

Habitats Regulations Assessment of the Wirral Local Plan 2020-2035: Issues and Options Consultation Document

Wirral Metropolitan Borough Council

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<u>Prepared by</u>	<u>Checked by</u>	<u>Verified by</u>	<u>Approved by</u>
Damiano Weitowitz Consultant Ecologist	James Riley Technical Director	Max Wade Technical Director	James Riley Technical Director

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Prepared for:

Wirral Metropolitan Borough Council

Prepared by:

Damiano Weitowitz
Consultant Ecologist
T: 01256-310-257
M: 077-959-179-87
E: Damiano.Weitowitz@aecom.com

AECOM Limited
Midpoint, Alencon Link
Basingstoke
Hampshire RG21 7PP
United Kingdom

T: +44(0)1256 310200
aecom.com

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1. Background

Introduction

- 1.1 AECOM has been appointed by Wirral Metropolitan Borough Council (WBC) to undertake a Habitats Regulations Assessment (HRA) of its new Local Plan. This report is an assessment of the Wirral Local Plan 2020-2035: Issues and Options Consultation Document (referred to hereafter as the 'Issues and Options Document') which is to be published for consultation in early 2020 under Regulation 18 of the Town and Country Planning (Local Planning) (England) Regulations 2012. The objective of this assessment is to identify any aspects of the emerging Local Plan that would cause an adverse effect on the integrity of Natura 2000 sites, otherwise known as European sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and, as a matter of Government policy, Ramsar sites), either in isolation or in combination with other plans and projects, and to advise on appropriate policy mechanisms for delivering mitigation where such effects are identified. The UK is bound by the terms of the Habitats Directive (92/43/EEC). Under Article 6(3) of the Habitats Directive, an Appropriate Assessment of impact pathways is required, where a plan or project is likely to have a significant effect upon a European Site, either individually or 'in combination' with other projects.
- 1.2 The new Local Plan will cover the years 2020 to 2035, which on adoption will replace the previous Unitary Development Plan for Wirral, adopted in February 2000. It will set out the policies and proposals to guide the future development of the Borough during this period. Particularly the Local Plan will allocate land for housing, employment, mixed-use and other purposes, specifying both the quantum and spatial distribution of development. However, the Plan will also seek to protect important characteristics of Wirral, including the unique natural and historical assets, as well as preserving the highly-performing parcels of Green Belt land. The current Reg 18 Issues and Options document sets out the housing and employment needs (and other strategic objectives) for Wirral. It is projected within the Local Plan that a minimum of 12,000 net new residential dwellings and 80ha of employment land will be delivered across the Borough within the Plan period. The Issues and Options Document is the first of several stages of plan consultation and development, each of which will be subject to HRA.
- 1.3 The Issues and Options Document considers several strategic options to deliver the required growth within Wirral. WBC's preferred approach is Option 1A (Urban Intensification), which would deliver all the required development in urban areas without Green Belt release. This option would involve the delivery of higher density development and converting some of the existing employment land to housing. However, if some the land proposed to be allocated under Option 1A does not meet the test for developability and deliverability, some development will be provided in the Green Belt. According to the Issues and Options document, up to 2,500 homes and 20ha of employment land could be delivered in the Green Belt. WBC considers two different options of proposed Green Belt release:
 - Option 2A (Dispersed Green Belt Release): Under this option, several small-medium size areas would be included throughout Wirral, mainly to the north-west of Heswall and south of Bebington which when added together, would allow sufficient land to be allocated to meet any residual housing needs within the Plan Period; and
 - Option 2B proposes an alternative option to focus development more strategically into a single larger area around an existing settlement. This option still relies on the weakly performing Green Belt parcels but groups these together to identify a larger contiguous area for urban expansion. The most suitable location would be on land west of Barnston Road, Heswall.
- 1.4 It is possible that, if a green belt release option is progressed for the Reg. 19 Local Plan a mixture of Options 2A and 2B would be needed. Despite its relatively early stage, the Issues and Options Document already proposes several different spatial options with specific sites included within the potential strategic options. Therefore, in addition to the quantum of development, the HRA for the Issues and Options Document assesses the different strategic growth options (1A, 2A and

- 2B) to evaluate whether any option, or site within those options, might be of particular concern to the integrity of Wirral's European sites based on the evidence currently available.
- 1.5 However, given that actual policy wording is not yet available and that some key evidence is still missing, some of the Appropriate Assessment (the second stage of the HRA process) and definitive recommendations for some impact pathways are deferred to the Regulation 19 stage of the Local Plan. Furthermore, some of the evidence base needed to make an informed judgment is not yet available (see later discussion), meaning that this HRA also identifies some areas for further work.
 - 1.6 An initial assessment of the designated sites within and surrounding Wirral, and the associated impact pathways linking them to the spatial options and proposed allocations in the Issues and Options Document was undertaken. This indicated that several European sites required consideration, most notably the nearby estuarine and coastal sites, including the Mersey Narrows and North Wirral Foreshore SPA and Ramsar site, the Dee Estuary SPA and Ramsar site, the Dee Estuary SAC and the Mersey Estuary SPA and Ramsar site. Given that these sites enclose the Borough of Wirral (i.e. virtually all of Wirral's coast is designated as European sites), they provide a unique geographic context that requires detailed consideration.

Legislative Context

- 1.7 The need for an assessment of impacts on European sites is set out within Article 6 of the Habitats Directive and transposed into English and Welsh law by the Conservation of Habitats and Species Regulations 2017 (as amended). The ultimate aim of the Habitats Directive is to "*maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest*" (Article 2(2)). This aim relates to habitats and species, not the European Sites themselves, although the European Sites have a significant role in delivering favourable conservation status.
- 1.8 The Habitats Directive applies the precautionary principle¹ to European Sites. Consent should only be granted for plans and projects once the relevant competent authority has ascertained that there will either be no likelihood of significant effects, or no adverse effect on the integrity of the European Site(s) in question. Where an Appropriate Assessment has been carried out and results in a negative impact, or if uncertainty remains over the significant effect, consent will only be granted if there are no alternative solutions and there are Imperative Reasons of Over-riding Public Interest (IROPI) for the development and compensatory measures have been secured.
- 1.9 To ascertain whether site integrity will be affected, an Appropriate Assessment should be undertaken of the plan or project in question. Figure 1 provides the legislative basis for an Appropriate Assessment.

¹ The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as: "*When human activities may lead to morally unacceptable harm [to the environment] that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis*".

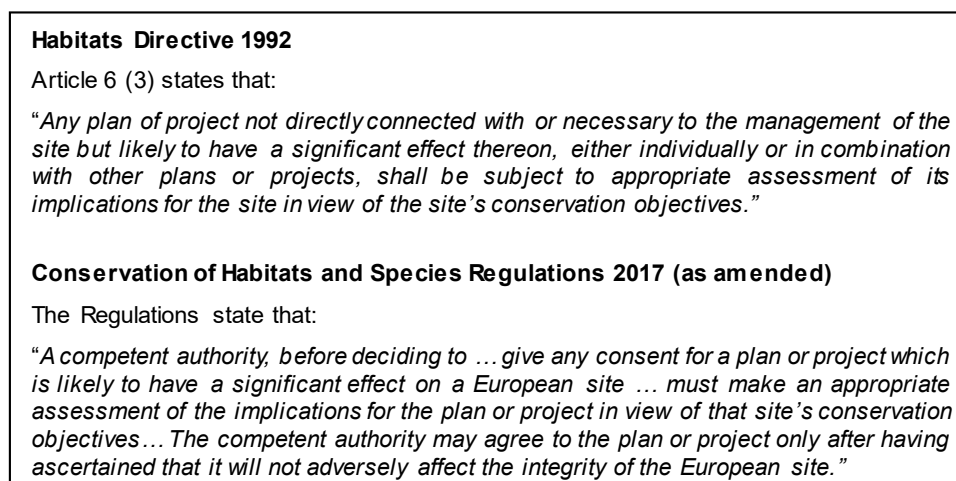


Figure 1. The legislative basis for Appropriate Assessment

- 1.10 Over the years, the phrase ‘Habitats Regulations Assessment’ (HRA) has come into wide currency to describe the overall process set out in the Habitats Regulations, from the Test of Likely Significant Effects (ToLSE) through to identification of IROPI. This has arisen in order to distinguish the overall process from the individual stage of “Appropriate Assessment”. Throughout this Report the term HRA is used for the overall process and restricts the use of Appropriate Assessment to the specific stage of that name.

Scope of the Project

- 1.11 There is no pre-defined guidance that dictates the physical scope of an HRA of a Plan document. Therefore, in considering the physical scope of the assessment, we were guided primarily by the identified impact pathways (called the source-pathway-receptor model) rather than by arbitrary ‘zones’. Current guidance suggests that the following European sites be included in the scope of assessment:
- All European sites within the boundary of the Borough of Wirral; and,
 - Other European sites within 10km shown to be linked to development in Wirral through a known ‘pathway’ (discussed below).
- 1.12 Briefly defined, impact pathways are routes by which the implementation of a policy within a Local Plan document can lead to an effect upon a European designated site. An example of this would be new residential development resulting in an increased population and thus increased recreational pressure, which could then affect European sites by, for example, disturbance of non-breeding or breeding birds. Guidance from the Ministry of Housing, Communities and Local Government (MHCLG) states that the HRA should be ‘*proportionate to the geographical scope of the [plan policy]*’ and that ‘*an AA need not be done in any more detail, or using more resources, than is useful for its purpose*’ (MHCLG, 2006, p.6).
- 1.13 This basic principle has also been reflected in court rulings. The Court of Appeal² has ruled that providing the Council (competent authority) was duly satisfied that proposed mitigation could be ‘achieved in practice’ to satisfy that the proposed development would have no adverse effect, then this would suffice. This ruling has since been applied to a planning permission (rather than a Core Strategy document)³. In this case the High Court ruled that for ‘*a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of Reg 61 of the Habitats Regulations*’.

²No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17th February 2015

³High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015

- 1.14 Given an initial assessment of the relevant European sites and the impact pathways present, and referring to the HRA work that was undertaken for the adopted Local Plan, this HRA will discuss (at least as far as the ToLSE) the following European sites:
- Mersey Narrows and North Wirral Foreshore SPA and Ramsar (partly within Wirral, along its northern and eastern shoreline);
 - Dee Estuary SPA and Ramsar (partly within Wirral, along its western shoreline);
 - Mersey Estuary SPA and Ramsar (partly within Wirral, along its eastern shoreline);
 - Dee Estuary SAC (partly within Wirral, along its western and northern shoreline);
 - Liverpool Bay SPA (partly within Wirral, along its northern coastline);
 - Ribble and Alt Estuaries SPA and Ramsar (approx. 1.6km to the north-east of Wirral);
 - Sefton Coast SAC (approx. 1.6km to the north-east of Wirral);
 - Halkyn Mountain SAC (approx. 5.7km to the south-west of Wirral);
 - River Dee and Bala Lake SAC (approx. 7.3km to the south of Wirral);
 - Deeside and Buckley Newt Sites SAC (approx. 9.1km to the south of Wirral); and
 - River Eden SAC (beyond 10km of Wirral, but identified as a key source of potable water for the Liverpool City Region)
- 1.15 As part of the HRA process, the views of the statutory nature conservation advisors, namely Natural England and Natural Resources Wales, will be sought as part of the consultation process on the scope of the European sites assessed.
- 1.16 The distribution of these sites in relation to the Borough of Wirral is shown in Appendix A. An introduction to these sites, their qualifying features (species and habitats), conservation objectives, and threats and pressures to site integrity are set out in the Appendix B of this report. Given that the Borough is enclosed by European sites, a significant proportion of the sites proposed in the Issues and Options Document are in close proximity to these sites or functionally linked habitat.
- 1.17 In order to fully inform the ToLSE process, several studies and information databases have been consulted to determine Likely Significant Effects (LSEs) that could arise from the Issues and Options Document. These include:
- Future development proposed (and, where available, HRAs) for the adjoining authorities of Flintshire, Cheshire West and Chester, Halton, Liverpool and Chester;
 - Road traffic statistics from the Department for Transport (<https://roadtraffic.dft.gov.uk>);
 - Journey-to-work data from the Population Census 2011 (<https://www.nomisweb.co.uk/census/2011/WU03UK>);
 - Visitor surveys and bird disturbance fieldwork carried out by Thomson Ecology⁴ and Footprint Ecology⁵, covering the North Wirral and Mersey Narrows Foreshore SPA and Ramsar, the Dee Estuary SPA and Ramsar, the Mersey Estuary SPA and Ramsar, and the Ribble and Alt Estuaries SPA and Ramsar;
 - Bird surveys assessing supporting habitats in the Liverpool City Region commissioned by the Merseyside Environmental Advisory Service⁶

⁴ Thomson Ecology. (2015). Mersey Narrows and North Wirral Foreshore Sites of Special Scientific Interest – Investigation into the Impacts of Recreational Disturbance on Bird Declines. 107pp.

⁵ Liley D., Panter C., Marsh P. & Roberts J. (2017). Recreational activity and interactions with birds within the SSSIs on the North-West coast of England. Unpublished report by Footprint Ecology for Natural England.

⁶ TEP. (2015). Assessment of Supporting Habitat (Docks) for Use by Qualifying Features of Natura 2000 Sites in the Liverpool City Region. Ornithology Report. 330pp. and available at: <http://www.meas.org.uk/1088> [Accessed on the 28/11/2019]

- The HRA produced for the proposed Submission Draft Core Strategy Local Plan;
- Core Management Plans (for Welsh sites), Site Improvement Plans and Supplementary Conservation Advice Notes (for English sites) for relevant European sites;
- The UK Air Pollution Information System (www.apis.ac.uk); and
- Multi Agency Geographic Information for the Countryside (MAGIC) and its links to SSSI citations and the JNCC website (www.magic.gov.uk).

1.18 The emerging Spatial Development Strategy of the Metro Mayor Liverpool City Region Combined Authority is not assessed at this time because it is not sufficiently advanced with no strategic policies available.

Quality Assurance

- 1.19 This report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2008 and 14001:2004 and BS OHSAS 18001:2007. In addition, our IMS requires careful selection and monitoring of the performance of all sub-consultants and contractors.
- 1.20 All AECOM Ecologists working on this project are members (at the appropriate level) of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct (CIEEM, 2017).
- 1.21 This report has also been reviewed by Merseyside Environmental Advisory Service (MEAS) staff who are technical advisors to Wirral on environmental planning officers. The MEAS staff undertaking the review are all full Members of CIEEM.

2. Methodology

Introduction

- 2.1 The HRA has been carried out with reference to the general EC guidance on HRA⁷, general guidance on HRA published by government in July 2019⁸ and the Welsh Government's guidance on HRA: Technical Advice Note 5 (Nature Conservation and Planning) 2009 and The Planning Series: 16 – Habitats Regulations Assessment (since some Welsh European sites are involved). AECOM has also been mindful of the implications of European case law in 2018, notably the Holohan ruling and the People over Wind ruling, both discussed below.
- 2.2 Figure 2 below outlines the stages of HRA according to current EC guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

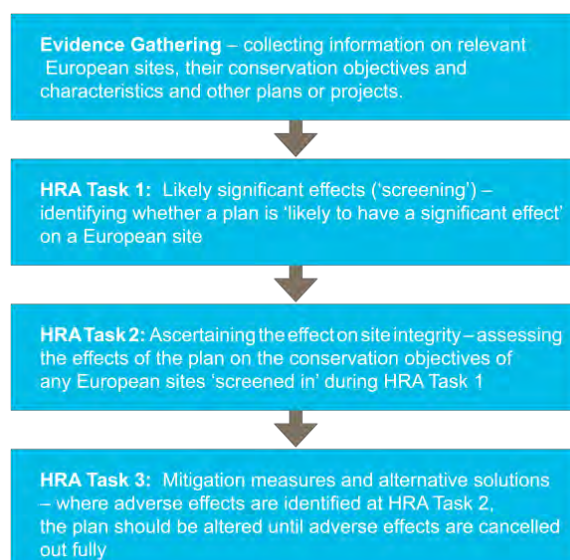


Figure 2: Four Stage Approach to Habitats Regulations Assessment. Source EC, 2001¹.

Description of HRA Tasks

HRA Task 1 – Likely Significant Effects (LSE)

- 2.3 Following evidence gathering, the first stage of any Habitats Regulations Assessment is a Likely Significant Effect (LSE) test - essentially a high-level assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

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

- 2.4 The objective is to 'screen out' those plans and projects that can, without any detailed appraisal, be said to be unlikely to result in significant adverse effects upon European sites, usually because there is no mechanism for an adverse interaction with European sites. This stage is undertaken in Chapter 4 of this report and in Appendix A.

⁷ European Commission (2001): Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive.

⁸ <https://www.gov.uk/guidance/appropriate-assessment>

HRA Task 2 – Appropriate Assessment (AA)

- 2.5 Where it is determined that a conclusion of ‘no likely significant effect’ cannot be drawn, the analysis has proceeded to the next stage of HRA known as Appropriate Assessment. Case law has clarified that ‘appropriate assessment’ is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to appropriate assessment rather than determination of likely significant effects.
- 2.6 By virtue of the fact that it follows ToLSE, there is a clear implication that the analysis will be more detailed and one of the key considerations during Appropriate Assessment is whether there is available mitigation that would entirely address the potential effect. In practice, the appropriate assessment would take any policies or proposed allocations that could not be dismissed following the high-level ToLSE analysis and analyse the potential for an effect in more detail, with a view to concluding whether there would actually be an adverse effect on integrity (in other words, disruption of the coherent structure and function of the European site(s)).
- 2.7 A decision by the European Court of Justice⁹ concluded that measures intended to avoid or reduce the harmful effects of a proposed project on a European site may no longer be taken into account by competent authorities at the ToLSE stage of HRA. That ruling has been taken into account in producing this HRA.
- 2.8 Also, in 2018 the Holohan ruling¹⁰ was handed down by the European Court of Justice. Among other provisions paragraph 39 of the ruling states that ‘*As regards other habitat types or species, which are present on the site, but for which that site has not been listed, and with respect to habitat types and species located outside that site, ... typical habitats or species must be included in the appropriate assessment, if they are necessary to the conservation of the habitat types and species listed for the protected area*’ [emphasis added]. Due account of this decision has been taken in this HRA, particularly regarding potential functionally linked habitat parcels of agricultural land and the dock systems, which are used by qualifying birds of the surrounding SPA and Ramsar sites, and also form part of the Wetland Bird Surveys (WeBS) core count areas.

HRA Task 3 – Avoidance and Mitigation

- 2.9 Where necessary, measures are recommended for incorporation into the Plan in order to avoid or mitigate adverse effects on European sites. There is considerable precedent concerning the level of detail that a Local Plan document needs to contain regarding mitigation for impact pathways on European sites (e.g. regarding recreational pressure). The implication of this precedent is that it is not necessary for all measures that will be deployed to be fully developed prior to adoption of the Plan, but the Plan must provide an adequate policy framework within which these measures can be delivered.
- 2.10 In evaluating significance, AECOM has relied on professional judgement as well as the results of previous stakeholder consultation regarding development impacts on the European sites considered within this assessment.
- 2.11 When discussing ‘mitigation’ for a Local Plan, one is concerned primarily with the policy framework to enable the delivery of such mitigation rather than the details of the mitigation measures themselves since a Local Plan document is a high-level policy document.
- 2.12 In any Local Plan, there are numerous policies for which there is a limit to the degree of assessment that is possible at this plan level. This is because either:
- The policy in question does not contain any specifics as to what will be delivered or where so literally cannot be assessed in detail at the plan level. In these cases, the appropriate assessment focusses on precautionary mitigation that can be included in the plan to ensure that whatever proposals come forward will not result in adverse effects on integrity; or
 - The nature of the potential impacts (notably lighting, noise and visual disturbance during construction, or loss of functionally-linked habitat) are very closely related to exactly how

⁹ People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

¹⁰ Case C-461/17

the development will be designed and constructed, or detailed development site-specific bird survey data, and therefore cannot be assessed in detail at the plan level. In these instances, the appropriate assessment focusses on the available mitigation measures, the extent to which such measures would be achievable and effective and whether an adequate protective framework exists to ensure that the policy would not lead to an adverse effect on the integrity of any internationally designated sites.

- 2.13 On these occasions the advice of Advocate-General Kokott¹¹ is worth considering. She commented that: *'It would ...hardly be proper to require a greater level of detail in preceding plans [rather than planning applications] or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible on the basis of the precision of the plan. This assessment is to be updated with increasing specificity in subsequent stages of the procedure'* [emphasis added]. This is particularly relevant for the Issues and Options Document due to some evidence limitations at the current time.

¹¹ Opinion of Advocate General Kokott, 9th June 2005, Case C-6/04. Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland, paragraph 49 <http://curia.europa.eu/juris/document/document.jsf?docid=58359&doclang=EN>

3. Background to Impact Pathways

3.1 The following impact pathways are considered relevant to Wirral's Issues and Options Document:

- Recreational pressure (due to the local population growth);
- Loss of functionally linked habitat (habitat loss due to the potential allocation of greenfield sites for development);
- Water quality (due to increases in sewage effluent and industrial pollutant input);
- Visual and noise disturbance (due to construction activities, artificial lighting, other urban development); and
- Atmospheric pollution (due to an increase in the number of commuter journeys).

