Estuary

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) *Yes*
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* ☐;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

54 10 39 N 03 15 24 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Barrow-in-Furness

Duddon Estuary is situated in north-west England to the north-west of Morecambe Bay and to the north of Barrow-in Furness.

Administrative region: Cumbria

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 6806.3

| | |
|------|----|
| Min. | -2 |
| Max. | 16 |
| Mean | 0 |

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Duddon Estuary is formed by the River Duddon and the smaller Kirkby Pool opening into the Irish Sea in south-western Cumbria. Most of the site consists of intertidal sand and mudflats, important for large numbers of wintering and passage waterfowl. A range of grazed and ungrazed saltmarsh habitats occur around the edge of the estuary, especially the sheltered inner section. The site is the most important in Cumbria for sand-dune communities including large areas of calcareous dunes at Sandscale and Haverigg Haws and contrasting acid dunes on North Walney. Artificial habitats include slag banks and a flooded mine working known as Hodbarrow Lagoon, the largest coastal lagoon in north-west England.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

2, 4, 5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 2

Supports nationally important numbers of the rare natterjack toad *Bufo calamita*, near the north-western edge of its range (an estimated 18-24% of the British population). Supports a rich assemblage of wetland plants and invertebrates - at least one nationally scarce plant and at least two British Red Data Book invertebrates.

Ramsar criterion 4

The site supports nationally important numbers of waterfowl during spring and autumn passage.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

26326 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in winter:

| | |
|---|---|
| Northern pintail , <i>Anas acuta</i> , NW Europe | 687 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3) |
| Red knot , <i>Calidris canutus islandica</i> , W & Southern Africa (wintering) | 749 individuals, representing an average of 0.2% of the GB population (5 year peak mean 1998/9-2002/3) |
| Common redshank , <i>Tringa totanus totanus</i> , | 2197 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3) |

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

See Sections 21/22 for details of noteworthy species

Details of bird species occurring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

| | |
|-----------------------------------|--|
| Soil & geology | acidic, basic, shingle, sand, mud, alluvium, metamorphic, limestone, slate/shale, sandstone/mudstone, limestone/chalk |
| Geomorphology and landscape | lowland, coastal, barrier beach, intertidal sediments (including sandflat/mudflat), open coast (including bay), estuary, lagoon |
| Nutrient status | |
| pH | no information |
| Salinity | saline / euhaline |
| Soil | mainly mineral |
| Water permanence | usually permanent |
| Summary of main climatic features | Annual averages (Blackpool, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/blackpool.html) Max. daily temperature: 12.9° C Min. daily temperature: 6.4° C Days of air frost: 40.3 Rainfall: 871.3 mm Hrs. of sunshine: 1540.3 |

General description of the Physical Features:

The Duddon Estuary is formed where the River Duddon and the smaller Kirkby Pool opens into the Irish Sea. It is a complex site, mostly consisting of intertidal sand and mudflats. A range of grazed and ungrazed saltmarsh habitats occurs around the edge of the estuary, especially the sheltered inner section. The site is the most important in Cumbria for sand-dune communities including large areas of calcareous dunes at Sandscale and Haverigg Haws and contrasting acid dunes on North Walney. There are a number of settlements and industrial areas on the periphery of the site. Artificial habitats include slag banks, and a flooded iron-ore working known as Hodbarrow Lagoon forms the largest coastal lagoon in north-west England.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Duddon Estuary is formed where the River Duddon and the smaller Kirkby Pool opens into the Irish Sea. It is a complex site, mostly consisting of intertidal sand and mudflats. A range of grazed and ungrazed saltmarsh habitats occurs around the edge of the estuary, especially the sheltered inner section. The site is the most important in Cumbria for sand-dune communities including large areas of calcareous dunes at Sandscale and Haverigg Haws and contrasting acid dunes on North Walney. There are a number of settlements and industrial areas on the periphery of the site. Artificial habitats include slag banks, and a flooded iron-ore working known as Hodbarrow Lagoon forms the largest coastal lagoon in north-west England.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces

19. Wetland types:

Marine/coastal wetland

| Code | Name | % Area |
|------|--------------|--------|
| G | Tidal flats | 90.4 |
| H | Salt marshes | 8 |

| | | |
|-------|---------------------------------------|------|
| Other | Other | 1.4 |
| J | Coastal brackish / saline lagoons | 0.2 |
| Tp | Freshwater marshes / pools: permanent | 0.01 |

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The majority of the site consists of intertidal sand and mudflats. These support invertebrate populations important for the large numbers of overwintering wildfowl and waders on the site. The mouth of the estuary forms an extensive flat sandplain, with highly mobile sands dissected by constantly-changing tidal channels. More sheltered areas in the inner part of the estuary are composed of finer sands and soft mud.

Extensive areas of saltmarsh occur around the outer edge of the site, especially in the more sheltered inner third of the estuary and around North Walney. There is considerable variation in the saltmarsh communities depending mainly on the intensity of grazing and degree of saltwater inundation. Pioneer saltmarsh occurs at the seaward edge of the marsh, with species such as *Salicornia europaea*, *Suaeda maritima* and *Spartina anglica*. The mid-marsh is dominated by species such as *Puccinellia maritima*, *Festuca rubra* and *Armeria maritima*. *Juncus maritimus* is frequent at the landward side of the marsh. Ungrazed saltmarsh on the east side of North Walney is richer in plant and invertebrate species and is dominated by *Limonium vulgare* and *Atriplex portulacoides*.

The estuary is one of the most important sites in Cumbria for sand dune communities, including areas of calcareous dunes at Sandscale and Haverigg Haws, and contrasting acid dunes at North Walney. A full range of dune types is present, from fore-dunes based on highly mobile sand dominated by *Ammophila arenaria*, to more fixed yellow and grey dunes and dune grasslands. The calcareous nature of the sand has given rise to a very diverse flora with species such as *Viola tricolor*, *Thymus praecox*, *Galium verum* and the local *Vulpia membranacea*. On each of the main dune systems there are areas of dune heath, a rare habitat, with *Calluna vulgaris*, *Erica cinerea*, *E. tetralix* and a mosaic of mosses and lichens. The dune slacks support a diverse flora including *Centaurium littorale*, *Epipactis palustris*, *Corallorhiza trifida*. The wetter slacks are important for natterjack toads.

The strandline communities at North Walney and Haverigg Haws support nationally rare shingle vegetation including species such as *Honkenya peploides*, *Cakile maritima*, *Crambe maritima*.

There are a variety of artificial habitats within the site, including slag banks at Askam Pier and Borwick Rails, which have developed a calcareous flora and are used by breeding terns. Hodbarrow lagoon, a flooded mine working, is used as a roost for wildfowl and for breeding birds. Associated habitats include carr, shingle beach, brackish pools and coastal grassland.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.

Higher Plants.

Epipactis dunensis, *Limonium humile*, *Centaurium littorale*, *Pyrola rotundifolia*, *Equisetum variegatum*, *Corallorhiza trifida*, *Coincya monensis* ssp. *monensis*.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds**Species currently occurring at levels of national importance:****Species regularly supported during the breeding season:**

Sandwich tern , *Sterna*
(*Thalasseus*) *sandvicensis sandvicensis*, W
Europe 340 apparently occupied nests, representing an
average of 3.2% of the GB population (Seabird
2000 Census)

Little tern , *Sterna albifrons albifrons*, W Europe 26 apparently occupied nests, representing an
average of 1.3% of the GB population (Seabird
2000 Census)

Species with peak counts in spring/autumn:

Red-breasted merganser , *Mergus serrator*, NW
& C Europe 205 individuals, representing an average of 2% of
the GB population (5 year peak mean 1998/9-
2002/3)

Eurasian oystercatcher , *Haematopus ostralegus*
ostralegus, Europe & NW Africa -wintering 6460 individuals, representing an average of 2%
of the GB population (5 year peak mean 1998/9-
2002/3)

Species with peak counts in winter:

Sanderling , *Calidris alba*, Eastern Atlantic 498 individuals, representing an average of 2.4%
of the GB population (5 year peak mean 1998/9-
2002/3)

Dunlin , *Calidris alpina alpina*, W Siberia/W
Europe 6176 individuals, representing an average of 1.1%
of the GB population (5 year peak mean 1998/9-
2002/3)

Eurasian curlew , *Numenius arquata arquata*, N.
a. *arquata* Europe 2408 individuals, representing an average of 1.6%
of the GB population (5 year peak mean 1998/9-
2002/3)
(breeding)

Species Information**Nationally important species occurring on the site.****Mammals.**

Lutra lutra.

Amphibians.

Bufo calamita.

Invertebrates.

Colletes cunicularius, *Psen littoralis*, *Hypocaccus rugiceps*.

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Archaeological/historical site
Environmental education/ interpretation
Fisheries production
Livestock grazing
Non-consumptive recreation

Scientific research
 Sport fishing
 Sport hunting
 Tourism
 Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

| Ownership category | On-site | Off-site |
|-------------------------------------|---------|----------|
| Non-governmental organisation (NGO) | + | |
| Local authority, municipality etc. | + | + |
| Private | + | |
| Public/communal | + | |

25. Current land (including water) use:

| Activity | On-site | Off-site |
|---|---------|----------|
| Nature conservation | + | |
| Tourism | + | + |
| Recreation | + | |
| Cutting of vegetation (small-scale/subsistence) | + | |
| Fishing: (unspecified) | + | |
| Fishing: recreational/sport | + | |
| Gathering of shellfish | + | |
| Bait collection | + | |
| Grazing (unspecified) | + | |
| Hunting: recreational/sport | + | |
| Industry | | + |
| Sewage treatment/disposal | + | |
| Harbour/port | + | |
| Flood control | + | |
| Mineral exploration (excl. hydrocarbons) | | + |

| | | |
|---------------------|--|---|
| Oil/gas exploration | | + |
| Oil/gas production | | + |
| Transport route | | + |
| Urban development | | + |

26. Factors (past, present or potential) adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.
2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

| Adverse Factor Category | Reporting Category | Description of the problem (Newly reported Factors only) | On-Site | Off-Site | Major Impact? |
|-------------------------|--------------------|--|---------|----------|---------------|
| No factors reported | NA | | | | |
| | | | | | |

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?

Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

| Conservation measure | On-site | Off-site |
|---|---------|----------|
| Site/ Area of Special Scientific Interest (SSSI/ASSI) | + | |
| National Nature Reserve (NNR) | + | |
| Special Protection Area (SPA) | + | |
| Land owned by a non-governmental organisation for nature conservation | + | |
| Management agreement | + | |
| Other | + | |
| Special Area of Conservation (SAC) | + | |
| Management plan in preparation | + | |

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Contemporary.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Breeding birds: Site managers for the NNR, NT, RSPB reserves carry out monitoring.

Breeding natterjack *Bufo calamita*: Site managers and volunteers carry out monitoring of the breeding success of natterjacks annually.

Habitat.

Marine survey work currently underway for the marine habitats included within the Morecambe Bay candidate SAC.

Flora.

Scarce plants: Monitored by site managers on the reserves.

Completed.

Flora.

Vegetation: Sand dunes have been surveyed to NVC standard. Saltmarshes have been surveyed but not to NVC standard.

Fauna.

Invertebrates (terrestrial): Entomological records are detailed for parts of the site (Sandscale and North Walney) and less detailed for others.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Existing Programmes: The National Trust, RSPB and English Nature wardens lead guided walks onto their respective sites (Sandscale, Hodbarrow, North Walney).

Interpretation facilities: The site is provided with fixed interpretation panels at Sandscale (NT) and North Walney NNR. Wardens also lead school visits.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.

Land-based recreation:

Walking, including dog-walking, bathing and beach recreation occurs throughout the site but particularly adjacent to the urban areas of Barrow-in-Furness, Askam, Millom and Haverigg. There is unauthorised mountain bicycle and motorbike access to some of the sand dune areas but particularly North Walney. Birdwatchers visit the site but mainly go to the nature reserves and where there is easy access. Adjacent to the SSSI at Barrow, derelict land is being developed for amenity. Most of the golf course at Dunnerholme near Askam is included within the site. All year.

Water-based recreation:

A water-skiing development occupies part of Hodbarrow Lagoon. Its operations are controlled. Otherwise power-boating, waterskiing, jet-skiing, wind surfing and canoeing are still relatively uncommon. There are several angling clubs activities in the estuary, mainly April to September.

Airborne recreation

There is a small airstrip used by light aircraft and commercial flights (BAE) adjacent to North Walney. At present usage (low) disturbance to waterfowl does not appear to be a problem. All year.

Wildfowling

Wildfowling is controlled by private agreement with estates and private owners. Clubs operate under strict rules.

Infrastructure developments

There are a number of caravan sites adjacent to the site at Haverigg and Askam and several non-marina moorings throughout the site, used mainly April to September.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Site-relevant references

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Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • email: ramsar@ramsar.org

EC Directive 92/43 on the Conservation of Natural Habitats and of Wild Fauna and Flora

Citation for Special Area of Conservation (SAC)

| | |
|----------------------------------|----------------------------|
| Name: | Sefton Coast |
| Unitary Authority/County: | Sefton |
| SAC status: | Designated on 1 April 2005 |
| Grid reference: | SD281099 |
| SAC EU code: | UK0013076 |
| Area (ha): | 4563.97 |
| Component SSSI: | Sefton Coast SSSI |

Site description:

The Sefton Coast in north-west England displays both rapid erosion and active shifting dunes. A substantial stretch of the dune system is fronted by shifting dunes. Marram *Ammophila arenaria* usually dominates the mobile dunes, amidst considerable areas of blown sand. Where rates of sand deposition decline, lyme grass *Leymus arenarius*, sea-holly *Eryngium maritimum* and cat's-ear *Hypochaeris radicata* occur, with red fescue *Festuca rubra* and spreading meadow-grass *Poa humilis* present on the more sheltered ridges. Sea spurge *Euphorbia paralias* and the nationally scarce dune fescue *Vulpia fasciculata* are frequent, while sea bindweed *Calystegia soldanella* is very local. The area of dunes around Formby Point has been eroding since 1906 while areas north and south of this are accreting (where the nature of the coast allows). The rapid erosion is therefore reducing the area of shifting dunes at Formby, and high, steep eroding dunes abut the beach with extensive areas of blown sand immediately inland.

The sequence of habitats from foredunes to dune grassland and dune slack is extensive, and substantial areas of open dune vegetation remain. There are large areas of semi-fixed and fixed dunes with herbaceous vegetation exhibiting considerable variation from calcareous to acidic.

There are extensive dune slacks dominated by creeping willow *Salix repens* ssp. *Argentea*; it has been estimated that 99ha, or 43% of the total English resource of the main dune slack community dominated by creeping willow occurs at this site. The species also dominates areas of free-draining dune grassland to a much greater extent than at most other UK sites. Despite some urban and recreational development, both successional and geomorphological processes are still active and the structure and function of the site as a whole is still well-conserved. Pools in the hollows and slacks amongst the more fixed dunes are the habitat of a large population of great crested newts *Triturus cristatus*.

Some active formation can still be seen and a variety of successional stages are represented. The sequence from foredunes to dune grassland and dune slack is extensive. The site also contributes to the range and variation of humid dune slack vegetation, being a large and representative base-rich system towards the northern limit for some humid dune slack communities along the west coast of Britain.

A large population of petalwort *Petalophyllum ralfsii* occurs at this site. The plant was first recorded on the Sefton Coast at Ainsdale in 1861 and it is still found within the dune system between Southport and Ainsdale. It seems to prefer damp ground around the edges of dune slacks of fairly recent origin, with the largest populations found in slacks of less than 25 years old. The plant is often found in association with footpaths, where light trampling keeps the

ground vegetation sparse; infrequently-used paths or less-trampled edges of pathways seem to be favoured. Although the preferred habitat is short damp turf with plenty of bare patches, populations have been found growing amongst dense marram *Ammophila arenaria* with few other associated species.

Qualifying habitats: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I:

- Atlantic decalcified fixed dunes (*Calluno-Ulicetea*). (Coastal dune heathland)*
- Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*). (Dunes with creeping willow)
- Embryonic shifting dunes
- Fixed dunes with herbaceous vegetation (“grey dunes”). (Dune grassland)*
- Humid dune slacks
- Shifting dunes along the shoreline with *Ammophila arenaria* (“white dunes”). (Shifting dunes with marram)

Qualifying species: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:

- Great crested newt *Triturus cristatus*
- Petalwort *Petalophyllum ralfsii*

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

This citation relates to a site entered in the Register of European Sites for Great Britain.

Register reference number: UK0013076

Date of registration: 14 June 2005

Signed: *Trevor Salmon*

On behalf of the Secretary of State for Environment, Food and Rural Affairs

Appendix 2:
Evidence Gathered for Natura 2000 Sites that could be Significantly Affected



European Site Conservation Objectives for Ribble and Alt Estuaries Special Protection Area Site Code: UK9005103

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

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.**

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

- A037 *Cygnus columbianus bewickii*; Bewick's swan (Non-breeding)
- A038 *Cygnus cygnus*; Whooper swan (Non-breeding)
- A040 *Anser brachyrhynchus*; Pink-footed goose (Non-breeding)
- A048 *Tadorna tadorna*; Common shelduck (Non-breeding)
- A050 *Anas penelope*; Eurasian wigeon (Non-breeding)
- A052 *Anas crecca*; Eurasian teal (Non-breeding)
- A054 *Anas acuta*; Northern pintail (Non-breeding)
- A130 *Haematopus ostralegus*; Eurasian oystercatcher (Non-breeding)
- A137 *Charadrius hiaticula*; Ringed plover (Non-breeding)
- A140 *Pluvialis apricaria*; European golden plover (Non-breeding)
- A141 *Pluvialis squatarola*; Grey plover (Non-breeding)
- A143 *Calidris canutus*; Red knot (Non-breeding)

Contd/

A144 *Calidris alba*; Sanderling (Non-breeding)
A149 *Calidris alpina alpina*; Dunlin (Non-breeding)
A151 *Philomachus pugnax*; Ruff (Breeding)
A156 *Limosa limosa islandica*; Black-tailed godwit (Non-breeding)
A157 *Limosa lapponica*; Bar-tailed godwit (Non-breeding)
A162 *Tringa totanus*; Common redshank (Non-breeding)
A183 *Larus fuscus*; Lesser black-backed gull (Breeding)
A193 *Sterna hirundo*; Common tern (Breeding)
Waterbird assemblage
Seabird assemblage

This is a European Marine Site

This SPA is a part of the Ribble and Alt Estuaries European Marine Site (EMS). These Conservation Objectives should be used in conjunction with the Regulation 35 Conservation Advice document for the EMS. For further details about this please visit the Natural England website at <http://www.naturalengland.org.uk/ourwork/marine/protectandmanage/mpa/europeansites.aspx> or contact Natural England's enquiry service at enquiries@naturalengland.org.uk or by phone on 0845 600 3078.

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2010 (the "Habitats Regulations") and Article 6(3) of the Habitats Directive. They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment' including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives and the accompanying Supplementary Advice (where available) will also provide a framework to inform the management of the European Site under the provisions of Articles 4(1) and 4(2) of the Wild Birds Directive and the prevention of deterioration or significant disturbance of its qualifying features under Article 6(2) of the Habitats Directive.

These Conservation Objectives are set for each bird feature for a [Special Protection Area \(SPA\)](#). Where the objectives are met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 30 June 2014 – version 3. This document updates and replaces an earlier version dated 31 March 2014. Previous references to the 2001 UK SPA Review have been removed.

Site Improvement Plan

Sefton Ribble

Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 sites (IPENS). Natura 2000 sites is the combined term for sites designated as Special Areas of Conservation (SAC) and Special Protected Areas (SPA). This work has been financially supported by LIFE, a financial instrument of the European Community.

The plan provides a high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the site(s) and outlines the priority measures required to improve the condition of the features. It does not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

The SIP consists of three parts: a Summary table, which sets out the priority Issues and Measures; a detailed Actions table, which sets out who needs to do what, when and how much it is estimated to cost; and a set of tables containing contextual information and links.

Once this current programme ends, it is anticipated that Natural England and others, working with landowners and managers, will all play a role in delivering the priority measures to improve the condition of the features on these sites.

The SIPs are based on Natural England's current evidence and knowledge. The SIPs are not legal documents, they are live documents that will be updated to reflect changes in our evidence/knowledge and as actions get underway. The information in the SIPs will be used to update England's contribution to the UK's Prioritised Action Framework (PAF).

The SIPs are not formal consultation documents, but if you have any comments about the SIP or would like more information please email us at IPENSLIFEProject@naturalengland.org.uk, or contact Natural England's Responsible Officer for the site via our enquiry service 0300 060 3900, or enquiries@naturalengland.org.uk

This Site Improvement Plan covers the following Natura 2000 site(s)

UK9005103 Ribble & Alt Estuaries SPA

UK0013076 Sefton Coast SAC

Site description

The Sefton Coast SAC and the Ribble and Alt Estuaries SPA, together cover 16,976.28ha of estuary, tidal river, salt marsh, sand dunes, dune heath and dune slacks on the north west coast of England.

The Sefton Coast supports Great crested newt and the plant, petalwort. The Ribble and Alt Estuaries support internationally important populations of breeding and wintering seabirds, wildfowl and waders. Pressure comes from low-impact recreation due to its proximity with a large, urban population, as well as development.

Plan Summary

This table shows the prioritised issues for the site(s), the features they affect, the proposed measures to address the issues and the delivery bodies whose involvement is required to deliver the measures. The list of delivery bodies will include those who have agreed to the actions as well as those where discussions over their role in delivering the actions is on-going.

| Priority & Issue | Pressure or Threat | Feature(s) affected | Measure | Delivery Bodies |
|--|--------------------|--|---|--|
| 1 Coastal squeeze | Threat | H2110 Shifting dunes, H2120 Shifting dunes with marram, H2170 Dunes with creeping willow, H2190 Humid dune slacks | Agree methodology for and carry out consultation via Forest Plan. Work closely with the National Trust's Coastal Adaptation Project at Formby | National Trust, Natural England, Sefton Metropolitan Borough Council, Sefton Coast Partnership, Formby Golf Club |
| 2 Air Pollution: risk of atmospheric nitrogen deposition | Threat | H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks, S1166 Great crested newt, S1395 Petalwort | Reduce and mitigate atmospheric nitrogen impacts | Natural England, Sefton Coast Partnership |
| 3 Inappropriate scrub control | Pressure/Threat | H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks | Raise public awareness via Landscape Partnership Scheme and the new Sefton Coastal Strategy | Lancs, Manchester and Nth Merseyside Wildlife Trust, Natural England, Sefton Metropolitan Borough Council |
| 4 Invasive species | Threat | H2130 Dune grassland, H2170 Dunes with creeping willow, H2190 Humid dune slacks | Use current research to help understand the spread of non natives and secure funding to draw up coastal strategy | Natural England, Sefton Coast Partnership, Merseyside BioBank |
| 5 Hydrological changes | Threat | H2170 Dunes with creeping willow, H2190 Humid dune slacks, S1166 Great crested newt, S1395 Petalwort | Investigate and restore hydrological functioning | Sefton Coast Partnership, Southampton University |

| | | | | |
|--|-----------------|---|--|--|
| 6 Public Access/Disturbance | Threat | A037(NB) Bewick's Swan, A038(NB) Whooper Swan, A040(NB) Pink-footed Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A137(NB) Ringed Plover, A140(NB) Golden Plover, A141(NB) Grey Plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A151(B) Ruff, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A162(NB) Common redshank, A183(B) Lesser Black-backed Gull, A193(B) Common Tern, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks, S1166 Great crested newt, S1395 Petalwort, Seabird assemblage, Waterbird assemblage | Raise public awareness via Landscape Partnership Scheme and the new Sefton Coastal Strategy | Natural England, Sefton Metropolitan Borough Council, Sefton Coast Partnership |
| 7 Inappropriate coastal management | Pressure/Threat | H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks, S1166 Great crested newt | Investigate long-term alternatives to parking on beach and promote value of Green Beach through Landscape Partnership Scheme | Sefton Coast Partnership |
| 8 Fisheries: Commercial marine and estuarine | Pressure | A130(NB) Eurasian oystercatcher, A143(NB) Red knot | Work with NW Inshore Fisheries Conservation Association | North Western Inshore Fisheries Conservation Authority (IFCA) |
| 9 Change to site conditions | Pressure | H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks | Secure funding to determine levels of pollution and cost-effective solution for removal or containment | Environment Agency |
| 10 Inappropriate coastal management | Pressure | H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks | Secure funding to determine levels of pollution and cost-effective solution for removal or containment | Sefton Coast Partnership |
| 11 Shooting/ scaring | Pressure | Seabird assemblage, Waterbird assemblage | Continue to support collection of data on gull numbers | Natural England |

| | | | | |
|--|---------------------|---|---|--|
| 12 Invasive species | Pressure/ Threat | A037(NB) Bewick's Swan, A038(NB) Whooper Swan, A040(NB) Pink-footed Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A137(NB) Ringed Plover, A140(NB) Golden Plover, A141(NB) Grey Plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A151(B) Ruff, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A162(NB) Common redshank, A183(B) Lesser Black-backed Gull, A193(B) Common Tern, Seabird assemblage, Waterbird assemblage | Use current and future research to determine whether action is needed | Environment Agency, Natural England, North Western Inshore Fisheries Conservation Authority (IFCA) |
| 13 Feature location/ extent/ condition unknown | Pressure | Seabird assemblage, Waterbird assemblage | Improve population data and monitor impact of activities on local populations | Natural England, Local wildfowling club(s) |

Issues and Actions

This table outlines the prioritised issues that are currently impacting or threatening the condition of the features, and the outstanding actions required to address them. It also shows, where possible, the estimated cost of the action and the delivery bodies whose involvement will be required to implement the action. Lead delivery bodies will be responsible for coordinating the implementation of the action, but not necessarily funding it. Delivery partners will need to support the lead delivery body in implementing the action. In the process of developing the SIPs Natural England has approached the delivery bodies to seek agreement on the actions and their roles in delivering them, although in some cases these discussions have not yet been concluded. Other interested parties, including landowners and managers, will be involved as the detailed actions are agreed and delivered. Funding options are indicated as potential (but not necessarily agreed or secured) sources to fund the actions.

1 Coastal squeeze

The coastline is eroding around Formby Point. Woodland behind the eroding dunes means that the natural process of roll-back can not occur, leading to fragmentation of dune habitats and loss of embryo and mobile dune habitats.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|--|--|---------------------------|---|
| 1A | Establish consensus with partners over the consultation process for coastal adaptation | Not yet determined | 2014 | Existing Local Project | Not yet determined | Natural England | National Trust, Sefton Metropolitan Borough Council, Formby Golf Club |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 1B | Carry out consultation in order to produce a management plan for the Frontal Woodlands. | £10,000 | 2015 | Existing Local Project | Natural England, Natural England (NNR running costs) | Sefton Coast Partnership | Natural England |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 1C | Implement the management plan to mitigate coastal squeeze. | Not yet determined | 2015-20 | Mechanism not identified / develop mechanism | Not yet determined | Sefton Coast Partnership | National Trust, Natural England, Formby Golf Club |

2 Air Pollution: risk of atmospheric nitrogen deposition

Nitrogen deposition exceeds critical loads and causes rapid growth of vegetation on transitional dune habitats; leading to loss of early successional vegetation communities and associated habitats and species.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---|-----------------------|---------------------------|----------------------------|
| 2A | Combat effects by restoring early successional vegetation communities on the NNR. | Not yet determined | 2014-20 | National Nature Reserve (NNR) management plan | Not yet determined | Natural England | n/a |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|------------------|-----------------------|---------------------------|----------------------------|
| 2B | Combat effects by restoring early successional vegetation communities outside the NNR. | Not yet determined | 2014-20 | Advice | Not yet determined | Sefton Coast Partnership | Natural England |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---------------------------|-----------------------|---------------------------|----------------------------|
| 2C | Reduce atmospheric nitrogen deposition. | Not yet determined | 2020 | Site Nitrogen Action Plan | Not yet determined | Not yet determined | n/a |

3 Inappropriate scrub control

Inadequate control of encroaching scrub into fixed dunes and dune slacks, due to lack of mowing and / or grazing leads to loss of dune habitat.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---------------------------------------|-----------------------|-------------------------------------|--|
| 3A | Raise awareness of the threat to protected habitats and species through inappropriate scrub control. | Not yet determined | 2014-16 | Advice: Education & awareness raising | Not yet determined | Sefton Metropolitan Borough Council | Lancs, Manchester and Nth Merseyside Wildlife Trust, Natural England |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---|--|---------------------------|----------------------------|
| 3B | Provide Local Nature Reserve with the means to control scrub effectively | £20,000 | 2014-16 | Rural Development Programme for England (RDPE): Environmental Stewardship Higher Level Scheme (HLS) | Higher Level Stewardship (HLS), New Environmental Land Management Scheme (NELMS) | Not yet determined | Not yet determined |

4 Invasive species

Encroachment of non-native vegetation (white poplar, Japanese rose, Sea buckthorn) is affecting dynamism of mobile dune habitats and vegetation composition on fixed dunes.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|------------------------|-----------------------|---------------------------|----------------------------|
| 4A | Map location and distribution of Japanese Rose. | Not yet determined | 2014 | Existing Local Project | Natural England | Merseyside BioBank | n/a |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---|-----------------------|---------------------------|----------------------------|
| 4B | Draw up a coordinated plan for invasive species control on the Sefton Coast SAC. | £2,000 | 2015 | Invasive Control Plan: Invasive Species Control Programme | Natural England | Natural England | n/a |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---|-----------------------|---------------------------|----------------------------|
| 4C | Implement control measures for invasive species. | Not yet determined | 2016-20 | Invasive Control Plan: Invasive Species Control Programme | Not yet determined | Natural England | n/a |

5 Hydrological changes

Available water in the dunes is affected by presence of invasive scrub; man-made plantations and drainage systems within the adjacent urban settlement. Research has been carried out into dune hydrology and effects of woodland on the water table.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|--|-----------------------|---------------------------|----------------------------|
| 5A | Continue research and monitoring of dune hydrology and management options | Not yet determined | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Natural England | Southampton University |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 5B | Restore the functional hydrology of the dune system based on the investigation | Not yet determined | 2020 | Mechanism not identified / develop mechanism | Not yet determined | Natural England | Sefton Coast Partnership |

6 Public Access/Disturbance

Disturbance of bird populations through terrestrial and marine recreation (walkers, joggers, dog walkers, off-road vehicles, sand yachting, kite surfing, jet ski, boating, angling) and disturbance to dune and foreshore species and habitats through these recreational activities. Localised nutrient enrichment of dune flora by dog fouling and disturbance of dune slacks by dogs.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|--|
| 6A | Increase public awareness of how recreational activities can cause disturbance. | £2,500 | 2014-16 | Advice: Education & awareness raising | Not yet determined | Sefton Coast Partnership | Natural England, Sefton Metropolitan Borough Council |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 6B | Assess effects of new open access policy on the NNR and implement measures as appropriate. | £15,000 | 2015-18 | Investigation / Research / Monitoring | Not yet determined | Natural England | n/a |

7 Inappropriate coastal management

Authorised parking on Ainsdale Beach, regulated by Sefton Metropolitan Borough Council, interrupts development of the Green Beach.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|---|--------------------|-----------|---------------------|--------------------|--------------------------|---------------------|
| 7A | Ensure parking on the beach at Ainsdale does not increase in area and investigate long-term solution to allow Green Beach to develop. | Not yet determined | 2015-20 | Advice: Negotiation | Not yet determined | Sefton Coast Partnership | n/a |

8 Fisheries: Commercial marine and estuarine

Commercial fishing activities categorised as 'amber or green' under Defra's revised approach to commercial fisheries in EMSs require assessment and (where appropriate) management. This assessment will be undertaken by NWIFCA. 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. There is a potential commercial electro-clam razor fishery on the Sefton Coast. Fishing can cause issues relating to access and disturbance; competition for bird food; disturbance through quad bikes and other vehicles. Unauthorised access rare due to police, EA and IFCA presence.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|--|--------------------|-----------|---|--------------------|---|---------------------|
| 8A | Amber/Green site/features - Where these assessments indicate management is required, appropriate measures will be introduced by the NWIFCA. If management measures are established to protect the feature(s), on-going work will be required by the NWIFCA to ensure compliance and an appropriate level of reporting to ensure sites are well managed and to enable Natural England to provide advice on the condition of features and potential condition threats. | Not yet determined | 2014-16 | Non-Natural England funded site management plan | Not yet determined | North Western Inshore Fisheries Conservation Authority (IFCA) | n/a |

9 Change to site conditions

Erosion and retreat of the dune system leads to the exposure of historic remains from the cigarette industry (nicotene waste) at Formby. This has resulted in increased levels of nutrients, leading to changes in plant species. The nicotene cliffs also affect natural dune processes.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|--|--------------------|-----------|---------------------------------------|--------------------|--------------------|---------------------|
| 9A | Determine levels of pollution and cost-effective solution for removal or containment | Not yet determined | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Not yet determined | Environment Agency |

10 Inappropriate coastal management

A large quantity of rubble from the Blitz in Liverpool was used to stabilize the coast at Crosby. This has now become exposed and forms an artificial shingle beach, of value to some species. There is, however, an associated risk to human health from hazardous waste and natural coastal processes are inhibited.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|---|---------------|-----------|---------------------------------------|--------------------|--------------------------|---------------------|
| 10A | Additional work to assess threat from waste materials and its impact on Natura 2000 features. | £10000 | 2016-20 | Investigation / Research / Monitoring | Not yet determined | Sefton Coast Partnership | n/a |

11 Shooting/ scaring

There are concerns that consented cull of herring gulls and lesser black backed gulls on the Ribble Estuary may result in significant disturbance of the breeding colony and other species, if the conditions are not adhered to.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|--|--------------------|-----------|------------------------|-----------------|--------------------|---------------------|
| 11A | Ensure that gull scaring and monitoring plan is adhered to and shooting carried out in accordance with the conditions of the consent | Not yet determined | 2014-20 | Existing Local Project | Natural England | Natural England | n/a |

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|--|---------------|-----------|---|-------------------------------------|--------------------|---------------------|
| 11B | On-going monitoring of the population of gulls in the colony (every 5 years) | £200 | 2014-19 | National Nature Reserve (NNR) management plan | Natural England (NNR running costs) | Natural England | n/a |

12 Invasive species

Liverpool Docks is known to host several species of Marine invasive non-native species (Japanese skeleton shrimp, *Caprella mutica* and seaweed species *Undaris pinnatifida*. The Dee Estuary has also recorded Chinese Mitten crab *Erocheir sinensis* - all of which can spread to the site and affect roosting or feeding habitat (e.g. through competition with native species on which the birds depend)

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|---|---------------|-----------|---------------------------------------|--------------------|---|-------------------------------------|
| 12A | Implement best practice biosecurity and biosecurity planning. Investigate current population trends and identify areas at risk. | Staff time | 2020 | Investigation / Research / Monitoring | Not yet determined | North Western Inshore Fisheries Conservation Authority (IFCA) | Environment Agency, Natural England |

13 Feature location/ extent/ condition unknown

There are gaps in current data and monitoring of SPA bird populations. More comprehensive data gathering would facilitate adequate site management, including Habitats Regulations Assessments.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|----------------------------|
| 13A | Improve population data and monitor impacts of activities on local populations | Not yet determined | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Natural England | Local wildfowling club(s) |

Site details

The tables in this section contain site-relevant contextual information and links

Qualifying features

#UK Special responsibility

Ribble & Alt Estuaries SPA

A156(NB) *Limosa limosa islandica*: Black-tailed godwit

A048(NB) *Tadorna tadorna*: Common shelduck

A143(NB) *Calidris canutus*: Red knot

A183(B) *Larus fuscus*: Lesser black-backed gull

A137(NB) *Charadrius hiaticula*: Ringed plover

A157(NB) *Limosa lapponica*: Bar-tailed godwit

A050(NB) *Anas penelope*: Eurasian wigeon

A144(NB) *Calidris alba*: Sanderling

A144(NB) *Calidris alba*: Sanderling

A038(NB) *Cygnus cygnus*: Whooper swan

A140(NB) *Pluvialis apricaria*: European golden plover

A149(NB) *Calidris alpina alpina*: Dunlin

A193(B) *Sterna hirundo*: Common tern

A040(NB) *Anser brachyrhynchus*: Pink-footed goose

A050(NB)* *Cygnus columbianus bewickii*: Bewick swan

A162(NB) *Tringa totanus*: Common redshank

A141(NB) *Pluvialis squatarola*: Grey plover

A151(B) *Philomachus pugnax*: Ruff

Sefton Coast SAC

A052(NB) *Anas crecca*: Eurasian teal

A130(NB) *Haematopus ostralegus*: Eurasian oystercatcher

Seabird assemblage

Waterbird assemblage

A037(NB) *Cygnus columbianus bewickii*: Bewick swan

A054(NB) *Anas acuta*: Northern pintail

H2130# Fixed dunes with herbaceous vegetation ("grey dunes")

H2150# Atlantic decalcified fixed dunes (*Calluno-Ulicetea*)

H2170 Dunes with *Salix repens ssp argentea* (*Salicion arenariae*)

H2110 Embryonic shifting dunes

H2190 Humid dune slacks

H2120 Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")

S1166 *Triturus cristatus*: Great crested newt

S1395 *Petalophyllum ralfsii*: Petalwort

Site location and links

Ribble & Alt Estuaries SPA

Area (ha) **12412.31** Grid reference **sd348237** [Map link](#)

Local Authorities Lancashire; Sefton

Site Conservation Objectives [Ribble and Alt Estuaries SPA](#)

European Marine Site conservation advice [Ribble and Alt Estuaries SPA](#)

Regulation 33/35 Package [Regulation 33/35 package link](#)

Marine Management Organisation site plan [n/a](#)

Sefton Coast SAC

Area (ha) **4563.97** *Grid reference* **SD281099** [Map link](#)

Local Authorities Sefton

Site Conservation Objectives [European Site Conservation Objectives for Sefton Coast SAC](#)

European Marine Site conservation advice [n/a](#)

Regulation 33/35 Package [n/a](#)

Marine Management Organisation site plan [n/a](#)

Water Framework Directive (WFD)

The Water Framework Directive (WFD) provides the main framework for managing the water environment throughout Europe. Under the WFD a management plan must be developed for each river basin district. The River Basin Management Plans (RBMP) include a summary of the measures needed for water dependent Natura 2000 sites to meet their conservation objectives. For the second round of RBMPs, SIPs are being used to capture the priorities and new measures required for water dependent habitats on Natura 2000 sites. SIP actions for non-water dependent sites/habitats do not form part of the RBMPs and associated consultation.

Ribble & Alt Estuaries SPA

| | |
|----------------------------------|---------------------------------|
| River basin | North West RBMP |
| WFD Management catchment | Alt/Crossens |
| WFD Waterbody ID (Cycle 2 draft) | GB112070064880 |

Sefton Coast SAC

| | |
|----------------------------------|---------------------------------|
| River basin | North West RBMP |
| WFD Management catchment | Alt/Crossens |
| WFD Waterbody ID (Cycle 2 draft) | n/a |

Overlapping or adjacent protected sites

| Site(s) of Special Scientific Interest (SSSI) | |
|--|---|
| Ribble & Alt Estuaries SPA | Sefton Coast SSSI Ribble Estuary SSSI |
| Sefton Coast SAC | Sefton Coast SSSI |
| National Nature Reserve (NNR) | |
| Ribble & Alt Estuaries SPA | Ainsdale Sand Dunes NNR Cabin Hill NNR Ribble Estuary NNR |
| Sefton Coast SAC | Ainsdale Sand Dunes NNR Cabin Hill NNR |
| Ramsar | |
| Ribble & Alt Estuaries SPA | Ribble & Alt Estuaries |
| Sefton Coast SAC | Ribble & Alt Estuaries |
| Special Areas of Conservation (SAC) and Special Protection Areas (SPA) | |
| Ribble & Alt Estuaries SPA | Sefton Coast SAC |
| Sefton Coast SAC | Ribble & Alt Estuaries SPA |

| <i>Version</i> | <i>Date</i> | <i>Comment</i> |
|----------------|-------------|----------------|
| 1.0 | 28/10/2014 | |

www.naturalengland.org.uk/ipens2000





European Site Conservation Objectives for Martin Mere Special Protection Area Site Code: UK9005111

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

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.

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

A037 *Cygnus columbianus bewickii*; Bewick's swan (Non-breeding)

A038 *Cygnus cygnus*; Whooper swan (Non-breeding)

A040 *Anser brachyrhynchus*; Pink-footed goose (Non-breeding)

A052 *Anas crecca*; Eurasian teal (Non-breeding)

A054 *Anas acuta*; Northern pintail (Non-breeding)

Waterbird assemblage

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2010 (the “Habitats Regulations”) and Article 6(3) of the Habitats Directive. They must be considered when a competent authority is required to make a ‘Habitats Regulations Assessment’ including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives and the accompanying Supplementary Advice (where this is available) will also provide a framework to inform the management of the European Site under the provisions of Articles 4(1) and 4(2) of the Wild Birds Directive, and the prevention of deterioration of habitats and significant disturbance of its qualifying features required under Article 6(2) of the Habitats Directive.

These Conservation Objectives are set for each bird feature for a [Special Protection Area \(SPA\)](#). Where the objectives are met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 30 June 2014 (Version 2). This document updates and replaces an earlier version dated 29 May 2012 to reflect Natural England’s Strategic Standard on European Site Conservation Objectives 2014. Previous references to additional features identified in the 2001 UK SPA Review have also been removed.

Site Improvement Plan

Martin Mere

Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 sites (IPENS). Natura 2000 sites is the combined term for sites designated as Special Areas of Conservation (SAC) and Special Protected Areas (SPA). This work has been financially supported by LIFE, a financial instrument of the European Community.

The plan provides a high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the site(s) and outlines the priority measures required to improve the condition of the features. It does not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

The SIP consists of three parts: a Summary table, which sets out the priority Issues and Measures; a detailed Actions table, which sets out who needs to do what, when and how much it is estimated to cost; and a set of tables containing contextual information and links.

Once this current programme ends, it is anticipated that Natural England and others, working with landowners and managers, will all play a role in delivering the priority measures to improve the condition of the features on these sites.

The SIPs are based on Natural England's current evidence and knowledge. The SIPs are not legal documents, they are live documents that will be updated to reflect changes in our evidence/knowledge and as actions get underway. The information in the SIPs will be used to update England's contribution to the UK's Prioritised Action Framework (PAF).

The SIPs are not formal consultation documents, but if you have any comments about the SIP or would like more information please email us at IPENSLIFEProject@naturalengland.org.uk, or contact Natural England's Responsible Officer for the site via our enquiry service 0300 060 3900, or enquiries@naturalengland.org.uk

This Site Improvement Plan covers the following Natura 2000 site(s)

UK9005111 Martin Mere SPA

Site description

Martin Mere is low-lying wetland complex of open water, with seasonally flooded marsh and grassland habitats overlying deep peat. It occupies part of the site of the old Martin Mere which, prior to drainage was probably the largest lake in Lancashire.

The site is important for populations of wintering birds notably significant populations of Bewick's Swan *Cygnus columbianus bewickii*, Whooper Swan *Cygnus cygnus*, Pink-footed Goose *Anser brachyrhynchus* and Pintail *Anas acuta*. There is considerable movement of birds between Martin Mere and the nearby Ribble and Alt Estuaries SPA.

Plan Summary

This table shows the prioritised issues for the site(s), the features they affect, the proposed measures to address the issues and the delivery bodies whose involvement is required to deliver the measures. The list of delivery bodies will include those who have agreed to the actions as well as those where discussions over their role in delivering the actions is on-going.

| Priority & Issue | Pressure or Threat | Feature(s) affected | Measure | Delivery Bodies |
|------------------------|--------------------|---|--|--|
| 1 Hydrological changes | Threat | A037(NB) Bewick's Swan, A038(NB) Whooper Swan, A040(NB) Pink-footed Goose, A052(NB) Eurasian teal, A054(NB) Pintail, Waterbird assemblage | Restore hydrology to reduce the impacts of drainage and peat shrinkage | Environment Agency, Natural England, Wildfowl and Wetlands Trust |
| 2 Invasive species | Threat | A037(NB) Bewick's Swan, A038(NB) Whooper Swan, A040(NB) Pink-footed Goose, A052(NB) Eurasian teal, A054(NB) Pintail, Waterbird assemblage | Investigate the extent of, and control where appropriate, invasive non-native plants | Environment Agency, Natural England, Wildfowl and Wetlands Trust |
| 3 Water Pollution | Threat | A037(NB) Bewick's Swan, A038(NB) Whooper Swan, A040(NB) Pink-footed Goose, A052(NB) Eurasian teal, A054(NB) Pintail, Waterbird assemblage | Control and reduce diffuse water pollution | Environment Agency, Natural England, Wildfowl and Wetlands Trust |

Issues and Actions

This table outlines the prioritised issues that are currently impacting or threatening the condition of the features, and the outstanding actions required to address them. It also shows, where possible, the estimated cost of the action and the delivery bodies whose involvement will be required to implement the action. Lead delivery bodies will be responsible for coordinating the implementation of the action, but not necessarily funding it. Delivery partners will need to support the lead delivery body in implementing the action. In the process of developing the SIPs Natural England has approached the delivery bodies to seek agreement on the actions and their roles in delivering them, although in some cases these discussions have not yet been concluded. Other interested parties, including landowners and managers, will be involved as the detailed actions are agreed and delivered. Funding options are indicated as potential (but not necessarily agreed or secured) sources to fund the actions.

1 Hydrological changes

Three hundred years of agricultural activity, land drainage and wind erosion have caused shrinkage of peat surrounding the site resulting in the site being significantly higher than adjacent land. Active management of water levels across the site through pumping and drainage is required. There is considerable pressure on the flood defences, and the embankments require constant maintenance to prevent breaches which would result in water draining from the site onto the lower surrounding land.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|-----------|---|---------------------|-----------|--|---|--------------------|--|
| 1A | Review the Water Level Management Plan, and extend beyond the previous remit to include land surrounding the designated site. | No funding required | 2014-15 | Water Level Management Plan | Environment Agency, Natural England, Staff time | Environment Agency | Natural England, Wildfowl and Wetlands Trust |
| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
| 1B | Investigation into the benefits of establishing a hydrological protection or buffer zone around the site. Establish how far this would have to extend to provide benefits such as a more natural function of the hydrology. | £10,000 | 2014-18 | Investigation / Research / Monitoring | Not yet determined, Staff time | Environment Agency | Natural England |
| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
| 1C | Establish a hydrological protection/buffer zone. | Not yet determined | 2025 | Habitat creation / restoration strategy: Habitat restoration | Defra, EU Life, External funding | Natural England | Wildfowl and Wetlands Trust |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---|------------------------------------|---------------------------|----------------------------|
| 1D | Establish a hydrological protection zone in the buffer zone. | Not yet determined | 2025 | Rural Development Programme for England (RDPE): Environmental Stewardship Higher Level Scheme (HLS) | Rural Development Programme (RDPE) | Natural England | Environment Agency |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 1E | Establish a hydrological protection/buffer zone. | Not yet determined | 2025 | Designation strategy (SSSI) | Natural England, Staff time | Natural England | n/a |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 1F | Maintain flood embankments around Martin Mere until a hydrological buffer zone can be developed. Establish the effects of the potential changes in management to the pumping stations across the catchment. | Not yet determined | 2015-25 | Flood Risk Maintenance Programme: Flood Risk Management - Capital/Improvement Schemes | Environment Agency | Environment Agency | n/a |

2 Invasive species

Crassula helmsii is a non-native invasive plant species and is present within the wider Martin Mere nature reserve in field ditches and the large reedbed (these areas are adjacent to the SPA). This species has a tendency to spread quickly and may form dense smothering mats. It has the potential to affect other plant species and could prevent birds from feeding. It is currently unclear to what extent effective control is feasible, and how prevention of its spread into the site's pools and ditch system can be achieved as effective methods of elimination and control are currently absent. Himalayan Balsam is a non-native invasive plant and is present along the main water courses throughout the site and also in woodland close by. Control of this species needs to be undertaken at the source of the infestation as well as on the site to ensure it is effective.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|-----------|--|---------------------|-----------|---|---|--------------------|---|
| 2A | Develop an Invasive Species Management Plan to cover all non-native invasive plant species present on, or adjacent to the site and within the river catchment. | No funding required | 2014-18 | Invasive Control Plan: Invasive Species Control Programme | Environment Agency, Natural England, Staff time | Natural England | Environment Agency, Wildfowl and Wetlands Trust |
| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
| 2B | Monitor the effects of, and if appropriate control the <i>Crassula</i> population. Appropriate control methods need to be controlled at the national level and implemented via WFD-related mechanisms. | £100,000 | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Natural England | Environment Agency, Wildfowl and Wetlands Trust |
| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
| 2C | Control the Himalayan Balsam present along the main water courses throughout the site, in nearby woodland, and at the source of the infestation. | £10,000 | 2014-20 | Invasive Control Plan: Invasive Species Control Programme | Not yet determined | Environment Agency | Natural England, Wildfowl and Wetlands Trust |

3 Water Pollution

Diffuse water pollution from surrounding agricultural land and a local industrial estate is entering the watercourses and resulting in the eutrophication and degradation of supporting habitats within the site.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|------------------------------|-----------------------|---------------------------|---|
| 3A | Draw up a Diffuse Water Pollution Plan. Include advice to farmers, agri-environment, partnerships with industry - and deliver the actions within it. | Not yet determined | 2014-18 | Diffuse Water Pollution Plan | Not yet determined | Natural England | Environment Agency, Wildfowl and Wetlands Trust |

Site details

The tables in this section contain site-relevant contextual information and links

Qualifying features

#UK Special responsibility

Martin Mere SPA

Waterbird assemblage

A054(NB) *Anas acuta*: Northern pintail

A038(NB) *Cygnus cygnus*: Whooper swan

A040(NB) *Anser brachyrhynchus*: Pink-footed goose

A037(NB) *Cygnus columbianus bewickii*: Bewick swan

A052(NB) *Anas crecca*: Eurasian teal

Site location and links

Martin Mere SPA

Area (ha) **119.89** Grid reference **SD420145** [Map link](#)

Local Authorities Lancashire

Site Conservation Objectives [European Site Conservation Objectives for Martin Mere SPA](#)

European Marine Site conservation advice [n/a](#)

Regulation 33/35 Package [n/a](#)

Marine Management Organisation site plan [n/a](#)

Water Framework Directive (WFD)

The Water Framework Directive (WFD) provides the main framework for managing the water environment throughout Europe. Under the WFD a management plan must be developed for each river basin district. The River Basin Management Plans (RBMP) include a summary of the measures needed for water dependent Natura 2000 sites to meet their conservation objectives. For the second round of RBMPs, SIPs are being used to capture the priorities and new measures required for water dependent habitats on Natura 2000 sites. SIP actions for non-water dependent sites/habitats do not form part of the RBMPs and associated consultation.

Martin Mere SPA

| | | |
|---|----------------|---------------------------------|
| <i>River basin</i> | North West | North West RBMP |
| <i>WFD Management catchment</i> | Alt/Crossens | |
| <i>WFD Waterbody ID (Cycle 2 draft)</i> | GB112070064880 | |

Overlapping or adjacent protected sites

| Site(s) of Special Scientific Interest (SSSI) | |
|---|-----------------------------|
| Martin Mere SPA | Martin Mere, Burscough SSSI |

| National Nature Reserve (NNR) | |
|-------------------------------|-----|
| Martin Mere SPA | n/a |

| Ramsar | |
|-----------------|-------------|
| Martin Mere SPA | Martin Mere |

| Special Areas of Conservation (SAC) and Special Protection Areas (SPA) | |
|--|-----|
| Martin Mere SPA | n/a |

| <i>Version</i> | <i>Date</i> | <i>Comment</i> |
|----------------|-------------|----------------|
| 1.0 | 07/10/2014 | |

www.naturalengland.org.uk/ipens2000



European Site Conservation Objectives for Dee Estuary/Aber Dyfrdwy Special Area of Conservation

Site code: UK0030131



With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

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

This document should be read in conjunction with the accompanying Conservation Advice document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

H1130. Estuaries

H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats

H1210. Annual vegetation of drift lines

H1230. Vegetated sea cliffs of the Atlantic and Baltic coasts; Vegetated sea cliffs

H1310. *Salicornia* and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand

H1330. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*); Atlantic salt meadows

H2110. Embryonic shifting dunes; Shifting dunes

H2120. Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"); Shifting dunes with marram

H2130. Fixed dunes with herbaceous vegetation ("grey dunes"); Dune grassland*

H2190. Humid dune slacks

S1095. *Petromyzon marinus*; Sea lamprey

S1099. *Lampetra fluviatilis*; River lamprey

S1395. *Petalophyllum ralfsii*; Petalwort

* denotes a priority natural habitat or species (supporting explanatory text on following page)

* Priority natural habitat or species

Some of the natural habitats and species for which UK SACs have been selected are considered to be particular priorities for conservation at a European scale and are subject to special provisions in the Habitats Regulations. These priority natural habitats and species are denoted by an asterisk (*) in Annex I and II of the Habitats Directive. The term 'priority' is also used in other contexts, for example with reference to particular habitats or species that are prioritised in UK Biodiversity Action Plans. It is important to note however that these are not necessarily the priority natural habitats or species within the meaning of the Habitats Regulations.

This is a cross border site

This site crosses the border between England and Wales. Some features may only occur in one Country. The advice of [Natural Resources Wales](#) should therefore be sought separately.

This is a European Marine Site

This SAC is a part of the Dee Estuary European Marine Site (EMS). These Conservation Objectives should be used in conjunction with the Conservation Advice document for the EMS. Natural England's formal Conservation Advice for European Marine Sites can be found via [GOV.UK](#).

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2017 as amended from time to time (the "Habitats Regulations"). They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment', including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives and the accompanying Supplementary Advice (where available) will also provide a framework to inform the measures needed to conserve or restore the European Site and the prevention of deterioration or significant disturbance of its qualifying features.

These Conservation Objectives are set for each habitat or species of a [Special Area of Conservation \(SAC\)](#). Where the objectives are met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving Favourable Conservation Status for that species or habitat type at a UK level. The term 'favourable conservation status' is defined in regulation 3 of the Habitats Regulations.

Publication date: 27 November 2018 (version 5). This document updates and replaces an earlier version dated 5 February 2016 to reflect the consolidation of the Habitats Regulations in 2017.

Site Improvement Plan

Dee Estuary/Aber Dyfrdwy & Mersey Narrows

Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England and for most sites which straddle the border between England and Wales. This plan has been drawn up as part of the Improvement Programme for England's Natura 2000 sites (IPENS) in conjunction with the LIFE Natura 2000 Programme for Wales. Natura 2000 sites is the combined term for sites designated as Special Areas of Conservation (SAC) and Special Protected Areas (SPA). This work has been financially supported by LIFE, a financial instrument of the European Community.

The plan provides a high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the whole site (in both England and Wales), and outlines the priority measures required to improve the condition of the features. It does not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

The SIP consists of three parts: a Summary table, which sets out the priority Issues and Measures; a detailed Actions table, which sets out who needs to do what, when and how much it is estimated to cost; and a set of tables containing contextual information and links. Once this current programme ends, it is anticipated that Natural England and others, working with landowners and managers, will all play a role in delivering the priority measures to improve the condition of the features on these sites.

The SIP for this cross-border site between England and Wales is based on Natural England and Natural Resources Wales's current evidence and knowledge, and are live, and not legal documents; they will be updated to reflect changes in our evidence/knowledge and as Actions get underway. The information in the SIP will be used to update both England and Wales's contributions to the UK's Prioritised Action Framework (PAF).

The SIPs are not formal consultation documents, but if you have any comments (relating to areas within England and/or Wales) about the SIP or would like more information please email us at IPENSLIFEProject@naturalengland.org.uk, or contact Natural England's Responsible Officer for the site via our enquiry service 0300 060 3900, or enquiries@naturalengland.org.uk

To contact Natural Resources Wales telephone 0300 065 3000, or email enquiries@naturalresourceswales.gov.uk

This Site Improvement Plan covers the following Natura 2000 site(s)

- UK0030131 Dee Estuary/ Aber Dyfrdwy SAC**
- UK9020287 Mersey Narrows and North Wirral Foreshore SPA**
- UK9013011 The Dee Estuary SPA**

Site description

The Dee Estuary lies on the boundary between England and Wales on the north-west coast of Britain. It is a large, funnel-shaped, sheltered estuary that supports extensive areas of intertidal sand-flats, mud-flats and saltmarsh. The saltmarshes grade into transitional brackish and swamp vegetation on the upper shore.