Recreational Pressure

3.2 There is growing concern about the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites must fulfill conservation objectives while also providing recreational opportunity. HRAs of Local Plans tend to focus on recreational pressure arising from a net increase in residents¹². Generally, recreational use of a European site has the potential to:

- Cause disturbance to wildlife species, particularly non-breeding waterfowl and wader species
- Cause damage through direct trampling damage, erosion and habitat fragmentation;
- Cause eutrophication through recreation, such as through dog fouling; and
- Prevent appropriate management or exacerbate existing management difficulties;

3.3 The sensitivity of European sites to different types of recreational pressure varies. Studies across a range of species have shown that the effects from recreation can be complex. It also should be emphasised that recreational use is not necessarily damaging. For example, in heathlands a certain level of physical disturbance (that is not continuous in nature) is considered beneficial, as this contributes to the maintenance of the overall habitat diversity and the maintenance of bare ground, the habitat feature that may harbour some of the rarest heathland species¹³. However, in practice, a benign level of disturbance is not quantifiable and is likely to be confined to within narrow limits. Once the optimum recreational pressure is exceeded, negative impacts of recreation are to be expected.

3.4 Some of the most prominent examples of recreational pressure relevant to the European sites within or close to Wirral, namely disturbance to sensitive species of non-breeding birds, trampling damage, and erosion and nutrient enrichment, are discussed below.

Disturbance of non-breeding waterfowl and waders (September – March)

3.5 Human activity can affect birds either directly (e.g. by causing them to flee) or indirectly (e.g. by damaging their habitat or reducing their fitness in less obvious ways e.g. stress). The most obvious direct effect is that of immediate mortality such as death by shooting, but human activity can also lead to much more subtle behavioural (e.g. alterations in feeding behaviour, avoidance of certain areas and use of sub optimal areas etc.) and physiological changes (e.g. an increase

¹² The RTPPI report 'Planning for an Ageing Population' (2004) which states that 'From being a marginalised group in society, the elderly are now a force to be reckoned with and increasingly seen as a market to be wooed by the leisure and tourist industries. There are more of them and generally they have more time and more money.' It also states that 'Participation in most physical activities shows a significant decline after the age of 50. The exceptions to this are walking, golf, bowls and sailing, where participation rates hold up well into the 70s'.

¹³ Key R. 2000. Bare ground and the conservation of invertebrates. British Wildlife 11: 183-192.

- in heart rate). While these are less noticeable, they might result in major population-level changes by altering the balance between immigration/birth and emigration/death¹⁴.
- 3.6 Concern regarding the effects of disturbance on birds stems from the fact that they are expending energy unnecessarily and the time they spend responding to disturbance is time that is not spent feeding¹⁵. Disturbance therefore risks increasing energetic expenditure of birds while reducing their energetic intake, which can adversely affect the 'condition' and ultimately survival of the birds. Additionally, displacement of birds from one feeding site to others can increase the pressure on the resources available within the remaining sites, as they then must sustain a greater number of birds¹⁶. Moreover, the more time a breeding bird spends disturbed from its nest, the more its eggs are likely to cool and the more vulnerable they, or any nestlings, are to predators. Multiple research reports have provided compelling links between changes in housing and access levels and impacts on different bird species in European protected sites^{17 18}.
- 3.7 Evidence in the literature suggests that the magnitude of disturbance clearly differs between different types of recreational activities. For example, dog walking leads to a significantly higher reduction in bird diversity and abundance than hiking¹⁹. Scientific evidence also suggests that key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers²⁰. A UK meta-analysis suggests that important spatial (e.g. the area of a site potentially influenced) and temporal (e.g. how often or long an activity is carried out) parameters differ between recreational activities, suggesting that activity type is a factor that should be taken into account by HRAs²¹.
- 3.8 There is also likely to be a temporal element to disturbance, creating different disturbance patterns in summer and winter. It can be generally assumed that there are fewer recreational users in winter and that disturbance at a population level may be reduced, because birds are not breeding. However, recreational disturbance in winter may still have negative impacts, because birds face seasonal food shortages and are likely to be susceptible to any nutritional loss. Therefore, the abandonment of suitable feeding areas due to disturbance can have serious consequences for their ability to find suitable alternative feeding sites.
- 3.9 Scientific evidence of disturbance to waterfowl and waders is now widely available. For example, Tuite et al²² used a large (379 sites), long-term (10-year) dataset (September – March species counts) to correlate seasonal changes in wildfowl abundance with the presence of various recreational activities. They determined that the shoveler was one of the most sensitive species to recreational activities, such as sailing/windsurfing and rowing. Studies on recreation in the Solent have established that human leisure activities cause direct disturbance to non-breeding waterfowl populations^{23 24}.
- 3.10 A recent study on recreational disturbance on the Humber²⁵ assesses different types of noise disturbance on waterfowl referring to studies relating to aircraft (see Drewitt 1999²⁶), traffic

¹⁴ Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

¹⁵ Riddington, R. *et al.* 1996. The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* 43:269-279

¹⁶ Gill, J.A., Sutherland, W.J. & Norris, K. 1998. The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* 12: 67-72

¹⁷ Liley D., Clarke R.T., Mallord J.W., Bullock J.M. 2006a. The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths. Natural England / Footprint Ecology.

¹⁸ Liley D., Clarke R.T., Underhill-Day J., Tyldesley D.T. 2006b. Evidence to support the appropriate Assessment of development plans and projects in south-east Dorset. Footprint Ecology / Dorset County Council.

¹⁹ Banks P.B., Bryant J.Y. 2007. Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters* 3: 14pp.

²⁰ Miller S.G., Knight R.L., Miller C.K. 2001. Wildlife responses to pedestrians and dogs. 29: 124-132.

²¹ Weitowitz D., Panter C., Hoskin R., Liley D. The spatio-temporal footprint of key recreation activities in European protected sites. Manuscript in preparation.

²² Tuite, C.H., Hanson, P.R. & Owen, M. 1984. Some ecological factors affecting winter wildfowl distribution on inland waters in England and Wales and the influence of water-based recreation. *Journal of Applied Ecology* 21: 41-62

²³ Footprint Ecology. 2010. Recreational Disturbance to Birds on the Humber Estuary

²⁴ Footprint Ecology, Jonathan Cox Associates & Boumemouth University. 2010. Solent disturbance and mitigation project – various reports.

²⁵ Helen Feamley Durwyn Liley and Katie Cruickshanks (2012) Results of Recreational Visitor Survey across the Humber Estuary produced by Footprint Ecology

²⁶ Drewitt, A. (1999) Disturbance effects of aircraft on birds. English Nature, Peterborough.

(Reijnen, Foppen, & Veenbaas 1997)²⁷, dogs (Lord, Waas, & Innes 1997²⁸; Banks & Bryant 2007²⁹) and machinery (Delaney et al. 1999; Tempel & Gutierrez 2003). These studies identified that there is still relatively little work on the effects of different types of water-based craft and the impacts from jet skis, kite surfers, windsurfers etc. (see Kirby et al. 2004³⁰ for a review). Some types of disturbance are clearly likely to invoke different responses. In very general terms, both distance from the source of disturbance and the scale of the disturbance (noise level, group size) will both influence the response (Delaney et al. 1999³¹; Beale & Monaghan 2005³²). On UK estuaries and coastal sites, a review of WeBS data showed that, among the volunteer WeBS surveyors, driving of motor vehicles and shooting were the two activities most perceived to cause disturbance (Robinson & Pollitt 2002)³³.

- 3.11 A study in the Solent monitored bird disturbance across 20 different locations between December 2009 and February 2010³⁴. This involved recording all recreational activities and relating these to behavioural responses of birds in pre-defined focal areas of intertidal habitat. The study recorded a total of 2,507 potential disturbance events, generating 4,064 species-specific behaviours. Roughly 20% of recorded events resulted in disturbance of waterfowl, including behaviours such as becoming alert, walking / swimming away, short flights (< 50m) or major flights. Generally, the likelihood of disturbance decreased with increasing distance to the disturbance stimulus (i.e. the recreational activity being undertaken). Importantly, the study also illustrated that recreational activities in the intertidal zone have the highest disturbance potential (41% of recorded events resulted in disturbance), followed by water-based activities (25%) and shore-based activities (12%).
- 3.12 The specific distance at which a species takes flight when disturbed is known as the 'tolerance distance' (also called the 'escape distance') and greatly differs between species. The tolerance distances of the study carried out for the Bird Aware project are summarised in **Error! Reference source not found.** It is reasonable to assume from this evidence that disturbance is unlikely to be relevant at distances of beyond 200m. The data show that the sensitivity to disturbance differs between species, but that the intra-specific variation in response to disturbance is equally important. It was also examined how disturbance to different recreational activities varies between species, but for most species the number of recorded events was not enough for comparison (except for brent goose, oystercatcher and redshank). The results suggest that species might respond to recreational activities differently. For example, brent geese responded to dog walkers much further away than oystercatcher and redshank. It is noted that while these data have been collected in relation to the Solent, similar tolerance distances might apply to species in the Severn Estuary SPA and Ramsar.

Table 1: Tolerance distances in metres of 16 species of waterfowl to various forms of recreational disturbance, as found in recent disturbance fieldwork³⁵. The distances are provided both as a median and a range.

Species	Disturbance Distance (metres from stimulus)		Activity			
	Median	Range	Cycling	Dog walking	Jogging	Walking
Brent goose	51.5	5 - 178	100	95	30	50

²⁷ Reijnen, R., Foppen, R. & Veenbaas, G. (1997) Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation*, 6, 567-581.

²⁸ Lord, A., Waas, J.R. & Innes, J. (1997) Effects of human activity on the behaviour of northern New Zealand dotterel *Charadrius obscurus aquilonius* chicks. *Biological Conservation*, 82, 15-20.

²⁹ Banks, P.B. & Bryant, J.V. (2007) Four-legged friend of foe? Dog-walking displaces native birds from natural areas. *Biology Letters*, 3, 611-613.

³⁰ Kirby, J.S., Clee, C. & Seager, V. (1993) Impact and extent of recreational disturbance to wader roosts on the Dee estuary: some preliminary results. *Wader Study Group Bulletin*, 68, 53-58.

³¹ Delaney, D.K., Grubb, T.G., Beier, P., Pater, L.L.M. & Reiser, H. (1999) Effects of Helicopter Noise on Mexican Spotted Owls. *The Journal of Wildlife Management*, 63, 60-76.

³² Beale, C.M. & Monaghan, P. (2005) Modeling the Effects of Limiting the Number of Visitors on Failure Rates of Seabird Nests. *Conservation Biology*, 19, 2015-2019.

³³ Robinson, J.A. & Pollitt, M.S. (2002) Sources and extent of human disturbance to waterbirds in the UK: an analysis of Wetland Bird Survey data, 1995/96 to 1998/99: Less than 32% of counters record disturbance at their site, with differences in causes between coastal and inland sites. *Bird Study*, 49, 205.

³⁴ Liley D., Stillman R. & Fearnley H. 2011. The Solent Disturbance and Mitigation Project Phase 2: Results of Bird Disturbance Fieldwork 2009/10. Report by Footprint Ecology for the Solent Forum.

³⁵ Ibid.

Oystercatcher	46	10 - 200	150	45		50
Redshank	44.5	75 - 150	125	50	40	58
Curlew	75	25 - 200				
Turnstone	50	5 - 100				
Coot	12	10 - 20				
Mute swan	12	8 - 50				
Grey plover	75	30 - 125				
Little egret	75	30 - 200				
Wigeon	75.5	20 - 125				
Dunlin	75	25 - 300				
Shelduck	77.5	50 - 140				
Great-crested grebe	100	50 - 100				
Lapwing	75	18 - 125				
Teal	60	35 - 200				
Mallard	25	10 - 50				

Trampling damage, erosion and nutrient enrichment

3.13 Most terrestrial habitats, especially grassland, heathland and woodland, can be affected by trampling and other mechanical damage, which in turn causes soil compaction and erosion. Some of the following studies have investigated the negative impacts of trampling, associated with different recreational activities:

- Wilson & Seney³⁶ examined the degree of track erosion caused by hikers, motorcycles, horses and cyclists from 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, it was concluded that horses and hikers disturbed more sediment on wet tracks, and therefore caused more erosion, than motorcycles and bicycles.
- Cole et al³⁷ conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each trampled between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and an inverse relationship with trampling intensity was discovered, although this relationship was weaker after one year than two weeks indicating some recovery of the vegetation. Differences in plant morphological characteristics were found to explain more variation in response between different vegetation types than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. The cover of hemicryptophytes and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks, but had recovered well after one year and as such these were considered most resilient to trampling. Chamaephytes (plants with buds above the soil surface) were least resilient to trampling. It was concluded that these would be the least tolerant of a regular cycle of disturbance.
- Cole³⁸ conducted a follow-up study (in 4 vegetation types) in which shoe type (trainers or walking boots) and trampler weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year. Heavier trampers caused a greater reduction in vegetation height than lighter trampers, but there was no difference in the effect on cover.

³⁶ Wilson, J.P. & J.P. Seney. 1994. Erosional impact of hikers, horses, motorcycles and off road bicycles on mountain trails in Montana. Mountain Research and Development 14:77-88

³⁷ Cole, D.N. 1995a. Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. Journal of Applied Ecology 32: 203-214

Cole, D.N. 1995b. Experimental trampling of vegetation. II. Predictors of resistance and resilience. Journal of Applied Ecology 32: 215-224

³⁸ Cole, D.N. 1995c. Recreational trampling experiments: effects of trampler weight and shoe type. Research Note INT -RN-425. U.S. Forest Service, Intermountain Research Station, Utah.

- Cole & Spildie³⁹ experimentally compared the effects of off-track trampling by hiker and horse (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). Horse trampling was found to cause the largest reduction in vegetation cover. The forb-dominated vegetation suffered greatest disturbance but recovered rapidly. Generally, it was shown that higher trampling intensities caused more disturbance.
 - In heathland sites, trampling damage can also affect the value of a site to wildlife. For example, heavy use of sandy tracks loosens and continuously disturbs sand particles, reducing the habitat's suitability for invertebrates⁴⁰. Species that burrow into flat surfaces such as the centres of paths, are likely to be particularly vulnerable, as the loose sediment can no longer maintain their burrow. In some instances, nature conservation bodies and local authorities resort to hardening paths to prevent further erosion. However, this is concomitant with the loss of habitat used by wildlife, such as sand lizards and burrowing invertebrates.
- 3.14 A major concern for nutrient-poor terrestrial habitats (e.g. heathlands, bogs and fens) is nutrient enrichment associated through dog fouling, which has been addressed in various reviews (e.g.⁴¹). It is estimated that dogs will defecate within 10 minutes of starting a walk and therefore most nutrient enrichment arising from dog faeces will occur within 400m of a site entrance. In contrast, dogs will urinate at frequent intervals during a walk, resulting in a more spread out distribution of urine. For example, in Burnham Beeches National Nature Reserve it is estimated that 30,000 litres of urine and 60 tonnes of dog faeces are deposited annually⁴². While there is little information on the chemical constituents of dog faeces, nitrogen is one of the main components⁴³. Nutrient levels are the major determinant of plant community composition and the effect of dog defecation in sensitive habitats (e.g. heathland) is comparable to a high-level application of fertiliser, potentially resulting in the shift to plant communities that are more typical for improved grasslands.
- 3.15 Given its proximity to the Liverpool City Region, the European sites around Wirral, especially the coastal sites that are designated for their non-breeding birds, are likely to be subject to significant recreational pressure including as a consequence of the Issues and Options Document emerging policies, housing targets and associated proposed allocations for housing land. To estimate the current baseline of recreational disturbance and to assess the likely impact of future population growth, two visitor surveys were carried out at various access points to the coastlines and estuaries in north-west England. Thomson Ecology undertook a visitor survey at the main car parks providing access onto the Mersey Narrows and the North Wirral Foreshore SPA and Ramsar⁴⁴. Footprint Ecology carried out visitor surveys in various SSSIs, including component parts of the Dee Estuary SPA and Ramsar, the Mersey Estuary SPA and Ramsar, the Ribble and Alt Estuaries SPA and Ramsar, and the Sefton Coast SAC⁴⁵. Importantly, both surveys also related the recreation patterns to bird disturbance events, showing that birds in the European sites around Wirral are already changing their normal foraging / roosting behaviour in response to the existing recreation patterns. The relevant results from the visitor surveys will be used as supporting evidence in sections of this HRA that discuss the respective European sites.
- 3.16 Recreational pressure in Wirral might also affect functionally linked habitat, particularly where large residential sites (e.g. Wirral Waters in Birkenhead) are proposed. Wirral Waters would be directly adjacent to the Birkenhead Docks, for which TEP has undertaken a bird survey⁴⁶ under

³⁹ Cole, D.N., Spildie, D.R. 1998. Hiker, horse and llama trampling effects on native vegetation in Montana, USA. *Journal of Environmental Management* 53: 61-71

⁴⁰ Taylor K., Anderson P., Liley D. & Underhill-Day J.C. 2006. Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.

⁴¹ Taylor K., Anderson P., Taylor R.P., Longden K. & Fisher P. 2005. Dogs, access and nature conservation. English Nature Research Report, Peterborough.

⁴² Barnard A. 2003. Getting the facts – Dog walking and visitor number surveys at Burnham Beeches and their implications for the management process. *Countryside Recreation* 11:16-19.

⁴³ Taylor K., Anderson P., Liley D. & Underhill-Day J.C. 2006. Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.

⁴⁴ Thomson Ecology. (2015). Mersey Narrows and North Wirral Foreshore Sites of Special Scientific Interest – Investigation into the Impacts of Recreational Disturbance on Bird Declines. 107pp.

⁴⁵ Liley D., Panter C., Marsh P. & Roberts J. (2017). Recreational activity and interactions with birds within the SSSIs on the North-West coast of England. Unpublished report by Footprint Ecology for Natural England.

⁴⁶ <http://www.meas.org.uk/media/5279/4157005-assessment-of-supporting-habitat-liverpool-docks-excl-drawings-aug-2015.pdf>

the guidance of MEAS. Results from this survey will be used to assess whether an increase in recreational pressure might disturb species in this functionally linked habitat.

3.17 The following European Sites within 10km of Wirral are sensitive to recreational pressure:

- Mersey Narrows and North Wirral Foreshore SPA and Ramsar
- Dee Estuary SPA and Ramsar
- Dee Estuary SAC
- Mersey Estuary SPA and Ramsar
- Ribble and Alt Estuaries SPA and Ramsar
- Sefton Coast SAC
- River Dee and Bala Lake SAC
- Halkyn Mountain SAC
- Deeside and Buckley Newt Sites SAC

Loss of Functionally Linked Habitat

3.18 While most European sites have been geographically defined to encompass the key features that are necessary for coherence of their structure and function, and the support of their qualifying features, this is not always the case. A diverse array of qualifying species including birds, bats and amphibians are not confined to the boundary of designated sites.

3.19 For example, the highly mobile nature of both wildfowl and heathland birds implies that areas of habitat of crucial importance to the maintenance of their populations are outside the physical limits of European sites. Despite not being designated, this area is still integral to the maintenance of the structure and function of the interest feature on the designated site and, therefore, land use plans that may affect such areas should be subject to further assessment. Examples of other mobile qualifying species are great-crested newts and bats. The latter animal group is known to travel considerable distances from their roots to feeding sites. For example, in a 2001 study, female adult Bechstein's bats regularly undertook commuting distances of up to 1km⁴⁷. However, it is known that bat home ranges can be between 1-1.5km, with some individuals ranging up to 2.5km distance. Both spring migrations or regular foraging trips might take these species beyond the designated site boundary.

3.20 There is now an abundance of authoritative examples of HRA cases on plans affecting bird populations, where the potential importance of functionally linked habitat is recognised⁴⁸. For example, bird surveys in relation to a previous HRA established that approximately 25% of the golden plover population in the Somerset Levels and Moors SPA were affected while on functionally linked habitat, and this required the inclusion of mitigation measures in the relevant plan policy wording. Another important case study originates from the Mersey Estuary SPA and Ramsar, where adjacently located functionally linked habitat had a peak survey count of 108% of the 5 year mean peak population of golden plover. Similar to the above example, this led to considerable amendments in the planning proposal to ensure that the site integrity was not adversely affected.

3.21 Generally, the identification of an area as functionally linked habitat is now a relatively straightforward process. However, the importance of non-designated land parcels may not be apparent and require the analysis of existing data sources to be firmly established. In some instances, data may not be available at all, requiring further survey work.

⁴⁷ Kerth G., Wagner M. & Koenig B. 2001. Roosting together, foraging apart: Information transfer about food is unlikely to explain sociality in female Bechstein's bats (*Myotis bechsteini*). Behavioral Ecology and Sociobiology 50: 283-291.

⁴⁸ Chapman C & Tyldesley D. 2016. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects – A review of authoritative decisions. Natural England Commissioned Reports 207: 73pp.

- 3.22 Given that Wirral is surrounded by European sites designated for mobile waterfowl, it is possible that the allocation of greenfield sites (i.e. parcels of land without any existing development) would result in the loss of functionally linked habitat. The main concern would be about the loss of greenfield sites in the western part of Wirral, which mostly constitute agricultural land. Many SPA and Ramsar birds, such as golden plover and particularly geese and swans, forage in agricultural stubble in winter. Most notably, the Ribble and Alt Estuaries SPA and Ramsar, along the coast of Sefton is designated for species like pink-footed goose. These species are dependent on agricultural land and are known to travel long distances to their foraging sites. The Cheshire and Wirral Bird Atlas provides winter distribution maps for bird species within the wider area⁴⁹ and the atlas will be consulted as supporting evidence in assessing the impact pathway loss of functionally linked habitat. In addition, the dock system in eastern Wirral which forms much of the Wirral Waters development area, is also functionally linked habitat for a range of qualifying features, including breeding common tern (Mersey Narrows and North Wirral Foreshore SPA and Ramsar) and; cormorant and great crested grebe (part of the waterbird assemblage of several European sites).
- 3.23 The following European Sites within 10km of Wirral are sensitive to the loss of functionally linked habitat:
- Mersey Narrows and North Wirral Foreshore SPA and Ramsar
 - Dee Estuary SPA and Ramsar
 - Mersey Estuary SPA and Ramsar
 - Ribble and Alt Estuaries SPA and Ramsar
 - Liverpool Bay SPA
 - Sefton Coast SAC
 - Halkyn Mountain SAC
 - Deeside and Buckley Newt Sites SAC

Water Quality

- 3.24 The quality of the water that feeds European sites is an important determinant of the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts:
- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour.
 - Eutrophication, the enrichment of plant nutrients in water, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing available nitrogen.
 - Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.
- 3.25 The most significant water quality issue in relation to the Issues and Options Document is the discharge of treated sewage effluent into coastal and estuarine European sites, which is likely to increase the nutrient concentrations, most importantly nitrogen levels. The Issues and Options

⁴⁹ The Cheshire and Wirral Bird Atlas is available online as a free resource. Available at: <http://www.cheshireandwirralbirdatlas.org/species/> [Accessed on the 29/11/2019]

Document assessed in this HRA proposes development in the United Utilities water catchment, responsible for the public water supply and waste water treatment in this part of England, with the exception of an area around Heswall, where waste water treatment is the responsibility of Dyr Cymru (Welsh Water) who operate the Waste Water Treatment Works at Target Road.

3.26 The following European Sites within 10km of Wirral are sensitive to changes in water quality:

- Mersey Narrows and North Wirral Foreshore SPA and Ramsar
- Dee Estuary SPA and Ramsar
- Dee Estuary SAC
- Mersey Estuary SPA and Ramsar
- Liverpool Bay SPA
- Ribble and Alt Estuaries SPA and Ramsar
- Sefton Coast SAC
- River Dee and Bala Lake SAC
- Halkyn Mountain SAC
- Deeside and Buckley Newt Sites SAC

Water Resources

3.27 Regarding the availability of water resources, Figure 3 shows that Wirral is in an area that is classified as having low water stress (coded green). The wider North West (including the wider geographic area surrounding Wirral⁵⁰) is also an area of low stress (coded green), as is North Wales, which is a major source of potable water for north-west England.

3.28 Initial investigation indicates that Wirral lies within United Utilities' Strategic Resource Zone which currently serves approximately 7 million people in south Cumbria, Lancashire, Greater Manchester, Merseyside, most of Cheshire and a small part of Derbyshire. This zone supplies around 1,706 MI/d of potable water, which includes water imports from Wales, Cumbria, and other parts of North West England. It constitutes a large integrated supply network that enables substantial flexibility in distributing supplies within the zone with the 'west to east link' further aiding this flexibility and thus breaking the traditional division in which Greater Manchester received water from Cumbria and Merseyside received water from the River Dee (which lies partly in England and partly in Wales) and from purely Welsh sources (e.g. Lake Vyrnwy).

3.29 The most recent United Utilities Water Resource Management Plan (WRMP)⁵¹ indicates that there is currently no supply deficit forecast in the WRMP period, with supply reducing from 38 MI/d in 2025/26 to 20MI/d by 2044/45. However, given the recent demand increases and the integration of the West Cumbria Resource Zone into the Strategic Resource Zone, a small baseline deficit is forecast towards the end of the WRMP (ca. 3 MI/d). From reading the WRMP it appears that increased abstraction from the River Dee or any other European sites beyond the current licensed volumes is not part of United Utilities' intended future supply strategy. Furthermore, the HRA of United Utilities' earlier WRMP: Assessment of Feasibility and Preferred Options (2013)⁵² identified that no likely significant effect would result from the WRMP.

3.30 This impact pathway is therefore not discussed further.

⁵⁰ Figure adapted from Environment Agency. 2007. Identifying Areas of Water Stress. <http://publications.environment-agency.gov.uk/pdf/GEH00107BLUT-e-e.pdf>

⁵¹ United Utilities (2019) Final Water Resource Management Plan 2019 – 2045. Available at: https://www.unitedutilities.com/globalassets/z_corporate-site/about-us-pdfs/wrmp-2019--2045/final-water-resources-management-plan-2019.pdf [Accessed on the 28/11/2019]

⁵² AMEC (2019). United Utilities Habitats Regulations Assessment of the Water Resource Management Plan.

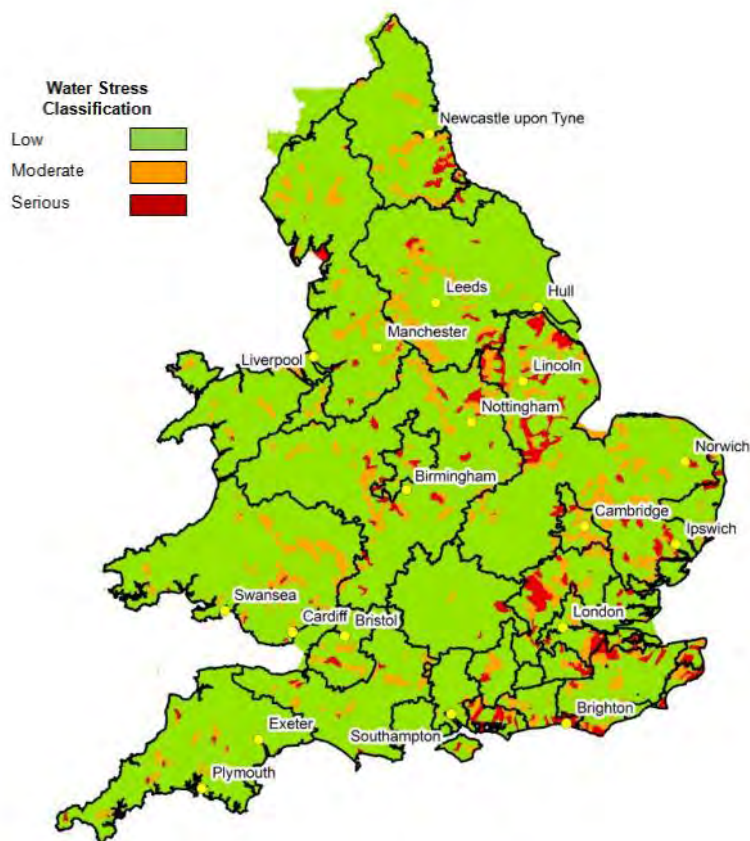


Figure 3: Areas of water stress in England and Wales⁵³.

Visual and Noise Disturbance (both in European sites and functionally linked habitat)

- 3.31 Human activity can affect birds either directly (e.g. through causing them to flee) or indirectly (e.g. through damaging their habitat). The most obvious direct effect is that of immediate mortality such as death by shooting, but human activity can also lead to behavioural changes (e.g. alterations in feeding behaviour, avoidance of certain areas *etc.*) and physiological changes (e.g. an increase in heart rate) that, although less noticeable, may ultimately result in major population-level effects by altering the balance between immigration/birth and emigration/death⁵⁴.
- 3.32 The degree of impact that varying levels of noise will have on different species of bird is poorly understood except that a number of studies have found that an increase in traffic levels on roads does lead to a reduction in the bird abundance within adjacent hedgerows - Reijnen et al (1995) examined the distribution of 43 passerine species (i.e. 'songbirds'), of which 60% had a lower density closer to the roadside than further away. By controlling vehicle usage they also found that the density generally was lower along busier roads than quieter roads⁵⁵.
- 3.33 A recent study on recreational disturbance on the Humber⁵⁶ assesses different types of noise disturbance on waterfowl referring to studies relating to aircraft (see Drewitt 1999⁵⁷), traffic

⁵³ Figure adapted from Environment Agency. 2013. Water stressed areas – final classification

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244333/water-stressed-classification-2013.pdf

⁵⁴ Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

⁵⁵ Reijnen, R. et al. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32: 187-202

⁵⁶ Helen Feamley Durwyn Liley and Katie Cruickshanks (2012) Results of Recreational Visitor Survey across the Humber Estuary produced by Footprint Ecology

⁵⁷ Drewitt, A. (1999) Disturbance effects of aircraft on birds. English Nature, Peterborough.

(Reijnen, Foppen, & Veenbaas 1997)⁵⁸, dogs (Lord, Waas, & Innes 1997⁵⁹; Banks & Bryant 2007⁶⁰) and machinery (Delaney et al. 1999; Tempel & Gutierrez 2003). These studies identified that there is still relatively little work on the effects of different types of water-based craft and the impacts from jet skis, kite surfers, windsurfers etc. (see Kirby et al. 2004⁶¹ for a review). Some types of disturbance are clearly likely to invoke different responses. In very general terms, both distance from the source of disturbance and the scale of the disturbance (noise level, group size) will both influence the response (Delaney et al. 1999⁶²; Beale & Monaghan 2005⁶³). On UK estuaries and coastal sites, a review of WeBS data showed that, among the volunteer WeBS surveyors, driving of motor vehicles and shooting were the two activities most perceived to cause disturbance (Robinson & Pollitt 2002)⁶⁴.

- 3.34 Large structures (e.g. new bridges, offshore and onshore wind turbines), have the potential to alter bird flight paths (e.g. hunting flight paths for raptors, bird migratory paths, regular flight paths between roosting and feeding sites, and foraging routes for bats etc.) This may result in a collision risk barrier effect or displacement which could make birds either vulnerable to predation or loss of vital energy stores.
- 3.35 Animals can also be disturbed by the movement of ships. For instance, a DTI study of birds of the North West coast noted that: "*Divers and scoters were absent from the mouths of some busier estuaries, notably the Mersey... Both species are known to be susceptible to disturbance from boats, and their relative scarcity in these areas... may in part reflect the volume of boat traffic in these areas*"⁶⁵.
- 3.36 Disturbing activities are on a continuum. The most disturbing activities are likely to be those that involve irregular, infrequent, unpredictable loud noise events, movement or vibration of long duration. Birds are least likely to be disturbed by activities that involve regular, frequent, predictable, quiet patterns of sound or movement or minimal vibration. The further any activity is from the birds, the less likely it is to result in disturbance. Overall, the factors that influence a species response to a disturbance are numerous, but the three key factors are species sensitivity, proximity of disturbance sources and timing/duration of the potentially disturbing activity.
- 3.37 It is important to note that visual and noise disturbance is relevant not only to designated sites themselves, but also to habitat that is functionally linked to these sites. Because qualifying species depend on linked habitats for foraging and roosting (see earlier impact pathway), any visual and noise disturbance might impair the species' ability to use such land appropriately. For Wirral, visual and noise disturbance is most likely to be relevant in agricultural land and the Birkenhead docks, the latter having been identified as supporting >1% of some SPA / Ramsar waterbird species.
- 3.38 The following European Sites within 10km of Wirral are sensitive to visual and noise disturbance resulting from construction work, artificial lighting and other urban processes:
- Mersey Narrows and North Wirral Foreshore SPA and Ramsar
 - Dee Estuary SPA and Ramsar
 - Dee Estuary SAC

⁵⁸ Reijnen, R., Foppen, R. & Veenbaas, G. (1997) Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation*, 6, 567-581.

⁵⁹ Lord, A., Waas, J.R. & Innes, J. (1997) Effects of human activity on the behaviour of northern New Zealand dotterel *Charadrius obscurus aquilonius* chicks. *Biological Conservation*, 82, 15-20.

⁶⁰ Banks, P.B. & Bryant, J.V. (2007) Four-legged friend of foe? Dog-walking displaces native birds from natural areas. *Biology Letters*, 3, 611-613.

⁶¹ Kirby, J.S., Clee, C. & Seager, V. (1993) Impact and extent of recreational disturbance to wader roosts on the Dee estuary: some preliminary results. *Wader Study Group Bulletin*, 68, 53-58.

⁶² Delaney, D.K., Grubb, T.G., Beier, P., Pater, L.L.M. & Reiser, H. (1999) Effects of Helicopter Noise on Mexican Spotted Owls. *The Journal of Wildlife Management*, 63, 60-76.

⁶³ Beale, C.M. & Monaghan, P. (2005) Modeling the Effects of Limiting the Number of Visitors on Failure Rates of Seabird Nests. *Conservation Biology*, 19, 2015-2019.

⁶⁴ Robinson, J.A. & Pollitt, M.S. (2002) Sources and extent of human disturbance to waterbirds in the UK: an analysis of Wetland Bird Survey data, 1995/96 to 1998/99: Less than 32% of counters record disturbance at their site, with differences in causes between coastal and inland sites. *Bird Study*, 49, 205.

⁶⁵ DTI (2006). Aerial Surveys of Waterbirds in Strategic Wind Farm Areas: 2004/05 Final Report

- Mersey Estuary SPA and Ramsar
- Liverpool Bay SPA
- Ribble and Alt Estuaries SPA and Ramsar
- River Dee and Bala Lake SAC

Atmospheric Pollution

Table 2: Main sources and effects of air pollutants on habitats and species⁶⁶.

Pollutant	Source	Effects on habitats and species
3.39 Sulphur Dioxide (SO ₂)	<p>The main sources of SO₂ are electricity generation, and industrial and domestic fuel combustion. However, total SO₂ emissions in the UK have decreased substantially since the 1980's.</p> <p>Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of SO₂ have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO₂ emissions in the UK.</p>	<p>Wet and dry deposition of SO₂ acidifies soils and freshwater, and may alter the composition of plant and animal communities.</p> <p>The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species.</p> <p>However, SO₂ background levels have fallen considerably since the 1970's and are now not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London.</p>
Acid deposition	<p>Leads to acidification of soils and freshwater via atmospheric deposition of SO₂, NO_x, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most of this contributed by lower sulphate levels.</p> <p>Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, increased N emissions may cancel out any gains produced by reduced S levels.</p>	<p>Gaseous precursors (e.g. SO₂) can cause direct damage to sensitive vegetation, such as lichen, upon deposition.</p> <p>Can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds/ plants.</p> <p>Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.</p>
Ammonia (NH ₃)	<p>Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock.</p> <p>Ammonia reacts with acid pollutants such as the products of SO₂ and NO_x emissions to produce fine ammonium (NH₄⁺) - containing aerosol. Due to its significantly longer lifetime, NH₄⁺ may be transferred much longer distances (and can therefore be a significant trans-boundary issue).</p> <p>While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.</p>	<p>The negative effect of NH₄⁺ may occur via direct toxicity, when uptake exceeds detoxification capacity and via N accumulation.</p> <p>Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen.</p> <p>As emissions mostly occur at ground level in the rural environment and NH₃ is rapidly deposited, some of the most acute problems of NH₃ deposition are for small relict nature reserves located in intensive agricultural landscapes.</p>

⁶⁶ Information summarised from the Air Pollution Information System (<http://www.apis.ac.uk/>)

Pollutant	Source	Effects on habitats and species
Nitrogen oxides (NO _x)	<p>Nitrogen oxides are mostly produced in combustion processes. Half of NO_x emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes.</p> <p>In contrast to the steep decline in Sulphur dioxide emissions, nitrogen oxides are falling slowly due to control strategies being offset by increasing numbers of vehicles.</p>	<p>Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NO_x for all vegetation types has been set to 30 ug/m³.</p> <p>Deposition of nitrogen compounds (nitrates (NO₃), nitrogen dioxide (NO₂) and nitric acid (HNO₃)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification.</p> <p>In addition, NO_x contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.</p>
Nitrogen deposition	<p>The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_x) or reduced (e.g. NH₃) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices.</p> <p>The N pollutants together are a large contributor to acidification (see above).</p>	<p>All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally.</p> <p>Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species.</p> <p>N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.</p>
Ozone (O ₃)	<p>A secondary pollutant generated by photochemical reactions involving NO_x, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above).</p> <p>Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40ppb ('episodes' or 'smog'). Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.</p>	<p>Concentrations of O₃ above 40 ppb can be toxic to both humans and wildlife, and can affect buildings.</p> <p>High O₃ concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in forest production and altered species composition in semi-natural plant communities.</p>

3.40 The main pollutants of concern for European sites are oxides of nitrogen (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂) and are summarised in **Error! Reference source not found.** Ammonia can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges⁶⁷. NO_x can also be toxic at very high concentrations (far above the annual average critical level). However, in particular, high levels of NO_x and NH₃ are likely to increase the total N deposition to soils, potentially leading to deleterious knock-on effects in resident ecosystems. Increases in nitrogen deposition from the atmosphere is widely known to enhance soil fertility and to lead to eutrophication. This often has adverse effects on the community composition and quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats^{68 69}.

⁶⁷ http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.

⁶⁸ Wolseley, P. A.; James, P. W.; Theobald, M. R.; Sutton, M. A. **2006**. Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. *Lichenologist* 38: 161-176

⁶⁹ Dijk, N. **2011**. Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: evidence from a long-term field manipulation *Global Change Biology* 17: 3589-3607

- 3.41 Sulphur dioxide emissions overwhelmingly derive from power stations and industrial processes that require the combustion of coal and oil, as well as (particularly on a local scale) shipping⁷⁰. Ammonia emissions originate from agricultural practices⁷¹, with some chemical processes also making notable contributions. As such, it is unlikely that material increases in SO₂ or NH₃ emissions will be associated with the Issues and Options Document. NOx emissions, however, are dominated by the output of vehicle exhausts (more than half of all emissions). A 'typical' housing development will contribute by far the largest portion to its overall NOx footprint (92%) through the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison⁷². Emissions of NOx could therefore be reasonably expected to increase because of a higher number of vehicles due to implementation of any growth options outlined in the Issues and Options Document.
- 3.42 According to the World Health Organisation, the critical NOx concentration (critical threshold) for the protection of vegetation is 30 µgm⁻³; the threshold for sulphur dioxide is 20 µgm⁻³. In addition, ecological studies have determined 'critical loads'⁷³ of atmospheric nitrogen deposition (that is, NOx combined with ammonia NH₃).
- 3.43 The Department of Transport's Transport Analysis Guidance outlines that, beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant (**Error! Reference source not found.** and ⁷⁴). This is therefore the distance that has been used throughout this HRA in order to determine whether European sites are likely to be significantly affected by development outlined in the Issues and Options Document. Exhaust emissions from vehicles are capable of adversely affecting heathland habitats.

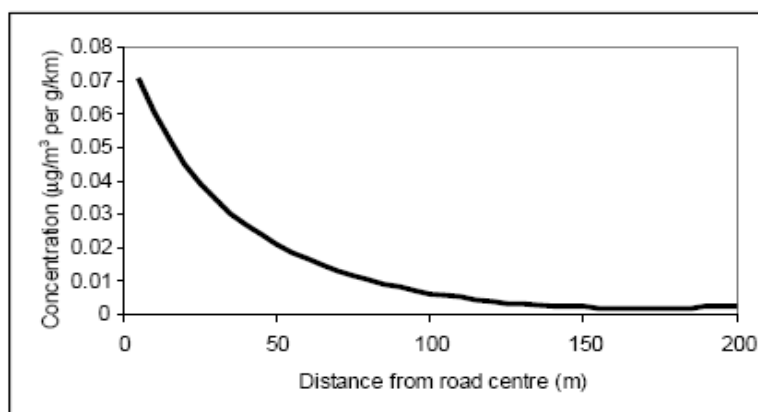


Figure 4: Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT75).

⁷⁰ http://www.apis.ac.uk/overview/pollutants/overview_SO2.htm.