The site also includes the three sandstone islands of Hilbre with their important cliff vegetation, maritime heathland and grassland, mussel beds and *Sabellaria*. The site is of major importance for waterbirds. During the winter, the intertidal flats and saltmarshes provide feeding and roosting sites for large populations of ducks and waders. In summer, the site supports breeding populations of two species of terns at levels of European importance. The site is also important during migration periods, particularly for wader populations moving along the west coast of Britain.

This plan also covers the Mersey Narrows and North Wirral Foreshore SPA which is located at the mouths of the Dee and Mersey estuaries. It comprises intertidal habitats at Egremont foreshore, man-made lagoons at Seaforth Nature Reserve and the extensive intertidal flats at North Wirral Foreshore. It supports large numbers of feeding and roosting waders and features an exceptionally high density of wintering Turnstone.

Plan Summary

This table shows the prioritised issues for the site(s), the features they affect, the proposed measures to address the issues and the delivery bodies whose involvement is required to deliver the measures. The list of delivery bodies will include those who have agreed to the actions as well as those where discussions over their role in delivering the actions is on-going.

| Priority & Issue | Pressure or Threat | Feature(s) affected | Measure | Delivery Bodies |
|------------------------------------|--------------------|--|---|--|
| 1 Public Access/Disturbance | Pressure/Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A141(NB) Grey plover, A143(NB) Red knot, A144(NB) Sanderling, A149(B) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A177(NB) Little gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, H1140 Intertidal mudflats and sandflats, H1310 Glasswort and other annuals colonising mud and sand, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks, Waterbird assemblage | Minimise disturbance through wardening, co-ordinated user group and investigation | Local Authority(ies), Natural England, RSPB, Natural Resources Wales, The Angling Trust, ENI UK, Tidal Dee Catchment Partnership, Dee Estuary Voluntary Wardens (DEVW) |
| 2 Changes in species distributions | Pressure | S1395 Petalwort | Restore Petalwort habitat through a habitat creation/ restoration strategy | Natural Resources Wales, Bourne Leisure, ENI UK |

| | | | | |
|--------------------|---------------------|--|--|--|
| 3 Invasive species | Pressure/ Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A141(NB) Grey plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks, S1095 Sea lamprey, S1099 River lamprey | Undertake a programme to investigate, control and reduce invasive species | Cheshire Wildlife Trust, Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Wirral Borough Council, Natural Resources Wales, Bourne Leisure, ENI UK, North Wales Wildlife Trust |
| 4 Climate change | Pressure/ Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A141(NB) Grey plover, A143(NB) Red knot, A149(B) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A177(NB) Little gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, H1140 Intertidal mudflats and sandflats, H1310 Glasswort and other annuals colonising mud and sand, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks, Waterbird assemblage | Review likely climate change impacts and identify appropriate adaptation actions | Natural England, RSPB, Natural Resources Wales, Denbighshire Ranger Service |
| 5 Coastal squeeze | Pressure/ Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A141(NB) Grey plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1210 Annual vegetation of drift lines, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks, S1395 Petalwort, Waterbird assemblage | Develop planning guidance for emergency coastal repair works | Natural England, Wirral Borough Council, Natural Resources Wales, Flintshire Sir y Fflint |

| | | | | |
|--|---------------------|---|---|---|
| 6 Inappropriate scrub control | Pressure | H1210 Annual vegetation of drift lines, H1330 Atlantic salt meadows, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks | Implement a scrub management plan | Cheshire Wildlife Trust, Natural England, Natural Resources Wales, Bourne Leisure, Flintshire Sir y Fflint, ENI UK, Denbighshire County Council |
| 7 Water Pollution | Pressure/ Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A141(NB) Grey plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A177(NB) Little gull, A193(B) Common tern, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1210 Annual vegetation of drift lines, H1310 Glasswort and other annuals colonising mud and sand, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks, S1095 Sea lamprey, S1099 River lamprey | Investigate the impacts of current discharges from historic waste sites and the general state of diffuse pollution within the Estuary | Environment Agency, Local Authority(ies), Natural England, Landowner(s), Natural Resources Wales, Tidal Dee Catchment Partnership |
| 8 Fisheries: Commercial marine and estuarine | Pressure/ Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A141(NB) Grey plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A177(NB) Little gull, A193(B) Common tern, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1210 Annual vegetation of drift lines, H1310 Glasswort and other annuals colonising mud and sand, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks, S1095 Sea lamprey, S1099 River lamprey | Investigate the impacts of commercial fisheries | Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Natural Resources Wales, Welsh Government |
| 9 Inappropriate coastal management | Pressure/ Threat | H1210 Annual vegetation of drift lines, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2110 Shifting dunes | Advise on strandline management | Natural England, Wirral Borough Council, Natural Resources Wales |

| | | | | |
|-----------------------------------|---------------------|--|---|--|
| 10 Overgrazing | Pressure/ Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A141(NB) Grey plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, H1330 Atlantic salt meadows | Investigate the current grazing pressures and establish management agreements | Natural England, RSPB, Natural Resources Wales |
| 11 Direct impact from third party | Threat | H1310 Glasswort and other annuals colonising mud and sand | Investigate the extent of Glasswort harvesting | Natural England, Natural Resources Wales |
| 12 Marine litter | Pressure/ Threat | H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1210 Annual vegetation of drift lines, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2110 Shifting dunes, H2130 Dune grassland, H2190 Humid dune slacks | Investigate the potential for incentives and improved port waste management | Local Authority(ies), Natural England, Wirral Borough Council, Natural Resources Wales, Flintshire Sir y Fflint, Tidal Dee Catchment Partnership |
| 13 Predation | Threat | A193(B) Common tern, A195(B) Little tern | Monitor predator impacts on tern species and develop mechanisms if required | Lancs, Manchester and Nth Merseyside Wildlife Trust, Natural Resources Wales, Denbighshire County Council |
| 14 Planning Permission: general | Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A141(NB) Grey plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A177(NB) Little gull, A193(B) Common tern, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1210 Annual vegetation of drift lines, H1310 Glasswort and other annuals colonising mud and sand, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks, S1095 Sea lamprey, S1099 River lamprey, S1395 Petalwort, Waterbird assemblage | Investigate cumulative, in-combination and off-site effects to inform future decision making on planning applications | Not yet determined |

| | | | | |
|---|----------|--|---|---|
| 15 Marine consents and permits | Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A141(NB) Grey plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A177(NB) Little gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1210 Annual vegetation of drift lines, H1310 Glasswort and other annuals colonising mud and sand, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks, S1095 Sea lamprey, S1099 River lamprey, S1395 Petalwort | Natural Resources Wales to review consents in the light of new evidence | Environment Agency, Natural England, Natural Resources Wales |
| 16 Wildfire/ arson | Threat | H1210 Annual vegetation of drift lines, H1330 Atlantic salt meadows, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks | Reduce incidents of deliberate fire through wardening and education | Local Authority(ies), Natural England, Natural Resources Wales, Local constabulary(ies) |
| 17 Air Pollution: impact of atmospheric nitrogen deposition | Pressure | H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1210 Annual vegetation of drift lines, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks, S1395 Petalwort | Investigate the potential atmospheric nitrogen impacts and consider actions at a strategic and site level to reduce impacts | Natural England, Natural Resources Wales |
| 18 Transportation and service corridors | Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A141(NB) Grey plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A177(NB) Little gull, A191(B) Sandwich tern, A193(B) Common tern, Waterbird assemblage | Investigate vessel movements and their impact on bird features | Natural England, Ports And Harbour Authority(ies), Natural Resources Wales |

| | | | | |
|--------------------------|---------------------|---|--|--|
| 19 Physical modification | Pressure/ Threat | <p>A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A130(NB) Eurasian oystercatcher, A141(NB) Grey plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed godwit, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A177(NB) Little gull, A193(B) Common tern, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1210 Annual vegetation of drift lines, H1310 Glasswort and other annuals colonising mud and sand, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2190 Humid dune slacks, S1095 Sea lamprey, S1099 River lamprey, S1395 Petalwort</p> | <p>Investigate the impacts of reduced freshwater inputs flushing through the Estuary</p> | <p>Environment Agency, Natural Resources Wales</p> |
|--------------------------|---------------------|---|--|--|

Issues and Actions

This table outlines the prioritised issues that are currently impacting or threatening the condition of the features, and the outstanding actions required to address them. It also shows, where possible, the estimated cost of the action and the delivery bodies whose involvement will be required to implement the action. Lead delivery bodies will be responsible for coordinating the implementation of the action, but not necessarily funding it. Delivery partners will need to support the lead delivery body in implementing the action. In the process of developing the SIPs Natural England has approached the delivery bodies to seek agreement on the actions and their roles in delivering them, although in some cases these discussions have not yet been concluded. Other interested parties, including landowners and managers, will be involved as the detailed actions are agreed and delivered. Funding options are indicated as potential (but not necessarily agreed or secured) sources to fund the actions.

1 Public Access/Disturbance

Direct disturbance to birds as a result of public access and recreation activities (including dog walking, kite surfing, sand yachting, parascending, hovercrafts etc) is a concern.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|-----------|--|--------------------|-----------|---------------------------------------|--------------------|--------------------|---|
| 1A | Explore the possibility of extending the voluntary wardening initiative to other parts of the site, improve signage and the provision of advice to the public. Support one additional cross-border Warden/Stakeholder Engagement Adviser post. | £100,000 | 2014-20 | Advice: Wardening | Not yet determined | Not yet determined | RSPB, Wirral Borough Council, Flintshire Sir y Fflint, Dee Estuary Voluntary Wardens (DEVW) |
| 1B | Develop a coordinated 'user groups partnership' (including employment of a project officer) to encourage sustainable public use of the Estuary. | £100,000 | 2014-20 | Partnership agreement: Other | Not yet determined | Natural England | Local Authority(ies), RSPB, Natural Resources Wales, Tidal Dee Catchment Partnership |
| 1C | Investigate whether inappropriate vehicle use is illicit. | Not yet determined | 2014-16 | Investigation / Research / Monitoring | Not yet determined | Natural England | n/a |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---------------------------------------|-----------------------|---|---------------------------------|
| 1D | Investigate appropriate regulatory measures and implement them where necessary to manage impact of public access and disturbance. | Not yet determined | 2014-20 | Investigation / Research / Monitoring | No funding required | Natural England/ Natural Resources Wales | Local Authority(ies) |
| 1E | Investigate the impact of recreational fishing on feeding wader birds (desk top review) and promote responsible fishing to avoid harm (engagement material). | £15,000 | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Natural England/ Natural Resources Wales | The Angling Trust |
| 1F | Explore the possibility of developing/extending wardening scheme to promote public access and disturbance issues (see 1A above) including responsible angling which avoids harm to wading birds and intertidal habitat. | Not yet determined | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Not yet determined | Not yet determined |
| 1G | Investigate the alternatives to parking on the beach. | Not yet determined | 2014-16 | Investigation / Research / Monitoring | Not yet determined | Flintshire Sir y Fflint | Natural Resources Wales, ENI UK |

2 Changes in species distributions

Petalwort is at high risk as a consequence of sub-optimal habitat conditions in the dune systems where it occurs on the Welsh side of the Dee Estuary SAC. Dune creation and restoration work is required to remedy the situation.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|---|---------------|-----------|---|--------------------|-------------------------|------------------------|
| 2A | Restore/create new dune habitat and dune slack habitat for Petalwort. | £15,000 | 2015-17 | Habitat creation / restoration strategy: Habitat restoration | Not yet determined | Natural Resources Wales | Bourne Leisure, ENI UK |

3 Invasive species

Terrestrial and freshwater invasive non-native species are affecting the site and include (not exhaustive) *Crassula helmsii*, Giant hogweed, Himalayan balsam, Japanese knotweed, and Clematis. There is also a threat from the spread and increase in density of marine invasive non-native animal species such as the Mitten crab, Asian shore crab, Pacific oyster, Slipper limpet and Wireweed.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|---|---------------|-----------|---|--------------------|---|--|
| 3A | Control and reduce terrestrial and freshwater invasive species and identify the high risk pathways by which they spread. | £70,000 | 2014-20 | Invasive Control Plan: Invasive Species Control Programme | Not yet determined | Natural England/ Natural Resources Wales | Wildlife Trust(s), Wirral Borough Council, Bourne Leisure, ENI UK |
| 3B | Working with identified pathways continue to control and monitor marine non-natives. Identify additional pathways and increase local awareness. | £20,000 | 2014-20 | Invasive Control Plan: Invasive Species Control Programme | Not yet determined | Natural England/ Natural Resources Wales | Cheshire Wildlife Trust, North Western Inshore Fisheries Conservation Authority (IFCA), North Wales Wildlife Trust |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---|-----------------------|---|---|
| 3C | Develop and implement on site biosecurity risk assessments/action plans of biosecurity measures. Adopt appropriate recommendations from the Pathways Project for marine Invasive Non-Native Species. | Not yet determined | 2014-16 | Invasive Control Plan: Invasive Species Control Programme | Not yet determined | Natural England/ Natural Resources Wales | North Western Inshore Fisheries Conservation Authority (IFCA) |

4 Climate change

Higher tidal surges and changes to beaches/geomorphology of the estuary are damaging dune systems and threatening nesting tern colonies (via mortality and loss of suitable nesting sites). There is a change in particle size on the intertidal areas as a result of higher energy storms and the erosion of saltmarsh and mudflats features in some areas. The Estuary is filling with sand as a result of natural coastal processes (this is exacerbated by coastal development) such that there is saltmarsh encroachment onto sand and mud flat areas. There may also be potential impacts on the life-cycle of fish features arising from increases in water temperature and changes in rainfall.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|----------------------------|
| 4A | Review likely climate change impacts and identify appropriate adaptation actions. | Not yet determined | 2015-20 | Investigation / Research / Monitoring | Not yet determined | Natural England | Natural Resources Wales |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|-----------------------|-----------------------|---------------------------|--|
| 4B | Safeguard Little tern nests when storms threaten (including investigating alternative nesting sites). | Not yet determined | 2015-20 | Partnership agreement | Not yet determined | Natural Resources Wales | RSPB, Natural Resources Wales, Denbighshire Ranger Service |

5 Coastal squeeze

There are a number of hard defences encroaching onto the foreshore. Moreover the threat of future development, combined with sea level rise may reduce the intertidal habitat and the ability to achieve a succession of the intertidal habitats (roll back). As a result supporting SAC habitats and habitats used by SPA bird features are at risk. There are localised instances of coastal squeeze on the estuary.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|--|-----------------------|--|---|
| 5A | Develop guidance for emergency coastal repair works. | Staff costs only | 2015-17 | Advice: Other | Not yet determined | Natural England/ Natural Resources Wales | Wirral Borough Council, Flintshire Sir y Fflint |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 5B | Implement and deliver a beach nourishment programme at Talacre Warren as part of a national programme of habitat restoration. | Not yet determined | 2015-20 | Habitat creation / restoration strategy: Habitat restoration | Not yet determined | Natural Resources Wales | Flintshire Sir y Fflint |

6 Inappropriate scrub control

Scrub invasion on the dune systems is suppressing beneficial mobility of the dunes and affecting diversity within the vegetation communities.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|--|-----------------------|--|---|
| 6A | Remove scrub to restore more active dune conditions (taking account of flood defence requirements). | £40,000 | 2014-20 | Habitat creation / restoration strategy: Habitat restoration | Not yet determined | Natural England/ Natural Resources Wales | Cheshire Wildlife Trust, Natural England, Bourne Leisure, Flintshire Sir y Fflint, ENI UK, Denbighshire County Council |

7 Water Pollution

The Dee Estuary may be nutrient enriched (there are currently failures for dissolved inorganic nitrogen and macro algae) and is affected by both diffuse and point sources. The Lower River Dee may also be nutrient enriched, with high phosphate levels and possibly elevated nitrate levels (associated with agricultural sources). There are a number of outfalls (stormwater and industrial overflows) within the vicinity of this site which could have an impact on the site. Industrial sites (including historic sites) surrounding the Estuary pose a risk of diffuse and point source pollution. There is also a risk from unregulated activity which is not fully understood. Moreover, historic waste sites including former collieries, landfills etc are releasing leachate and waste and require action to prevent further pollution. Some of the extent/severity of impacts require further quantification.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|--|
| 7A | Investigate leachate discharges from historic waste sites and assess possible impacts on designated features. Consider increased risk of mobilisation of waste due to sea level rise and increased coastal erosion. Scope costed options to resolve the issues. | £30,000 | 2014-16 | Investigation / Research / Monitoring | Not yet determined | Flintshire Sir y Fflint | Local Authority(ies), Natural England, Landowner(s), Natural Resources Wales |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 7B | Develop/extend the Lower River Dee Diffuse Water Pollution Plan to the Estuary and consider whether any further measures are required. This may include identifying sources of diffuse pollution, the water quality status of the Estuary and the effects on biological features (including sea and river lamprey). | Not yet determined | 2014-16 | Investigation / Research / Monitoring | No funding required | Natural Resources Wales | Environment Agency, Natural England, Tidal Dee Catchment Partnership |

8 Fisheries: Commercial marine and estuarine

There are a variety of sea fisheries activities occurring in the Estuary which could have an impact on site features. There have been separate risk-based assessments of commercial fishing activities for England and Wales, which have identified the actions below.

In Welsh waters, the NRW Strategic Review of Fishing Issues, which was completed in November 2014, identified commercial fishing impacts and prioritised agreed actions for each Welsh Natura 2000 site.

In English waters, commercial fishing activities categorised as 'amber or green' under Defra's revised approach to commercial fisheries in European marine sites are being assessed by the North Western IFCA to determine whether management is required. For activities categorised as 'green', these assessments should take account of any relevant in-combination effects with other fishing activities.

Intertidal handworking (English side only) from vessels and land, crab tiling and bait digging with forks have been identified as possible fisheries activity requiring an appropriate assessment level review across all European Sites. The North Western IFCA are currently undertaking an activity review to inform all assessments which will look at both recreational and commercial activity.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|----------------------------|
| 8A | Welsh waters only: Investigate the dynamics and sustainability of trawling fisheries in relation to the estuary feature of the Dee Estuary/Aber Dyfrdwy SAC. | Not yet determined | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Welsh Government | n/a |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 8B | Welsh waters only: Investigate the impacts of access for sea fish industries (including vehicles and on foot). This issue is due to be considered by a cross-Wales review of unregulated fisheries activities to take place over the next two years. Impacts from assessed activities and management options should also be considered. | £25,000 | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Natural Resources Wales | n/a |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|--|-----------------------|---------------------------|--|
| 8C | English waters only: Where the North Western IFCA assessments indicate management is required, introduce appropriate measures. | Not yet determined | 2016 | Mechanism not identified / develop mechanism | Not yet determined | Not yet determined | Natural England, North Western Inshore Fisheries Conservation Authority (IFCA) |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 8D | English waters only: If management measures are established, ensure compliance with bye-law and provide an appropriate level of reporting to ensure sites are well managed and to enable Natural England to provide advice on the condition of features and potential condition threats. | Not yet determined | 2015 -2020 | Mechanism not identified / develop mechanism | Not yet determined | Not yet determined | Natural England, North Western Inshore Fisheries Conservation Authority (IFCA) |

9 Inappropriate coastal management

In some locations the inappropriate removal of strand line material, vegetation and raking is considered to be affecting or reducing the potential formation of embryonic dunes and vegetated strandlines.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|------------------|-----------------------|---------------------------|--|
| 9A | Influence beach management plans to ensure beach cleaning methods avoid damage (consider best practice from other sites). Develop public awareness of coastal processes and effects of different types of coastal defences. | Not yet determined | 2014-16 | Advice | No funding required | Not yet determined | Natural England, Wirral Borough Council, Natural Resources Wales |

10 Overgrazing

The issue on the site is inappropriate grazing (stock type and/or timing of grazing). Parts of the site are managed for both SAC and SPA features and where these have different sward height preferences it causes a conflict in terms of the level of grazing deemed appropriate for the area. Increased grazing pressure caused by Canada geese, in combination with grazing sheep, could result in overgrazing in parts of the site.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|--|-----------------------------|--|----------------------------|
| 10A | Investigate existing pressures on managed SAC saltmarsh used by SPA birds and Canada geese, to help inform advice on suitable management practices. | Not yet determined | 2014-18 | Investigation / Research / Monitoring | No funding required | Natural England/ Natural Resources Wales | RSPB |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 10B | Work with landowners to make NRW Management Agreements or Glastir agreements on grazed saltmarsh where appropriate. | Not yet determined | 2014-2020 | Glastir/ Section 15 Management Agreement | Welsh Government Glastir | Natural Resources Wales | |

11 Direct impact from third party

There is a risk that the hand gathering of Glasswort *Salicornia* could increase significantly, resulting in gathering on a commercial scale.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|----------------------------|
| 11A | Assess the impact of large scale commercial removal of <i>Salicornia</i> and if appropriate reduce the scale of removal. | £10,000 | 2015-20 | Investigation / Research / Monitoring | Not yet determined | Natural England | Natural Resources Wales |

12 Marine litter

Marine litter originating from both the River Dee and the wider environment, accumulates in the Estuary. Litter can smother habitats and plant species and act as an abrasive. It can also entangle, or be digested by birds.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|--|-----------------------|--|--|
| 12A | UK level implementation of the Marine Strategy Framework Directive Programme of Measures for Descriptor 10 (Marine Litter). The Programme of Measures will be developed and implemented by 2020 to deliver targets for UK seas (not including transitional waters). | No cost | 2014-20 | Mechanism not identified / develop mechanism | Not yet determined | Not yet determined | Local Authority(ies) |
| 12B | Undertake beach cleans, litter collection from the River Dee, litter control in peak seasons and control fly-tipping. Consider delivering this action as part of coordinated local events/projects e.g. Dee Litter Project to include education and awareness raising, working with Keep Wales Tidy, Marine Conservation Society and other local groups. | Not yet determined | 2014-20 | Partnership agreement | Not yet determined | Not yet determined | Local Authority(ies), Natural England, Wirral Borough Council, Natural Resources Wales, Flintshire Sir y Fflint, Tidal Dee Catchment Partnership |
| 12C | Investigate the possibility of providing incentives to fishermen to bring back any litter generated or found at sea (e.g. Fishing for Litter projects). | Not yet determined | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Natural England/ Natural Resources Wales | Tidal Dee Catchment Partnership |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---------------------------------------|-----------------------|---|----------------------------|
| 12D | Investigate the inclusion of fishing vessels under the current port waste management regulations and the suitability of current port waste facilities. | Not yet determined | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Natural England/ Natural Resources Wales | n/a |

13 Predation

Ground and avian predators have an adverse impact upon the site's fragile tern populations.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|--|
| 13A | Maintain species protection measures and monitoring at Gronant. Investigate impact of predators on tern species, including effectiveness of anti-predator fencing. | £10,000 | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Natural Resources Wales | Lancs, Manchester and Nth Merseyside Wildlife Trust, Denbighshire County Council |

14 Planning Permission: general

At a strategic planning level, there is a concern that the assessment of cumulative, in-combination and off-site impacts on sensitive bird species and other habitats and species may be inadequate given the range of planned developments (including direct land take, impact of discharges relating to development (air & water), transport and infrastructure provision (transportation and service corridors). There may also be inadequate provision of suitable and sufficient avoidance, mitigation and compensation measures.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|----------------------------|
| 14A | Investigate measures to facilitate the accurate strategic assessment of cumulative, in-combination and off-site effects to inform future decision-making on planning permissions. | £25,000 | 2014-20 | Investigation / Research / Monitoring | Not yet determined | Not yet determined | Not yet determined |

15 Marine consents and permits

There are a variety of consented marine activities on the site. Consents may be reviewed at regular points of renewal and/or if new evidence becomes available. In particular, there is new evidence on increased turbidity on feeding SPA birds in the area.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|-------------------------------------|
| 15A | Investigate consents requiring review. | staff time only | 2014-20 | Investigation / Research / Monitoring | No funding required | Natural Resources Wales | n/a |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 15B | Investigate the potential impacts of turbidity on tern feeding. | £10,000 | 2014-16 | Investigation / Research / Monitoring | Not yet determined | Natural Resources Wales | Environment Agency, Natural England |

16 Wildfire/ arson

Deliberate fires regularly occur on dune areas and in the upper saltmarsh of the site.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|-------------------|-----------------------|---------------------------|--|
| 16A | Reduce the incidents of deliberate fires affecting the dunes and upper marsh habitats through wardening and education. | Not yet determined | 2015-20 | Advice: Wardening | Not yet determined | Not yet determined | Not yet determined |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 16B | Reduce the incidents of deliberate fires affecting the dunes and upper marsh habitats through enforcement. | Not yet determined | 2015-20 | Enforcement | No funding required | Natural England | Local Authority(ies), Natural Resources Wales, Local constabulary(ies) |

17 Air Pollution: impact of atmospheric nitrogen deposition

There are a variety of sources of air pollution including from the industrial areas adjacent the Estuary. Nitrogen deposition exceeds site relevant critical loads.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---------------------------|-----------------------|---------------------------|----------------------------|
| 17A | Investigate the potential atmospheric nitrogen impacts and consider actions at a strategic and site level to reduce impacts. | Not yet determined | 2014-20 | Site Nitrogen Action Plan | Not yet determined | Natural England | Natural Resources Wales |

18 Transportation and service corridors

There is a potential for a significant increase in current levels of vessel activity (e.g. as a result of the servicing of off-shore windfarms) and this has potential to cause disturbance to SPA features.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---------------------------------------|-----------------------|---|----------------------------------|
| 18A | Investigate vessel movements and their impacts on SPA features. Identify the 'carrying capacity' and any temporal sensitivity. | Not yet determined | 2014-18 | Investigation / Research / Monitoring | Not yet determined | Natural England/ Natural Resources Wales | Ports And Harbour Authority(ies) |

19 Physical modification

A reduced level of freshwater input flushing into and through the Estuary from the River Dee could potentially be impacting the features however more investigation of this issue is needed.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|----------------------------|
| 19A | Investigate the levels of freshwater flushing into the Estuary and its impacts on designated features including migratory fish. Link to the water pollution investigation (on the eutrophic nature of the Estuary). | Not yet determined | 2014-20 | Investigation / Research / Monitoring | No funding required | Natural Resources Wales | Environment Agency |

Site details

The tables in this section contain site-relevant contextual information and links

Qualifying features

#UK Special responsibility

Dee Estuary/ Aber Dyfrdwy SAC

H1130 Estuaries
H1210 Annual vegetation of drift lines
H1140 Mudflats and sandflats not covered by seawater at low tide
H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts
H1310 Salicornia and other annuals colonising mud and sand
S1395 *Petalophyllum ralfsii*: Petalwort
S1095 *Petromyzon marinus*: Sea lamprey
S1099 *Lampetra fluviatilis*: River lamprey

H1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
H2110 Embryonic shifting dunes
H2120 Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")
H2130# Fixed dunes with herbaceous vegetation ("grey dunes")
H2190 Humid dune slacks

Mersey Narrows and North Wirral Foreshore SPA

A177(NB) *Hydrocoloeus minutus*: Little gull
A143(NB) *Calidris canutus*: Red knot
A193(B) *Sterna hirundo*: Common tern

A193(NB) *Sterna hirundo*: Common tern

Waterbird assemblage
A157(NB) *Limosa lapponica*: Bar-tailed godwit

The Dee Estuary SPA

A195(B) *Sterna albifrons*: Little tern

Waterbird assemblage

A048(NB) *Tadorna tadorna*: Common shelduck

A052(NB) *Anas crecca*: Eurasian teal

A054(NB) *Anas acuta*: Northern pintail

A130(NB) *Haematopus ostralegus*: Eurasian oystercatcher

A141(NB) *Pluvialis squatarola*: Grey plover

A143(NB) *Calidris canutus*: Red knot

A149(NB) *Calidris alpina alpina*: Dunlin

A156(NB) *Limosa limosa islandica*: Black-tailed godwit

A157(NB) *Limosa lapponica*: Bar-tailed godwit

A160(NB) *Numenius arquata*: Eurasian curlew

A162(NB) *Tringa totanus*: Common redshank

A191(NB) *Sterna sandvicensis*: Sandwich tern

A193(B) *Sterna hirundo*: Common tern

Site location and links

Dee Estuary/ Aber Dyfrdwy SAC

Area (ha) **15805.89** Grid reference **SJ191819** [Map link](#)

Local Authorities

Cheshire; Sir y Fflint/ Flintshire; Wirral

Site Conservation Objectives

Site Conservation Objectives (covers area in England) [European Site Conservation Objectives for Dee Estuary SAC](#)

Site Conservation Objectives (covers area in Wales) <http://www.ccg.gov.uk/landscape--wildlife/protecting-our-landscape/special-sites-project/the-dee-estuary-european-marine.aspx>

European Marine Site conservation advice

[Dee Estuary EMS](#)

| | |
|--|---|
| <i>Regulation 33/35 Package</i> | Regulation 33/35 package link |
| <i>Marine Management Organisation site plan</i> | n/a |
| Mersey Narrows and North Wirral Foreshore SPA | |
| <i>Area (ha) 2078.41 Grid reference SJ250920</i> | Map link |
| <i>Local Authorities</i> | Sefton, Wirral |
| Site Conservation Objectives | |
| <i>Site Conservation Objectives (covers area in England)</i> | European Site Conservation Objectives for Mersey Narrows and North Wirral Foreshore SPA |
| <i>Site Conservation Objectives (covers area in Wales)</i> | |
| <i>European Marine Site conservation advice</i> | n/a |
| <i>Regulation 33/35 Package</i> | n/a |
| <i>Marine Management Organisation site plan</i> | n/a |
| The Dee Estuary SPA | |
| <i>Area (ha) 14291.56 Grid reference SJ211800</i> | Map link |
| <i>Local Authorities</i> | Cheshire; Sir y Fflint/ Flintshire; Wirral |
| Site Conservation Objectives | |
| <i>Site Conservation Objectives (covers area in England)</i> | European Site Conservation Objectives for Dee Estuary SPA |
| <i>Site Conservation Objectives (covers area in Wales)</i> | http://www.ccg.gov.uk/landscape--wildlife/protecting-our-landscape/special-sites-project/the-dee-estuary-european-marine.aspx |
| <i>European Marine Site conservation advice</i> | Dee Estuary EMS |
| <i>Regulation 33/35 Package</i> | Regulation 33/35 package link |
| <i>Marine Management Organisation site plan</i> | n/a |

Water Framework Directive (WFD)

The Water Framework Directive (WFD) provides the main framework for managing the water environment throughout Europe. Under the WFD a management plan must be developed for each river basin district. The River Basin Management Plans (RBMP) include a summary of the measures needed for water dependent Natura 2000 sites to meet their conservation objectives. For the second round of RBMPs, SIPs are being used to capture the priorities and new measures required for water dependent habitats on Natura 2000 sites. SIP actions for non-water dependent sites/habitats do not form part of the RBMPs and associated consultation.