⁷¹ Pain, B.F.; Weerden, T.J.; Chambers, B.J.; Phillips, V.R.; Jarvis, S.C. 1998. A new inventory for ammonia emissions from U.K. agriculture. Atmospheric Environment 32: 309-313

⁷² Proportions calculated based upon data presented in Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. <http://www.airquality.co.uk/archive/index.php>

⁷³ The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur

⁷⁴ <http://www.dft.gov.uk/webtag/documents/expert/unit3.3.3.php#013> [Accessed on the 06/11/2019]

⁷⁵ <http://www.dft.gov.uk/ha/standards/dmr/vol11/section3/ha20707.pdf>; accessed 13/07/2018

4. Test of Likely Significant Effects (ToLSE)

Recreational Pressure

- 4.1 The following European sites within 10km of Wirral are sensitive to recreational pressure arising from the 12,000 net new residential dwellings being proposed in the Issues and Options Document (the sites in bold are taken forward to Appropriate Assessment):
- **Mersey Narrows and North Wirral Foreshore SPA and Ramsar**
 - **Dee Estuary SPA and Ramsar**
 - **Dee Estuary SAC**
 - **Mersey Estuary SPA and Ramsar**
 - **Liverpool Bay SPA**
 - **Ribble and Alt Estuaries SPA and Ramsar**
 - **Sefton Coast SAC**
 - **Halkyn Mountain SAC**
 - River Dee and Bala Lake SAC
 - Deeside and Buckley Newt Sites SAC
- 4.2 The Mersey Narrows and North Wirral Foreshore SPA and Ramsar borders the Wirral Peninsula to the north, extending towards The Dee Estuary SPA and Ramsar in the west and the Mersey Estuary SPA and Ramsar in the south-east. The SPA and Ramsar is designated for several non-breeding waterfowl species, including bar-tailed godwit, knot, little gull and common tern, and its overall waterbird assemblage. All qualifying features are sensitive to recreational disturbance, because this may change the local distribution and abundance of these birds, ultimately affecting the viability of the birds by altering their feeding and breeding behaviour. Natural England's Site Improvement Plan highlights that recreational disturbance is one of the major pressures acting on the birds. For example, on the North Wirral Foreshore, a range of regulated, consented and unregulated activities are carried out, the impacts of which are currently difficult to manage. The Wirral Issues and Options Document includes proposed residential allocations in close proximity to the SPA and Ramsar and is therefore likely to increase recreational pressure within the SPA and Ramsar. Likely Significant Effects therefore cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.3 The Dee Estuary SPA and Ramsar borders the Wirral peninsula on its western side, extending on a north-south axis to the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. The site is also designated for its sensitive non-breeding waterfowl species (e.g. black-tailed godwit, dunlin, knot, redshank), its overall waterbird assemblage and several breeding species (e.g. common tern, little tern). Natural England's Site Improvement Plan for the Mersey Narrows and North Wirral Foreshore SPA and Ramsar also covers this European site, identifying recreational pressure as a threat to the site's integrity. The 12,000 residential dwellings to be delivered in Wirral over the Plan period of 2020 and 2035, will increase the recreational demand in the authority and are therefore likely to increase recreational pressure in the Dee Estuary SPA and Ramsar. Likely Significant Effects therefore cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.4 The Mersey Estuary SPA and Ramsar is the third coastal site that borders Wirral, extending along its south-eastern side. It is designated for several migratory species, including non-breeding dunlin, redshank, teal and shelduck, and its overall waterbird assemblage. Natural England's Site

- Improvement Plan identifies recreational pressure as one of the three main threats for the site. As for the other estuarine and coastal sites bordering Wirral, the provision of additional residential dwellings is likely to increase the visitation level in the Mersey Estuary. Likely Significant Effects therefore cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.5 The Dee Estuary SAC partly overlaps with the Dee Estuary SPA and Ramsar but extends to the northern side of Wirral into the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. Several habitats and species in the Dee Estuary SAC, notably the areas of saltmarsh (*Salicornia* spp. and the Atlantic salt meadows) concentrated on the foreshore in the Heswall Beach area, are sensitive to abrasion arising from recreational activities. This is in accordance with Natural England's Site Improvement Plan, which highlights recreational pressure as a pressure for the site. The net additional residential dwellings proposed in Wirral's Issues and Options Document, are likely to increase the number of recreational visits into the upper foreshore saltmarsh habitats of the SAC. Likely Significant Effects therefore cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.6 The Liverpool Bay SPA stretches along the east of the Irish Sea, bordering both northern England and northern Wales. Most importantly for this HRA, it stretches along the northern coastline of Wirral and up the River Mersey to Bebington, thereby being directly accessible to residents from this authority. Both the red-throated diver and common scoter are highly sensitive to visual and noise disturbance stemming from activities in the open water. This includes disturbance from wind turbines and helicopters. Importantly in relation to the Issues and Options Document, boating can also result in disturbance to these species⁷⁶. Given the proximity of the SPA to Wirral, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.7 The Ribble and Alt Estuaries SPA and Ramsar is designated for various non-breeding waterfowl and wader species (e.g. Bewick's swan, whooper swan, pink-footed goose, redshank), which are all sensitive to recreational disturbance. Natural England's Site Improvement Plan mentions public access and disturbance as a key pressure in the SPA and Ramsar, particularly arising from recreational activities on the foreshore⁷⁷. The net increase in residential dwellings within Wirral has the potential to increase the number of recreational visits in the SPA and Ramsar. It is noted that Wirral's boundary is only 1.5km in straight-line distance from the Ribble and Alt Estuaries SPA and Ramsar. However, the actual by-road distance for Wirral residents will amount to over 9km and crossing of the Mersey Narrows via the Kingsway or Queensway Tunnels. As such it is considered that recreational disturbance will primarily arise in-combination with growth in the authorities of Liverpool and Sefton. Likely Significant Effects therefore cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.8 The Sefton Coast SAC is designated for several dune habitats (e.g. shifting dunes, fixed vegetated coastal dunes), which are all highly sensitive to recreational trampling and nutrient enrichment from dog fouling. Natural England's Site Improvement Plan mentions public access and disturbance as a key pressure in the SAC, particularly arising from recreational impacts in the dune systems⁷⁸. The net increase in residential dwellings within Wirral has the potential to increase the number of recreational visits in the Sefton Coast SAC. Given the SAC largely overlaps with the Ribble and Alt Estuaries SPA and Ramsar, it lies approx. 1.5km in straight-line distance from Wirral. However, as for the SPA and Ramsar, the actual by-road distance for Wirral residents will amount to over 9km and a crossing of the Mersey Narrows via the Kingsway or Queensway Tunnels. As such it is considered that recreational disturbance will primarily arise in-combination with growth in the authorities of Liverpool and Sefton. Likely Significant Effects therefore cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.9 The Halkyn Mountain SAC is designated for its population of great-crested newts and several habitats, including Calaminarian grasslands (vegetation associated with old mines), European dry heaths and semi-natural dry grassland. The SAC comprises a large common with a right of public access, which is frequently used for dog walking and horse riding. The heathland habitats within the common are particularly sensitive to recreational pressure as a result of trampling damage and nutrient enrichment. The closest component site of the Halkyn Mountain SAC lies

⁷⁶ <http://publications.naturalengland.org.uk/file/5733149452009472> [Accessed on the 20/11/2019]

⁷⁷ <http://publications.naturalengland.org.uk/publication/6274126599684096> [Accessed on the 19/11/2019]

⁷⁸ <http://publications.naturalengland.org.uk/publication/6274126599684096> [Accessed on the 19/11/2019]

approx. 5.5km to the south-west of Wirral, with the common being even further away. The driving distance from the closest major population centre (Heswall) is 30km due to the intervening presence of the Dee Estuary. It is not considered that the SAC is a major destination for residents from Wirral; therefore, a conclusion of no likely significant effect is reached.

- 4.10 The Deeside and Buckley Newt Sites SAC is designated for its population of great-crested newts and its old sessile oak woods. Natural Resources Wales' Site Conservation Advice highlights that the site is heavily used for recreational purposes, particularly by residents from Deeside and Buckley. However, the site is 9.1km to the south of Wirral and therefore lies beyond a typical visitor catchment for a non-coastal site. Furthermore, it is not considered that the qualifying features of the site are particularly sensitive to the impact of recreational pressure. As such, LSEs of the Issues and Options Document can be excluded and the site is screened out from Appropriate Assessment.
- 4.11 Given that the Issues and Options Document does not yet contain strategic policies or policy text, this HRA considers the Preferred Option text that the Issues and Options Document does provide. The following growth options and Preferred Approaches have been screened in for Appropriate Assessment because they might result in increased recreational pressure in European sites, particularly the coastal and estuarine SPAs / Ramsars:
- Strategic Growth Options **1A (Urban Intensification)**, Option **2A (Dispersed Green Belt Release)** and Option **2B (Urban Extension)**
 - Chapter 2.9 **Delivering Growth Through Regeneration** (provides for the overall strategic development in Wirral Waters and Birkenhead)
 - Chapter 5.5 **Empty Properties** (returning long-term empty properties to the housing market by providing 1,275 additional homes)
 - Chapter 5.6 **Gypsies, Travellers and Travelling Show People** (considers the need of providing plots for gypsies and travellers)
 - Chapter 6.4 **Tourism** (promotes tourism opportunities in the Borough of Wirral)

Loss of Functionally Linked Habitat

- 4.12 The following European sites within 10km of Wirral⁷⁹ are sensitive to the loss of functionally linked land due to additional development being proposed in the Issues and Options Document (the sites in bold are taken forward to Appropriate Assessment):
- **Mersey Narrows and North Wirral Foreshore SPA and Ramsar**
 - **Dee Estuary SPA and Ramsar**
 - **Mersey Estuary SPA and Ramsar**
 - **Ribble and Alt Estuaries SPA and Ramsar**
 - Sefton Coast SAC
 - Halkyn Mountain SAC
 - Deeside and Buckley Newt Sites SAC
- 4.13 The Mersey Narrows and North Wirral Foreshore SPA and Ramsar is designated for several waterfowl and wader species, and its overall waterbird assemblage. As such, the site harbours a variety of mobile bird species, which might use functionally linked habitat beyond the European site boundary. The SPA and Ramsar stretches along the northern coastline and the eastern shoreline of the Wirral peninsula and various land parcels potentially included in the Issues and Options Document. Natural England's Site Conservation Supplementary Advice note highlights that the bird features use habitats outside the site boundary, indicating that the integrity of the

⁷⁹ It is possible that species using functionally linked land in Wirral are associated with SPAs further afield, but it is considered probable that the functionally-linked land in Wirral is most significant for the SPAs and Ramsars that border the Wirral peninsula.

- SPA and Ramsar will partly depend on functionally linked habitat⁸⁰. As such, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.14 The Dee Estuary SPA and Ramsar is designated for several waterfowl and wader species, and its overall waterbird assemblage. Notably, the qualifying species assemblage includes some mobile species that are often recorded on functionally linked habitat, including curlew, lapwing and wigeon. The SPA and Ramsar stretches along the western shoreline of the Wirral peninsula. This is the section of Wirral that is less urbanised and where various greenfield sites are included under Options 2a and 2b, which could act as functionally linked habitat. As such, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.15 The Mersey Estuary SPA and Ramsar is designated for several waterfowl and wader species, and its overall waterbird assemblage. Notably, the qualifying species assemblage includes some mobile species that are often recorded on functionally linked habitat, including curlew, lapwing and wigeon. The SPA and Ramsar stretches along the eastern shoreline of the Wirral peninsula. This is the section of Wirral that is already highly urbanised. However, several greenfield sites are included under Options 2a and 2b (particularly to the south of Bebington), which could act as functionally linked habitat. As such, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.16 The Ribble and Alt Estuaries SPA and Ramsar is designated for several waterfowl and wader species, most importantly whooper swan, Bewick's swan and pink-footed goose. Both geese and swans are particularly mobile and might use foraging or roosting sites tens of kilometres from the SPA and Ramsar. Natural England's Supplementary Advice Note highlights that Bewick's swans feed on arable land outside the SPA boundary, whereas pink-footed geese show complex flyways and use agricultural land in the wider region⁸¹. The SPA and Ramsar is only approx. 1.5km to the north-east of Wirral and well within the distance that the geese and swans would be expected to travel to functionally linked habitat parcels. As such, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.17 The Sefton Coast SAC is partly designated for its Annex II species great-crested newt. This species is known to migrate from its summer breeding ponds to non-breeding terrestrial habitats, which is integral to the viability of the species. However, great-crested newts have limited mobility and most adults will remain within approx. 250m from their breeding ponds. The SAC is approx. 1.5km to the north-east of Wirral, and separated from the Borough by the Mersey Narrows. This is beyond 250m and Likely Significant Effects can thus be excluded. The site is screened out from Appropriate Assessment.
- 4.18 The Halkyn Mountain SAC is also partly designated for its Annex II species great-crested newt. This species is known to migrate from its summer breeding ponds to non-breeding terrestrial habitats, which provides essential functionally linked habitat for this species. However, most adult great-crested newts will remain within approx. 250m from their breeding ponds. The SAC is approx. 5.7km to the south-west of Wirral, which is beyond the 250m distance used for great-crested newts. Therefore, Likely Significant Effects can thus be excluded. The site is screened out from Appropriate Assessment.
- 4.19 The Deeside and Buckley Newt Sites SAC is designated for one of Great Britain's largest great-crested newt populations. Given that the species moves up to 250m beyond the designated site boundary to seek out non-breeding habitats, there is the potential for the loss of functionally linked habitat associated with the Issues and Options Document. The SAC is approx. 9.1km to the south of Wirral, which is far beyond the 250m distance used for great-crested newts. Likely Significant Effects can thus be excluded. The site is screened out from Appropriate Assessment.
- 4.20 Given that the Issues and Options Document does not yet contain strategic policies or policy text, this HRA considers the Preferred Option text that the Issues and Options Document does provide.

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<https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9020287&SiteName=mersey+narrows&SiteNameDisplay=Mersey+Narrows+and+North+Wirral+Foreshore+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAAraea=&NumMarineSeasonality=5> [Accessed on the 20/11/2019]

⁸¹
<https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9005103&SiteName=ribble&SiteNameDisplay=Ribble+and+Alt+Estuaries+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAAraea=&NumMarineSeasonality=20> [Accessed on the 20/11/2019]

The following growth options and Preferred Approaches have been screened in for Appropriate Assessment because they allocate for sites that might result in the loss of functionally linked habitat:

- Strategic Growth Options **1A (Urban Intensification)**, Option **2A (Dispersed Green Belt Release)** and Option **2B (Urban Extension)**
- Chapter 2.9 **Delivering Growth Through Regeneration** (provides for the overall strategic development in Wirral Waters and Birkenhead)
- Chapter 5.5 **Empty Properties** (returning long-term empty properties to the housing market by providing 1,275 additional homes)
- Chapter 5.6 **Gypsies, Travellers and Travelling Show People** (considers the need of providing plots for gypsies and travellers)
- Chapter 6.2 **Provisions for Future Employment Growth** (allocates a minimum of 80ha of employment land)
- Chapter 6.4 **Tourism** (promotes tourism opportunities in the Borough of Wirral)

Water Quality

4.21 The following European sites within 10km of Wirral are sensitive to changes in water quality arising from wastewater effluent associated with development proposed in the Issues and Options Document (the sites in bold are taken forward to Appropriate Assessment):

- **Mersey Narrows and North Wirral Foreshore SPA and Ramsar**
- **Dee Estuary SPA and Ramsar**
- **Dee Estuary SAC**
- **Mersey Estuary SPA and Ramsar**
- **Liverpool Bay SPA**
- **Ribble and Alt Estuaries SPA and Ramsar**
- Sefton Coast SAC
- River Dee and Bala Lake SAC
- Halkyn Mountain SAC
- Deeside and Buckley Newt Sites SAC

4.22 The Mersey Narrows and North Wirral Foreshore SPA and Ramsar might be affected by development proposed in the Issues and Options Document, particularly through an increase in the discharge of treated sewage effluent. This is primarily because an increase in nitrogen might lead to phytoplankton and macroalgae blooms, which in turn might affect the invertebrate communities that the SPA and Ramsar birds rely on. The site extends along the northern and eastern shorelines of Wirral and could be affected by local wastewater discharge from Wastewater Treatment Works (WwTWs). Given the sensitivity of the SPA and Ramsar to water quality issues, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.

4.23 The Dee Estuary SPA and Ramsar might also be affected by development proposed in the Issues and Options Document, particularly through an increase in the discharge of treated sewage effluent. The increase in nutrient levels (especially nitrogen) might lead to phytoplankton and macroalgae blooms, which in turn might affect the invertebrate communities that the SPA and Ramsar birds rely on. The site extends along the northern and eastern shorelines of Wirral and could be affected by local wastewater discharge from WwTWs. Given the sensitivity of the SPA

and Ramsar to water quality issues, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.

- 4.24 The Dee Estuary SAC is designated for several habitats (e.g. sand- and mudflats, estuaries) and plant assemblages (e.g. Atlantic salt meadows, *Salicornia* colonising mud / sand). The SAC comprises some of the habitats underpinning the Dee Estuary SPA and Ramsar and parts of the North Wirral Foreshore. Natural England's and Natural Resources Wales' joint Conservation Advice highlights that the SAC is highly sensitive to non-toxic contamination by inorganic nutrient loading⁸². This is because the additional nutrients are likely to imbalance the local plant communities and alter the invertebrate populations in the SAC. The site extends along the northern and western shorelines of Wirral and could be affected by local wastewater discharge from WwTWs. Given the sensitivity of the SAC to water quality issues, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.25 In line with the previous estuarine sites, the Mersey Estuary SPA and Ramsar is likely to be affected by development proposed in the Issues and Options Document, particularly through an increase in the discharge of treated sewage effluent. The site is designated for several waterfowl species that are depending on food resources in the intertidal sand- and mudflats. A net increase in nitrate loading associated with development in Wirral might lead to changes in invertebrate and plant communities within the SPA and Ramsar. Natural England's Supplementary Advice highlights that the SPA and Ramsar depends both on good water quality and sufficiently high dissolved oxygen concentrations⁸³. Overall, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.26 The Liverpool Bay SPA is designated for its non-breeding populations of red-throated diver and common scoter. Both of these waterfowl species depend on a sufficient number of fish available to prey upon. An increase in the nutrient loading in the SPA might lead to changes in the food supply of the fish. Furthermore, dissolved oxygen depletion might also have direct negative impacts on fish populations. The SPA borders the northern shoreline of Wirral and might therefore be affected by WwTWs effluent discharging directly into the bay or into sites that are hydrologically connected to the SPA. Therefore, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.27 The Ribble and Alt Estuaries SPA and Ramsar is sensitive to changes in water quality through the impact of nitrogen deposition on the prey communities of the qualifying waterfowl. The site is also in hydrological continuity with the Mersey Estuary SPA and Ramsar, the Liverpool Bay SPA, and the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. As such, while being approx. 1.5km to the north-east of Wirral, additional nutrients might be reaching the SPA and Ramsar via these connecting waterbodies. Given the sensitivity of the SPA and Ramsar and its hydrological linkage with other European sites in the area, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.28 The Sefton Coast SAC's qualifying dune habitats and great-crested newts are all potentially sensitive to changes in water quality resulting from the Issues and Options Document. The site largely overlaps with the Ribble and Alt Estuaries SPA and Ramsar, which was screened in above. However, in contrast to that SPA and Ramsar, which will receive hydrological input from other coastal sites, the hydrology and water quality is primarily determined from inland water sources in Sefton. Also, Natural England's Conservation Objectives Supplementary Advice Note highlights that the hydrology of the SAC is not well understood and requires further study⁸⁴. Given the above, it is concluded that there is no hydrological connectivity between the SAC and Wirral. Therefore, Likely Significant Effects can be excluded. The site is screened out from Appropriate Assessment.
- 4.29 The River Dee and Bala Lake SAC is designated for several habitats (e.g. water course from plain to montane levels) and species (e.g. Atlantic salmon, species of lamprey), all of which are

⁸² https://naturalresources.wales/media/673576/Dee%20Estuary-Req33-Volume%201-English-091209_1.pdf [Accessed on the 20/11/2019]

⁸³

<https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9005131&SiteName=mersey+estuary&SiteNameDisplay=Mersey+Estuary+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=7> [Accessed on the 20/11/2019]

⁸⁴ <http://publications.naturalengland.org.uk/publication/6588974160150528> [Accessed on the 20/11/2019]

highly sensitive to changes in water quality. In contrast to the marine sites, the main impact would be through increases in phosphorus concentrations linked to wastewater from Wirral. Natural Resources Wales has published a Core Management Plan for the site, highlighting that water quality is an important threat to site integrity⁸⁵. However, the site lies 7.3km south of Wirral and therefore upstream of any watercourses that local WwTWs are likely to discharge into. Therefore, given that there is no linking impact pathway between the SAC and WwTWs in Wirral, Likely Significant Effects can be excluded. The site is screened out from Appropriate Assessment.

- 4.30 The Halkyn Mountain SAC is partly designated for its great-crested newt population, which requires sufficiently good water quality such that there are no surface sheens or algal blooms in the breeding ponds⁸⁶. However, the SAC lies 5.7km to the south-west of Wirral and upstream of any of Wirral's WwTWs that are likely to be discharging treated sewage effluent. Given that the sites lie on an elevated plateau, they are also much more likely to be receiving water from higher terrain. As such it is considered that there is no hydrological connectivity with development in Wirral. Therefore, Likely Significant Effects can be excluded and the site is screened out from Appropriate Assessment.
- 4.31 While the qualifying great-crested newts in the Deeside and Buckley Newt Sites SAC are generally sensitive to negative water quality impacts, such issues also need to be considered on a site-by-site basis. The Core Management Plan published by Natural Resources Wales states that '*water pollution is not considered to be a significant factor affecting the presence of great-crested newts on this site*'⁸⁷. Furthermore, the site lies 9.1km to the south of Wirral, upstream of any waterbodies that might receive treated sewage effluent from Wirral. As such it is considered that there is no hydrological connectivity with development in Wirral. Therefore, Likely Significant Effects can be excluded and the site is screened out from Appropriate Assessment.
- 4.32 Given that the Issues and Options Document does not yet contain strategic policies or policy text, this HRA considers the Preferred Option text that the document does provide. The following growth options and Preferred Approaches have been screened in for Appropriate Assessment because they provide for development that will contribute sewage effluent and surface run-off, potentially changing the water quality in European sites:
- Strategic Growth Options **1A (Urban Intensification)**, Option **2A (Dispersed Green Belt Release)** and Option **2B (Urban Extension)**
 - Chapter 2.9 **Delivering Growth Through Regeneration** (provides for the overall strategic development in Wirral Waters and Birkenhead)
 - Chapter 5.5 **Empty Properties** (returning long-term empty properties to the housing market by providing 1,275 additional homes)
 - Chapter 5.6 **Gypsies, Travellers and Travelling Show People** (considers the need of providing plots for gypsies and travellers)
 - Chapter 6.2 **Provisions for Future Employment Growth** (allocates a minimum of 80ha of employment land)
 - Chapter 6.4 **Tourism** (promotes tourism opportunities in the Borough of Wirral)

Visual and Noise Disturbance

- 4.33 The following European sites (and habitat that is functionally linked to these sites) within 10km of Wirral are sensitive to visual and noise disturbance from construction work and other activities associated with Wirral's Issues and Options Document (the sites in bold are taken forward to Appropriate Assessment):

- **Mersey Narrows and North Wirral Foreshore SPA and Ramsar**

⁸⁵ https://naturalresources.wales/media/673374/River_Dee_Bala_Lake_32_Plan.pdf [Accessed on the 20/11/2019]

⁸⁶ https://naturalresources.wales/media/672548/Halkyn%20SAC%20Plan%20_Eng_.pdf [Accessed on the 20/11/2019]

⁸⁷ https://naturalresources.wales/media/671740/Deeside_and_Buckley_WES32_Plan_English.pdf [Accessed on the 20/11/2019]

- **Dee Estuary SPA and Ramsar**
 - **Mersey Estuary SPA and Ramsar**
 - **Liverpool Bay SPA (primarily due to visual and noise disturbance issues in habitat that is functionally linked to the SPA)**
 - Ribble and Alt Estuaries SPA and Ramsar
- 4.34 This section considers disturbance effects on qualifying bird species through pathways other than recreational pressure, such as construction and vehicular noise, construction lighting, operational lighting and other visual disturbance. Professional experience suggests that these impacts are unlikely to arise on sites located more than 200m from the qualifying bird species. For example, the noisiest construction activity is generally impact piling, where a hammer is dropped on the pile. This has a typical maximum noise level of 100-110dB at 1m from source; however, it typically results in noise levels below the typical waterfowl disturbance threshold (70 dB) at distances of more than 100m from source because atmospheric noise attenuates by 6dB for every doubling of distance. Therefore, this precautionary 200m distance was used to assess the options, specifically to flag proposed allocations of particular concern. It is to be noted that the impact pathway visual and noise disturbance is not only relevant to European sites, but also to functionally linked habitat beyond the site boundary.
- 4.35 The Mersey Narrows and North Wirral Foreshore SPA and Ramsar is designated for waterfowl and wader species that are all sensitive to visual and noise disturbance, which might arise from the Issues and Options Document. The precautionary distance for non-recreational disturbance is 200m, meaning that potential development sites within this buffer are likely to result in LSEs. There are several potential development sites within Option 1 that lie within 200m of the Mersey Narrows and the North Wirral Foreshore. Therefore, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.36 The Dee Estuary SPA and Ramsar, also designated for various waterfowl and wader species, lies adjacent to the western shoreline of the Wirral Peninsula. Using a 200m precautionary distance, Option 1 only proposes to allocate one site within 200m of the SPA and Ramsar. However, there are several greenfield sites included under Options 2a and 2b (the Green Belt release options) in which development might cause visual and noise disturbance on SPA and Ramsar birds (if present). Therefore, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.37 The Mersey Estuary SPA and Ramsar, designated for disturbance-sensitive waterfowl and waders, lies adjacent to the eastern shoreline of the Wirral Peninsula. Using a 200m precautionary distance, Option 1 proposes to allocate several sites within 200m of the SPA and Ramsar. Furthermore, Options 2a and 2b (the Green Belt release options) include multiple greenfield sites in which development might cause visual and noise disturbance on SPA and Ramsar birds (if present). Therefore, Likely Significant Effects cannot be excluded and the site is screened in for Appropriate Assessment.
- 4.38 The Liverpool Bay SPA lies over 200m to the north of Wirral's development, such that visual and noise disturbance arising from construction works related to Wirral's LP is not considered to be an issue for the European site itself. However, as highlighted earlier, a significant number of some of the qualifying species of the SPA use the Birkenhead Docks as functionally linked habitat. This lies directly adjacent to some of the sites proposed for development, most notably Wirral Waters, and might be affected by visual and noise disturbance arising during the construction period, as well as from recreational use post-construction. Therefore, Likely Significant Effects cannot be excluded, and the site is screened in for Appropriate Assessment.
- 4.39 The Ribble and Alt Estuaries SPA and Ramsar, designated for disturbance-sensitive bird species, lies approx. 1.5km to the north-east of Wirral's boundary. Therefore, the entire site extent lies beyond the precautionary 200m distance applied for waterbirds. As such, it is concluded that development in Wirral will not result in visual and noise disturbance of the SPA's and Ramsar's qualifying birds. Therefore, there is no potential for Likely Significant Effects and the site is screened out from Appropriate Assessment.

4.40 Given that the Issues and Options Document does not yet contain strategic policies or policy text, this HRA considers the Preferred Option text that the document does provide. The following growth options and Preferred Approaches have been screened in for Appropriate Assessment because construction activities, artificial lighting or other processes might cause visual and noise disturbance to SPA and Ramsar birds:

- Strategic Growth Options **1A (Urban Intensification)**, Option **2A (Dispersed Green Belt Release)** and Option **2B (Urban Extension)**
- Chapter 2.9 **Delivering Growth Through Regeneration** (provides for the overall strategic development in Wirral Waters and Birkenhead)
- Chapter 5.5 **Empty Properties** (returning long-term empty properties to the housing market by providing 1,275 additional homes)
- Chapter 5.6 **Gypsies, Travellers and Travelling Show People** (considers the need of providing plots for gypsies and travellers)
- Chapter 6.2 **Provisions for Future Employment Growth** (proposes to allocate a minimum of 80ha of employment land)
- Chapter 6.4 **Tourism** (promotes tourism opportunities in the Borough of Wirral)

Atmospheric Pollution

4.41 The following European sites within 10km of Wirral are sensitive to atmospheric pollution due to an increase in the number of car-based commuter journeys resulting from Wirral's Issues and Options Document (the sites in bold are taken forward to Appropriate Assessment), taking into account key journey to work routes of Wirral residents:

- **Dee Estuary SPA and Ramsar**
- **Dee Estuary SAC**
- Mersey Estuary SPA and Ramsar
- Mersey Narrows and North Wirral Foreshore SPA and Ramsar
- Liverpool Bay SPA
- Ribble and Alt Estuaries SPA and Ramsar
- Sefton Coast SAC
- Halkyn Mountain SAC
- Deeside and Buckley Newt Sites SAC

4.42 The Dee Estuary SAC comprises several habitats with a varying degree of sensitivity to atmospheric pollution, and especially nitrogen deposition. APIS shows that the most sensitive features in the SAC are the fixed coastal dunes with herbaceous vegetation (critical nitrogen load of 8-15 kg N/ha/yr), the humid dune slacks (10-20 kg N/ha/yr), the embryonic shifting dunes (10-20 kg N/ha/yr) and the shifting dunes with *Ammophila arenaria* (10-20 kg N/ha/yr) and these are also the habitats where the SAC species petalwort is found. This is mainly because high nitrogen deposition will result in a biomass increase of tall graminoids, soil acidification and a loss of lichens species. However, these habitats occupy a relatively small proportion of the SAC (considerably less than 1% according to the JNCC website) and are not found within the parts of the SAC around the Wirral peninsula that lie within 200m of roads. The other main habitats sensitive to nitrogen deposition are the Atlantic salt meadows and *Salicornia* vegetation, which both have a critical load of 20-30 kg N/ha/yr; the lowest part of the critical load range is currently exceeded in places. These habitats have a relatively low sensitivity to nitrogen deposition (hence the high critical load) because they are naturally relatively high nitrogen habitats, but they are found in the Heswall Beach area. However, there are no significant through roads within 200m

of this part of the SAC. Moreover, it is important to note that the experimental studies which underlie conclusions regarding the sensitivity of saltmarsh (the habitat representative of littoral sediment on which most studies have occurred) to nitrogen deposition have '*... neither used very realistic N doses nor input methods i.e. they have relied on a single large application more representative of agricultural discharge*⁸⁸, which is far in excess of anything that would be deposited from atmosphere. There is good reason to believe the upper part of the critical load range (30 kgN/ha/yr) may be more appropriate than the lower part (20 kgN/ha/yr). The Dee Estuary SAC lies within 200m of the A548 in Flintshire (Wales), on the opposite side of the estuary. Commuters originating from Wirral might use the A548 to reach work locations in Flintshire, including at Flint and Holywell and saltmarsh is a specific qualifying feature of the SAC. Therefore, the Welsh part of the site is screened in for Appropriate Assessment in relation to the impact pathway atmospheric pollution.

- 4.43 The Dee Estuary SPA and Ramsar is designated for its non-breeding waterfowl and breeding tern species, some of which are indirectly sensitive to atmospheric pollution. This is because excess nitrogen deposition might lead to changes to the food resources and habitats of these species. APIS states that supralittoral sediment, immediately inland from the high-water mark and the main habitat of all three tern species, is highly sensitive to nitrogen deposition. For example, coastal acid and calcareous dune grasslands have critical nitrogen loads of 8-10 kg N/ha/yr and 10-15 kg N/ha/yr. Exceedance of these critical loads might lead to increases in tall grasses and N leaching, while decreasing prostrate plants and typical lichen species. However, there are no tern nest sites located within 200m of the A548. Waterfowl and waders primarily depend on the littoral zone of the SPA and Ramsar, particularly the saltmarsh habitats, which have a critical nitrogen load of 20-30 kg N/ha/yr. According to APIS only one wader species (curlew) for which the SPA is designated is potentially sensitive to nitrogen deposition to saltmarsh, due to potential habitat structure effects. Given that the southern part of the SPA and Ramsar overlaps with the boundary of the Dee Estuary SAC, it also lies within 200m of the A548 in Wales (see previous paragraph). Therefore, for completeness, this site is also screened in for Appropriate Assessment in relation to the impact pathway atmospheric pollution.
- 4.44 The Site Relevant Critical Load on APIS⁸⁹ for nitrogen deposition to the Mersey Estuary SPA and Ramsar, as it relates to each bird for which the site was designated, indicates that maximum baseline nitrogen deposition to littoral sediment for the grid squares within which the site is situated is 19 kg N/ha/yr (last checked 19/09/19), with an average deposition rate of 14 kg N/ha/yr. This compares to a critical load for littoral sediment of 20-30 kg N/ha/yr. Therefore, nitrogen deposition is well-below the critical load for the relevant habitat. Moreover, it is important to note that the experimental studies which underlie conclusions regarding the sensitivity of saltmarsh (the habitat representative of littoral sediment on which most studies have occurred) to nitrogen deposition have '*... neither used very realistic N doses nor input methods i.e. they have relied on a single large application more representative of agricultural discharge*⁹⁰, which is far in excess of anything that would be deposited from atmosphere. There is good reason to believe the upper part of the critical load range (30 kgN/ha/yr) may be more appropriate than the lower part (20 kgN/ha/yr).
- 4.45 Moreover, APIS concludes the effects of nitrogen deposition may be positive for most birds for which the SPA is designated because nitrogen enrichment potentially means more prey species. The only SPA species for which nitrogen deposition to littoral sediment is identified on APIS as being potentially negative are great crested grebe *Podiceps cristatus* (if algal blooms were to occur, which is very unlikely due to inherent turbidity and low water temperatures in the Mersey Estuary, or if saltmarsh experienced a change in grass cover, which is not expected to occur since the nitrogen deposition rate is well below the critical load) and wigeon *Anas penelope*, golden plover *Pluvialis apricaria*, black-tailed godwit *Limosa limosa* and curlew *Numenius arquata* (if nitrogen deposition increases the sward height of their grassland foraging grounds; however, sward height is much more strongly influenced by other factors than atmospheric nitrogen deposition such as cut height & frequency and conventional fertilisation).

⁸⁸ UK Air Pollution Information System website [accessed 21/04/15]: <http://www.apis.ac.uk/node/968>

⁸⁹ <http://www.apis.ac.uk/>

⁹⁰ UK Air Pollution Information System website [accessed 21/04/15]: <http://www.apis.ac.uk/node/968>

- 4.46 Finally, the relevant habitats of the Mersey Estuary SPA and Ramsar are subject to regular tidal flushing. This both deposits far more nitrogen in a single tidal cycle than would come from local roads (reflected on APIS itself, which states regarding saltmarsh that '*Overall, N deposition [from atmosphere] is likely to be of low importance for these systems as the inputs are probably significantly below the large nutrient loadings from river and tidal inputs*'⁹¹) and controls the growth of otherwise competitive plant species.
- 4.47 With regard to Liverpool Bay SPA, while terns are vulnerable to nitrogen deposition on their nesting sites, the SPA is not designated for nesting terns but for foraging birds which are plunge-diving fishers - as are cormorant and red-throated diver, other key interest features of the SPA - and their use of the SPA is thus unaffected by atmospheric nitrogen deposition. Similarly, common scoter (another SPA interest feature) is a sea-duck that does not rely on vegetation or intertidal foreshore for its food resource and would therefore be unaffected. The analysis regarding the waterbirds of the Mersey Estuary SPA would also apply to the waterbird assemblage feature of Liverpool Bay.
- 4.48 Similarly, scrutiny of APIS indicates that the only species for which Mersey Narrows & North Wirral Foreshore is designated that is potentially sensitive to nitrogen deposition is nesting terns; however, it has been established that there is no semi-natural vegetated nesting tern habitat within the SPA within 200m of roads on the Wirral peninsula (the terns in the SPA nest primarily on Seaforth Nature Reserve in Sefton; they have also been known to nest at Birkenhead Docks but there is no semi-natural habitat here that would be affected by atmospheric nitrogen deposition). It is therefore concluded that LSEs will not arise on these SPAs/Ramsar sites due to air quality.
- 4.49 The qualifying features of the Ribble and Alt Estuaries SPA and Ramsar include a range of waterfowl and wader species, some of which are indirectly sensitive to atmospheric pollution. For example, APIS highlights that most of the littoral zone that the waders depend on has a critical nitrogen load of 20-30 kg N/ha/yr. Natural England's Supplementary Advice on Site Conservation Objectives also states that air quality is an important feature determining the quality of the species' supporting habitat⁹². However, the Advice Note also states that '*there is a lack of evidence that the feature [the qualifying bird species] is being impacted by any anthropogenic activities*'. Furthermore, while Sefton is in the top five list of origins and destinations of commuter traffic relating to Wirral, the SPA and Ramsar is beyond 200m of any major road likely to form a journey to work route. It is therefore concluded that Wirral's Issues and Options Document will not result in LSEs on the Ribble and Alt Estuaries SPA and Ramsar regarding atmospheric pollution. No air quality modelling will be required for the HRA of the Reg. 19 Local Plan.
- 4.50 The Sefton Coast SAC's qualifying dune systems and associated plant species are highly sensitive to atmospheric pollution. This includes the fixed acidic coastal dunes with vegetation (critical nitrogen load: 8-10 kg N/ha/yr) and the humid dune slacks (critical nitrogen load: 10-15 kg N/ha/yr). An exceedance of this nutrient load will change the community composition of the dunes towards an increased biomass of tall graminoids. This is also reflected in Natural England's Conservation Objectives Supplementary Advice Note, which confirms that the current nitrogen deposition already exceeds the critical loads within the shifting dunes⁹³. However, a review of the existing roads along the SAC highlights that the dune systems are within approx. 150m of the A565 (Liverpool Road) near Southport, relatively far north in Sefton and only a very short c. 200m section of road lies this close (i.e. considerably less than 0.01% of the SAC lies within 200m). While review of the 2011 Census shows that there is a relatively high number of commutes between Wirral and Sefton, most of these journeys are likely to be to / from the settlements of Bootle, Litherland and Maghull, and therefore will not affect the Sefton Coast SAC further north. It is therefore concluded that Wirral's Issues and Options Document will not result in LSEs on the Sefton Coast SAC regarding atmospheric pollution. No air quality modelling will be required for the HRA of the Reg. 19 Local Plan.

⁹¹ APIS website [accessed 21/04/15]: <http://www.apis.ac.uk/node/968>

⁹² <https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9005103&SiteName=ribble&SiteNameDisplay=Ribble+and+Alt+Estuaries+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=20> [Accessed on the 20/11/2019]

⁹³ <http://publications.naturalengland.org.uk/publication/6588974160150528> [Accessed on the 20/11/2019]

- 4.51 The Halkyn Mountain SAC is designated for several habitats that are sensitive to atmospheric nitrogen deposition, including European dry heaths and Calaminarian grasslands. APIS identifies a critical nitrogen load for Calaminarian grasslands of 10-15 kg N/ha/yr and for European dry heaths of 10-20 kg N/ha/yr, which are the two most sensitive features within the SAC. Component parts of the SAC, notably Halkyn Common, lie directly adjacent to the A55 south of Holywell. However, while Flintshire is clearly a major workplace destination for Wirral residents, it is most likely that commuters from Wirral will work in settlements in the south-east of the district on the English border, including Connah's Quay, Buckley, Flint and Mold, since these are the focal areas for employment. These journeys would not involve driving within 200m of Halkyn Common. Therefore, Likely Significant Effects can be excluded and the site is screened out from Appropriate Assessment.
- 4.52 The Deeside and Buckley Newt Sites SAC is partly designated for compartments of sessile oak woods containing *Ilex* and *Blechnum*. On APIS a critical nitrogen load of 10-15 kg N/ha/yr is identified for this habitat feature that, if exceeded, would result in the decrease of mycorrhiza, epiphytic lichens and bryophytes. The only location in which the SAC is within 200m of a major road is south-west of Ewloe adjacent to the A55. However, a review of Natural Resources Wales' Core Management Plan shows that none of the management units within the Buckley Claypits and Commons SSSI (which covers this part of the SPA and Ramsar), contains this habitat feature. As such, there is no impact pathway linking the SAC to increased traffic arising from the Issues and Options Document. Therefore, Likely Significant Effects can be excluded and the site is screened out from Appropriate Assessment.
- 4.53 Given that the Issues and Options Document does not yet contain strategic policies or policy text, this HRA considers the Preferred Option text that the document does provide. The following growth options and Preferred Approaches have been screened in for Appropriate Assessment because they are likely to increase the number of commuter journeys within and beyond the Borough of Wirral, potentially resulting in atmospheric pollution:
- Strategic Growth Options **1A (Urban Intensification)**, Option **2A (Dispersed Green Belt Release)** and Option **2B (Urban Extension)**
 - Chapter 2.9 **Delivering Growth Through Regeneration** (provides for the overall strategic development in Wirral Waters and Birkenhead)
 - Chapter 5.5 **Empty Properties** (returning long-term empty properties to the housing market by providing 1,275 additional homes)
 - Chapter 5.6 **Gypsies, Travellers and Travelling Show People** (considers the need of providing plots for gypsies and travellers)
 - Chapter 6.2 **Provisions for Future Employment Growth** (allocates a minimum of 80ha of employment land)
 - Chapter 6.4 **Tourism** (promotes tourism opportunities in the Borough of Wirral)

Plans / projects to be Considered In-Combination

- 4.54 It is obligatory to not only assess the impacts of a proposed plan alone, but also to investigate whether there might be 'in-combination' effects with plans proposing development in other authorities surrounding a European protected site. In practice, such an 'in-combination' assessment is of greatest relevance when the plan would otherwise be screened out because its individual contribution is inconsequential. For the purposes of this HRA, we have identified several other authorities that have developed their own Local Plans or Local Development Plans (applicable to Welsh authorities), outlining residential and / or employment growth within their own boundary. These include the English authorities of Sefton, Liverpool, Cheshire West and Chester, Halton and the Welsh authority of Flintshire. Table 3 summarises the residential and / or employment growth allocated within the respective Plans for these authorities. It is to be noted that several authorities are nearing the end of their plan period and are currently working on updated Plans. However, Table 3 summarises the currently adopted, and therefore legally effective, Plans.

Table 3: Number of residential dwellings and employment space that are to be delivered in authorities adjacent to Wirral, according to their adopted Local Plans or Local Development Plans.