Dee Estuary/ Aber Dyfrdwy SAC

| | |
|----------------------------------|---------------------------------|
| River basin | North West RBMP |
| WFD Management catchment | Mersey Estuary |
| WFD Waterbody ID (Cycle 2 draft) | n/a |

Mersey Narrows and North Wirral Foreshore SPA

| | |
|----------------------------------|---------------------------------|
| River basin | North West RBMP |
| WFD Management catchment | Mersey Estuary |
| WFD Waterbody ID (Cycle 2 draft) | n/a |

The Dee Estuary SPA

| | |
|----------------------------------|--------------------------------|
| River basin | Dee RBMP |
| WFD Management catchment | Tidal Dee |
| WFD Waterbody ID (Cycle 2 draft) | GB111067057050, GB111067057060 |

Overlapping or adjacent protected sites

| Site(s) of Special Scientific Interest (SSSI) | |
|--|---|
| Dee Estuary/ Aber Dyfrdwy SAC | North Wirral Foreshore SSSI Dee Estuary/ Aber Afon Dyfrdwy SSSI Gronant Dunes and Talacre Warren SSSI |
| Mersey Narrows and North Wirral Foreshore SPA | Dee Estuary/ Aber Afon Dyfrdwy SSSI North Wirral Foreshore SSSI Mersey Narrows SSSI |
| The Dee Estuary SPA | Dee Estuary/ Aber Afon Dyfrdwy SSSI Shotton Lagoons and Reedbeds SSSI Inner Marsh Farm SSSI Gronant Dunes and Talacre Warren SSSI North Wirral Foreshore SSSI |
| National Nature Reserve (NNR) | |
| Dee Estuary/ Aber Dyfrdwy SAC | n/a |
| Mersey Narrows and North Wirral Foreshore SPA | n/a |
| The Dee Estuary SPA | n/a |
| Ramsar | |
| Dee Estuary/ Aber Dyfrdwy SAC | Mersey Narrows & North Wirral Foreshore The Dee Estuary |
| Mersey Narrows and North Wirral Foreshore SPA | Mersey Narrows & North Wirral Foreshore Ribble & Alt Estuaries The Dee Estuary |
| The Dee Estuary SPA | The Dee Estuary |

Special Areas of Conservation (SAC) and Special Protection Areas (SPA)

| | |
|--|---|
| Dee Estuary/ Aber Dyfrdwy SAC | n/a The Dee Estuary SPA |
| Mersey Narrows and North Wirral Foreshore SPA | Sefton Coast SAC Dee Estuary/ Aber Dyfrdwy SAC Ribble & Alt Estuaries SPA The Dee Estuary SPA Liverpool Bay/ Bae Lerpwl SPA |
| The Dee Estuary SPA | Dee Estuary/ Aber Dyfrdwy SAC |

| <i>Version</i> | <i>Date</i> | <i>Comment</i> |
|----------------|-------------|----------------|
| 1.0 | 30/03/2015 | |



www.naturalengland.org.uk/ipens2000

European Site Conservation Objectives for Mersey Estuary Special Protection Area Site Code: UK9005131



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

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.**

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

A048 *Tadorna tadorna*; Common shelduck (Non-breeding)

A052 *Anas crecca*; Eurasian teal (Non-breeding)

A054 *Anas acuta*; Northern pintail (Non-breeding)

A140 *Pluvialis apricaria*; European golden plover (Non-breeding)

A149 *Calidris alpina alpina*; Dunlin (Non-breeding)

A156 *Limosa limosa islandica*; Black-tailed godwit (Non-breeding)

A162 *Tringa totanus*; Common redshank (Non-breeding)

Waterbird assemblage

This is a European Marine Site

This SPA is a part of the Mersey Estuary European Marine Site (EMS). These Conservation Objectives should be used in conjunction with the Conservation Advice document for the EMS. Natural England's formal Conservation Advice for European Marine Sites can be found via [GOV.UK](https://www.gov.uk).

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2017 (as amended) ('the Habitats Regulations'). They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment' including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives, and the accompanying Supplementary Advice (where this is available), will also provide a framework to inform the management of the European Site and the prevention of deterioration of habitats and significant disturbance of its qualifying features

These Conservation Objectives are set for each bird feature for a [Special Protection Area \(SPA\)](#).

Where these objectives are being met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 21 February 2019 (version 5). This document updates and replaces an earlier version dated 30 June 2014 to reflect the consolidation of the Habitats Regulations in 2017.

Site Improvement Plan

Mersey Estuary

Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 sites (IPENS). Natura 2000 sites is the combined term for sites designated as Special Areas of Conservation (SAC) and Special Protected Areas (SPA). This work has been financially supported by LIFE, a financial instrument of the European Community.

The plan provides a high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the site(s) and outlines the priority measures required to improve the condition of the features. It does not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

The SIP consists of three parts: a Summary table, which sets out the priority Issues and Measures; a detailed Actions table, which sets out who needs to do what, when and how much it is estimated to cost; and a set of tables containing contextual information and links.

Once this current programme ends, it is anticipated that Natural England and others, working with landowners and managers, will all play a role in delivering the priority measures to improve the condition of the features on these sites.

The SIPs are based on Natural England's current evidence and knowledge. The SIPs are not legal documents, they are live documents that will be updated to reflect changes in our evidence/knowledge and as actions get underway. The information in the SIPs will be used to update England's contribution to the UK's Prioritised Action Framework (PAF).

The SIPs are not formal consultation documents, but if you have any comments about the SIP or would like more information please email us at IPENSLIFEProject@naturalengland.org.uk, or contact Natural England's Responsible Officer for the site via our enquiry service 0300 060 3900, or enquiries@naturalengland.org.uk

This Site Improvement Plan covers the following Natura 2000 site(s)

UK9005131 Mersey Estuary SPA

Site description

The Mersey Estuary is a large sheltered estuary and comprises an unusual configuration with a narrow mouth and wide shallow basin. It is composed of extensive intertidal mud and sandflats on the northern and southern shores of the estuary, distinct areas of rocky shore and areas of saltmarsh which are constantly eroding and accreting.

The saltmarsh areas are either firm sandy areas or are riddled with muddy creeks. The large areas of intertidal sand and mudflats are submerged at high tide, and exposed in the estuary at low tide providing an important feeding habitat for birds. The estuary also provides extensive roosting sites for large populations of waterbirds and is of major importance during the winter for duck and wader species and for supporting wader populations moving along the west coast of Britain during the spring and autumn migration periods.

Plan Summary

This table shows the prioritised issues for the site(s), the features they affect, the proposed measures to address the issues and the delivery bodies whose involvement is required to deliver the measures. The list of delivery bodies will include those who have agreed to the actions as well as those where discussions over their role in delivering the actions is on-going.

| Priority & Issue | Pressure or Threat | Feature(s) affected | Measure | Delivery Bodies |
|------------------------------------|--------------------|---|---|---|
| 1 Changes in species distributions | Pressure | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail, A140(NB) Golden Plover, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A162(NB) Common redshank, Waterbird assemblage | Site-specific analysis to ascertain reasons for bird declines | Natural England, RSPB, British Trust for Ornithology (BTO) |
| 2 Invasive species | Pressure/Threat | A048(NB) Common shelduck, A052(NB) Eurasian teal, A054(NB) Pintail | Explore management options for Canada geese and monitor for other invasive non-native species | Liverpool City Council, Natural England, RSPB |
| 3 Public Access/Disturbance | Pressure | A054(NB) Pintail, A140(NB) Golden Plover, A156(NB) Black-tailed Godwit, A162(NB) Common redshank | Engage with the public to minimise disturbance | Halton Borough Council, Liverpool City Council, Natural England |

Issues and Actions

This table outlines the prioritised issues that are currently impacting or threatening the condition of the features, and the outstanding actions required to address them. It also shows, where possible, the estimated cost of the action and the delivery bodies whose involvement will be required to implement the action. Lead delivery bodies will be responsible for coordinating the implementation of the action, but not necessarily funding it. Delivery partners will need to support the lead delivery body in implementing the action. In the process of developing the SIPs Natural England has approached the delivery bodies to seek agreement on the actions and their roles in delivering them, although in some cases these discussions have not yet been concluded. Other interested parties, including landowners and managers, will be involved as the detailed actions are agreed and delivered. Funding options are indicated as potential (but not necessarily agreed or secured) sources to fund the actions.

1 Changes in species distributions

Recently commissioned reports indicate there have been large decreases in bird numbers on this SPA compared to local SPAs and regional trends. There is a need to investigate and understand reasons for these changes.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|----------------------------|---------------|-----------|---------------------------------------|-----------------|--------------------|---|
| 1A | Investigate bird declines. | £30,000 | 2015-17 | Investigation / Research / Monitoring | Natural England | Natural England | RSPB, British Trust for Ornithology (BTO) |

2 Invasive species

The population of Canada geese has significantly increased on the site introducing resource competition with some bird species e.g. via increased grazing and increased nutrient pressure. There is a threat from the spread and increase in density of invasive non-native species, such as Chinese mitten crab.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|---|---------------|-----------|---|-----------------|--------------------|---|
| 2A | Investigate management options for Canada geese. | £10,000 | 2015-18 | Invasive Control Plan: Invasive Species Control Programme | Natural England | Natural England | Liverpool City Council, RSPB |
| 2B | Monitor the estuary for evidence of mitten crab, and investigate its potential impact on the site's features. | £20,000 | 2015-18 | Invasive Control Plan: Invasive Species Control Programme | Natural England | Natural England | North Western Inshore Fisheries Conservation Authority (IFCA) |

3 Public Access/Disturbance

Users of public footpaths immediately adjacent to the north shore of the site can cause disturbance to birds roosting and feeding at this location.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|--|
| 3A | Minimise disturbance by recreational users via signage, awareness raising and education. | £10,000 | 2016 | Advice: Education & awareness raising | Natural England | Natural England | Halton Borough Council, Liverpool City Council |

Site details

The tables in this section contain site-relevant contextual information and links

Qualifying features

#UK Special responsibility

Mersey Estuary SPA

A052(NB) *Anas crecca*: Eurasian teal

A048(NB) *Tadorna tadorna*: Common shelduck

A054(NB) *Anas acuta*: Northern pintail

A140(NB) *Pluvialis apricaria* : European golden plover

A156(NB) *Limosa limosa islandica*: Black-tailed godwit

A162(NB) *Tringa totanus*: Common redshank

A149(NB) *Calidris alpina alpina*: Dunlin

Site location and links

Mersey Estuary SPA

Area (ha) **5023.35** Grid reference **SJ451800** [Map link](#)

Local Authorities Cheshire; Halton; Liverpool; Wirral

Site Conservation Objectives [Mersey Estuary SPA](#)

European Marine Site conservation advice [Mersey Estuary SPA](#)

Regulation 33/35 Package [Regulation 33/35 package link](#)

Marine Management Organisation site plan [n/a](#)

Water Framework Directive (WFD)

The Water Framework Directive (WFD) provides the main framework for managing the water environment throughout Europe. Under the WFD a management plan must be developed for each river basin district. The River Basin Management Plans (RBMP) include a summary of the measures needed for water dependent Natura 2000 sites to meet their conservation objectives. For the second round of RBMPs, SIPs are being used to capture the priorities and new measures required for water dependent habitats on Natura 2000 sites. SIP actions for non-water dependent sites/habitats do not form part of the RBMPs and associated consultation.

Mersey Estuary SPA

River basin

North West

[North West RBMP](#)

WFD Management catchment

Mersey Estuary, Weaver/Gowy

WFD Waterbody ID (Cycle 2 draft)

GB112068060330, GB112068060350

Overlapping or adjacent protected sites

| Site(s) of Special Scientific Interest (SSSI) | |
|--|---------------------------------------|
| Mersey Estuary SPA | New Ferry SSSI Mersey Estuary SSSI |
| National Nature Reserve (NNR) | |
| Mersey Estuary SPA | n/a |
| Ramsar | |
| Mersey Estuary SPA | Mersey Estuary |
| Special Areas of Conservation (SAC) and Special Protection Areas (SPA) | |
| Mersey Estuary SPA | n/a |

| <i>Version</i> | <i>Date</i> | <i>Comment</i> |
|----------------|-------------|----------------|
| 0.3 | 15/10/2014 | |

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European Site Conservation Objectives for Morecambe Bay & Duddon Estuary Special Protection Area Site Code: UK9020326

With regard to this SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features'), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- **The extent and distribution of the habitats of the qualifying features**
- **The structure and function of the habitats of the qualifying features**
- **The supporting processes on which the habitats of the qualifying features rely**
- **The population of each of the qualifying features, and,**
- **The distribution of the qualifying features within the site.**

This document should be read in conjunction with the accompanying Conservation Advice document which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features

- A026 *Egretta garzetta*; Little egret (Non-breeding)
- A038 *Cygnus cygnus*; Whooper swan (Non-breeding)
- A040 *Anser brachyrhynchus*; Pink-footed goose (Non-breeding)
- A048 *Tadorna tadorna*; Common shelduck (Non-breeding)
- A054 *Anas acuta*; Northern pintail (Non-breeding)
- A130 *Haematopus ostralegus*; Eurasian oystercatcher (Non-breeding)
- A137 *Charadrius hiaticula*; Ringed plover (Non-breeding)
- A140 *Pluvialis apricaria*; European golden plover (Non-breeding)
- A141 *Pluvialis squatarola*; Grey plover (Non-breeding)
- A143 *Calidris canutus*; Red knot (Non-breeding)
- A144 *Calidris alba*; Sanderling (Non-breeding)
- A149 *Calidris alpina alpina*; Dunlin (Non-breeding)

Contd/

A151 *Philomachus pugnax*; Ruff (Non-breeding)
A156 *Limosa limosa islandica*; Black-tailed godwit (Non-breeding)
A157 *Limosa lapponica*; Bar-tailed godwit (Non-breeding)
A160 *Numenius arquata*; Eurasian curlew (Non-breeding)
A162 *Tringa totanus*; Common redshank (Non-breeding)
A169 *Arenaria interpres*; Ruddy turnstone (Non-breeding)
A176 *Larus melanocephalus*; Mediterranean gull (Non-breeding)
A183 *Larus fuscus*; Lesser black-backed gull (Non-breeding)
A183 *Larus fuscus*; Lesser black-backed gull (Breeding)
A184 *Larus argentatus*; Herring gull (Breeding)
A191 *Sterna sandvicensis*; Sandwich tern (Breeding)
A193 *Sterna hirundo*; Common tern (Breeding)
A195 *Sterna albifrons*; Little tern (Breeding)
Waterbird assemblage
Seabird assemblage

This is a European Marine Site

This SPA is a part of the Morecambe Bay European Marine Site ('EMS'). These Conservation Objectives should be used in conjunction with the current Conservation Advice document for the EMS. For further details about this please visit the Natural England website at <https://www.gov.uk/government/collections/conservation-advice-packages-for-marine-protected-areas> or contact Natural England's enquiry service at enquiries@naturalengland.org.uk or by phone on 0845 600 3078.

This is a new combined site

This SPA replaces two individual sites – Morecambe Bay SPA (UK9005081) and Duddon Estuary SPA (UK9005031).

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2010 (the "Habitats Regulations") and Article 6(3) of the Habitats Directive. They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment' including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives and the accompanying Supplementary Advice (where this is available) will also provide a framework to inform the management of the European Site under the provisions of Articles 4(1) and 4(2) of the Wild Birds Directive, and the prevention of deterioration of habitats and significant disturbance of its qualifying features required under Article 6(2) of the Habitats Directive.

These Conservation Objectives are set for each bird feature for a [Special Protection Area \(SPA\)](#). Where the objectives are met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 13 September 2017 (version 5). This document updates and replaces an earlier version dated 29 January 2016 following the classification of the SPA. It replaces similar documents previously published for Morecambe Bay SPA (UK9005081) and Duddon Estuary SPA (UK9005031)

Site Improvement Plan

Morecambe Bay

Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 sites (IPENS). Natura 2000 sites is the combined term for sites designated as Special Areas of Conservation (SAC) and Special Protected Areas (SPA). This work has been financially supported by LIFE, a financial instrument of the European Community.

The plan provides a high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the site(s) and outlines the priority measures required to improve the condition of the features. It does not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

The SIP consists of three parts: a Summary table, which sets out the priority Issues and Measures; a detailed Actions table, which sets out who needs to do what, when and how much it is estimated to cost; and a set of tables containing contextual information and links.

Once this current programme ends, it is anticipated that Natural England and others, working with landowners and managers, will all play a role in delivering the priority measures to improve the condition of the features on these sites.

The SIPs are based on Natural England's current evidence and knowledge. The SIPs are not legal documents, they are live documents that will be updated to reflect changes in our evidence/knowledge and as actions get underway. The information in the SIPs will be used to update England's contribution to the UK's Prioritised Action Framework (PAF).

The SIPs are not formal consultation documents, but if you have any comments about the SIP or would like more information please email us at IPENSLIFEProject@naturalengland.org.uk, or contact Natural England's Responsible Officer for the site via our enquiry service 0300 060 3900, or enquiries@naturalengland.org.uk

This Site Improvement Plan covers the following Natura 2000 site(s)

UK9005031 Duddon Estuary SPA

UK0013027 Morecambe Bay SAC

UK9005081 Morecambe Bay SPA

Site description

Morecambe Bay is a large embayment fed by the estuaries of the rivers Wyre, Lune, Kent, Keer, Leven and Duddon Estuary. It is one of the largest areas of intertidal flats in Britain and includes shallow subtidal sands, tide-washed channels (including the unique feature of Lune Deep) and rocky scars of glacially derived material.

Morecambe Bay and Duddon Estuary SPAs are important sites for wintering and migratory waders and wildfowl along the east Atlantic flyway from breeding grounds in the Arctic. The Bay also supports important breeding grounds for seabirds.

Morecambe Bay SAC consists of large shallow inlets and bays and intertidal mudflats and sandflats, glasswort and other annuals colonising mud and sand, saltmarshes, sand dunes and vegetated shingle communities.

Plan Summary

This table shows the prioritised issues for the site(s), the features they affect, the proposed measures to address the issues and the delivery bodies whose involvement is required to deliver the measures. The list of delivery bodies will include those who have agreed to the actions as well as those where discussions over their role in delivering the actions is on-going.

| Priority & Issue | Pressure or Threat | Feature(s) affected | Measure | Delivery Bodies |
|-----------------------------|--------------------|---|---|---|
| 1 Public Access/Disturbance | Threat | A040(NB) Pink-footed goose, A048(NB) Common shelduck, A054(NB) Pintail, A063(B) Common eider, A130(NB) Eurasian oystercatcher, A137(NB) Ringed plover, A140(NB) Golden plover, A141(NB) Grey plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, H1110 Subtidal sandbanks, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1150 Coastal lagoons, H1160 Shallow inlets and bays, H1170 Reefs, H1220 Coastal shingle vegetation outside the reach of waves, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks, S1166 Great crested newt, Seabird assemblage, Waterbird assemblage | Activity and bird evidence gathering project to inform the identification of appropriate management | Natural England, Morecambe Bay EMS Partnership, Landowner/occupier, Morecambe Bay Partnership, Duddon Estuary Partnership |

| | | | | |
|--|--------|---|--|---|
| 2 Air Pollution: risk of atmospheric nitrogen deposition | Threat | A040(NB) Pink-footed goose, A048(NB) Common shelduck, A054(NB) Pintail, A063(B) Common eider, A130(NB) Eurasian oystercatcher, A137(NB) Ringed plover, A140(NB) Golden plover, A141(NB) Grey plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, H1110 Subtidal sandbanks, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1150 Coastal lagoons, H1160 Shallow inlets and bays, H1170 Reefs, H1220 Coastal shingle vegetation outside the reach of waves, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2190 Humid dune slacks, Waterbird assemblage | Review impacts following the receipt of guidance from NE chief scientist group | Natural England |
| 3 Water Pollution | Threat | A040(NB) Pink-footed goose, A048(NB) Common shelduck, A054(NB) Pintail, A063(B) Common eider, A130(NB) Eurasian oystercatcher, A137(NB) Ringed plover, A140(NB) Golden plover, A141(NB) Grey plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, H1110 Subtidal sandbanks, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1150 Coastal lagoons, H1160 Shallow inlets and bays, H1170 Reefs, H1220 Coastal shingle vegetation outside the reach of waves, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks, Seabird assemblage, Waterbird assemblage | Catchment Sensitive Farming (CSF) and ongoing Asset Management Plan (AMP) programme, to reduce water pollution through advice and grants | Environment Agency, Natural England, United Utilities Water Plc |
| 4 Inappropriate pest control | Threat | A063(B) Common eider, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern | Review current/previous prevention measures, and identify further work or measures | Cumbria Wildlife Trust, Natural England, Landowner(s) |

| | | | | | |
|----|--|----------|---|---|---|
| 5 | Invasive species | Threat | H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks | Current clearance programme requires identification of funding to be continued | Cumbria Wildlife Trust, National Trust, Natural England, Millom Town Trust |
| 6 | Fisheries: Commercial marine and estuarine | Pressure | A040(NB) Pink-footed goose, A048(NB) Common shelduck, A054(NB) Pintail, A063(B) Common eider, A130(NB) Eurasian oystercatcher, A137(NB) Ringed plover, A140(NB) Golden plover, A141(NB) Grey plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, Seabird assemblage, Waterbird assemblage | Review the bird/shellfish model and identify further evidence projects to inform management | Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Morecambe Bay EMS Partnership |
| 7 | Fisheries: Aquaculture | Pressure | A040(NB) Pink-footed goose, A048(NB) Common shelduck, A054(NB) Pintail, A063(B) Common eider, A130(NB) Eurasian oystercatcher, A137(NB) Ringed plover, A140(NB) Golden plover, A141(NB) Grey plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, H1110 Subtidal sandbanks, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1310 Glasswort and other annuals colonising mud and sand, Seabird assemblage, Waterbird assemblage | Development of appropriate implementation of larger scale aquaculture within Morecambe Bay | Defra, Developer, Environment Agency, Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Marine Management Organisation (MMO), Morecambe Bay EMS Partnership, Centre for Environment, Fisheries and Aquaculture Science (Cefas), Other |
| 8 | Biological Resource Use | Threat | H1220 Coastal shingle vegetation outside the reach of waves, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks | Identify appropriate grazing regime and mechanism to implement | Cumbria Wildlife Trust, National Trust, Millom Town Trust |
| 9 | Change in land management | Threat | H2130 Dune grassland | Potential partnership work to deliver improved grazing management regime | Cumbria Wildlife Trust, Natural England |
| 10 | Hydrological changes | Threat | H1150 Coastal lagoons | Management of lagoonal hydrology to maintain marine species | Natural England |

| | | | | |
|--------------------------|----------|---|--|---|
| 11 Invasive species | Pressure | A040(NB) Pink-footed goose, A048(NB) Common shelduck, A054(NB) Pintail, A063(B) Common eider, A130(NB) Eurasian oystercatcher, A137(NB) Ringed plover, A140(NB) Golden plover, A141(NB) Grey plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, H1110 Subtidal sandbanks, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1150 Coastal lagoons, H1160 Shallow inlets and bays, H1170 Reefs, H1220 Coastal shingle vegetation outside the reach of waves, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2170 Dunes with creeping willow, H2190 Humid dune slacks, S1166 Great crested newt, Seabird assemblage, Waterbird assemblage | Work with regulators and developers to improve biosecurity measures | Defra, Environment Agency, Local Authority(ies), Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Ports And Harbour Authority(ies), Landowner(s), Marine Management Organisation (MMO), Rivers Trust, Centre for Environment, Fisheries and Aquaculture Science (Cefas), South Cumbria Rivers Trust, West Cumbria Rivers Trust |
| 12 Physical modification | Pressure | H1330 Atlantic salt meadows | Regulation of management by Natural England | Environment Agency, Natural England |
| 13 Energy production | Pressure | A040(NB) Pink-footed goose, A048(NB) Common shelduck, A054(NB) Pintail, A063(B) Common eider, A130(NB) Eurasian oystercatcher, A137(NB) Ringed plover, A140(NB) Golden plover, A141(NB) Grey plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, H1110 Subtidal sandbanks, H1130 Estuaries, H1170 Reefs, H1310 Glasswort and other annuals colonising mud and sand, Seabird assemblage, Waterbird assemblage | Identification of coordinated delivery of advice, eventually through Coastal Concordat | Defra, Developer, Environment Agency, Lake District National Park Authority, Local Authority(ies), Natural England, Marine Management Organisation (MMO), Department for Transport |

| | | | | |
|---|---------------------|---|---|---|
| 14 Fisheries: Commercial marine and estuarine | Pressure/ Threat | A040(NB) Pink-footed goose, A048(NB) Common shelduck, A054(NB) Pintail, A063(B) Common eider, A130(NB) Eurasian oystercatcher, A137(NB) Ringed plover, A140(NB) Golden plover, A141(NB) Grey plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, H1110 Subtidal sandbanks, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1150 Coastal lagoons, H1160 Shallow inlets and bays, H1170 Reefs, H1220 Coastal shingle vegetation outside the reach of waves, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2110 Shifting dunes, H2120 Shifting dunes with marram, H2130 Dune grassland, H2150 Coastal dune heathland, H2190 Humid dune slacks, S1166 Great crested newt, Waterbird assemblage | Review all fisheries and where appropriate deliver management measures | Environment Agency, Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Marine Management Organisation (MMO), Review of Fisheries Project Board |
| 15 Changes in species distributions | Pressure/ Threat | A040(NB) Pink-footed goose, A048(NB) Common shelduck, A054(NB) Pintail, A063(B) Common eider, A130(NB) Eurasian oystercatcher, A137(NB) Ringed plover, A140(NB) Golden plover, A141(NB) Grey plover, A143(NB) Red knot, A144(NB) Sanderling, A149(NB) Dunlin, A157(NB) Bar-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern, Seabird assemblage, Waterbird assemblage | Review of bird population trends locally and nationally and identify issues | Natural England |
| 16 Direct impact from 3rd party | Threat | A063(B) Common eider, A183(B) Lesser Black-backed gull, A184(B) Herring gull, A191(B) Sandwich tern, A193(B) Common tern, A195(B) Little tern | Seek effective measures to prevent taking of eggs by humans | Cumbria Wildlife Trust, National Trust, Natural England, RSPB |

Issues and Actions

This table outlines the prioritised issues that are currently impacting or threatening the condition of the features, and the outstanding actions required to address them. It also shows, where possible, the estimated cost of the action and the delivery bodies whose involvement will be required to implement the action. Lead delivery bodies will be responsible for coordinating the implementation of the action, but not necessarily funding it. Delivery partners will need to support the lead delivery body in implementing the action. In the process of developing the SIPs Natural England has approached the delivery bodies to seek agreement on the actions and their roles in delivering them, although in some cases these discussions have not yet been concluded. Other interested parties, including landowners and managers, will be involved as the detailed actions are agreed and delivered. Funding options are indicated as potential (but not necessarily agreed or secured) sources to fund the actions.

1 Public Access/Disturbance

There is recreational disturbance to all features from various activities from individuals (e.g. dog walkers) to organised groups occurring throughout Morecambe Bay. In some cases, (e.g. wind and kite surfing) activities are increasing. Previous attempts at developing 'codes of conduct', and good practice have not been successful. New access points are being created or old tracks widened etc., and there are long term/historical issues. There are boat moorings at Foulney (Roa Island) that are on or near seagrass beds, with no clear management of the placement or number of moorings. This has been discussed with the Boat Club but part of the land is owned by Boughton Estate. The scale of recreational disturbance is currently unknown but considered to be both localised and widespread. Activities require regulation to ensure birds are not disturbed and habitats are not damaged.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|---|---------------|-----------|--|-----------------------------|--------------------|--|
| 1A | Detailed study into the sources of disturbance and scale of impacts at local and SPA level. Identify long term plan for engaging with public recreational users of Morecambe Bay. | £30,000 | 2014-18 | Mechanism not identified / develop mechanism | Heritage Lottery Fund (HLF) | Local partnership | Morecambe Bay EMS Partnership, Morecambe Bay Partnership |
| 1B | Detailed study into the sources of disturbance and scale of impacts at local and SPA level. Identify long term plan for engaging with public recreational users of Duddon Estuary and Morecambe Bay not captured in existing study. | £30,000 | 2014-18 | Mechanism not identified / develop mechanism | Not yet determined | Natural England | Morecambe Bay EMS Partnership, Morecambe Bay Partnership, Duddon Estuary Partnership |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|--|-----------------------|---------------------------|----------------------------|
| 1C | Implementation of recommendations from recreational disturbance reports within Morecambe Bay and Duddon Estuary and identify long term resourcing to ensure momentum for engagement is maintained. | Not yet determined | 2015-18 | Advice | Not yet determined | Natural England | n/a |
| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
| 1D | Review of mooring permissions with landowners and take appropriate actions. | Not yet determined | 2014-16 | Mechanism not identified / develop mechanism | Not yet determined | Natural England | Landowner/occupier |

2 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.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|----------------------------|
| 2A | Further investigate the potential atmospheric nitrogen impacts on the site based on application of guidance from Chief Scientist's Group Nitrogen Task and Finish group | Not yet determined | 2014-17 | Investigation / Research / Monitoring | Not yet determined | Natural England | n/a |

3 Water Pollution

Diffuse pollution and/or uncontrolled release of pollutants from terrestrial sources could alter or damage the habitats and species found within the estuary.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---|-----------------------|---------------------------|----------------------------|
| 3A | Control, reduce and ameliorate water pollution impacts | Not yet determined | 2014-16 | England Catchment Sensitive Farming (CSF) | Not yet determined | Natural England | n/a |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---|-----------------------|---------------------------|----------------------------|
| 3B | Control, reduce and ameliorate water pollution impacts | Not yet determined | 2014-15 | Water Industry Asset Management Plan (AMP): Implement Investigation | Not yet determined | Environment Agency | United Utilities Water Plc |

4 Inappropriate pest control

Predation of nesting birds: there is a potential adverse effect on the integrity of the SPA, particularly to the breeding terns and gulls around South Walney, Foulney and Chapel Island (also Eider ducks) where breeding success has been adversely affected by predation by foxes, badgers and rats.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|--|-----------------------|---------------------------|----------------------------|
| 4A | In 2012, following a poor 2011 breeding season, perceived to be due to mammalian predation, 1.5km of chicken fence was used to exclude ground predators from the gull colony and this appeared to work other than "some predation" near the fledging stage. Cameras operated at night indicated at least one badger was venturing on to the Shelly Bars spit along with the more predictable foxes. There is a need to the ensure programme is followed up in future years in addition to pest active pest control measures | Not yet determined | 2014-15 | Mechanism not identified / develop mechanism | Not yet determined | Cumbria Wildlife Trust | Natural England |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|--|-----------------------|---------------------------|-------------------------------|
| 4B | To implement appropriate pest control around key breeding sites at Chapel Island, Foulney and South Walney. | Not yet determined | 2014-18 | Mechanism not identified / develop mechanism | Not yet determined | Cumbria Wildlife Trust | Natural England, Landowner(s) |

5 Invasive species

Non-native species such as *Rosa Rugosa* Japanese Rose are encroaching upon sand dunes around Barrow in Furness, and there are no resources available after the ending of grants from Waste Recycling Environmental Ltd (WREN), for ongoing management.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|--|--------------------|-----------|---|--------------------|--------------------|---|
| 5A | Significant <i>Rosa rugosa</i> clearance is underway but there is a need to ensure the programme is followed up in future years on sand dunes. | Not yet determined | 2018-19 | Major Landowner Group land ownership activities : Undertake Specific Management Works | Not yet determined | Natural England | Cumbria Wildlife Trust, National Trust, Millom Town Trust |

6 Fisheries: Commercial marine and estuarine

The food requirements and feeding behaviour of SPA species within the Bay are not well known and there is concern that the continued decline in breeding and overwintering bird numbers may be linked to the mussel fisheries and competition for food. The particular focus is on bivalve dependant species which may be competing for mussels or feeding sites, for example with the commercial seed mussel fishery in the part of Morecambe Bay known as South America.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|--|--------------------|-----------|--|--------------------|--------------------|---|
| 6A | To review the bird and shellfisheries model work and the Eider Risk Review (upon publication) previously undertaken in Morecambe Bay and identify future projects necessary to deliver appropriate management. Working with local delivery partners to deliver this. | Not yet determined | 2014-18 | Mechanism not identified / develop mechanism | Not yet determined | Local partnership | Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Morecambe Bay EMS Partnership |

7 Fisheries: Aquaculture

Several operators are looking at developing aquaculture production of mussels in Morecambe Bay and Duddon Estuary. Small scale trials have been undertaken in the Walney Channel and showed that, for commercial viability, some areas seabed e.g. where there are 'poor' quality mussel beds, would need to be cleared to prepare the site for relaying of commercial quantities of seed/single year class of mussel. The impact of removal of one habitat and creation of a similar habitat but with potentially a different ecological function, is not well known. The North Western IFCA are looking at these activities and are identifying areas where such activity would be allowed as part of fisheries management; granting of these sites could start by 2015. Although these would be subject to HRA, there is a deficit of documented evidence of the impact of such large scale modifications. Biosecurity issues also need to be considered as aquaculture could potentially alter the function of surrounding habitats due to introduction of invasive species.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|--|--------------------|-----------|-----------|--------------------|---|--|
| 7A | Provide advice to North Western Inshore Fisheries Conservation Authority (IFCA) and operators where required on development of aquaculture within Morecambe Bay/Duddon Estuary. Consider the impacts of larger scale aquaculture and possible biosecurity plans/conditions required. | Not yet determined | 2014-16 | Advice | Not yet determined | North Western Inshore Fisheries Conservation Authority (IFCA) | Defra, Developer, Environment Agency, Natural England, Marine Management Organisation (MMO), Morecambe Bay EMS Partnership, Centre for Environment, Fisheries and Aquaculture Science (Cefas), Other |

8 Biological Resource Use

Grazing needs to be regulated to maintain SAC habitat features and prevent scrub encroachment.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|---|--------------------|-----------|---|--------------------|--------------------|---|
| 8A | Grazing needs to be increased/introduced on the dune habitats to prevent scrub encroachment | Not yet determined | 2014-16 | Major Landowner Group land ownership activities : Undertake Specific Management Works | Not yet determined | Natural England | Cumbria Wildlife Trust, National Trust, Millom Town Trust |

9 Change in land management

Improved grazing management is required to manage dune habitats on North Walney NNR.

| Action | Action description | Cost estimate | Timescale | Mechanism | Funding option | Delivery lead body | Delivery partner(s) |
|--------|--|--------------------|-----------|--|--------------------|------------------------|---------------------|
| 9A | An improved grazing regime needs to be introduced around North Walney NNR to manage scrub control and floristic diversity. | Not yet determined | 2014-16 | Mechanism not identified / develop mechanism | Not yet determined | Cumbria Wildlife Trust | Natural England |

10 Hydrological changes

Rosecote power station reached the end of its operational lifetime and has shut down. This has resulted in a lowering of the temperature in Cavendish dock and *Ruppia* will no longer grow. In addition, there is a threat from changes in salinity due to changes in how often the dock is opened to the wider dock system.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|----------------------------|
| 10A | Management of hydrological thermal regime at lagoons associated with Rosecote power station, to maintain locally rare and distinctive marine species | Not yet determined | 2014-16 | Investigation / Research / Monitoring | Not yet determined | Natural England | n/a |

11 Invasive species

Pacific Oyster has been found within Walney Channel (non farmed). Duddon Estuary has had reported sightings of Chinese Mitten Crab which may have been introduced through Mussel dredging/relaying. There are limited biosecurity measures and potential need for greater monitoring and possible eradication of INNS.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|------------------|-----------------------|---------------------------|--|
| 11A | To work with developers and appropriate regulators where necessary, to identify biosecurity measures and to feed into the national Natural England work on addressing Invasive Non-Native Species. | Not yet determined | 2014-18 | Advice | Not yet determined | Natural England | Defra, Environment Agency, Local Authority(ies), North Western Inshore Fisheries Conservation Authority (IFCA), Ports And Harbour Authority(ies), Landowner(s), Marine Management Organisation (MMO), Centre for Environment, Fisheries and Aquaculture Science (Cefas), South Cumbria Rivers Trust, West Cumbria Rivers Trust |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|------------------|-----------------------|---------------------------|----------------------------|
| 11B | Review the Defra and Natural England report for reviewing policy and advice on Pacific Oysters to ensure consistency around the country, and advise developers and regulators appropriately. Make use of the findings from the IPENS Pacific Oyster evidence project. | Not yet determined | 2014-15 | Advice | Not yet determined | Natural England | n/a |

12 Physical modification

Drain clearance and de-silting of saltmarsh channels; dredging and modification of natural saltmarsh creeks. Sand and mud is removed from the creeks to prevent inland flooding, and the dredged material is often piled onto the marshes where spreading is not possible; this changes the local characteristics of the marsh flora on the raised mounds.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|-----------------------------|-----------------------|---------------------------|----------------------------|
| 12A | De-silting and disposing of extracted material can change the physicality of saltmarshes, including creation of raised mounds or higher ground. Regulation needs to be implemented in order to improve this issue. | Not yet determined | 2014-16 | Regulation: SSSI Regulation | Not yet determined | Natural England | Environment Agency |

13 Energy production

Licences for wind farm cabling/oil and gas pipelines etc. have previously been granted in a number of areas within Morecambe Bay which have required both terrestrial and marine permissions/licenses for the development. There is a need for better consideration/awareness of marine and coastal impacts during assessment of planning applications (terrestrial element of development) to prevent mixed messages regarding the impacts of the development and potential oversight of issues prior to the marine license being assessed.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|--|-----------------------|---------------------------|----------------------------|
| 13A | Cable landfall linked to offshore energy production/ gas storage schemes are numerous, need better understanding of the impacts across the entire Natura 2000 site and the long term impacts of major pipeline projects which could include monitoring projects. | Not yet determined | 2014-16 | Mechanism not identified / develop mechanism | Not yet determined | Local partnership | Developer |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|--|----------------------|------------------|-----------------------|-----------------------|---------------------------|---|
| 13B | Adoption of Coastal Concordat by Local Authorities and Regulating Bodies to allow provision of coordinated delivery of advice, survey/monitoring requests and raising any issues at an early stage for non-Nationally Significant Infrastructure Project (NSIP) cases. | Not yet determined | 2014-16 | Partnership agreement | Not yet determined | Local Authority(ies) | Defra, Environment Agency, Lake District National Park Authority, Natural England, Marine Management Organisation (MMO), Department for Transport |

14 Fisheries: Commercial marine and estuarine

Commercial fishing activities categorised as ‘amber or green’ under Defra’s revised approach to commercial fisheries in EMSs require assessment and (where appropriate) management. This assessment will be undertaken by NWIFCA. 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.

Fisheries activities within Morecambe Bay are varied and limited spatially. The impacts of mussel dredging, seed mussel (hand gathering), shrimp fishing (tractor and boat), netting, bait digging (recreational/commercial) and other identified on going or potential fisheries are to be assessed. Environment Agency are responsible for migratory fish species.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|--|-----------------------|---|--|
| 15A | Amber/Green site/features: Where these assessments indicate management is required, appropriate measures will be introduced by the NWIFCA. If management measures are established to protect the feature(s), on-going work will be required by the NWIFCA to ensure compliance and an appropriate level of reporting to ensure sites are well managed and to enable Natural England to provide advice on the condition of features and potential condition threats. | Not yet determined | 2014-16 | Implementation Of Appropriate Coastal Management | Not yet determined | North Western Inshore Fisheries Conservation Authority (IFCA) | Environment Agency, Natural England, Marine Management Organisation (MMO), Review of Fisheries Project Board |

15 Changes in species distributions

There have been declines in bird population numbers for several species notified within Morecambe Bay and Duddon Estuary SPA's. It is unclear if it is a local or national trend in declines, if it is attributed to an anthropogenic problem or if they have birds relocated elsewhere and national populations are maintained. Also within Morecambe Bay there is a current issue of decline in the population of SPA gulls whilst urban gull numbers are increasing. This is leading to the increase in use of general licences which are not regulated.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---------------------------------------|-----------------------|---------------------------|----------------------------|
| 15A | Review of population data for notified species both locally and nationally - particularly trend analysis. | Not yet determined | 2014-16 | Investigation / Research / Monitoring | Not yet determined | Natural England | n/a |

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|--|-----------------------|---------------------------|----------------------------|
| 15B | Review of general licence for gull control to address urban gull population issues. | Not yet determined | 2014-15 | Regulation: Other - obtain appropriate permissions | Not yet determined | Natural England | n/a |

16 Direct impact from 3rd party

Taking of bird eggs by collectors and other individuals from breeding colonies nest sites, particularly Hodbarrow and South Walney for ground nesting seabirds.

| <i>Action</i> | <i>Action description</i> | <i>Cost estimate</i> | <i>Timescale</i> | <i>Mechanism</i> | <i>Funding option</i> | <i>Delivery lead body</i> | <i>Delivery partner(s)</i> |
|---------------|---|----------------------|------------------|---|-----------------------|---------------------------|---|
| 16A | To improve the protection of important breeding colonies, long term wardens for sites need to be secured. This will enable maintenance of effective enclosures. | Not yet determined | 2014-16 | Non-Natural England funded site management plan | Not yet determined | Local partnership | Cumbria Wildlife Trust, National Trust, Natural England, RSPB |

Site details

The tables in this section contain site-relevant contextual information and links

Qualifying features

#UK Special responsibility

Duddon Estuary SPA

A143(NB) *Calidris canutus*: Red knot

A162(NB) *Tringa totanus*: Common redshank

A191(B) *Sterna sandvicensis*: Sandwich tern

Waterbird assemblage

A054(NB) *Anas acuta*: Northern pintail

Morecambe Bay SAC

S1166 *Triturus cristatus*: Great crested newt

H1110 Sandbanks which are slightly covered by sea water all the time

H1130 Estuaries

H1140 Mudflats and sandflats not covered by seawater at low tide

H1150# Coastal lagoons

H1160 Large shallow inlets and bays

H1170 Reefs

H1220 Perennial vegetation of stony banks

H1310 Salicornia and other annuals colonising mud and sand

H1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

H2110 Embryonic shifting dunes

H2120 Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")

H2130# Fixed dunes with herbaceous vegetation ("grey dunes")

H2150# Atlantic decalcified fixed dunes (*Calluno-Ulicetea*)

H2170 Dunes with *Salix repens ssp argentea* (*Salicion arenariae*)

H2190 Humid dune slacks

Morecambe Bay SPA

A143(NB) *Calidris canutus*: Red knot

A137(NB) *Charadrius hiaticula*: Ringed plover

A157(NB) *Limosa lapponica*: Bar-tailed godwit

A160(NB) *Numenius arquata*: Eurasian curlew

A149(NB) *Calidris alpina alpina*: Dunlin

A162(NB) *Tringa totanus*: Common redshank

A140(NB) *Pluvialis apricaria* : European golden plover

A141(NB) *Pluvialis squatarola*: Grey plover

A169(NB) *Arenaria interpres*: Ruddy turnstone

A183(B) *Larus fuscus*: Lesser black-backed gull

A184(B) *Larus argentatus*: Herring gull

A191(B) *Sterna sandvicensis*: Sandwich tern

A193(B) *Sterna hirundo*: Common tern

A195(B) *Sterna albifrons*: Little tern

Waterbird assemblage

A040(NB) *Anser brachyrhynchus*: Pink-footed goose

A048(NB) *Tadorna tadorna*: Common shelduck

A054(NB) *Anas acuta*: Northern pintail

A063(B) *Somateria mollissima*: Common eider

A130(NB) *Haematopus ostralegus*: Eurasian oystercatcher

Site location and links

Duddon Estuary SPA

Area (ha) **6806.3**

Grid reference **SD180765**

[Map link](#)

Local Authorities

Site Conservation Objectives

European Marine Site conservation advice

Regulation 33/35 Package

Marine Management Organisation site plan

Morecambe Bay SAC

Area (ha) **61506.22** Grid reference **SD371697**

Local Authorities

Site Conservation Objectives

European Marine Site conservation advice

Regulation 33/35 Package

Marine Management Organisation site plan

Morecambe Bay SPA

Area (ha) **37404.6** Grid reference **SD375700**

Local Authorities

Site Conservation Objectives

European Marine Site conservation advice

Regulation 33/35 Package

Marine Management Organisation site plan

Cumbria

[Duddon Estuary SPA](#)

[Duddon Estuary SPA](#)

[Regulation 33/35 package link](#)

[n/a](#)

[Map link](#)

Cumbria; Lancashire

[European Site Conservation Objectives for Morecambe Bay SAC](#)

[Morecambe Bay EMS](#)

[Regulation 33/35 package link](#)

[n/a](#)

[Map link](#)

Cumbria; Lancashire

[European Site Conservation Objectives for Morecambe Bay SPA](#)

[Morecambe Bay EMS](#)

[Regulation 33/35 package link](#)

[n/a](#)

Water Framework Directive (WFD)

The Water Framework Directive (WFD) provides the main framework for managing the water environment throughout Europe. Under the WFD a management plan must be developed for each river basin district. The River Basin Management Plans (RBMP) include a summary of the measures needed for water dependent Natura 2000 sites to meet their conservation objectives. For the second round of RBMPs, SIPs are being used to capture the priorities and new measures required for water dependent habitats on Natura 2000 sites. SIP actions for non-water dependent sites/habitats do not form part of the RBMPs and associated consultation.

Duddon Estuary SPA

| | |
|----------------------------------|--|
| River basin | North West RBMP |
| WFD Management catchment | South West Lakes |
| WFD Waterbody ID (Cycle 2 draft) | GB112074069830, GB112074069850, GB112074069880, GB112074069910 |

Morecambe Bay SAC

| | |
|----------------------------------|--|
| River basin | North West RBMP |
| WFD Management catchment | Kent/Leven, Lune, South West Lakes, Wyre |
| WFD Waterbody ID (Cycle 2 draft) | GB112072065860, GB112072065880, GB112072065900, GB112073064430, GB112073071032, GB112073071040, GB112073071070, GB112073071150, GB112073071160, GB112073071270, GB112073071350, GB112073071420, GB112073071440, GB112073071460, GB112074069830, GB112074069850, GB112074069880, GB112074069910 |

Morecambe Bay SPA

| | |
|----------------------------------|--|
| River basin | North West RBMP |
| WFD Management catchment | Kent/Leven, Lune, Weaver/Gowy |
| WFD Waterbody ID (Cycle 2 draft) | GB112072065860, GB112072065880, GB112072065900, GB112072066120, GB112072066160, GB112073064430, GB112073071032, GB112073071040, GB112073071070, GB112073071150, GB112073071160, GB112073071270, GB112073071350, GB112073071420, GB112073071440, GB112073071460 |

Overlapping or adjacent protected sites

| Site(s) of Special Scientific Interest (SSSI) | | |
|--|---|-----------------------------|
| Duddon Estuary SPA | Duddon Estuary SSSI | |
| Morecambe Bay SAC | Wyre Estuary SSSI | |
| | Roudsea Wood & Mosses SSSI | |
| | South Walney & Piel Channel Flats SSSI | |
| | Morecambe Bay SSSI | |
| | Lune Estuary SSSI | |
| | Duddon Estuary SSSI | |
| Morecambe Bay SPA | Wyre Estuary SSSI | |
| | Roudsea Wood & Mosses SSSI | |
| | South Walney & Piel Channel Flats SSSI | |
| | Morecambe Bay SSSI | |
| | Lune Estuary SSSI | |
| National Nature Reserve (NNR) | | |
| Duddon Estuary SPA | North Walney NNR Sandscale Haws NNR | |
| Morecambe Bay SAC | North Walney NNR Roudsea Wood and Mosses NNR Sandscale Haws NNR | |
| | Morecambe Bay SPA | Roudsea Wood and Mosses NNR |
| | Ramsar | |
| Duddon Estuary SPA | Duddon Estuary | |
| Morecambe Bay SAC | Duddon Estuary Morecambe Bay | |
| | Morecambe Bay SPA | Morecambe Bay |
| Special Areas of Conservation (SAC) and Special Protection Areas (SPA) | | |

Duddon Estuary SPA

Morecambe Bay SAC

Morecambe Bay SPA

Morecambe Bay SAC

Morecambe Bay SPA

Duddon Estuary SPA

Morecambe Bay SAC

| <i>Version</i> | <i>Date</i> | <i>Comment</i> |
|----------------|-------------|----------------|
| 1.0 | 17/12/14 | |

www.naturalengland.org.uk/ipens2000



Environment
Agency



Appendix 3:
Wintering Bird Survey Report Specific to Pink-footed Goose (*Anser
brachyrhynchus*)

West Lancashire Agricultural Plain.

Wintering Bird Survey Report.

Specific to Pink-footed Goose (*Anser brachyrhynchus*)

Compiled by Ecology Services Ltd.

Members of the Institute of Ecology and Environmental Management.

on behalf of

Aurora Exploration (UK) Limited

July 2014



Environmental Consultants

1 Church Row Chambers

Longton

Preston

Lancashire PR4 5PN.

tel: 01772 614932

fax: 01772 614930

email: info@ecologyservices.co.uk

web: www.ecologyservices.co.uk

Written by: PJB

Checked: SB

Approved: SB

| | | |
|------------|--|----------|
| 1.0 | INTRODUCTION | 2 |
| 2.0 | SURVEY METHODOLOGY | 3 |
| 3.0 | SURVEY RESULTS | 3 |
| 4.0 | EVALUATION | 5 |
| 5.0 | CONCLUSIONS & RECOMMENDATIONS | 6 |
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TABLES AND FIGURES

Table 1: Peak Monthly Counts of Pink-footed geese

Figure 1: Monthly Average Mean of Pink-footed geese

Figure 2: Density of pink-footed geese in relation to agri-environment

Figure 3: Peak Monthly Counts of Pink-footed geese

DRAWINGS

Drawing 1-7:

Distribution of Pink-footed geese (*Anser brachyrhynchus*) from September 2013 to March 2014

1.0 INTRODUCTION

1.1 Ecology Services Limited was commissioned by Aurora Exploration (UK) Limited in August 2013, to undertake a Wintering Bird Survey (WBS) over an area of land in the Downholland Moss area of West Lancashire covering approximately 50km², from Altcar Bridge in the southwest (NGR 331723 407991) to Primrose Hill in the northeast (NGR 340070 409710).

Background

1.2 A number of previous ecological surveys were undertaken in 2011/12 for an area of Downholland Moss off Moss Lane (NGR 332177 408270 at centre) for the purpose of Site Investigation bore holes. As part of the initial surveys a Wintering Bird Survey (WBS) was undertaken to gather empirical data as to the numbers of over wintering Pink-footed geese that would normally feed or roost in and around the proposed area of works that would have direct links with the Ribble/Alt Special Protection Area (SPA) and Ramsar site (*refer to Norris Farm Exploration Site Survey Report compiled by Ecology Services Ltd*).

1.3 Following on from the initial surveys, the Client has now extended the license area which now covers approximately 50km² and requires further empirical data with regards to use of the land by over-wintering birds, in particular pink-footed geese, and other species of conservation concern, especially Whooper swan (*Cygnus cygnus*) and Bewick's swan (*Cygnus columbianus*).

1.4 This report provides the results of this extended survey and assesses the correlation between agri-environment and determining the presence of the above species.

2.0 SURVEY METHODOLOGY

2.1 The whole site was compartmentalised into 5 areas (See Drawing 1 - 7), and given a Vantage Point (VP) from which a surveyor was able to clearly visually assess the land within that specific area and to note (with the aid of spotting scopes and binoculars) the presence of feeding/roosting birds associated with the protected sites, along with the agri-environment on which they were situated.

2.2 The numbers of geese and the associated agri-environment were then plotted on a map and notes taken using a field survey sheet.

2.3 Geese that would only settle for short periods were not classified, as this would not be deemed as long term feeding/roosting activity. Fly-over's were also discounted from the final figures.

2.4 A total of 21 surveys were conducted, which normally consisted of 2 dawn and 1 dusk survey per month, from September 2013 to March 2014, inclusive.

2.5 Dawn surveys were conducted 30 minutes prior to sunrise to monitor geese as they left their overnight roost from either Formby Point in the west and Simonswood Moss to the south, to move inland to their feeding grounds. Pink-footed geese could easily be identified and counted either flying over or landing to feed in fields within the designated VP site areas.

2.6 Dusk surveys were conducted 1 hour prior to twilight to check for geese that were still feeding or roosting within the site areas, prior to their return to coastal roosts.

- 2.7 All surveys were undertaken adopting species-specific survey techniques as prescribed by RSPB, WWT, BTO (*Gilbert 1998*) and WeBS core counting process, with amended site-specific variations.

Personnel

- 2.8 A total of 5 qualified and competent bird surveyors were used on each survey. Each surveyor was equipped with x10 binoculars and x60 spotting scope. Individual surveyors were able to communicate with each other via mobile phones and/or walkie-talkies throughout each survey.

Limitations of Survey

- 2.9 One survey was postponed in October due to adverse weather conditions but an additional survey was undertaken in January 2014 to cover for the October shortfall. The postponement of the survey in October would not have had any adverse effects with regards to the overall survey results.