Local Authority	Total housing provided	Total employment space provided
Sefton (Adopted April 2017) ⁹⁴	11,520 (2012-2030)	81.6ha
Liverpool (Pre-submission draft, January 2018) ⁹⁵	34,780 (2013-2033)	149.5ha
Cheshire West and Chester (Adopted January 2015) ⁹⁶	22,000 (2010-2030)	365ha
Flintshire (Local Development Plan – Preferred Strategy) ⁹⁷	7,645 (2015-2030)	223ha
Halton (Pre-submission draft, July 2019) ⁹⁸	8,050 (2014-2037)	NA
Wirral (Issues and Options Document, November 2019)	12,000	80ha
Total In-Combination Growth	95,995	Min. 899.1ha

4.55 Other ongoing projects in the Borough of Wirral and its surrounding authorities must also be considered, as these might have in-combination effects with the emerging Issues and Options Document. For example, a project to enhance the scope for tourism in the Liverpool City Region might lead to higher recreational pressure in the coastal and estuarine European sites in Merseyside, thereby acting in-combination. The following further projects (in addition to the Plans of adjoining authorities outlined in the previous section) are considered in this HRA:

- **Keuper Gas Storage Project** - underground Gas Storage Facility - up to 19 underground caverns, gas processing plant and associated development with capacity to store up to 500 standard million cubic meters (mcm) of natural gas, having an import and export capability of up to 34 mcm per day. It was granted development consent in 2017;
- **Hydrodec Oil Re-Refinery Eastham** - The construction of a new hazardous waste recovery facility at Power House Road, Eastham, Port Wirral, Merseyside comprising the construction and operation of a waste oil re-refining plant together with associated and ancillary development;
- **Alexandra Dock Biomass Project** - New Biomass energy project (output of between 100 and 150MW);
- **Liverpool John Lennon Airport Masterplan to 2050** (March 2018). This project constitutes part of the Halton Local Plan and Liverpool Local Plan, but the Masterplan provides considerably more detail on some issues than the Local Plan policy and it is therefore discussed in detail in the later chapters of this document;
- **Mersey Ports Masterplan** (Consultation draft; June 2011), including the Port expansion into Seaforth Nature Reserve and the Seaforth River Terminal (a deepwater container port expansion in Sefton is currently under construction and due for completion imminently), new opportunities for renewable energy, development of single and multi-user port centric warehousing and of new processing facilities for imported commodities, potentially leading to the Liverpool SuperPort – An integrated port, airport, intermodal terminal, freight and commercial network based upon the Port of Liverpool, the Manchester Ship Canal, Liverpool John Lennon Airport and the Mersey Multimodal Gateway (Liverpool City Region); and

⁹⁴ <https://www.sefton.gov.uk/media/1270013/A-Local-Plan-for-Sefton-for-ADOPTION-FINAL.pdf> [Accessed on the 21/11/2019]

⁹⁵ <https://liverpool.gov.uk/media/1356834/01-local-plan-january-2018-final.pdf> [Accessed on the 21/11/2019]

⁹⁶ http://consult.cheshirewestandchester.gov.uk/portal/cwc_ldf/adopted_cwac_lp/ [Accessed on the 21/11/2019]

⁹⁷ Pre-Deposit Consultation version of the Plan. Available at: <https://www.flintshire.gov.uk/en/Resident/Planning/Home.aspx> [Accessed on the 21/11/2019]

⁹⁸ Revised Delivery and Allocations Local Plan. Available at: <https://www3.halton.gov.uk/Pages/planning/policyguidance/planningplans.aspx> [Accessed on the 21/11/2019]

- **Marine Spatial Plan**, the Marine Management Organisation (MMO) is responsible for preparing marine plans for the English inshore and offshore regions according to the policies and objectives set out in the Marine Policy Statement (MPS). The plan will guide the sustainable development of marine industries, such as wind farms, shipping and marine aggregates.

4.56 The following projects are noted, but are not formally taken into account in the assessment because they are at a very early stage of implementation:

- **Mersey Tidal Power** - Liverpool City Region Combined Authority (LCRCA) approved £650,000 of funding to complete work on a business case for the proposed Mersey tidal energy project at a meeting held on July 27 2018.
- **Mersey Approach Channel Dredging Project**, a £300 million-pound project to dredge the Mersey Approach has now begun to allow larger ships to dock on Merseyside.

4.57 The Liverpool City Region now has a combined authority and that authority has published several plans of its own. These include a Construction Action Plan (2018-2020), a Skills & Investment Statement (2018/19), a Skills Strategy (2018-2030), an Apprenticeship Growth Plan (2018-20), an Employability Action Plan, a Low Carbon Action Plan, an Advanced Manufacturing Action Plan, a Visitor Economy Action Plan, a Visitor Economy Strategy and Destination Management Plan, a Rights of Way Improvement Plan (2018-2028), a Long-Term Rail Strategy, a Local Journeys Strategy, a Transport Plan for Growth, a Road Safety Strategy and a Single Growth Strategy. It must also be noted that the various Liverpool City Region Local Plans are part of the mechanism by which the Mayor's strategic objectives will be delivered and therefore it is important not to double-count impacts.

5. Appropriate Assessment

Summary of the Growth Options

- 5.1 Over the Plan period of 2020 to 2035, the total housing requirement to be delivered in Wirral is a minimum of 12,000 net new dwellings. The Wirral Local Plan Issues and Options document details that the Preferred Option for strategic growth is Option 1A (Urban Intensification). This plans for all the Borough's development needs to be met within the existing urban areas, by developing urban sites and by increasing densities across all the settlements in Wirral in accordance with the Council's approach to density, as set out in the plan. It also seeks to accelerate delivery, through joint working arrangements with the Council's investment and funding partners. This is the Council's preferred approach, seeking to prioritise developing brownfield land ahead of any Green Belt release, in line with paragraph 137 of the National Planning Policy Framework (NPPF). Option 1A comprises proposed urban housing allocations comprising 8,763 dwellings (including sites with planning permission, and 4,534 dwellings at Wirral Waters) together with relevant allowances for net gains from conversions, changes of use, windfalls and empty homes. Several broad locations for growth are proposed in and around Birkenhead and New Brighton, covering years 6-10 and 11-15 of the plan period where additional acceleration and intensification could deliver additional housing supply in the plan period. The option also includes proposed urban employment allocations totalling 105 hectares.
- 5.2 Option 1B is the same as 1A in that it considers that there is enough suitable, available and achievable capacity to meet all the Borough's future development needs within the existing urban area. However, it assumes that it would not be possible to deliver sufficient homes for the first five years and as such the emerging Local Plan may be allowed to follow a 'stepped approach'. This would mean the same amount of housing and employment would be delivered in the plan period, but with a lower proportion in the first five years.

Options Requiring Green Belt Release

- 5.3 If the land identified in the urban area under Options 1A or 1B to meet the total requirement cannot be shown to be 'deliverable' or 'developable' in line with the definitions set out in the NPPF, then some development may be required in the Green Belt. The following options would still include bringing forward as many urban housing and employment sites as possible, and increasing residential densities, as outlined in Option 1A, but would require the Council to decide which sites in the Green Belt should be brought forward to meet any shortfalls.
- 5.4 Option 2A (Dispersed Green Belt release) proposes the release of a series of small to medium sized areas of land, which when added together, would allow sufficient land to be allocated to meet any residual housing needs within the Plan period.
- 5.5 Option 2B proposes an alternative option to focus development more strategically into a single larger area around an existing settlement. This option still relies on the weakly performing Green Belt parcels but groups these together to identify a larger contiguous area for urban expansion. The most suitable location would be on land west of Barnston Road, Heswall.

Recreational pressure

- 5.6 It is noted that recreational pressure is an impact pathway that is relevant to European sites directly, as well as to functionally linked habitat outside the European site boundaries. This is because recreation might affect the extent to which qualifying species (e.g. common tern, cormorant and great-crested grebe) are able to use supporting habitats, such as the Birkenhead Docks. This section will first investigate each of the designated sites in turn, before investigating recreational pressure in habitats that are functionally linked to these European sites.

Mersey Narrows and North Wirral Foreshore SPA and Ramsar

- 5.7 Given its extent, distribution and proximity to urban development, particularly its eastern section near Wallasey, the Mersey Narrows and North Wirral Foreshore SPA and Ramsar is unsurprisingly a primary destination for residents of Wirral. At the same time, the SPA and Ramsar supports internationally important waterfowl species as well as a significant overall waterbird assemblage. Furthermore, it is particularly important to note that the site supports qualifying features throughout the year (e.g. non-breeding bar-tailed godwit and knot, as well as breeding common tern and little gull on passage), and the issue of recreational pressure is therefore not seasonal (as it is in many other estuarine sites). Notwithstanding this, it is to be acknowledged that visitor numbers in summer are likely to be significantly higher than in winter and this might influence the magnitude of impact on the qualifying bird species.
- 5.8 Not all qualifying features of the Mersey Narrows and North Wirral Foreshore SPA and Ramsar are considered to be equally sensitive to recreational disturbance. The most sensitive species of the SPA and Ramsar are bar-tailed godwit, knot and the overall waterbird assemblages. This is because these features heavily rely on roost sites and foraging habitat within the intertidal mudflats of the SPA and Ramsar, which are frequently subjected to human activity. In contrast, while little gull and common tern are sensitive to disturbance in principle, Natural England considers that in the Mersey Narrows and North Wirral Foreshore SPA and Ramsar there is limited recreational disturbance of these species. This is partly because parts of the populations of these species roost or nest within the confines of the Seaforth Nature Reserve, which has limited access to the public. Visitors need to be members of the Lancashire Wildlife Trust and require a visitor's and vehicle pass from the port police. As such, disturbance of these species is limited to a minimum.
- 5.9 Local residents tend to visit natural spaces around them to gain the well-being benefits of being in the outdoors, as well as engaging in recreational activities. Wirral has a high-quality and beautiful coastline that is well-provisioned for a wide range of formal and informal recreation. Wirral's coast is therefore very attractive for recreation and tourism purposes for residents and visitors. A recent study has demonstrated a direct link between the number of residential dwellings and the number of visitors to nearby European protected sites, both at foot access and car park access locations⁹⁹. Another study investigated the link between the number of visitors to the coastline and the resulting disturbance on bird populations¹⁰⁰, highlighting that there is a relationship between visitor numbers and the magnitude of bird disturbance. In order to assess the impact of recreation on birds, it is therefore of fundamental importance to understand how the local housing density affects access patterns and the activities undertaken in estuarine sites¹⁰¹.
- 5.10 There are high levels of housing in the proximity of the SPA and Ramsar, particularly around the eastern section of the site near the Mersey Narrows. However, site accessibility plays a major role in modulating the recreational pressure effect, as this determines which part of a foreshore people can access. A review of the main access points to the SPA and Ramsar highlights that there are several car park facilities, especially along the North Wirral Foreshore, that are likely to facilitate recreational access to the site. Furthermore, visitor counts along the shore indicate that some of these access points are recreational hotspots, where recreational pressure concentrates. A 2014 study ranked all English SPAs based on their vulnerability to recreational pressure, incorporating factors such as weighted housing, number of car parks per kilometre of shorelines, proportion of shoreline with access and total mudflat area¹⁰². The Mersey Narrows and North Wirral Foreshore SPA and Ramsar ranked within the top five most vulnerable sites to recreational pressure. Wirral's parks, beaches and countryside are visited by six million visitors annually, indicating a very high baseline of recreational pressure. A review of satellite imagery

⁹⁹ Weitowitz, D.C., Panter C., Hoskin R. & Liley D. (2019). The effect of urban development on visitor numbers to nearby protected nature conservation sites. doi: [10.1093/ijue/juz019](https://doi.org/10.1093/ijue/juz019): 1-12.

¹⁰⁰ Clarke R., Feamley H. & Liley D. (2012). Solent Disturbance and Mitigation Project. Available at: http://www.solentforum.org/forum/sub_groups/Natural_Environment_Group/Disturbance_and_Mitigation_Project/Solent%20Mitigation%20and%20Disturbance%20Project%20Non%20Technical%20Summary%20February%202012.pdf

¹⁰¹ Stillman R.A., Cox J., Liley D., Ravenscroft N., Sharp J. & Wells M. (2009). Solent Disturbance and Mitigation Project: Phase 1 report. Solent Forum.

¹⁰² Ross K., Liley D., Austin G., Clarke R.T., Burton N.H., Stillman R.A., Cruickshanks K. & Underhill-Day, J. (2014). Housing development and estuaries in England: Developing methodologies for assessing the impacts of disturbance to non-breeding waterfowl. Unpublished report by Footprint Ecology for Natural England.

shows a minimum of eight formal car parks directly adjacent to the North Wirral Foreshore, amidst a network of footpaths and public bridleways. There is also a large quantity of informal car parking and unrestricted or time-limited roadside parking along much of the linear frontage of Wirral's coast. Furthermore, three toilet blocks, refreshment infrastructure and several bathing beaches are also present.

- 5.11 On UK coastlines various recreational activities are undertaken, which differ in their likely level of bird disturbance. The increasing human footprint in coastal sites in the UK means that such activities should be better monitored and disturbance quantified, to manage disturbance in better ways. Across six sites in Teesmouth and the Cleveland Coast, 28% of all recreational activities resulted in significant disturbance, with bait digging, fishing, dog walking and kite surfing causing the greatest disturbance responses. The North Wirral Foreshore accommodates various recreational activities, including walking, dog walking, exercising, cycling, bird watching, fishing, canoeing and swimming.
- 5.12 In December 2014, Thomson Ecology was commissioned by Natural England to investigate the impacts of recreational disturbance on bird declines in the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. While these exercises were not carried out specifically in relation to growth in Wirral, they establish the evidence base regarding the impacts of housing growth on both visitor numbers and bird disturbance within the European site. The report by Thomson Ecology had the following main elements, which are discussed further in the following sections:
- A desk-based review that puts the bird population declines in the SPA and Ramsar into the context of recreational use;
 - A visitor questionnaire of people visiting the SPA and Ramsar; and
 - Data on bird disturbance collected in the field

Visitor Survey

- 5.13 In their assessment of recreational pressure within the SPA and Ramsar, Thomson Ecology consulted Wetland Bird Survey (WeBS) experts, local birders and site managers to identify the main public access points and the activities that caused disturbance most frequently. Survey participants were asked to consider the magnitude of impact and frequency of shore-based, water-based and air-borne activities on a seven-point scale. The survey also asked basic questions regarding bird behaviour and relevant mitigation measures that are in place. At Hoylake, an access point near an important high-tide roost, dog walking was perceived to be the most significant disturbance issue, while aircraft were also being mentioned. This access point is being patrolled by voluntary dog wardens at high tide and notices addressing bird disturbance are displayed to protect roosting birds. The main suggested improvements to the provision of mitigation were a more official wardening role along with the provision of additional funding.
- 5.14 A visitor survey was carried out at the seven access points of the SPA and Ramsar, including King's Gap Road / North Parade, Bennets Lane / Meols Parade, Pasture Road Car Park, Seafront Car Park, Green Lane, Wallasey Beach (all access points to the North Wirral Foreshore), Victoria Road Slipway (New Brighton) and Vale Park (both access points to the Mersey Narrows). It is to be noted that all of these locations are tarmacked and well-maintained car parks, that are likely to be operating at capacity all the time. The busiest survey points in terms of the number of interviewees were Bennets Lane (78 interviews), Pasture Road (87 interviews), Wallasey Beach (91 interviews), Victoria Road Slipway (83 interviews) and Vale Park (84 interviews). Notably, at all survey locations except for Victoria Road Slipway, dog walking was by far the most frequently undertaken activity. Importantly, there was a high proportion of dog walkers that exercise their dogs off-lead (44% of all interviewees). At Bennets Lane almost three quarters of interviewees were off-lead dog walkers. Dog walkers are frequently considered to be the user group with the highest adverse impact on waterfowl in estuarine sites, especially if dogs freely roam the intertidal zone. Most visitors travelled less than 5 miles from home, either visiting by car (64%) or on foot (33%). The temporal parameters of recreational activities were also investigated. A typical activity lasted between 30 and 60 minutes and as such was relatively short. Interviewees also stated that they mostly visit daily or more than twice a week. Interestingly, while most visitors are aware of the site's conservation designation and vulnerable species, few of them regard bird disturbance as a significant issue.

Relating Visitor Data to Bird Responses

- 5.15 To assess whether there is a link between recreation and bird disturbance in the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, bird surveys were also carried out in December 2014 and in January and February 2015. Several roost sites close to access points were surveyed, including Hoylake (near Bennets Lane Car Park), Leasowe (near Pasture Road and Seafrost Car Parks), North Mersey and South Mersey (both near Victoria Road Slipway and Vale Park Car Parks), allowing for a direct link between visitor numbers and disturbance events to be made. All of the bird survey locations are important high-tide roosts for knot, dunlin, bar-tailed godwit, redshank and oystercatchers.
- 5.16 The visitor spot counts from vantage points indicated the number of people actually accessing the respective locations. North Mersey was the busiest of the locations with a mean number of 103 visitors per hour. In contrast, Hoylake was the least busy survey location in Wirral with a mean number of 18 visitors per hour. Leasowe, a short distance to the east of Hoylake, had the highest dog count (189 dogs) and the highest ratio of dogs per person (0.40). The most frequent activity of visitors was walking (71%), followed by off-lead dog walking (16%). Roughly a third of visitors (27%) used the intertidal zone compared to 73% of visitors that remained on the shore or the promenade. At Hoylake, one of the roost sites for birds, the proportion of intertidal zone users was the highest (55%). Off-lead dog walking was also considerably more popular in the intertidal zone compared to on-lead dog walking. These data are significant in that recreational activities in the intertidal zone, in particular off-lead dog walking, are likely to have the greatest disturbance effect on SPA and Ramsar bird species. Relating the visitor spot counts to bird abundances, indicated that there is a significant negative correlation between the two. In other words, the total number of birds was lower when the number of visitors increased. The Mersey Narrows and North Wirral Foreshore SPA and Ramsar is highly popular for recreation with higher visitor rates than at Teesmouth, the Solent and the North Kent Marshes, with walking (with and without dogs) being the single most dominant activity. Furthermore, the intertidal zone is more popular than in other marine sites (e.g. Solent, North Kent Marshes), especially for off-lead dog walking (81% of all dogs).
- 5.17 An investigation of Potential Disturbance Events (PDEs) highlighted that of the 223 PDEs that were recorded, 73 (33%) evoked a response by the birds. Some of these involved a long flight or leaving the area, which are the responses that are most likely to be associated with the highest impacts on fitness. Off-lead dog walking was the activity that triggered the highest percentage of active responses, including long flights and leaving the area. Some of the important roost sites (e.g. Leasowe) had a very high number of PDEs and disturbance responses, generally due to the fact that there were more birds within 200m of recreational activities. With regard to Wirral's Issues and Options Document HRA, it is to be noted that behavioural responses to disturbance (33%) were higher in this SPA and Ramsar than in other studies (ranging from 7% to 28%). It is also noted that this is only a third of the events that could potentially result in disturbance and therefore habituation might naturally mitigate the effects of recreational pressure to some extent. As in other studies^{103,104}, some activities in the intertidal zone resulted in the highest proportion of disturbance. Location, the type of activity and the species affected are all important determinants of the magnitude of recreational pressure, and more important than the total visitor number per se.
- 5.18 However, the report also clarifies that the issue of bird declines cannot solely attributed to disturbance. While bar-tailed godwit and turnstone have declined considerably in recent years at Hoylake and Leasowe respectively, other species have increased in numbers. In order to evaluate the role of disturbance in this, it might be advisable to zone sections of the intertidal zone, to see whether this results in an increase in bird numbers. Furthermore, some wader species (e.g. knots, bar-tailed godwits, dunlin) have a relatively low roost fidelity¹⁰⁵. As such, a decline in bird numbers at some survey points might merely represent a redistribution of these birds within the wider area.

¹⁰³ Liley D., Cruickshanks K. Waldon J. & Fearnley H. (2011). Exe Disturbance Study. Report by Footprint Ecology for the Exe Estuary Management Partnership.

¹⁰⁴ Liley D. & Fearnley H. (2011). Bird Disturbance Study, North Kent 2010-2011. Report by Footprint Ecology for Greening the Gateway.

¹⁰⁵ Rehfisch M.M., Insley H.U.G.H. & Swann B. (2003). Fidelity of overwintering shorebirds to roosts on the Moray Basin, Scotland: Implications for predicting impacts of habitat loss. *Ardea* 91: 53-70.

Review of current management practices

- 5.19 Thomson Ecology also undertook a review of the management measures currently in place to address recreational pressure in the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. Currently, there are measures in place to manage vehicle and boat access / movement, sporting activities and public safety. However, none of these specifically address bird disturbance. Information boards and disturbance warnings are located at several access points where there are strong recreational interactions with birds, including three access locations at the Hoylake frontage. Despite this, there is a notable disconnect between the importance that relevant authorities (in this case WeBS monitoring experts) assign to recreational disturbance and the lack of awareness of disturbance issues among members of the public. This is a clear indication that the current notice boards that are in place are insufficient for educational purposes. Overall, the paper concluded that there are few formal mitigation measures in place that specifically target bird disturbance.
- 5.20 Ideally, a need for mitigation measures is demonstrated prior to their enactment. However, as discussed for the case of bird disturbance, a cause-and-effect is not always easy to demonstrate, because of the numerous confounding factors and the difficulty of surveying birds. One potential measure would be to manage human access through the incorporation of buffer zones, providing screens, dog control orders and path management. Furthermore, a simple and cost-effective technique would be to place further information boards and signs for keeping dogs on lead at key strategic locations, where bird disturbance is an issue. This would augment the signage that is already present on site. Furthermore, zonation measures might include an approach similar to that in the Dee Estuary, where high tide lines between October and March are closed off by a warden. Finally, the report advised that the relevant authority (in this case Wirral Borough Council), should cooperate with site owners and local interest groups to devise a management scheme for the SPA and Ramsar that takes due account of the site's qualifying features and conservation objectives¹⁰⁶.