Conservation status

- 2.10 All the species mentioned in Section 1.3 have direct links to the Ribble and Alt Estuary Special Protection Area (SPA)/RAMSAR and Martin Mere SPA/RAMSAR sites.
- 2.11 For a wetland to be recognised as being of international ornithological importance and to qualify as an SPA, it must hold at least 1% or more of the estimated population on one species of water bird.
- 2.12 In the non-breeding season, the UK's SPA suite for the Iceland/Greenland population of pink-footed geese supports, on average, 360,000 individuals (calculated using totals from the WWT/JNCC/BTO Wetland Bird Survey 2009/10). From 2005/2010 the mean total of pink-footed geese identified in southwest Lancashire was 49,802. This total amounts to 13% of the British population and 18% of the international population. The suite comprises 24 sites at which pink-footed geese have been listed as a qualifying species.
- 2.13 Whooper and Bewick's swan are protected under Schedule 1, part 1 of the Wildlife and Countryside Act (WCA) 1981, and are recognised as UK Species of Principal Importance.

3.0 SURVEY RESULTS

- 3.1 Over the period from September 2013 to March 2014 all counts of pink-footed geese, Whooper swan and Bewick's swan actively feeding/roosting were recorded along with the agri-environment in which the birds settled. Small numbers of Whooper swans were observed flying over or settling for very short periods within VPs. No Bewick's swans were recorded on any of the surveys. For this reason these species were discounted from the overall results. Table 1 gives the peak and mean number for each area.

Table 1: Peak Monthly Counts of Pink-footed geese (September 2013 – Mar 2014)

| Area (VP) | Sept | Oct | Nov | Dec | Jan | Feb | Mar |
|-----------|-----------|--------------|-------------|-------------|-------------|-------------|-----|
| VP1 | 876 (259) | 12600 (9227) | 1500 (950) | 3330 (1620) | 5500 (2163) | 680 (227) | - |
| VP2 | 30 (10) | 1800 (1433) | 3000 (1500) | 5500 (2700) | 5000 (3913) | 3000 (1000) | - |
| VP3 | - | 16196 (7242) | 6800 (5465) | 1250 (828) | 5050 (1275) | 5084 (1695) | - |
| VP4 | 134 (45) | 2170 (723) | - | - | - | 3200 (1067) | - |
| VP5 | - | 2200 (733) | - | - | - | - | - |

Numbers in brackets () indicate mean average over that month. Numbers in RED indicate numbers over 1% threshold (3,600)

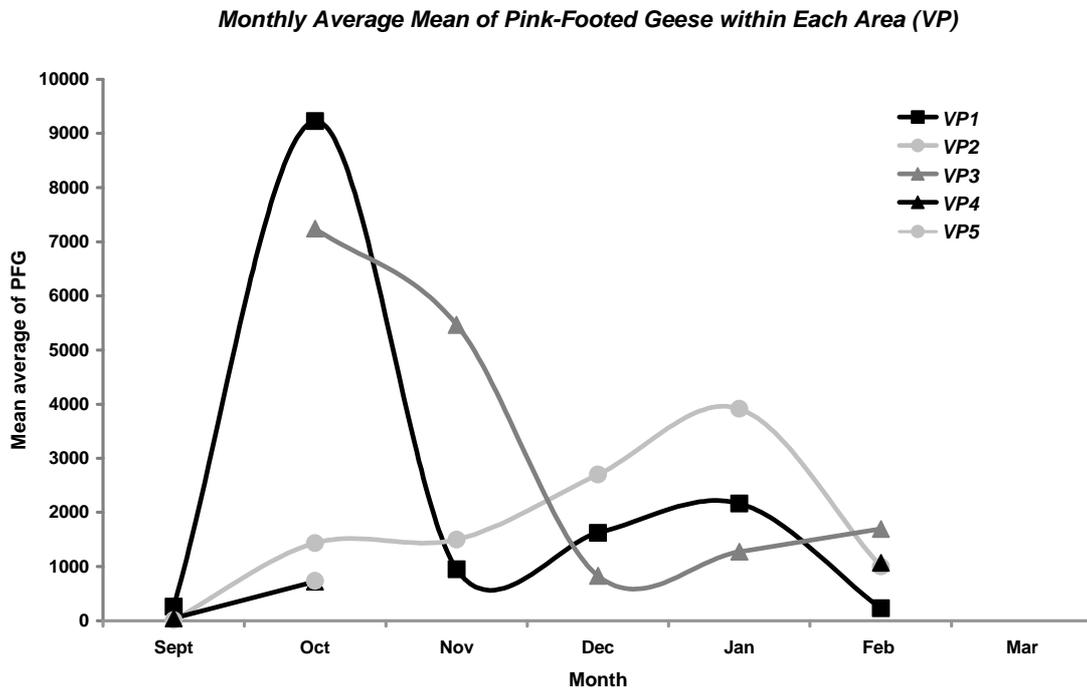


Figure 1: Monthly Average Mean of Pink-footed geese (September 2013 – Mar 2014)

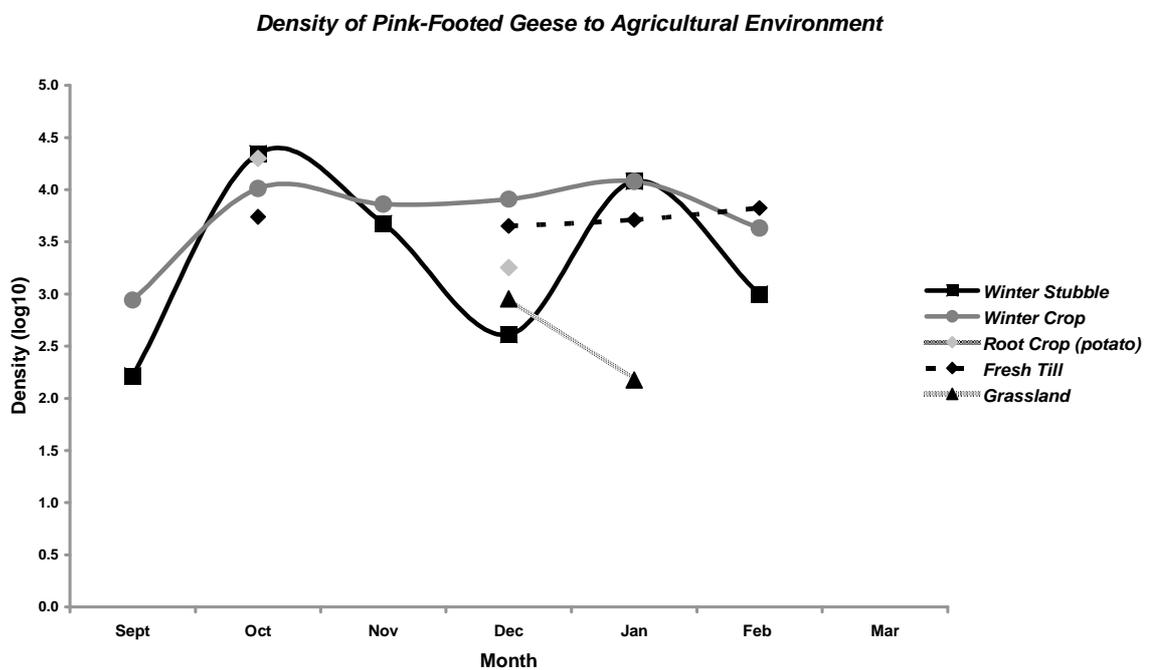


Figure 2: Density of pink-footed geese in relation to agri-environment (September 2013 – Mar 2014)

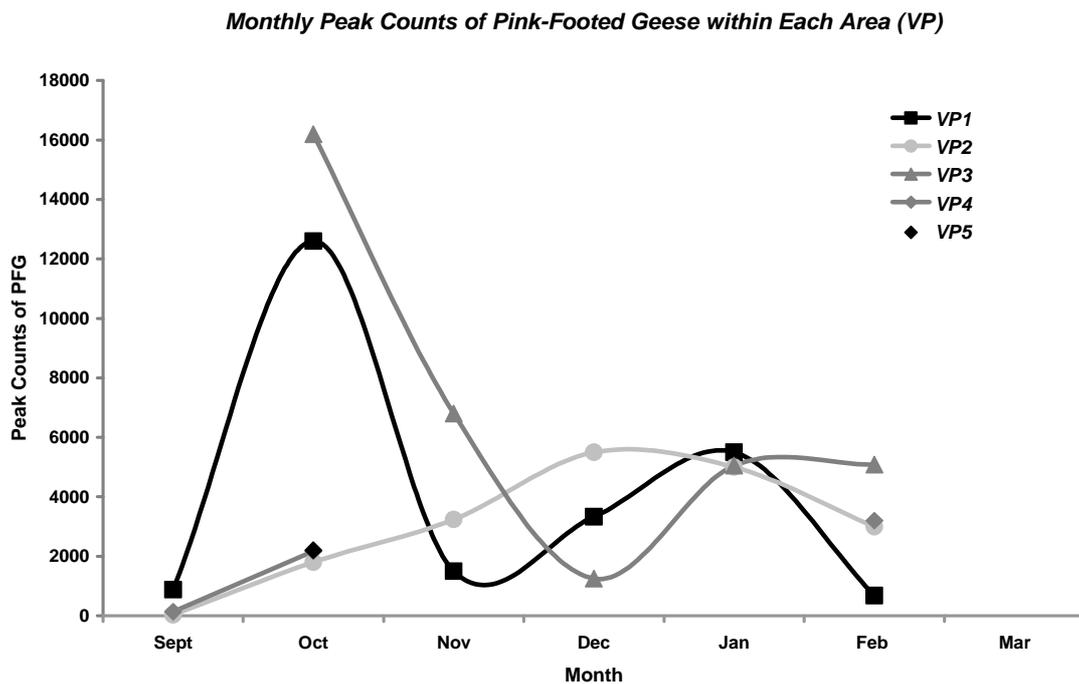


Figure 3: Peak Monthly Counts of Pink-footed geese (September 2013 – Mar 2014)

4.0 EVALUATION

- 4.1 As can be seen in Table 1, low numbers of pink-footed geese with the 50km² survey area are apparent in September. There is however a very sharp rise in October with a peak number of c35,000 throughout the survey area.
- 4.2 The largest numbers observed during October are concentrated around VP1 (12,600) and VP3 (16,196) (Downholland Moss and Plex Moss). These numbers correlate with the harvesting of maize and potato root crops undertaken at this time of year.
- 4.3 Numbers and densities steady out during November, December and January (see Fig 2), finally falling in February and March.
- 4.4 From November to January larger densities of pink-footed geese are found evenly spread within winter crops (when fresh shoots are emerging) and the remains of the winter stubbles. This is very apparent at VP2 where agriculture was a mixture of winter crops and stubbles.
- 4.5 Grasslands appears to be a less favourable habitat for feeding pink-footed geese with low numbers found only during December and January.
- 4.6 The majority of pink-footed geese were observed to the west of the survey area at Plex Moss, Downholland Moss and The Withins, with the A5417 seeming to be a dividing line, from Haskayne in the north to Lydiate in the south, where numbers of pink-footed geese to the east were relatively low or none existent (VP4 and 5) with the largest count being 3200 in October at VP4 and 2200 at VP5 and February.

5.0 CONCLUSIONS and RECOMMENDATIONS

- 5.1 During the winter months migrating pink-footed geese are an important factor when determining significant affects to the conservation interest of the Ribble and Alt Estuary SPA/RAMSAR site. Pink-footed geese have a large roost on the marsh off Formby and will move inland, sometimes considerable distances to feed on adjoining agricultural land and Martin Mere, itself an SPA/RAMSAR site.
- 5.2 When planning any development or construction works within or in proximity to agricultural land near to the Ribble and Alt Estuary SPA/RAMSAR during the winter months, impacts to pink-footed geese should be taken into consideration.
- 5.3 As it stands, when undertaking a desktop search, the whole of the West Lancashire agricultural plain is given blanket coverage as to the presence of pink-footed geese during the winter months with no indication at a site specific level.

Agri-environment and pink-footed geese

- 5.4 The result of the survey show that pink-footed geese are not indiscriminate in their feeding habits but are more adventitious to there surroundings.
- 5.5 Several conclusions can be made of the results;
- Largest numbers of geese within this area of West Lancashire will be encountered during October, especially from the roost at Formby
 - Fields of recently harvested crops are more likely to hold the greatest number of geese
 - Roots crops, such as potato, saw the largest densities of geese compared with other agricultural settings
 - After the harvest period in October, pink-footed geese numbers decline slightly and finally steady out over November to January within the area and are evenly distributed predominantly around winter stubbles and winter crops
 - Favourable habitat is found west of the A5417, from Haskayne to Lydiate. Numbers of geese encountered east of this 'boundary' are likely to very low.
 - Determination can be predicted as to the likely impacts on pink-footed geese by reviewing the agricultural environment at a site specific level prior to development or works undertaken during the winter months within this area of West Lancashire.
 - The low numbers of whooper swans were considered to be transient records of birds moving from the coastal area and to other feeding grounds situated at Martin Mere and not resulting from any agri-environment practices within the survey area.
- 5.6 This large scale survey has determined that there is a correlation between the agricultural environment and the likely presence of feeding pink-footed geese at particular periods of the winter season.

Recommendations

- 5.7 A survey of the agricultural environment around the development and up to 500m around the site should be undertaken prior to winter months to map the agri-environment.
- 5.8 The agricultural landscape is very dynamic and can change dramatically from year to year, therefore it is also recommended that any agricultural survey is repeated the following year if works are delayed over the initial wintering period.
- 5.9 Liaison with landowners prior to development to create a less favourable agricultural environment around areas of development, with planting of more favourable crops further afield.

- 5.10 A prediction can then be made as to the likely presence of pink-footed geese during the winter season and in what numbers and densities within 500m of the proposed development/site.
- 5.11 An Assessment of Likely Significant Effects can then be determined with regards to impacts on the conservation interests of Ribble and Alt Estuary SPA/RAMSAR.
- 5.12 The Habitat Regulations Directive (92/43/EEC) established a network of Natura 2000 sites, within the European Community, with the objective of protecting sites that are considered to be of exceptional importance to rare, containing endangered and vulnerable natural habitats and species. These sites are European designated sites and are known as Special Areas of Conservation (SAC), Special Protection Areas (SPA's) and Offshore Marine Sites (OMS). Planning Policy also recommend that RAMSAR sites should be afforded the same level of consideration as the Natura 2000 sites.
- 5.13 To ensure that the protection of these sites is considered during the planning process at a regional and local level, works in close proximity of, or that have the potential to affect a European designated site, require an Assessment of Likely Significant Effect (ALSE). Even where planning permission is not required for a scheme an ASLE should be completed.
- 5.14 Where a development is likely to have a significant effect upon a European designated site, an Appropriate Assessment (AA) of the implications of the works upon a European site, in view of the sites conservation objectives, will be required. The Planning Authority will require either the ALSE or the AA in support of any planning application and Natural England will need to be consulted as part of this process to obtain the correct assents when required.
- 5.15 The Habitat Regulations Directive (92/43/EEC) transposed into UK law in 1994 as The Habitats Regulations, which was subsequently amended and is now known as the Conservation of Habitats and Species Regulations 2010.

6.0 REFERENCES

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Drawing 1-7:
Distribution of Pink-footed geese (*Anser brachyrhynchus*) from September 2013 to March 2014

Distribution of Pink-footed geese (*Anser brachyrhynchus*) in relation to agri-environment.

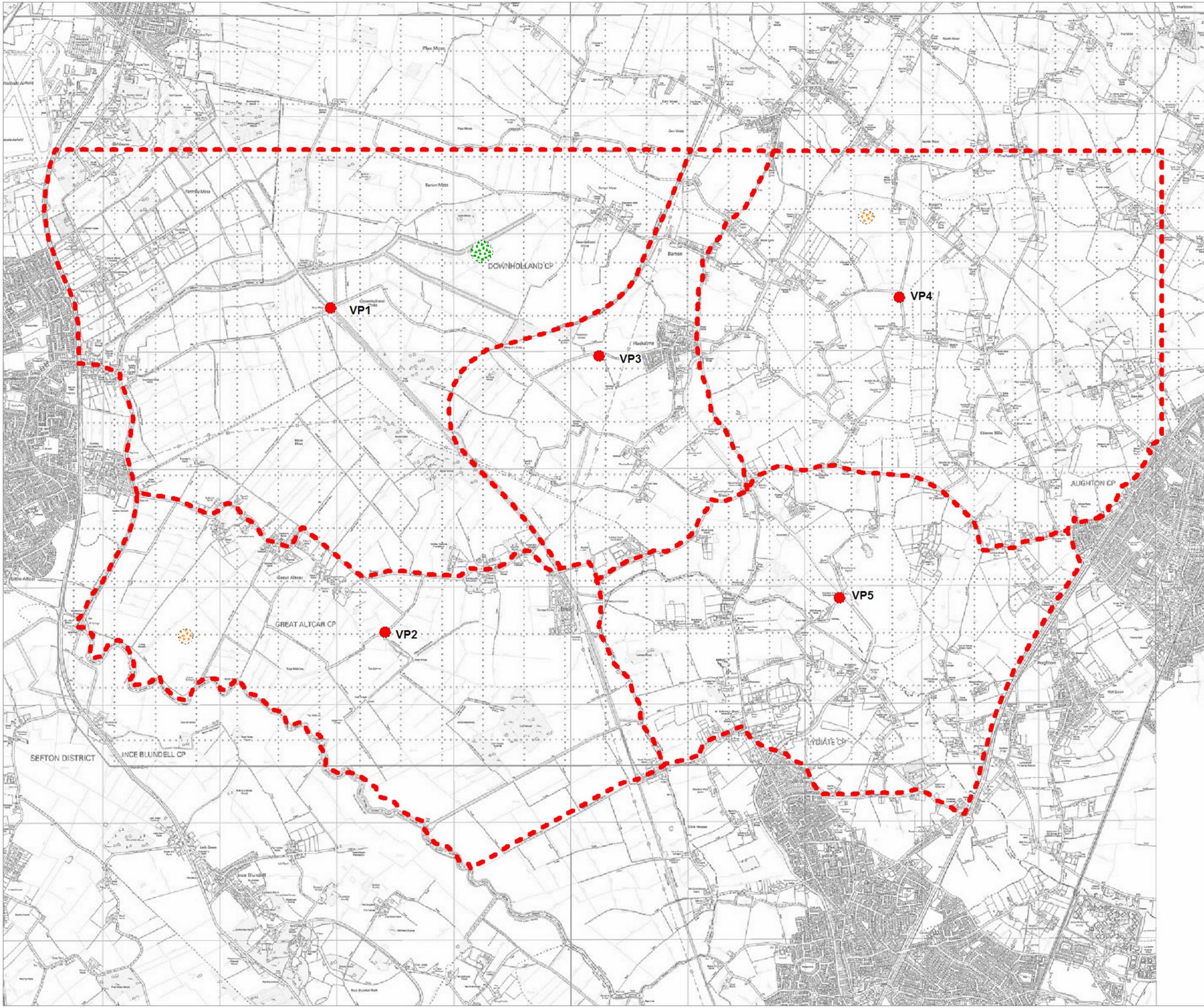
September 2013

Map Ref:
NW: SD 300 100
SW: SD 300 050
SE: SD 400 050
NE: SD 400 100

Scale: Not to scale.

Key:

-  VP Areas
-  Winter Stubbles
-  Winter Crop
-  Root Crop
-  Grassland
-  Tilled Land



Distribution of Pink-footed geese (*Anser brachyrhynchus*) in relation to agri-environment.

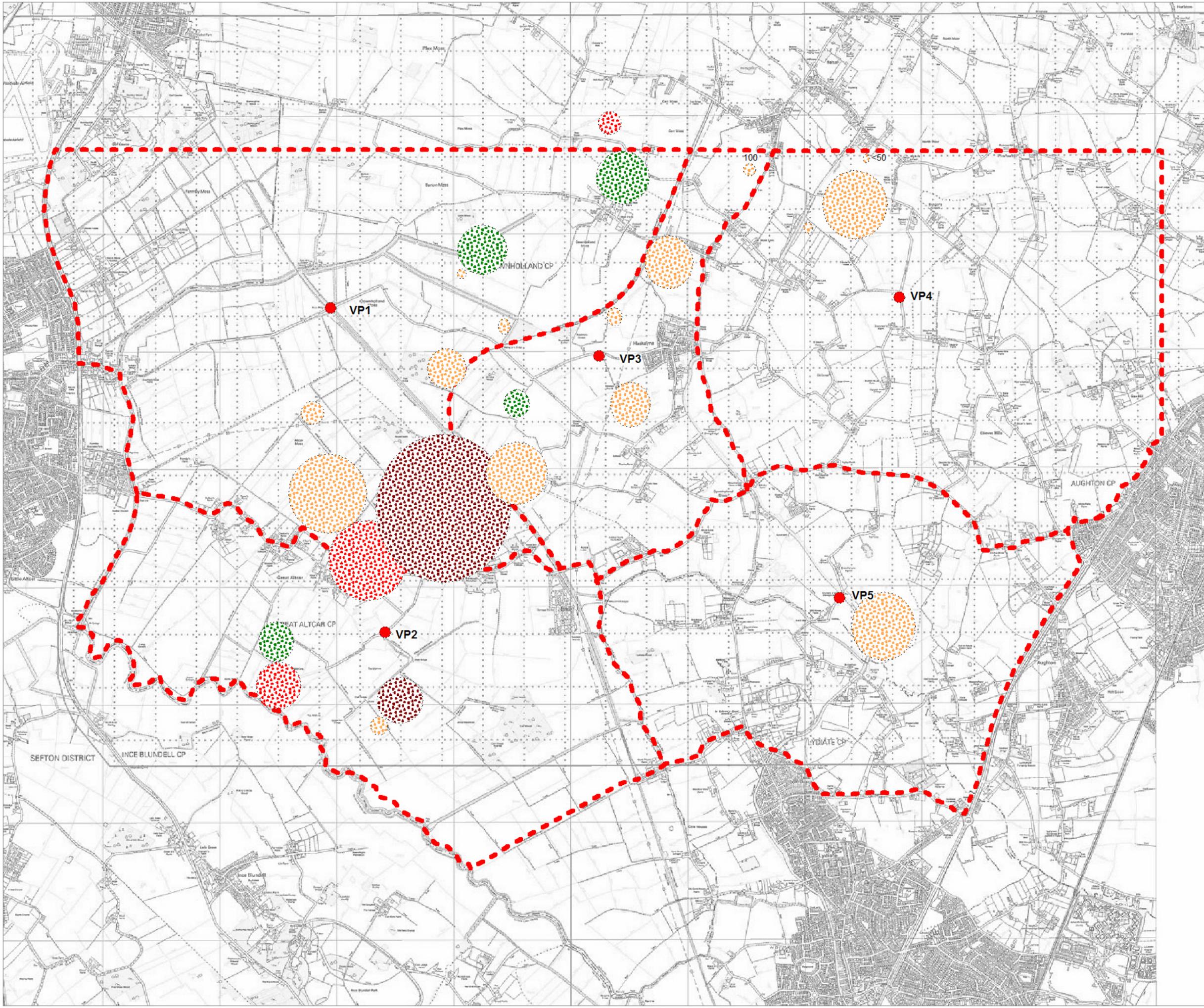
October 2013

Map Ref:
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SW: SD 300 050
SE: SD 400 050
NE: SD 400 100

Scale: Not to scale.

Key:

-  VP Areas
-  Winter Stubbles
-  Winter Crop
-  Root Crop
-  Grassland
-  Tilled Land



Distribution of Pink-footed geese (*Anser brachyrhynchus*) in relation to agri-environment.

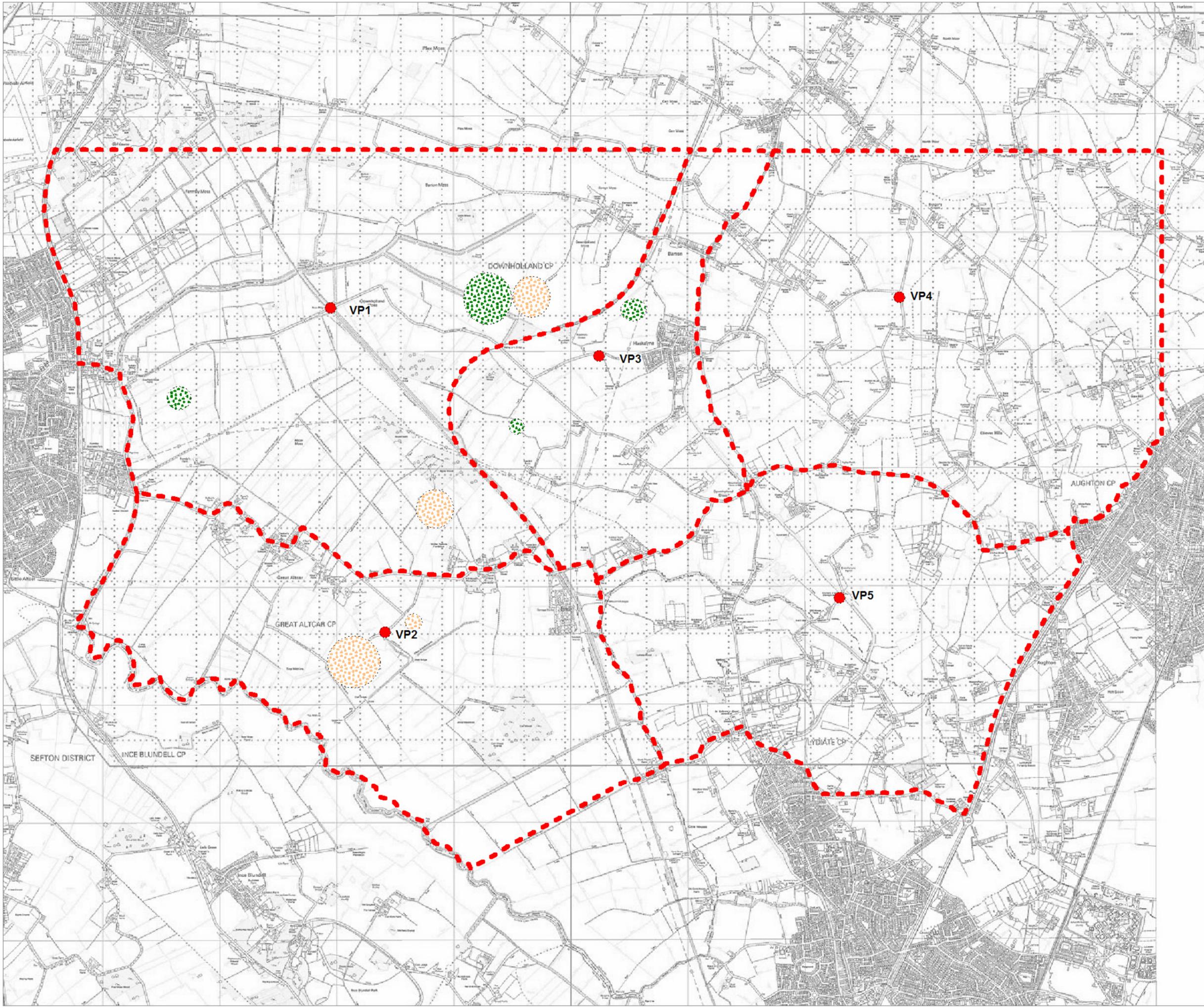
November 2013

Map Ref:
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SW: SD 300 050
SE: SD 400 050
NE: SD 400 100

Scale: Not to scale.

Key:

-  VP Areas
-  Winter Stubbles
-  Winter Crop
-  Root Crop
-  Grassland
-  Tilled Land



Distribution of Pink-footed geese (*Anser brachyrhynchus*) in relation to agri-environment.

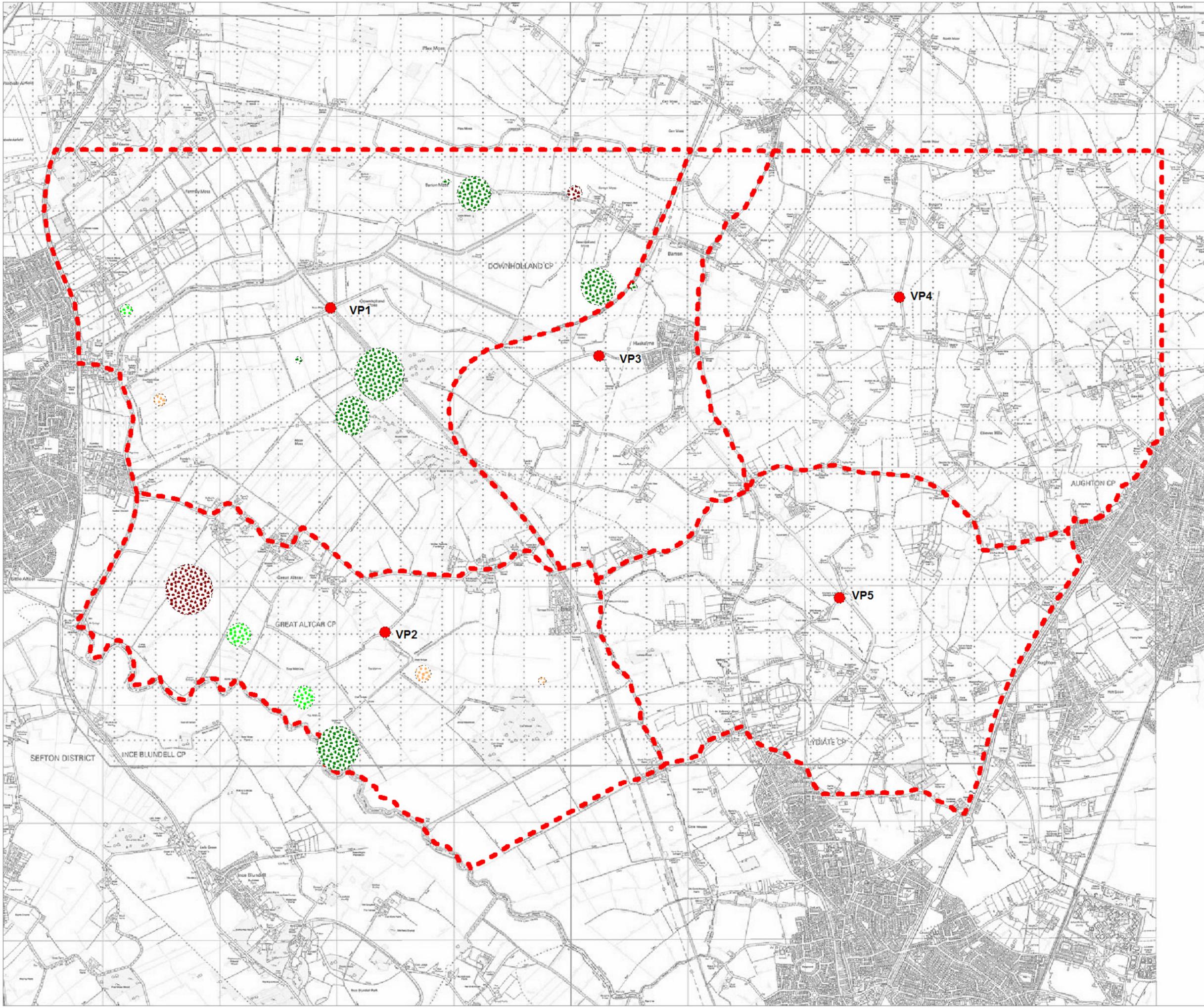
December 2013

Map Ref:
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SW: SD 300 050
SE: SD 400 050
NE: SD 400 100

Scale: Not to scale.

Key:

-  VP Areas
-  Winter Stubbles
-  Winter Crop
-  Root Crop
-  Grassland
-  Tilled Land



Distribution of Pink-footed geese (*Anser brachyrhynchus*) in relation to agri-environment.

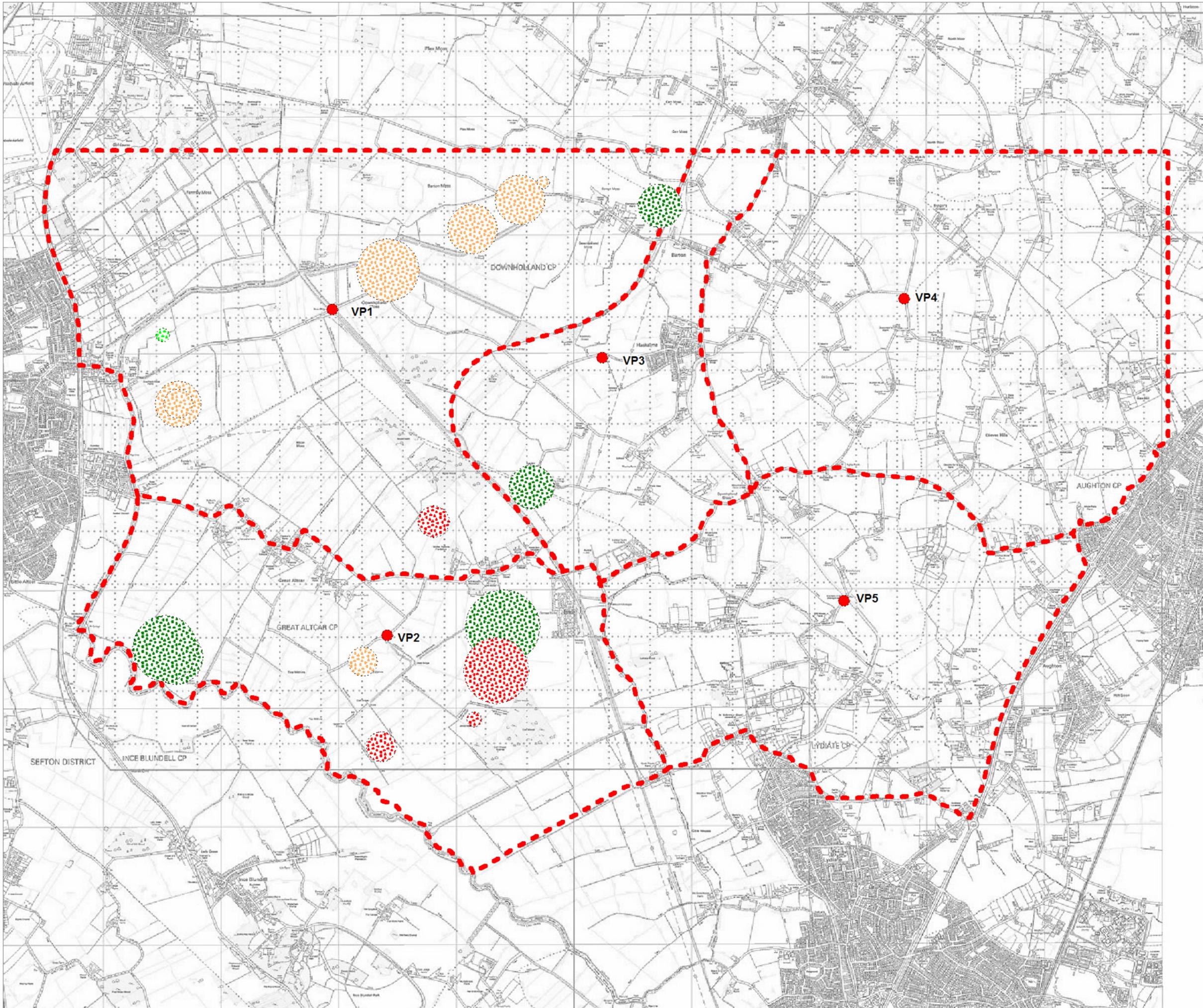
January 2014

Map Ref:
NW: SD 300 100
SW: SD 300 050
SE: SD 400 050
NE: SD 400 100

Scale: Not to scale.

Key:

-  VP Areas
-  Winter Stubbles
-  Winter Crop
-  Root Crop
-  Grassland
-  Tilled Land



Distribution of Pink-footed geese (*Anser brachyrhynchus*) in relation to agri-environment.

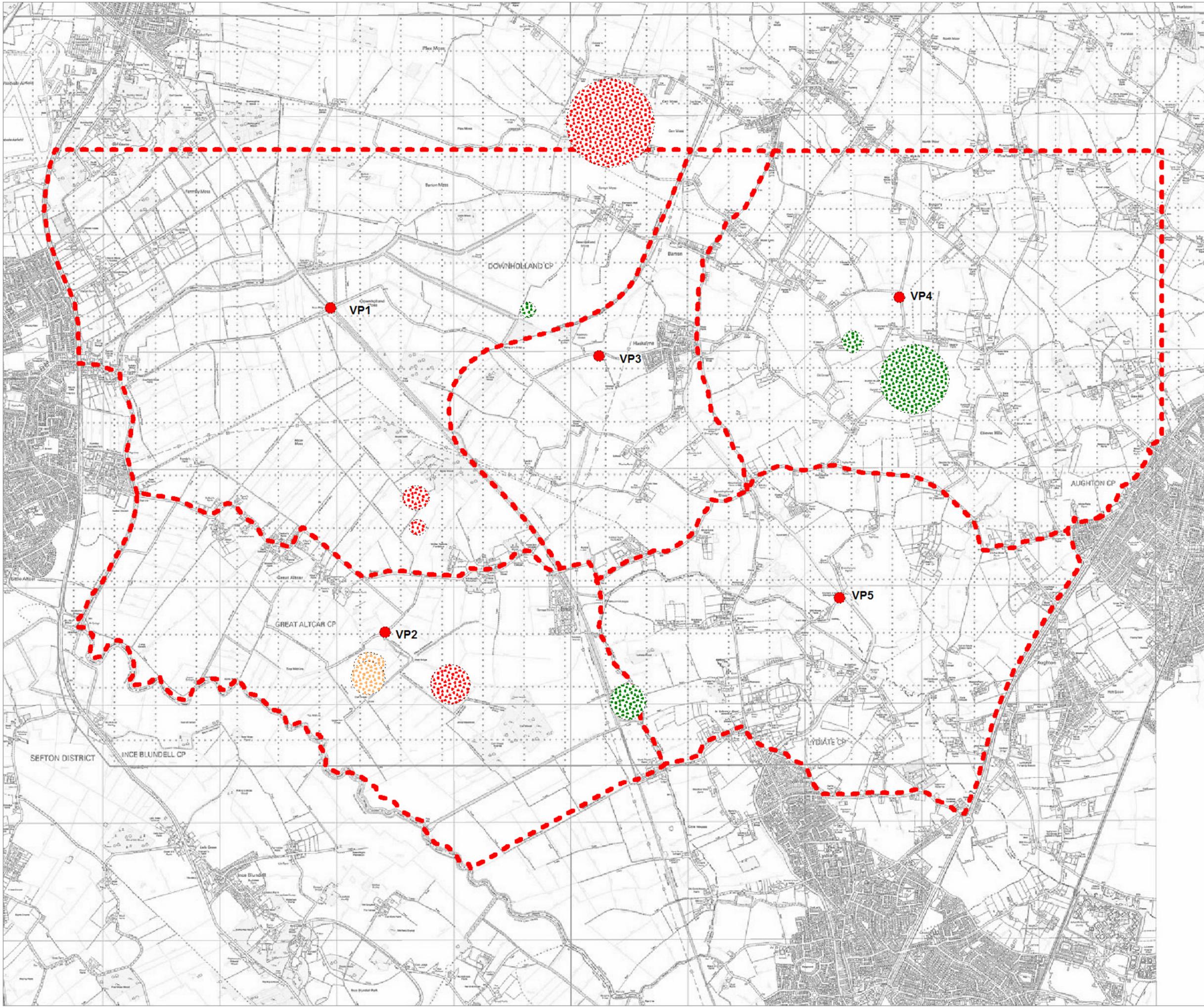
February 2014

Map Ref:
NW: SD 300 100
SW: SD 300 050
SE: SD 400 050
NE: SD 400 100

Scale: Not to scale.

Key:

-  VP Areas
-  Winter Stubbles
-  Winter Crop
-  Root Crop
-  Grassland
-  Tilled Land



Distribution of Pink-footed geese (*Anser brachyrhynchus*) in relation to agri-environment.

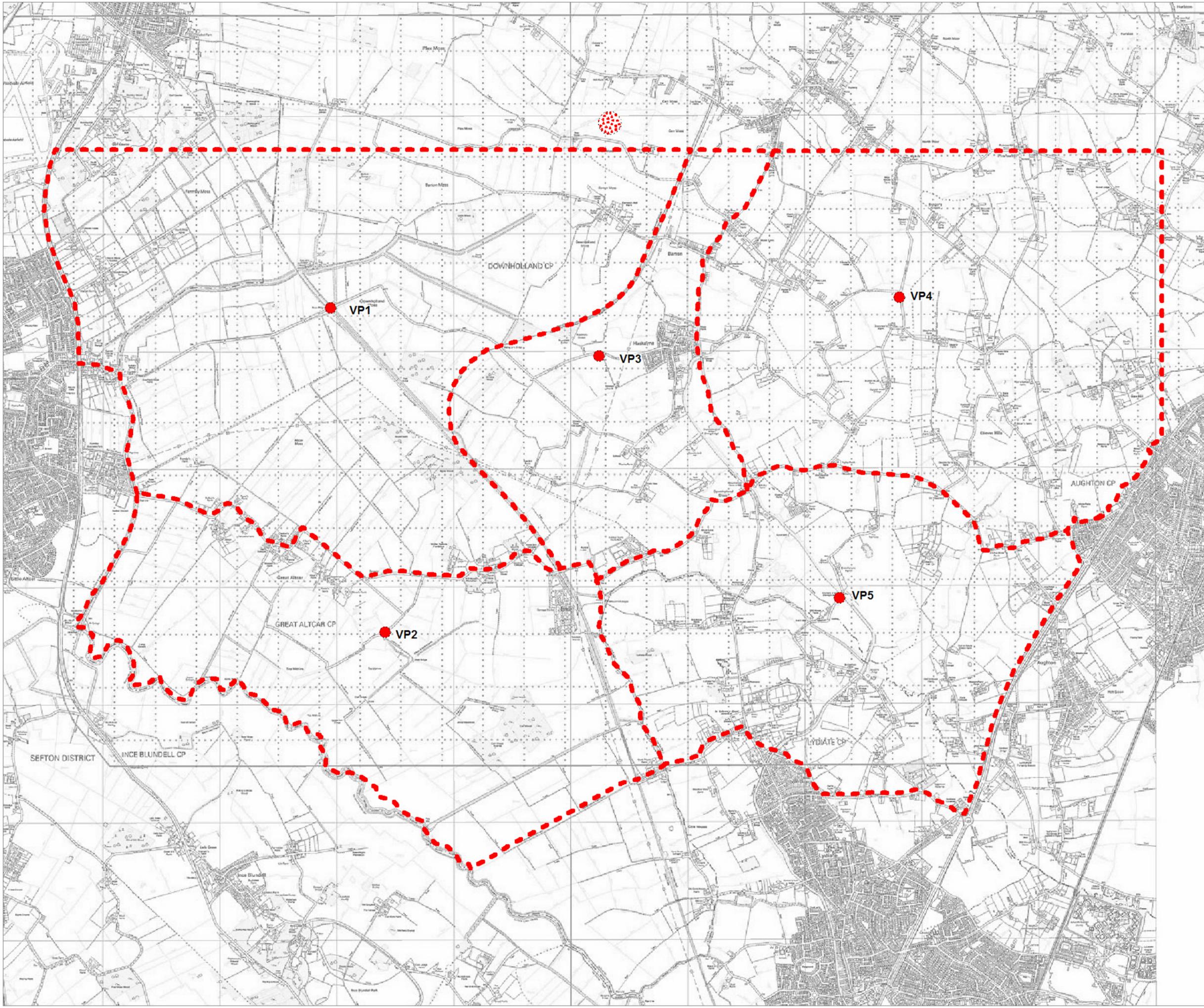
March 2014

Map Ref:
NW: SD 300 100
SW: SD 300 050
SE: SD 400 050
NE: SD 400 100

Scale: Not to scale.

Key:

-  VP Areas
-  Winter Stubbles
-  Winter Crop
-  Root Crop
-  Grassland
-  Tilled Land



WBS agri- environment survey Downholland Moss 2013-14 results VP 1 and 2

| Date: | VP | Dawn/Dusk | Species: (PG, WS, BS) | Count | Habitat* | Map ref: | Weather Conditions (inc temp) | Evidence of Wildfowling? (Y/N) | Comments |
|----------|----|-----------|-----------------------|-------|-----------|---------------|--|--------------------------------|--|
| 23/9/13 | 1 | Dusk | N/A | | | | Dry, wind 8mph, cloud 100% cover Tep 18 degrees | | Nothing landed |
| | 2 | Dusk | N/A | | | | | | |
| 26/9/13 | 1 | Dawn | PG | 1000+ | WS | 330267 405887 | Dry, wind 8mph, cloud 100% cover Tep 17 degrees | N | This sighting is off site but on the site boundary on the western edge |
| | 1 | Dawn | PG | 145 | WC | 334250 408850 | | N | |
| | 2 | Dawn | PG | 30 | WS | 331706 405552 | | N | |
| 30/9/13 | 1 | Dawn | PG | 100+ | WC | 334403 408646 | Dry, wind 15mph, cloud 100% cover, Temp 12 degrees | N | More adding to the tally as I left site |
| | 1 | Dawn | PG | 631 | WC | 334250 408850 | | | |
| | 2 | Dawn | PG | 4000+ | WS | 330053 405712 | | N | Outside of area |
| 14/10/13 | 1 | Dawn | WS | 80 | WS tilled | 332062 407942 | Dry, wind 30mph, cloud 100% cover, Temp 7 degrees | N | |
| | 1 | Dawn | PG | 4000+ | WS | 332974 406722 | | N | |
| | 1 | Dawn | PG | 4000+ | WS tilled | 333268 406203 | | N | |
| | 2 | Dawn | PG | 1500 | WS tilled | 332506 405131 | | N | |
| | 2 | Dawn | PG | 300 | WS | 333369 404784 | | N | |
| 28/10/13 | 1 | Dusk | PG | 600+ | WS | 332800 407466 | Dry, windy/gusts 40 - 50 mph, cloud 100% cover, Temp 9 degrees | | Large flock over recently taken potato crop. Leave site and return to roost. |
| | 1 | | PG | 12000 | RC | 333917 406647 | | Y (gun disturbs flight) | |
| | 2 | Dusk | PG | 1500+ | WC | 332481 405340 | | Y (gun disturbs flight) | |
| 30/10/13 | 1 | Dawn | PG | 7000 | RC | 333917 406647 | 11°C; windy, 100% cloud cover | | |
| | 2 | Dawn | PG | 1000 | RC | 333551 405002 | | | |
| 8/11/13 | 1 | Dawn | PG | 400 | WC | 331652 407595 | Dry, Clear sky. 4 degrees C, slight breeze | | |
| | 1 | Dawn | PG | 500 | GS | 331550 408550 | | | |
| | 1 | Dawn | PG | 1500+ | WS | 333849 406640 | | | |
| | 2 | Dawn | PG | 120 | WS | 333666 405672 | | | |
| | 2 | Dawn | PG | 3000 | WS | 333151 405330 | | | |
| 29/11/13 | 1 | Dawn | N/A | | | | Windy, 70% cloud cover, 10 degrees C. Scattered showers. | | |
| | 2 | Dawn | PG | 120 | WS | 333666 405672 | | | |
| 6/12/13 | 1 | Dawn | PG | 100 | GS | 331201 408348 | Dry, wind 20mph, cloud 60% cover, Temp 9 degrees | N | |
| | 1 | Dawn | PG | 2000 | WC | 433366 407803 | | N | |
| | 1 | Dawn | PG | 1000 | RC | 433604 406998 | | Y feed barrels | |
| | 1 | Dawn | PG | 30 | WS | 431491 407576 | | N | |
| | 2 | Dawn | PG | 300+ | WS | 333746 405230 | | Y feed barrels | |
| 13/12/13 | 1 | Dawn | PG | 30 | WS | 331491 407576 | Dry, wind 17mph, cloud 60% cover, Temp 5 degrees | N | |
| | 1 | Dawn | PG | 450 | GS | 331550 408550 | | | |
| | 1 | Dawn | PG | 200 | RC | 335050 409350 | | | |
| | 2 | Dawn | PG | 2000 | WC | 333018 404590 | | N | |
| | 2 | Dawn | PG | 500 | GS | 332165 405567 | | N | |
| | 2 | Dawn | PG | 3000 | WS tilled | 331715 405944 | | | |
| 16/12/13 | 1 | Dusk | PG | 800 | WC | 333412 407707 | Dry, wind 14 mph, cloud 100% cover, Temp 8 degrees | N | 800 birds spooked by dog walker and then again by Environment Agency tractor with flashing lights on vehical |
| | 1 | Dusk | PG | 800 | WC | 333189 407419 | | N | |
| | 1 | Dusk | PG | 50 | WC | 332681 407921 | | N | |
| | 1 | Dusk | PG | 50 | WS | 331523 407503 | | N | |
| | 2 | Dusk | PG | 300 | GS | 332510 405126 | | | |
| | 2 | Dusk | PG | 600 | RC | 333917 406647 | | | |
| | 2 | Dusk | PG | 1500+ | WS tilled | 332655 405058 | | | |
| 13/1/14 | 1 | Dusk | PG | 100 | GR | 331504 408150 | Dry, Overcast, 6 degrees, 11mph SW | Y | |
| | 1 | Dusk | PG | 2000 | WS | 331637 407560 | | N | |
| | 2 | Dusk | PG | 3000 | WC | 331616 405397 | | N | |
| | 2 | Dusk | PG | 1000 | Till | 333817 406559 | | Y | |

| Date: | VP | Dawn/Dusk | Species: (PG, WS, BS) | Count | Habitat* | Map ref: | Weather Conditions (inc temp) | Evidence of Wildfowling? (Y/N) | Comments |
|---------|----|-----------|-----------------------|-------|----------|---------------|-----------------------------------|--------------------------------|----------|
| | 2 | Dusk | PG | 150 | Till | 334163 404871 | | | |
| 17/1/14 | 1 | Dawn | PG | 1000 | WS | 331637 407560 | Dry, Overcast, 7 degrees, 7mph SE | Y | |
| | 1 | Dawn | PG | <50 | GR | 331504 408150 | | | |
| | 2 | Dawn | PG | 3500 | WC | 331631 405440 | | | |
| 24/1/14 | 1 | Dawn | PG | 3500 | WS | 333428 408700 | | | |
| | 1 | Dawn | PG | 2000 | WS | 334556 409300 | | | |
| | 2 | Dawn | PG | 3000 | Till | 334298 405455 | | | |
| | 2 | Dawn | PG | 1000 | WS | 333215 405360 | | | |
| | 2 | Dawn | PG | 1000 | Till | 333372 404635 | | | |
| 31/1/14 | 1 | Dusk | N/A | | | | | | |
| | 2 | Dusk | PG | 3000 | WC | 334408 405660 | | | |
| 14/2/14 | 1 | Dusk | PG | 180 | Till | 333700 406485 | | | |
| | 2 | Dusk | PG | 1000 | WC | 333505 404990 | | | |
| | 2 | Dusk | PG | 500 | WS | 333280 405285 | | | |
| 21/2/14 | 1 | Dawn | PG | 500 | Till | 333685 406740 | | | |
| | 2 | Dawn | PG | 1000 | Till | 333980 405140 | | | |
| | 2 | Dawn | PG | 200 | WS | 333330 405305 | | | |
| 28/2/14 | 1 | Dawn | NA | | | | | | |
| | 2 | Dawn | PG | 300 | WS | 333330 405305 | | | |
| 14/3/14 | 1 | Dusk | NA | | | | | | |
| | 2 | Dusk | NA | | | | | | |
| 21/3/14 | 1 | Dawn | NA | | | | | | |
| | 2 | Dawn | NA | | | | | | |

Counts within 500m of the proposed development

*Habitat codes:
 WC = Winter crop (Wheat, rapeseed etc)
 WS = Winter stubbles
 RC = Root crop
 GS = Grassland
 WG = Wet grassland

Appendix 4:
Birds of Conservation Concern for WBS of the Proposed Development Site
(Winter 2015/16)

Birds of Conservation Concern Records for WBS of Site (Winter 2015/2016)

| Date | Species | Number | Dist. (m) | Notes |
|----------|---------|--------|-----------|--|
| 30/09/15 | PFG | 2000 | 800 | In stubble fields to NW of site |
| | L. | 40 | 50 | Lapwing on fresh till |
| | S. | [10] | On Site | Numbers of skylark visible flying in flock throughout the site |
| | BZ | 1/1juv | FO | 1 adult & 1 juvenile buzzard flying and foraging over site |
| 12/10/15 | PFG | 400+ | 800 | Small flock in WC NW of site (Note: High concentration could be seen 2k south at Withins) |
| | L. | 50 | 50 | Lapwing on fresh till east of site |
| | S. | 200 | On site | Numerous birds flying in flocks foraging and roosting on site |
| 30/10/15 | PFG | 300+ | 800 | In WC NW of site |
| | S. | 100+ | | Numerous birds flying in flocks foraging and roosting on site |
| 13/11/15 | L. | 100+ | 400 | Numerous lapwing sheltering in WC north of site beyond dyke |
| 04/12/15 | PFG | 200 | 500 | Small flock feeding in WC NW of site beyond dyke |
| | BZ | 1 | On site | Buzzard perched on telephone wires along northern boundary |
| 11/12/15 | PFG | 250 | 500 | On GS north of site |
| 18/12/15 | PFG | 350 | 1000 | Feeding in WC north of site |
| | BZ | 1 | On site | On boundary |
| | ML | 1 | On site | Perched on telephone wire |
| 11/01/16 | PFG | 2500 | 400 | Large flock in WC south west of site. 1k displaced from Withins by shooting and growing when leaving site |
| 22/01/16 | PFG | 1000+ | 1000+ | Large flocks visible at Withins south |
| 05/02/16 | PFG | 10 | FO | Few individual birds flying over |
| | S. | 3 | On site | Skylark heard singing within site |
| 26/02/16 | PFG | 100 | 500 | Small flock in WC north of site beyond dyke |
| | PFG | 50 | 200 | Small flock in WS south of site by pylon |
| | S. | 5 | 500 | Skylark activity increasing in grassland and WC north of site beyond the dyke |
| | L. | 20 | 500 | Lapwing activity increasing in grassland and WC north of site beyond the dyke |
| 05/03/16 | L., S. | - | 500 | Lapwing and skylark hunkered down out of sleet on site and beyond |
| 18/03/16 | PFG | 150 | 700 | Small flock gathering in stubbles south of site (large flocks visible at withins readying for migration north) |
| | L. | - | 400 | Lapwing actively flying and nest creation in WC and GS north of site |
| | S. | - | 400 | Skylark activity picking up in short grassland and WC |

NB: up to 10 brown hare seen within site and beyond during March surveys

NBB: Area around site subjected to heavy bird scaring activity on WC south and west of site

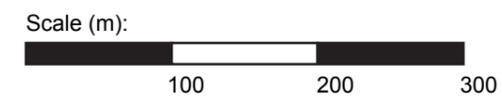
Abbreviation: PFG = Pink-footed goose, L. = Lapwing, S. = Skylark, BZ = Buzzard, ML = Merlin. WC = Winter Crop, GS = Grassland, WS = Winter Stubbles

Drawing 2: WBS Survey Area Map

Map Ref: (NGR) 332755,407538
Scale: Not to scale.