Wirral's Spatial Development Options

Over the Plan period of 2020 to 2035, the total housing requirement to be delivered in Wirral is a minimum of 12,000 new dwellings. The Issues and Options Document details that the Preferred Option for strategic growth is option 1A (Urban Intensification). This plans for all the Borough's development needs to be met within existing urban areas, without the need for releasing Green Belt land for development. This option primarily utilises 2019 SHLAA sites and allocates 4,534 dwellings and 5250 jobs at Wirral Waters, the main development within the authority.

- 5.21 Generally, it is to be noted that the currently preferred option proposes to allocate relatively little new residential development in the northern and eastern section of Wirral, while concentrating much of the provision of residential dwellings in Birkenhead, which is already highly urbanised. This is potentially positive for the North Wirral Foreshore, which is considered to be more susceptible to recreational pressure than the Mersey Narrows, because most of the potential larger housing sites lie further than 4km from the North Wirral Foreshore (NWF). Given that distance is one of the most important predictors of recreational visits, new Birkenhead residents are more likely to visit parts of the Mersey Narrows Foreshore than the North Wirral Foreshore. However, given that Birkenhead is still well within a typical recreational catchment of a coastal site and that the Mersey Narrows are also sensitive with regards to bird disturbance, the likely recreational impact of Wirral's Preferred Option must still be adequately addressed.
- 5.22 The unique setting of Wirral on a peninsula that is enveloped by three coastal sites (Mersey Narrows and North Wirral Foreshore SPA and Ramsar, Dee Estuary SPA and Ramsar and the Mersey Estuary SPA and Ramsar) means that local residents have the choice between three sites with similar characteristics (although not necessarily similar accessibility; the Mersey Estuary SPA is much less accessible from Wirral than the other sites). It is therefore considered that distance from home is likely to be the key factor driving site choice. As such, the potential larger housing sites close to the Mersey Narrows are likely to drive a potential increase in its

¹⁰⁶ Page 60 of the following report: Thomson Ecology. (2015). Mersey Narrows and North Wirral Foreshore Sites of Special Scientific Interest – Investigation into the Impacts of Recreational Disturbance on Bird Declines. Natural England Commissioned Report NECR201. 107pp. Available at: <http://publications.naturalengland.org.uk/publication/5547581758242816> [Accessed on the 12/11/2019].

- visitor pressure, while proposed allocations close to the North Wirral Foreshore are likely to contribute to recreational pressure in that component site.
- 5.23 Option 1A proposes allocations of approx. 334 residential dwellings to be delivered west of the M53 within the vicinity of the North Wirral Foreshore (NWF), with the furthest of these proposed allocations being approx. 1.7km distant from the NWF. This is considered to be well within the distance that residents would walk from home. Given the existing evidence for high numbers of off-lead dog walkers at Hoylake and Leasowe, it is expected that Wirral's Issues and Options Document would lead to an increase of dog walkers near these bird roost sites. For example, from the furthest of these proposed allocations it is only a short walk along Pasture Road to reach the NWF, from where there is direct access on to the intertidal mudflats of the SPA and Ramsar.
- 5.24 In contrast, approx. 7,218 dwellings are proposed for allocation in the eastern part of Wirral, mainly in highly urbanised areas of Birkenhead. These residential sites are further away from the NWF (e.g. approx. 4.8km for the major development in Wirral Waters) and much closer to the Mersey Narrows component part of the SPA and Ramsar. It is therefore considered that residential development in the eastern section of Wirral is more likely to affect the Mersey Narrows.
- 5.25 Aside from Option 1A, Options 2A and 2B propose the release of Green Belt land for residential development to accommodate any shortfall unable to be met in the urban area. Options 2A and 2B would need to deliver up to 2,500 homes in the Green Belt during the Plan period. While these options would not affect the net total residential pressure in the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, they would likely alter the spatial dimension of recreational pressure. For example, Option 2A could deliver a considerable number of residential dwellings in the relatively sparsely populated north-west of Wirral. This could increase recreational pressure along the NWF (particularly the Hoylake roost), rather than constraining the recreational pressure hotspots around the Mersey Narrows. Overall, this could help spread the adverse impacts of recreation to other parts of the site. Option 2B would concentrate Green Belt release in the form of Urban Extension sites around Heswall or Bebington. Regarding recreational pressure impacts on the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, Option 2B would be preferable over Option 2A due to the longer distances between potential housing sites and the SPA and Ramsar.

Mitigation

- 5.26 The existing evidence indicates that the Issues and Options Document has the potential to lead to adverse effects on the Mersey Narrows and North Wirral Foreshore SPA and Ramsar as a result of increased recreational pressure. At this point it is noted that a Recreation Mitigation and Avoidance Strategy (RMAS) is jointly being developed by Merseyside authorities in collaboration with Natural England and the National Trust. This strategy is designed to mitigate the recreational pressure arising from the in-combination growth in the wider Liverpool City Region. Being a mitigation solution for all European sites that are relevant to Wirral and the cumulative growth in the area, the RMAS will also address the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. However, its role will be discussed in the in-combination section at the end of the Appropriate Assessment on recreational pressure.

Dee Estuary SPA and Ramsar

- 5.27 The Test of Likely Significant Effects (ToLSE) identified that the Dee Estuary SPA and Ramsar is vulnerable to recreational disturbance, both due to its sensitive waterfowl species and its proximity to new residential development to be delivered in Wirral. Like the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, the Dee Estuary SPA and Ramsar harbours qualifying species throughout the entire year and this impact pathway therefore requires consideration across all seasons. Natural England's and Natural Resources Wales' joint Conservation Advice Note¹⁰⁷, stipulates that there is to be no significant reduction in numbers of birds attributable to disturbance, as this is likely to result in reduced food intake and increased energy expenditure.

¹⁰⁷ As this is a trans-border European site, the Conservation Advice is jointly published by Natural England and Natural Resources Wales. It is available at: https://naturalresources.wales/media/673576/Dee%20Estuary-Reg33-Volume%201-English-091209_1.pdf [Accessed on the 13/11/2019]

This might the reproductive success and viability of individuals, ultimately leading to population-level effects.

- 5.28 While the Dee Estuary SPA and Ramsar is clearly a very attractive natural space, the likelihood of recreational disturbance arising from a Local Plan will partly depend on how accessible a destination is. Regarding estuarine and coastal sites, suitable parameters to determine accessibility include car parks, the extent of the path network, opportunities for direct access to intertidal mudflats and other local attractions (e.g. nature reserves, marine pools, beaches, sporting clubs, etc.). In the first instance, this HRA therefore establishes public access to the Dee Estuary SPA and Ramsar. A review of the Ordnance Survey Map on ViewRanger indicates that public access to the SPA and Ramsar north of West Kirby is likely to be limited, because the Royal Liverpool Golf Course is a barrier to direct access on to the mudflats. However, to the south at West Kirby Beach, residents of Grange Hill and Newton have direct foot access on to the SPA's and Ramsar's mudflats. The Dee Estuary SPA and Ramsar is easily accessible all the way south to Neston with numerous beaches marked on google maps, including beaches at Caldy, Thurston and Heswall. The Wirral Way is a long-distance path that runs parallel to the SPA and Ramsar all the way from West Corby past Neston, providing hikers with ample opportunity to access the mudflats along the way. Finally, there are two main car parks along this stretch of the coast with one being located at West Kirby Beach (50+ capacity) and one further south at Heswall Beach (30-40 capacity). This is important as this means that the SPA and Ramsar is likely to be attractive for visitors from further afield as well as local residents travelling on foot.
- 5.29 Next, it is important to consider the current baseline of disturbance that is documented within the SPA and Ramsar. It is well known that SPA species are highly sensitive to visual and noise disturbance arising from recreation. According to Natural England and Natural Resources Wales, the current noise levels along the intertidal mud- and sandflats are relatively low. However, on parts of the shore that are popular for beach recreation (e.g. Gronant, Talacre, West Kirby, Thurston), noise disturbance is high, which might be particularly impactful at high tides, when birds are pushed closer to the coastline. The Conservation Advice Note identifies water sports at West Kirby as a particular disturbance concern for redshank roosting on the upper shore¹⁰⁸. Furthermore, both kite surfing and windsurfing is considered to cause significant disturbance on oystercatchers (and other species) roosting on Little Eye, Hilbre Islands. Birds using the saltmarsh further south in the SPA and Ramsar, experience exposure to frequent disturbance from dog walking, fishing, motorcycle scrambling and the flying of model aircraft and drones. This is of particular concern because if carried out on the upper marsh, these activities are carried out in close proximity to high tide roosts. Birds roosting on the Hilbre Islands experience relatively low disturbance, primarily from visitors that walk over from Wirral at low tide. Disturbance of the breeding tern colonies in the Dee Estuary SPA and Ramsar is primarily an issue on the Welsh side of the European site (Gronant, Point of Ayr) and is therefore not considered to be linked to Wirral's Issues and Options Document.
- 5.30 Footprint Ecology undertook a visitor survey in SSSIs on the north-west coast of England in, which covered two locations in the Dee Estuary SPA and Ramsar, namely West Kirby and Thurston Car Park¹⁰⁹. Both survey locations were popular in general (368 and 408 people passing over 16 hours respectively), and especially so among dog walkers (119 and 100 dogs entering over 16 hours respectively). Compared to the other SSSI sites surveyed, the SSSIs forming part of the Dee Estuary SPA and Ramsar, were among the busiest stretches of coast in the north-west of England. Notably, the proportion of dog walkers (> 75%) was also higher in the Dee Estuary SPA and Ramsar than in any of the other estuaries that were surveyed. At both survey locations, the bird disturbance fieldwork showed that over 90% of visitors exercise their dogs off-lead. Furthermore, one of the two survey locations (West Kirby) had the highest proportion of over 50% of daily visitors. In contrast, only about 30% of visitors at Thurston Car Park visited daily or on most days. The core visitor catchment for the Dee Estuary SPA and Ramsar was relatively typical for an estuarine site, and therefore larger than for inland sites. For West Kirby the core visitor catchment (i.e. the distance that 75% of visitors travelled from home) was 5.3km, compared to 8.8km for Thurston Car Park. Given the relatively small size of Wirral, this puts much of the authority, including the outskirts of Birkenhead and therefore the more

¹⁰⁸ Smith R. (2003). The effect of kite surfing on wader roosts at West Kirby, Dee Estuary. Unpublished Report on behalf of the West Kirby Voluntary Wardens.

¹⁰⁹ Liley D., Panter C., Marsh P. & Roberts J. (2017). Recreational activity and interactions with birds within the SSSIs on the North-West coast of England. Unpublished report by Footprint Ecology for Natural England.

populated urban centres of Wirral, within the catchment of the SPA and Ramsar (and SAC). Importantly, visitors also undertook longer routes (a median route of 3.4km) in the Dee Estuary than in other estuaries, indicating that the average visitor has the potential for affecting several roosting or feeding sites along the SPA and Ramsar.

Wirral's Spatial Development Options

- 5.31 Under Option 1A (Urban Intensification), relatively little residential growth is proposed in the western part of Wirral, the geographic area that is most relevant to the Dee Estuary SPA and Ramsar. Given the limited residential growth in this area, it is considered that the Issues and Options Document would not substantially increase recreational pressure in this SPA and Ramsar. However, approx. 134 dwellings are proposed to be allocated here, mainly in West Kirby. Given that the intertidal sand- and mudflats are particularly popular for recreational activities and that important high-tide roosts of sensitive SPA and Ramsar birds (e.g. redshank, oystercatcher) are close to West Kirby Beach, even a relatively small amount of residential growth could have an adverse effect on these waders.
- 5.32 As discussed in the previous section, Options 2A and 2B would need to deliver up to 2,500 homes in Wirral's Green Belt to accommodate any shortfall unable to be met in the urban area. While these options would not affect the net total recreational demand in Wirral, they would likely alter the spatial dimension of recreational pressure. For example, Option 2A could deliver a considerable number of residential dwellings in the west of Wirral, much closer to the Dee Estuary SPA and Ramsar. Given that the likelihood of visit increases as distance decreases, a link that was established in the previous section on the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, it is likely that this option would considerably increase pressure near some of the identified high-tide roost sites. Option 2B would concentrate Green Belt release in the form of Urban Extension sites around Heswall and Bebington. As for the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, Option 2B would be preferable over Option 2A due to the longer distances between the proposed Green Belt potential housing sites and the Dee Estuary SPA and Ramsar. Overall, regarding recreational pressure in the Dee Estuary SPA and Ramsar, Option 1A (Urban Intensification: as currently proposed) is expected to have the lowest potential for adverse effects on the estuarine site.

Mitigation

- 5.33 The existing evidence indicates that the Issues and Options Document has the potential to lead to adverse effects on the Dee Estuary SPA and Ramsar as a result of increased recreational pressure. At this point it is noted that a Recreation Mitigation and Avoidance Strategy (RMAS) is jointly being developed by Merseyside authorities in collaboration with Natural England and the National Trust. This strategy is designed to mitigate the recreational pressure arising from the in-combination growth in the wider Liverpool City Region. Being a mitigation solution for all European sites that are relevant to Wirral and the cumulative growth in the area, the RMAS will also address the Dee Estuary SPA and Ramsar. However, its role will be discussed in the in-combination section at the end of the Appropriate Assessment on recreational pressure.

Mersey Estuary SPA and Ramsar

- 5.34 The Test of Likely Significant Effects (ToLSE) identified that the Mersey Estuary SPA and Ramsar is vulnerable to recreational disturbance, both due to its sensitive qualifying species and its proximity to Wirral, where significant residential growth will be delivered over the Plan period 2020-2035. In contrast to the coastal sites discussed in the previous sections, the Mersey Estuary SPA and Ramsar only harbours sensitive species that are non-breeding or on passage. As such, recreational disturbance in this SPA and Ramsar has a more seasonal dimension, with recreation being of main concern between the months of October and March, when the waterfowl will be utilising the site.
- 5.35 As for the European sites that were previously discussed, the main disturbance effects will be delivered by recreational activities that are carried out on the intertidal sand- and mudflats, and on the water. Therefore, accessibility will be one of the key factors determining the magnitude of recreational effects. The SPA and Ramsar starts below the oil terminal in southern Birkenhead and then extends southwards to the mouth of the River Mersey. The shoreline of the estuary in Wirral is highly urbanised. Review of Ordnance Survey Mapping on ViewRanger shows that there are few public rights of way adjacent to the estuary and there are limited opportunities for direct

access onto the intertidal sand- and mudflats. Furthermore, to the south of Eastham Country Park, the estuary is separated from residential development by the Manchester Ship Canal, which runs all the way to Runcorn.

- 5.36 Accessibility to the Mersey Estuary SPA and Ramsar is considerably higher on its northern side in the authorities of Liverpool and Halton. While the shoreline in Liverpool is also very industrial in character (there are several docks, industrial estates and Liverpool John Lennon Airport), there are several footpaths that facilitate recreational access. Between Garston and Hale the Mersey Way leads directly along the Mersey Estuary SPA and Ramsar. From there the Trans-Pennine Trail follows the SPA and Ramsar in a north-easterly direction. Notably, these paths lead directly past several important feeding and roosting sites, such as The Oglet to the south of Liverpool Airport. Due to this difference in access between the northern and southern shore of the Mersey Estuary SPA and Ramsar, it is considered that the main source of recreational pressure in the SPA and Ramsar will be the authorities of Liverpool and Halton. This assessment is supported by Natural England's Site Improvement Plan, which states that 'users of public footpaths immediately adjacent to the north shore of the site can cause disturbance to birds roosting and feeding' here¹¹⁰. It is considered relatively unlikely that residents of Wirral will be frequently visiting the northern side of the Mersey Estuary, which would involve use of the Runcorn-Widnes Bridge and an additional by-road distance of over 30km just to reach the bridge. Additionally, there are accessible destinations of similar appeal (e.g. Mersey Narrows and North Wirral Foreshore SPA and Ramsar) much closer.
- 5.37 Footprint Ecology's visitor survey of estuarine sites in the north-west of England also covered one survey point in the Mersey Estuary SPA and Ramsar, namely Hale Head on the more accessible northern site of the estuary (opposite of Wirral). However, these results are summarised here as it is possible that some residents of Wirral will visit the northern side of the SPA and Ramsar. The bird disturbance work found that bird flight responses in this part of the estuary were the lowest of any of the estuaries surveyed (0.3 bird flights per hour). In contrast to the Dee Estuary SPA and Ramsar, Hale Head was much less busy (under 4.4 people per hour, 122 people passing in 16 hours). It was the only estuary where dog walkers constituted less than 50% of all recorded activities and the proportion of people that visited often (i.e. daily or on most days) was less than 40%. Overall, this indicates that the Mersey Estuary SPA and Ramsar, even on its more accessible northern shore, is not a primary destination for recreation. Notwithstanding; the core visitor catchment of Hale Head was 8.3km, which means that residents from Wirral could be expected to use the SPA and Ramsar.
- 5.38 However, due to the relatively long distance that Wirral residents would have to travel to the northern shore of the site, it is concluded that Wirral's Issues and Options Document will not result in adverse effects on site integrity when considered alone. However, given that Wirral is a significant component part of the highly urbanised wider Liverpool City region and that some Wirral residents may visit the northern site of the SPA and Ramsar, the Mersey Estuary is nevertheless included in the following in-combination section on visitor pressure and mitigation.

Mitigation

- 5.39 The existing evidence indicates that the Issues and Options Document has the potential to lead to adverse effects on the Mersey Estuary SPA and Ramsar as a result of increased recreational pressure. At this point it is noted that a Recreation Mitigation and Avoidance Strategy (RMAS) is jointly being developed by Merseyside authorities in collaboration with Natural England and the National Trust. This strategy is designed to mitigate the recreational pressure arising from the in-combination growth in the wider Liverpool City Region. Being a mitigation solution for all European sites that are relevant to Wirral and the cumulative growth in the area, the RMAS will also address the Mersey Estuary SPA and Ramsar. However, its role will be discussed in the in-combination section at the end of the Appropriate Assessment on recreational pressure.

Dee Estuary SAC

- 5.40 The Test of Likely Significant Effects (ToLSE) identified that the Dee Estuary SAC is vulnerable to recreational pressure, primarily as a result of abrasion of its qualifying habitats and aquatic

¹¹⁰ Page 4 of the Site Improvement Plan. Available at: <http://publications.naturalengland.org.uk/publication/6273450410770432> [Accessed on the 13/11/2019]

- plant species. Furthermore, negative impacts on SAC habitats are also likely to affect the waterfowl species of overlapping SPAs / Ramsars, because these birds forage in SAC habitats.
- 5.41 Natural England's and Natural Resources Wales' joint Conservation Advice Note highlights the potential effect of physical damage through abrasion. Importantly, abrasion can damage plants at the individual level as well as leading to changes in the overall saltmarsh and sediment communities. Sensitivity varies across the Dee Estuary SAC depending on the habitats and species present. Abrasion damage can be attributed to three main sources, including dredging, commercial fisheries and recreational activities. The intertidal sand- and mudflats are sensitive to sediment compaction, alteration of micro-habitats and the potential loss of invertebrate species. Bait digging (raised particularly for the North Wirral Foreshore part of the SAC) is a particular concern because it results in the reworking of sediment, mudflat compaction and lowers the abundance of lugworms and rag worms. Finally, the *Salicornia* and the Atlantic salt meadows, both sensitive to abrasion, experience considerable abrasion from recreational activities near the shoreline, most notably from motorcycling.
- 5.42 The Dee Estuary SAC covers large areas of the Dee Estuary SPA and Ramsar and the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. As such, public access to the site will follow the same pattern as in these SPAs / Ramsars. For details relating to the accessibility of these sites, please refer to the respective sections above. In summary, these established that both these European sites are highly accessible because they have nearby car parks (making them appealing to visitors from further away), comprise an extensive network of public rights of way along the shoreline (making them accessible for local residents), offer direct access onto the intertidal zone and have numerous local watersports clubs. Review of detailed priority habitat mapping on MAGIC shows that coastal saltmarsh habitat in the SAC occurs in the south-western tip of Wirral, towards the mouth of the River Dee. The HRA therefore next addresses accessibility of the SAC between Heswall and Neston, which is where the saltmarsh occurs. Between Heswall and Neston there are public rights of way directly along the shoreline. Furthermore, there are two notable car parks in this area; one at Heswall Beach (30-40 capacity) and one at the Old Baths Picnic Area near Neston (30-40 capacity). Therefore, it is in theory possible for visitors to directly access the saltmarsh habitats. It is to be noted that access is made difficult due to a water channel that runs along the Mean High Water Line. However, given the fact that Natural England and Natural Resources Wales highlight recreational pressure, particularly motorcycling, as a threat in the upper saltmarsh indicates that people are accessing this part of the SAC.