Key:

-  = Site boundary
-  = 300m buffer
-  = Winter Crop
-  = Winter Stubbles
-  = Grassland
-  = Fallow ground



Appendix 5:
2018/19 Wintering Bird Survey Plans and Data

| Survey date | Species: (PG, WS, BS) | Count | Habitat | Distance (m) | Direction from site | Comments | *Habitat codes: |
|-----------------|-----------------------|-------|---------|--------------|---------------------|----------------|--|
| 25.09.18 (dawn) | PG | 4000 | WS | 60 | Within same field | | WC = Winter crop (Wheat, rapeseed etc) |
| | PG | 10 | RC | 485 | | Feeding | WS = Winter stubbles |
| 28.09.18 (day) | PG | 1450 | WC | 235 | South | Feeding | RC = Root crop |
| | PG | 2200 | GS | 0 | North | Feeding | GS = Grassland |
| 05.10.18 (dawn) | PG | 1 | WC | 380 | North | Feeding | WG = Wet grassland |
| | PG | 4 | WC | 180 | North | Feeding | B = Bare ground/ tilled |
| | PG | 4 | WC | 120 | North | Feeding | |
| 10.10.18 (day) | PG | 185 | WS | 50 | North | Feeding | |
| | PG | 140 | WC | 215 | South | Feeding | |
| | PG | 70 | WS | 75 | South | Feeding | |
| | PG | 30 | WC | 420 | North | Taken-off | |
| | PG | 270 | WS | 410 | North | Feeding | |
| | PG | 500 | WS | 290 | East | Taken-off | |
| 11.10.18 (dawn) | PG | 9 | WS | 100 | East | Feeding | |
| | PG | 4 | WC | 250 | North | Feeding | |
| | PG | 260 | WC | 250 | North | Feeding | |
| | PG | 6 | WS | 100 | East | Feeding | |
| | PG | 740 | WS | 300 | North | Landed | |
| | PG | 50 | WC | 350 | North | Landed | |
| 16.10.18 (dusk) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 24.10.18 (day) | PG | 180 | WS | 250 | North | Landed | |
| 26.10.18 (dawn) | WS | 7 | WS | 270 | East | Landed/Feeding | |
| 01.11.18 (dusk) | PG | 18 | GS/WS | 420 | South | Landed | |
| | PG | 60 | GS/WS | 420 | South | Landed | |
| | PG | 70 | GS/WS | 420 | South | Landed | |
| | PG | 8 | GS/WS | 420 | South | Landed | |
| | PG | 80 | GS/WS | 420 | South | Landed | |
| | PG | 130 | GS/WS | 460 | South | Landed | |
| | PG | 115 | GS/WS | 460 | South | Landed | |
| | PG | 37 | GS/WS | 460 | South | Landed | |
| | PG | 3 | GS/WS | 460 | South | Landed | |
| | PG | 30 | GS/WS | 420 | South | Landed | |
| | PG | 10 | GS/WS | 420 | South | Landed | |

| | | | | | | | |
|-----------------|---------------|------|-------|-----|-------|------------------|--|
| | PG | 700 | GS/WS | 460 | South | Landed | |
| | PG | 150 | GS/WS | 420 | South | Landed | |
| | PG | 1400 | GS/WS | 420 | South | Feeding | |
| | PG | 90 | WC | 470 | South | Feeding | |
| | PG | 70 | GS/WS | 320 | South | Feeding | |
| | PG | 1400 | GS/WS | 310 | South | Feeding | |
| | PG | 20 | GS/WS | 485 | South | Landed | |
| | PG | 16 | WS | 435 | North | Feeding | |
| 07.11.18 (day) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 09.11.18 (dawn) | PG | 23 | WC | 500 | South | Feeding | |
| 21.11.18 (dawn) | PG | 140 | WS | 450 | South | Landed | |
| 22.11.18 (day) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 28.11.18 (dawn) | RU | 3 | RC/WS | 0 | South | Feeding | |
| 06.12.18 (dawn) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 07.12.18 (day) | PG | 125 | WC | 475 | East | Feeding | |
| | PG | 5 | WC | 475 | East | Taken-off | |
| | PG | 120 | WC | 475 | East | Taken-off | |
| 18.12.18 (dawn) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 20.12.18 (day) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 31.12.18 (dawn) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 03.01.19 (day) | PG | 52 | RC | 425 | West | Landed | |
| | PG | 82 | GS | 270 | South | Landed | |
| | GP | 15 | RC | 470 | North | Landed / Feeding | |
| 14.01.19 (dawn) | PG | 410 | WC | 375 | North | Landed | |
| 17.01.19 (day) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 31.01.19 (dawn) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 04.02.19 (day) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 17.02.19 (dawn) | No Recordings | N/A | N/A | N/A | N/A | N/A | |
| 21.02.19 (day) | No Recordings | N/A | N/A | N/A | N/A | N/A | |

Figure 1:
Wintering Birds
Autumn Passage
Survey Map Key



Please note that a total of nine dawn / dusk survey visits were undertaken during this period along with a further five daytime visits. On two survey visits (16.10.2018 (Dusk) and 22.11.2018 (Day)), no birds of interest were recorded using the site and therefore no data is represented for these dates.

Figure 2:
Wintering Birds,
Winter Period
Survey Map.

Map Ref: (NGR) 332676, 407489
Map Scale: 1:6,500 @ A3

Please see page 2 for the KEY

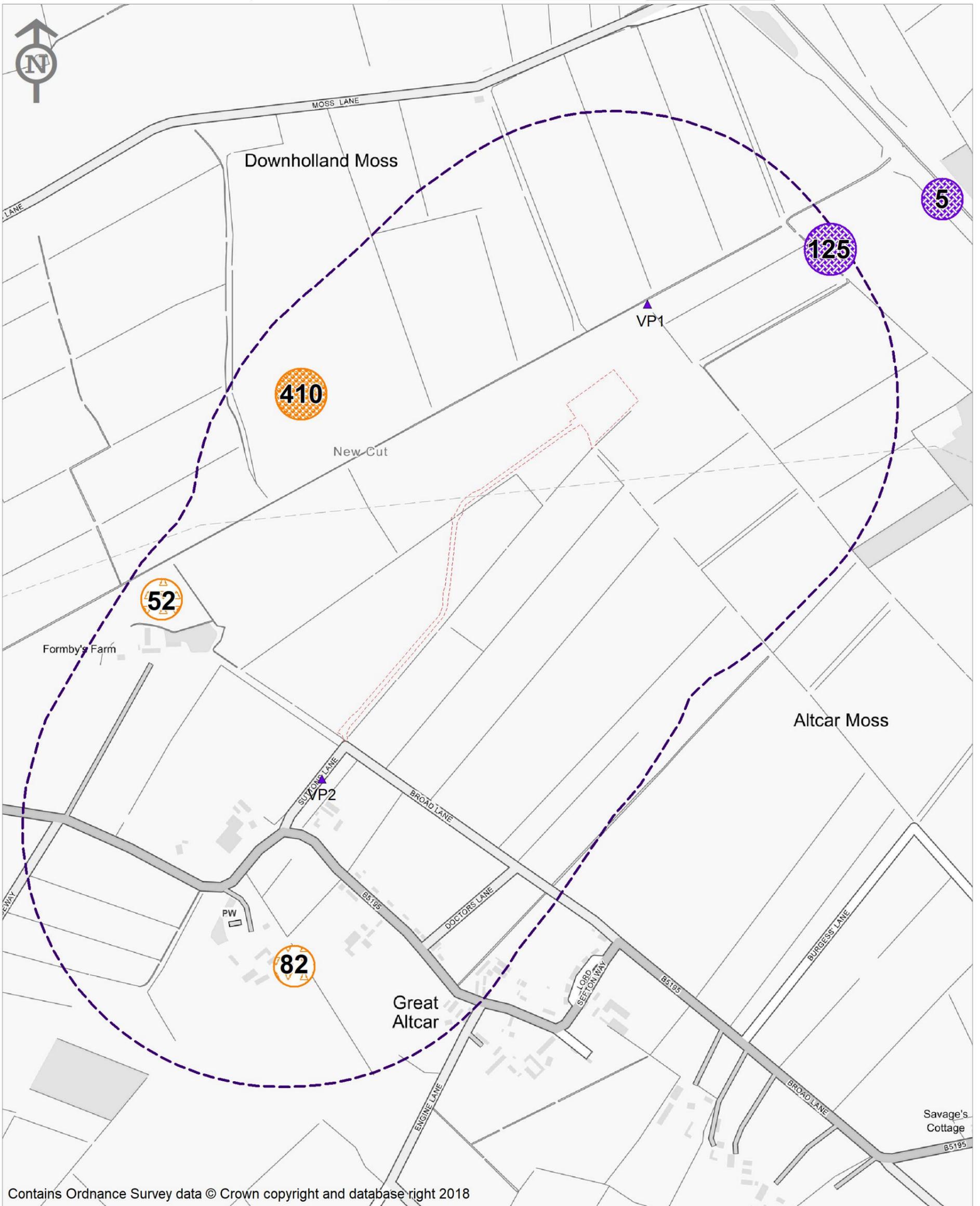
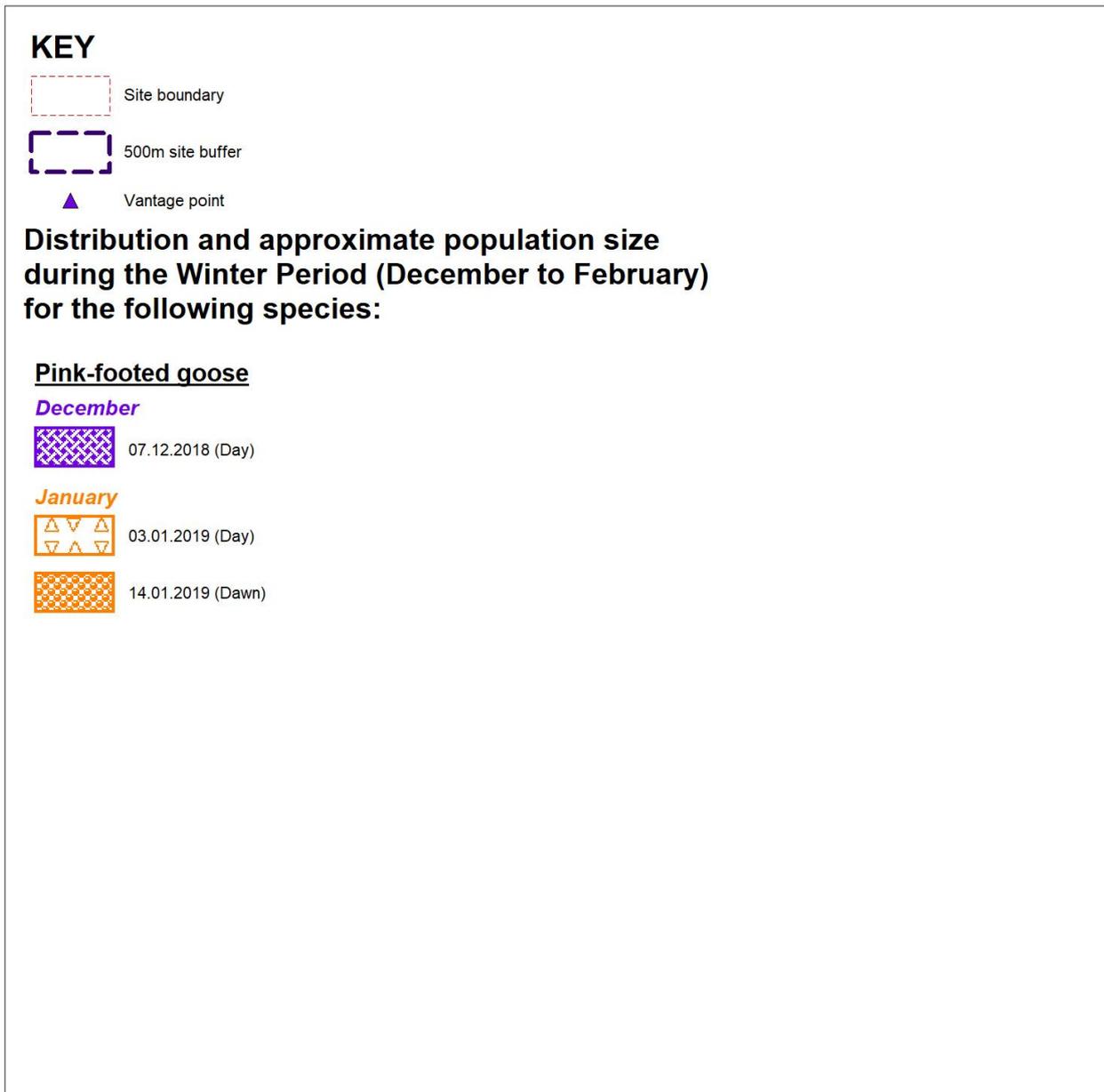


Figure 2:
Wintering Birds
Winter Period
Survey Map Key



Please note that a total of six dawn survey visits were undertaken during this period along with a further six daytime visits. On nine survey visits (06.12.2018 (Dawn), 18.12.2018 (Dawn), 20.12.2018 (Day), 31.12.2018 (Dawn), 17.01.2019 (Day), 31.01.2019 (Dawn), 04.02.2019 (Day), 17.02.2019 (Dawn), 21.02.2019 (Day)), no birds of interest were recorded using the site and therefore no data is represented for these dates.

Appendix 6:
Altcar Moss Wellsite - Assessment of LAmax Sound Levels due to Piling

MEMO

Date: 30 January 2019
 To: Elizabeth Walker
 From: Simon Stephenson
 Pages: 3 inc. this page
 Reference: JAT10171-MEMO-01-R0

Lakesbury House,
 Hiltisbury Road
 Hampshire SO53 5SS
 T +44 2380 810 440

Altcar Moss Wellsite - Assessment of L_{Amax} Sound Levels due to Piling

Introduction

Percussive sound, such as that caused by impact piling, can potentially cause disturbance to birds. The effects of noise from piling on nearby residential receptors has already been assessed as part of the noise impact assessment. However, in order to assess the impacts of piling on birds it is necessary to provide supplementary data in relation to maximum sound pressure levels (L_{Amax}).

Methodology

The noise emissions from the proposed piling activities have been modelled using the CadnaA environmental noise prediction software. This model calculates the contribution from each noise source input as a specified source type (e.g. point, line, area) octave band sound power levels at selected locations. It predicts noise levels under light down-wind conditions based on hemispherical propagation, atmospheric absorption, ground effects, screening and directivity based on the procedure detailed in ISO 9613.

The ground between the site and the receiver locations has been assumed to be soft although the site itself has been modelled as hard ground. Terrain contour data has also been entered in the model based on OS land contours, although the land is fairly flat. Buildings have been included and these provide some degree of screening as well as reflecting surfaces.

The model has been run using a receiver height of 1 metre in order to investigate the noise impact at ground level.

Noise source data has been based on an empirical correction to the L_{Aeq} data contained in BS 5228, based on measurements on other piling rigs carried out by RPS personnel. This results in a +9 dB correction to the L_{Aeq} sound power levels used in the original assessment, as shown in XXXXX.

Table 1: Sound power levels used in the assessment

| Plant item | BS 5228 reference | Sound power level, dBA |
|----------------------------|-------------------|------------------------|
| Piling rig (L_{Aeq}) | C3.14 | 112 |
| Piling rig (L_{AFmax}) | - | 121 |

Results

The resulting noise contours are shown in the figures attached to this report.

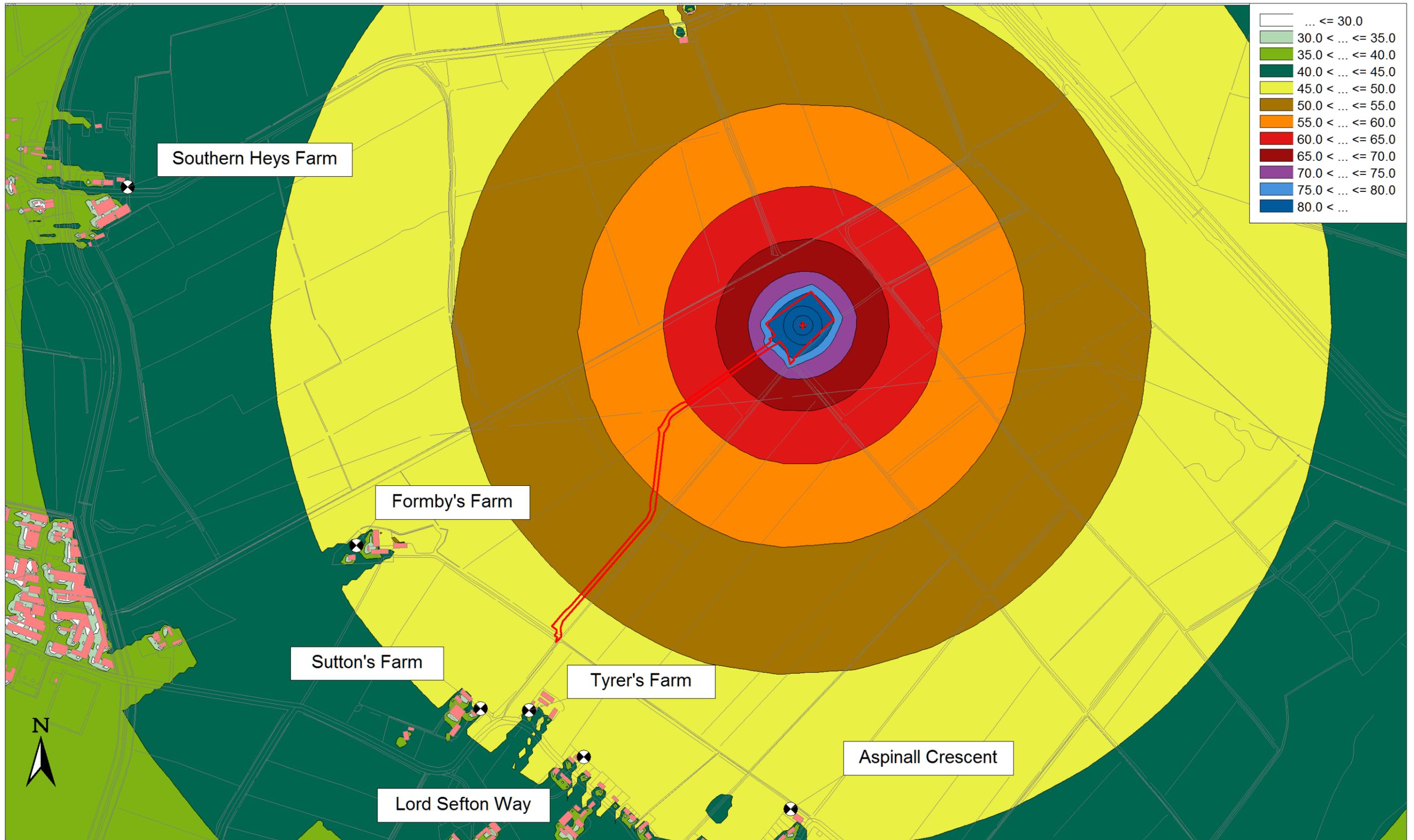
for RPS Consulting Services Ltd

Simon Stephenson

Technical Director

simon.stephenson@rpsgroup.com

+44 (0) 23 8081 0440



| | |
|------------|---------|
| ... | <= 30.0 |
| 30.0 < ... | <= 35.0 |
| 35.0 < ... | <= 40.0 |
| 40.0 < ... | <= 45.0 |
| 45.0 < ... | <= 50.0 |
| 50.0 < ... | <= 55.0 |
| 55.0 < ... | <= 60.0 |
| 60.0 < ... | <= 65.0 |
| 65.0 < ... | <= 70.0 |
| 70.0 < ... | <= 75.0 |
| 75.0 < ... | <= 80.0 |
| 80.0 < ... | |

**Aurora
Energy
Resources**

| | |
|--------|-----------|
| Author | SJS |
| Scale | 1:7500@A3 |

**Altcar Moss Wellsite
Piling LAmox Noise Contours**

Sheet 1 of 1

| | |
|---------------|----------------------|
| Project No. | JAT10171 |
| Project Title | Altcar Moss Wellsite |
| Drawing No. | Figure A1 |
| Date | 30.01.19 |



Drawing 1:
Proposed Development Site

Site Name

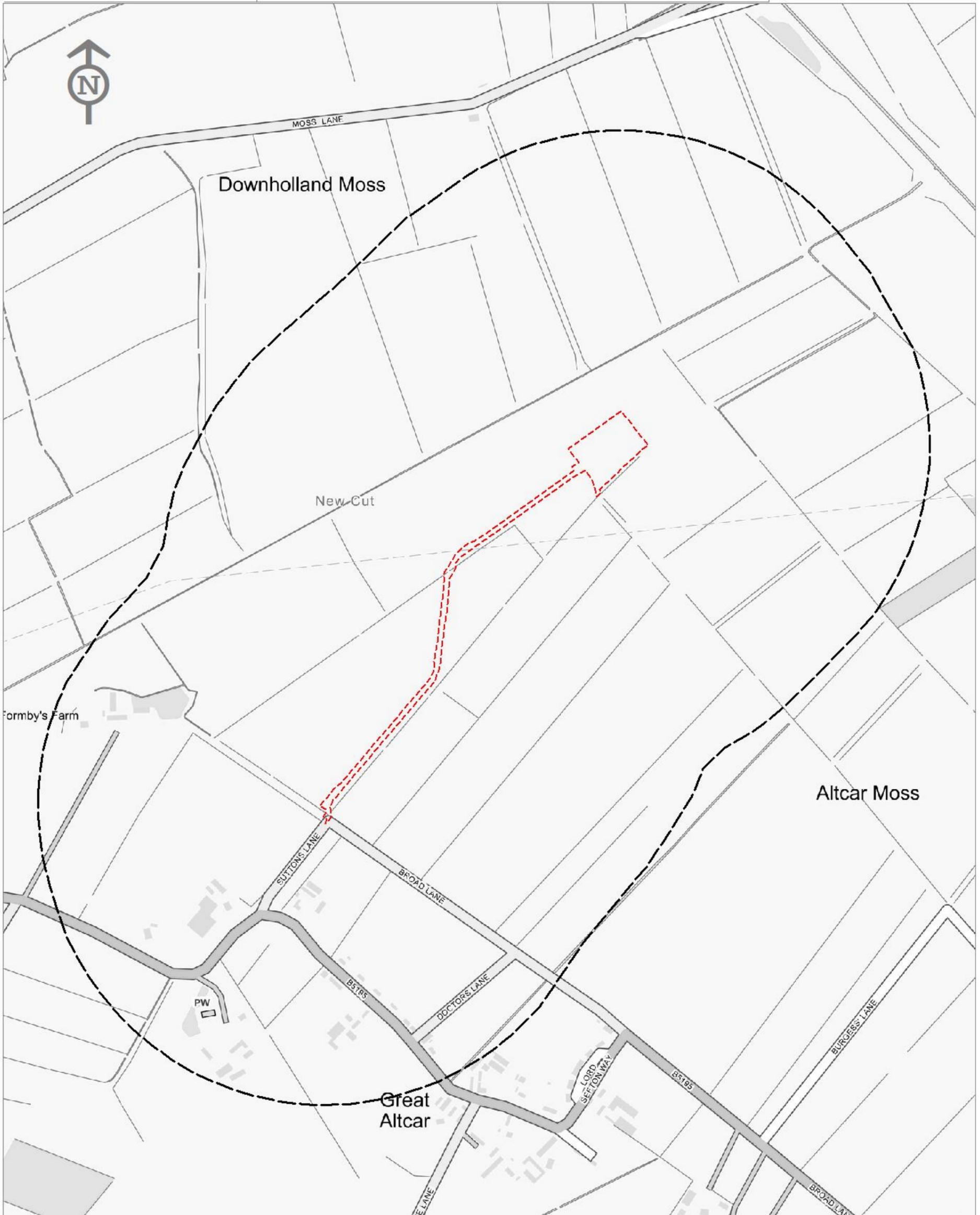
Drawing 1: Application Site Plan

Map Ref: (NGR) 333,400, 407,200
Map Scale: 1:6,000 @ A3

KEY

 Site boundary

 500m Site buffer



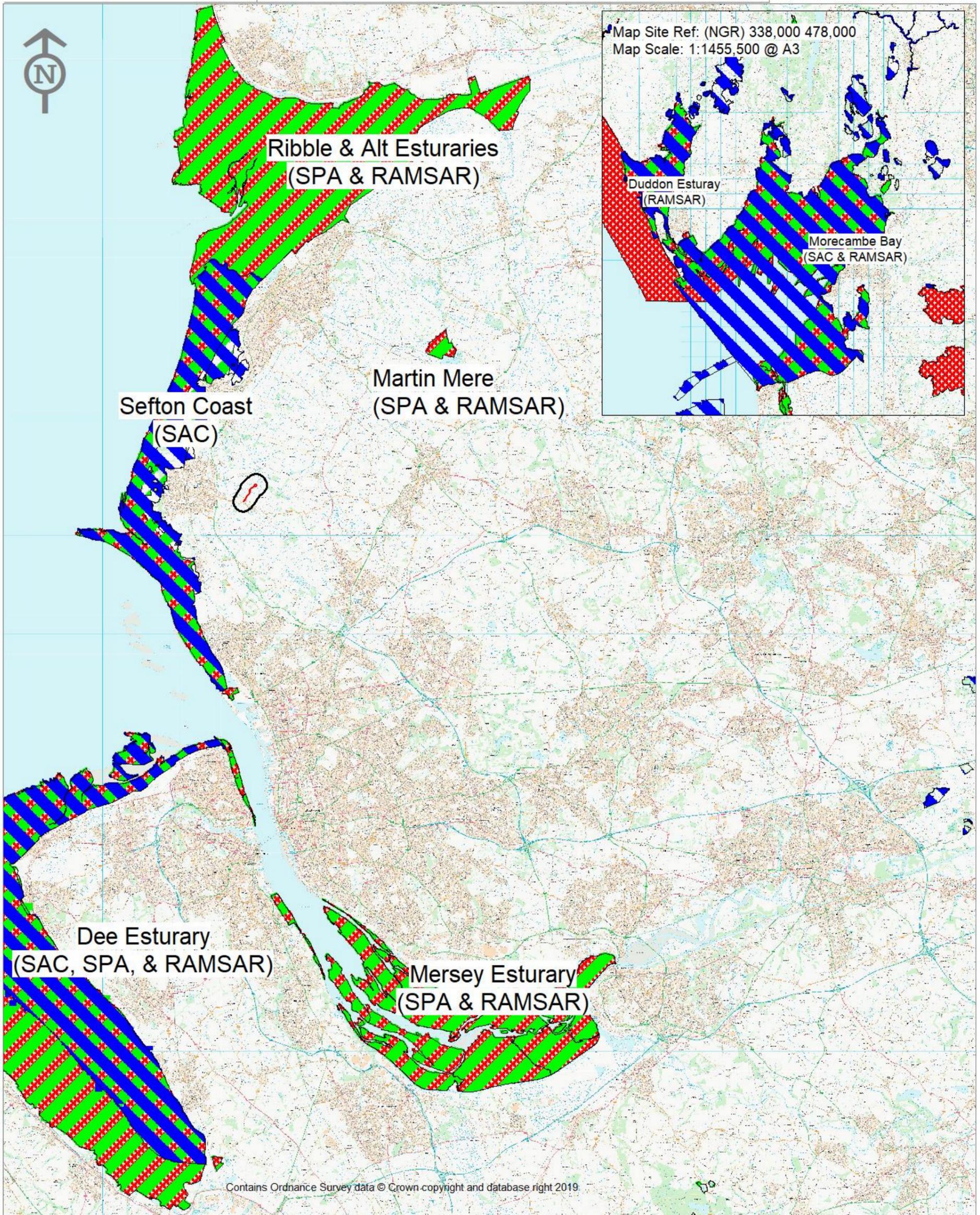
Drawing 2:
Designated Sites

Drawing 2: Designated Sites Plan

Map Site Ref: (NGR) 333,400, 407,200
Map Scale: 1:170,000 @ A3

KEY

-  Site boundary
-  500m Site buffer
- Area of Designated Sites (as labeled)**
-  Special Protection Area (SPA)
-  Special Area of Conservation (SAC)
-  RAMSAR



Drawing 3:
Sites Considered for in Combination Effects Assessment

Drawing 3:
Sites considered for:
In Combination
Effects Assessment

Map Ref: (NGR) 333,400, 407,200
Map Scale: 1:75,000 @ A3

KEY

-  Site boundary
-  500m site buffer
-  10km site buffer
-  Sites considered for:
In combination effects assessment
As labelled below:

1. 55 Crowland Street
2. Land off Town Lane
3. The Piggeries
4. Land at Tip Field
5. Land at Jemmy Carr
6. Land west of Formby bypass
7. Land off Andrews Lane
8. Hillhouse WwTW
9. Land north of Turnbridge Road