Wirral's Spatial Development Option

- 5.43 Under Option 1A (Urban Intensification), relatively little residential growth is proposed in the western part of Wirral, the geographic area that is most relevant to the Dee Estuary SPA and Ramsar. Given the limited residential growth in this area, it is considered that Wirral's Issues and Options Document would not substantially increase recreational pressure in this SPA and Ramsar. However, approx. 134 dwellings are to be proposed to be allocated here, mainly in West Kirby. Given that the intertidal sand- and mudflats are particularly popular for recreational activities and that important high-tide roosts of sensitive SPA and Ramsar birds (e.g. redshank, oystercatcher) are close to West Kirby Beach, even a relatively small amount of residential growth could have an adverse effect on these waders.
- 5.44 As discussed in the previous section, Options 2A and 2B could deliver up to 2,500 homes in Wirral's Green Belt to accommodate any shortfall unable to be met in the urban area. While these options would not affect the net total recreational demand in Wirral, they would likely alter the spatial dimension of recreational pressure. For example, Option 2A could deliver a considerable number of residential dwellings in the west of Wirral, much closer to the Dee Estuary SPA and Ramsar. Given that the likelihood of visit increases as distance decreases, a link that was established in the previous section on the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, it is likely that this option would considerably increase pressure near some of the identified high-tide roost sites. Option 2B would concentrate Green Belt release in the form of Urban Extension sites around Heswall or Bebington. As for the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, Option 2B would be preferable over Option 2A due to the longer distances between the proposed Green Belt potential housing sites and the Dee Estuary SPA and Ramsar. Overall, regarding recreational pressure in the Dee Estuary SPA and Ramsar, Option 1A (Urban Intensification; as currently proposed) is expected to have the lowest potential for adverse effects on the estuarine site.

Mitigation

5.45 The existing evidence indicates that the Issues and Options Document has the potential to lead to adverse effects on the Dee Estuary SAC as a result of increased recreational pressure. At this point it is noted that a Recreation Mitigation and Avoidance Strategy (RMAS) is jointly being developed by Merseyside authorities in collaboration with Natural England and the National Trust. This strategy is designed to mitigate the recreational pressure arising from the in-combination growth in the wider Liverpool City Region. Being a mitigation solution for all European sites that are relevant to Wirral and the cumulative growth in the area, the RMAS will also address the Dee Estuary SAC. However, its role will be discussed in the in-combination section at the end of the Appropriate Assessment on recreational pressure.

Liverpool Bay SPA

5.46 The Liverpool Bay SPA is designated for its sensitive non-breeding bird species red-throated diver and common scoter. Natural England's Site Conservation Advice states that red-throated divers are highly sensitive to non-physical disturbance by noise and visual stimuli¹¹¹, which may result in the cessation of foraging or displacement from a given area. While the main impact on this species stems from the construction and operation of wind turbines, recreational boating might also affect this species' behaviour. Very similar recreational disturbance pressures are noted for the common scoter.

5.47 The Liverpool Bay SPA runs alongside Wirral's northern coastline, extending relatively far out into the sea. Given this, and the fact that most of the qualifying species of the site are primarily linked with open water, recreational activities on the shoreline are unlikely to have any potential for adverse effects on the site's qualifying features. However, as stated above, there is the potential for boating to result in disturbance of the birds. A review of online information shows that there are multiple boating clubs along northern Wirral's coastline, including the Hoylake Sailing Club, the Wirral Sailing Centre, the West Cheshire Sailing Club and the Wirral Sand Yacht Club. From all of these (and other) locations, boats can be launched into the Liverpool Bay SPA, potentially contributing to long-term effects on the SPA's red-throated diver and common scoter populations.

5.48 Generally, both an activity's potential impact and its popularity (i.e. how many people engage in it) should be considered in Appropriate Assessment. Due to the large potential area affected and high noise emissions, boating is considered a high-impact activity. However, boating is also a niche activity that is undertaken by relatively few people. The number of new residents carrying out this activity will therefore be correspondingly small. As such, it is not possible to relate a Local Plan document to an increase in boating in the same way that it is related to an increase in dog walking, which is an activity that is carried out by a much larger proportion of the population. Therefore, it is considered that Wirral's Issues and Options Document will not result in adverse effects on the Liverpool Bay SPA alone. However, as a precautionary measure, in-combination adverse effects with the wider growth in the Merseyside region cannot be excluded.

Sefton Coast SAC

5.49 Sand dune systems, some of the qualifying features of the Sefton Coast SAC, are vulnerable to several aspects of recreation. Firstly, trampling can result in excessive physical disturbance, ultimately retarding or reversing the dune development process. However, it is also to be noted that a limited amount of recreational trampling is beneficial for community diversity as this ensures that the dune vegetation does not all succeed to late stages of development. Furthermore, Natural England's Site Improvement Plan also states that dog walking in the vulnerable dune systems can also result in nutrient enrichment through dog fouling, which potentially affects the community structure in dune communities¹¹².

5.50 The previous section on Ribble and Alt Estuaries SPA and Ramsar established the site's access infrastructure and geographic location in relation to the Borough of Wirral. Given that the Sefton Coast SAC is largely contiguous with that SPA and Ramsar, this will not be re-assessed here. However, as for the SPA and Ramsar, it is considered that residents from Wirral are unlikely to account for a large proportion of the recreational footprint within the SAC, especially because

¹¹¹ <http://archive.jncc.gov.uk/default.aspx?page=7507> [Accessed on the 21/11/2019]

¹¹² <http://publications.naturalengland.org.uk/publication/6274126599684096> [Accessed on the 21/11/2019]

there are similar coastal destinations much closer to the proposed development in Wirral. Regardless, the habitat features of the Sefton Coast SAC, particularly the dunes, are likely to exert a strong recreational draw on people, meaning that residents may choose to visit the SAC, even though there are closer coastlines to home.

- 5.51 A study on recreation use of Sefton's Natural Coast¹¹³ estimated that half of the recreational users were locals (i.e. residents within the Borough of Sefton). Interviewees were also asked about their main reason for visiting the coast. Over 50% of respondents answered that dog walking, walking, fresh air and visiting the coast were primary motivations. Surprisingly, nature-related reasons such as seeing the squirrels, bird-watching and fishing were given by only 20% of interviewees. The recreational hotspots occurred around Formby and Crosby. However, the study did not explore where the remaining 50% of visitors (i.e. visitors coming from beyond Sefton) came from. Visitor surveys in coastal and estuarine sites often observe core catchments up to 10km, and sometimes greater. The by-road distance for visitors from Wirral would be approx. 9km, which therefore places Wirral just within a potential core catchment. This indicates that some Wirral residents will definitely visit the Sefton Coast SAC, but most likely fewer than from Sefton, Liverpool or Lancashire.
- 5.52 Footprint Ecology's visitor survey in the north-west coast of England also covered two survey locations in the Sefton Coast SAC, namely Ainsdale-on-sea and Formby. Results for the later survey point are more relevant to Wirral, because this is located significantly further south in the SAC and therefore closer to Wirral. Formby in the Sefton Coast SAC was by far the busiest destination of any of the survey locations with 771 people passing and 364 people entering over 16 hours, the latter equating to 22.8 people entering per hour. For comparison, the next busiest survey locations had 13.8 people entering per hour (10 less than at Formby), illustrating how popular the Sefton Coast SAC is. The overall proportion of dog walkers at the two locations was approx. 60%, considerably higher than in the Mersey Estuary but much lower than in the Dee Estuary. This is mainly because Formby is particularly popular for family outings, which accounts for a much larger proportion of activities than in other survey locations (approx. 15%). Notably, at Formby over 70% of visitors stay for relatively long periods (1 hour and above) but visit relatively infrequently (only 20% of interviewees visit daily or on most days). This is supported by Formby's large core visitor catchment of 15.3km. While Wirral is within a 15km straight-line distance of Formby, the actual by-road travel distance for residents from Birkenhead would be approx. 20km, putting it just beyond the core visitor catchment. However, other destinations within the SAC (e.g. Crosby) lie much closer and are potentially more realistic destinations for Wirral residents within the Sefton Coast SAC.
- 5.53 Given the easy access to the SAC and the site's appeal, it is concluded that (while Wirral's Issues and Options Document is unlikely to result in adverse effects alone, due to the long by-road distance to Wirral), adverse effects in-combination with growth in other authorities, cannot be excluded (also see the in-combination section on recreational pressure below).

Ribble and Alt Estuaries SPA and Ramsar

- 5.54 The Test of Likely Significant Effects (ToLSE) identified that the Ribble and Alt Estuaries SPA and Ramsar is vulnerable to recreational pressure, primarily due to disturbance of the qualifying bird species. Natural England's Site Improvement Plan highlights that both on-shore (e.g. dog walking, jogging, walking) and off-shore (e.g. kite surfing, boating, sand yachting, jet-skiing) are significant concerns for the site¹¹⁴.
- 5.55 The Ribble and Alt Estuaries SPA and Ramsar lies over 9km in road distance from the Borough of Wirral, and would involve a partial crossing of Liverpool. Therefore, it is considered that residents from Wirral are not a primary contributor to recreational pressure in the SPA and Ramsar. Furthermore, there are several coastal and estuarine European sites with similar characteristics that lie much closer to Wirral (e.g. the Mersey Narrows and North Wirral Foreshore SPA and Ramsar). Notwithstanding, it cannot be excluded that some of the new Wirral residents will visit the Ribble and Alt Estuaries and thus contribute to negative impacts on the bird features.

¹¹³ England's North West Research Service for Economic Development and Tourism (May 2009) Sefton's Natural Coast Local Users of the Coast (Version 2)

¹¹⁴ <http://publications.naturalengland.org.uk/publication/6274126599684096> [Accessed on the 21/11/2019]

- 5.56 The shoreline of the Ribble and Alt Estuaries SPA and Ramsar attracts tourists from across the country, especially the Ribble Estuary (the furthest part of the SPA and Ramsar from Wirral) due to its proximity to Blackpool. For visitors from Wirral, the southern part of the SPA and Ramsar around Seaforth, Crosby and Formby is likely to be of greatest relevance, due to the shorter travel times to that part of the SPA and Ramsar. It is noted that this part of the SPA and Ramsar is largely contiguous with the Sefton Coast SAC and therefore similar recreational pressures are likely to apply to these two sites (see the following Appropriate Assessment on the Sefton Coast SAC). A key difference is that recreational pressure in the Ribble and Alt Estuaries SPA and Ramsar relates to the qualifying bird species (e.g. nesting terns), which depend on different habitat features (i.e. intertidal sand- and mudflats) than those in the Sefton Coast SAC (e.g. the dune systems). Another difference is that the SPA's and Ramsar's sensitivity is seasonal, whereas the Sefton Coast SAC is vulnerable throughout the entire year. The Ribble and Alt Estuaries SPA and Ramsar is most vulnerable in winter, when the non-breeding waterfowl uses the site. Overall, recreational disturbance is likely to be lower in winter, because people are less likely to engage in outdoor activities. Notwithstanding, some activities are carried out in all seasons (most notably dog walking) and recreational pressure thus requires appropriate consideration.
- 5.57 A review of Ordnance Survey Mapping on ViewRanger¹¹⁵ shows that this part of the coastline between Seaforth and Formby has easy access (except for a small section that forms part of a rifle range). The Sefton Coastal Path leads directly past the intertidal sandbanks of the SPA and Ramsar and there is direct easy access onto these habitats from the path. The existing path network and the general infrastructure of the area (i.e. no buildings or fencelines blocking access of the beach) provide an explanation for why the Sefton Coast is so popular for recreation. It is also to be noted that at the section of the SPA and Ramsar in Crosby alone there are four public car parks (two at the marine lake and two north of Brighton le Sands). The availability of public parking is a prerequisite for attracting visitors from further afield that would travel to the site by car, such as residents from Wirral.
- 5.58 Footprint Ecology surveyed three locations in the Ribble Estuary, but due to the long by-road distance to Wirral, these results are not considered to be particularly relevant for residents in Wirral. Indeed, these survey locations only had core visitor catchments between 1.9 and 4.4km, which would put Wirral well beyond the travel distance of most visitors. However, given that the Ribble and Alt Estuaries SPA and Ramsar site overlaps with the Sefton Coast SAC, notably also in the area around Formby, it is considered that a similar core visitor catchment (i.e. 15.3km) applies to the SPA and Ramsar (see previous section on the Sefton Coast SAC).
- 5.59 Given the easy access to the SPA and Ramsar and the site's appeal, it is concluded that (while Wirral's Issues and Options Document is unlikely to result in adverse effects alone, due to the long by-road distance to Wirral), adverse effects in-combination with growth in other authorities, cannot be excluded (also see the in-combination section on recreational pressure below).

In-combination Assessment

- 5.60 It is evident that Wirral is not the only source for recreational pressure, particularly given the fact that there are numerous other densely populated authorities within a relatively short distance. Visitor surveys in several other coastal European sites in England have been undertaken, which may serve as a broad indicator for the sites assessed in this HRA, provided they are used with care:
- In the Exe Estuary SPA and Ramsar, a visitor survey undertaken by Footprint Ecology¹¹⁶, established that 60% of visitors had travelled by car compared to 29% that had travelled on foot. Foot visitors tended to be very local, whereas car-borne visitors were travelling considerable distances: 51% of interviewees (taking only those visiting from home on a short visit/day trip rather than holidaymakers) lived within a 10km radius and 75% within 20km.

¹¹⁵ <https://my.viewranger.com/user/routes/add> [Accessed on the 21/11/2019]

¹¹⁶ Lilley, D. & Cruickshanks, K. (2010). Exe Visitor Survey, 2010. Teignbridge District Council / Footprint Ecology.

- A visitor survey in the Humber Estuary SAC / SPA and Ramsar¹¹⁷ showed that 88% of interviewees were local residents on a short trip from home. 70% of interviewees arrived by car. Home postcodes indicated people travelled a median distance of 4.4km from home. 50% of interviewees arriving on foot lived within 0.95km and 50% of interviewees arriving by car lived within 8.4km.
 - A visitor survey in the North Kent Estuaries undertaken by Footprint Ecology¹¹⁸ identified that most regular visitors lived within 6km, after which points of origin became more dispersed.
 - Data for the Solent Maritime SAC and overlapping SPAs obtained from the Solent Disturbance and Mitigation Project¹¹⁹ showed that visitors undertook a wide range of activities, with walking and dog walking being the most popular activities. In these sites, half of visitors arrived on foot and the other half by car. 90% of the interviewees arriving on foot lived within 2km, whereas 80% of interviewees arriving by car lived within 10km.
- 5.61 These case studies illustrate that, while there is between-site variability, estuarine and coastal European sites have fairly large core recreational catchments of up to 10km and potentially beyond. This is in agreement with a recent meta-analysis relating visitor numbers to the number of residential dwellings surrounding protected sites across the UK. This study showed that the number of visitors correlated most strongly with housing numbers over 15km in estuaries than in any of the other habitats that were investigated, thereby confirming the large recreational catchments¹²⁰. Given the size of the recreational catchments, it is likely that people will be travelling from adjacent authorities to visit these sites. Therefore, the recreational pressure arising from Wirral needs to be set into the context of urban growth across the other Liverpool City Region Boroughs. The same conclusion was reached in the HRAs of other Local Plans, such as the Plans for Liverpool and Halton. Both HRAs determined that there was a potential for adverse effects from recreational pressure, especially when considered in-combination.
- 5.62 Avoiding recreational impacts on European sites usually involves locating new residential development beyond the core catchment zones of European Sites. In the case of Wirral this is not possible, as it is a relatively small authority and bordered by sensitive European sites on all sides. Thus, alternative measures are needed to avoid adverse recreational effects on the Mersey Narrows and Wirral Foreshore SPA and Ramsar, the Dee Estuary SPA and Ramsar, the Dee Estuary SAC and the Mersey Estuary SPA and Ramsar. One promising approach is to manage recreation in collaboration with the neighbouring authorities, thereby providing a framework for sustainable recreation. To achieve this, Wirral Borough Council needs to work with the other Merseyside Authorities (such as Liverpool, St. Helens, Wirral), MEAS, Natural England, Natural Resources Wales and other partners to devise a framework for the delivery of enhanced access management of these European sites. This recommendation was also made in the HRAs of the Liverpool and Halton Local Plans, highlighting that recreational pressure arising from the cumulative growth in the Liverpool City Region requires a unified mitigation approach.
- 5.63 The Merseyside authorities have commissioned a Recreation Mitigation and Avoidance Strategy (RMAS) for all European sites in the City Region in partnership with Natural England and the National Trust. The Strategy is currently being developed by a team that has expertise in mitigation design and delivery. One of the main aims is to provide a better evidence base for recreational pressure, particularly regarding the spatial and seasonal dimensions of recreation. The evidence base for the RMAS may be available before the end of March 2020, while the strategy is currently intended to be completed by the end of 2020 or early 2021. It is to act as a joint and strategic response to the on-going issue of recreation pressure. The draft Strategy will require consultation and approval prior to being implemented.
- 5.64 In other areas a recreation mitigation strategy typically involves individual residential allocations seeking to reduce recreational pressure within the nearby European sites by providing bespoke

¹¹⁷ Feamley, H., Liley, D. & Cruickshanks, K. (2012). Humber Management Scheme Visitor Survey. Footprint Ecology, unpublished report for Humber Management Scheme.

¹¹⁸ Feamley, H. & Liley, D. (2011). North Kent Visitor Survey Results. Footprint Ecology.

¹¹⁹ Stillman, R. A., West, A. D., Clarke, R. T. & Liley, D. (2012) Solent Disturbance and Mitigation Project Phase II: Predicting the impact of human disturbance on overwintering birds in the Solent. Report to the Solent Forum.

¹²⁰ Weitowitz D.C., Panter C., Hoskin R. & Liley D. The effect of urban development on visitor numbers to nearby protected nature conservation sites. Manuscript in review with the Journal of Urban Ecology.

Suitable Alternative Greenspace (SANG; a term originating from the Dorset Heaths) on the allocation itself, or enhancing existing nearby natural greenspace to deliver improved capacity and functionality. However, this is considered difficult in Wirral for several reasons. Firstly, the largest potential housing sites with capacities of 1,795 and 1,705 residential dwellings respectively, lie in Birkenhead (SHLAA 0753 and 0755), not far from the Mersey Narrows component of the SPA and Ramsar. Given the highly urbanised nature of this area, space for a sufficient SANG capacity is scarce. Furthermore, as for most areas of Wirral, appealing estuarine sites lie close to residents' homes. It is therefore concluded that SANGs will have a more limited effectiveness in Wirral (as opposed to other authorities that are in a different geographic setting). Therefore, it seems most likely that on-site Strategic Access Management and Monitoring (SAMM) mitigation will be the more important (and effective) element in the case of Wirral. Despite this, provision of on-site avoidance measures embedded into developments, improvements to existing greenspaces and exploration of SANG provision must continue to be considered positive, as it is likely to attract at least some of the new residents in Wirral. This would divert them from the use of coastal resources and reduce recreational pressure on these European sites.

5.65 Given that SANG provisioning in Wirral is likely to have limited effectiveness, SAMM initiatives within relevant European sites are the most promising approach. These would be informed by a visitor survey and then tailored to the specific circumstances of the respective site. Any package of measures in the emerging Strategy will include site-specific considerations, such as the qualifying features, accessibility to the site and the recreation activities undertaken. For example, for the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, it is important to take into consideration the accessibility of the designation features because large areas are inaccessible due to commercial and land-ownership considerations (e.g. no public access) or inaccessible due to physical barriers and health and safety considerations (e.g. high dock walls and unsafe mud and saltmarsh). Examples of deployable measures might be:

- Formalising the currently voluntary wardening that is in place at the Dee Estuary SPA and Ramsar, and extending it to other relevant European sites on the Wirral peninsula
- Providing additional professional wardening posts, or increasing wardening hours, covering recreation hotspots; giving wardens a specific public liaison role to increase public awareness of the sensitivities of the sites and specifically address problematic activity
- Improving and unifying signage across the European sites, including information boards, waymarkers and dog-on-lead notices; a particular focus should be on communicating why measures are put into place, as this is known to increase compliance
- Develop a partnership for the most prevalent user groups, establishing Codes of Conduct and a coordinating employment post
- Undertaking standardised visitor surveys at all European sites sensitive to recreational pressure in the LCR region to establish an improved evidence base
- Funding of academic research studies as identified useful / necessary by Natural England / Natural Resources Wales, for example an investigation into the impact of recreational fishing on feeding wader birds¹²¹
- Exploring regulatory measures to reduce the impact of recreation on waders, such as temporary footpath or access closures during sensitive periods, rerouting of footpaths and dog exclusion zones, as well as potentially tighter management of areas currently zoned for activities such as kite-surfing, if necessary.

5.66 Some large developments (notably Wirral Waters) will also need to devise their own recreation management measures which would address not only nearby European sites but also recreational pressure on significant areas of functionally-linked habitat adjacent to the development, notably Birkenhead Docks which is known to be used extensively by birds

¹²¹ This is identified as important research in Natural England's Site Improvement Plan with an estimated cost of £15,000. Available at: <http://publications.naturalengland.org.uk/publication/6579320399069184> [Accessed on the 14/11/2019]

associated with the Wirral European sites, notably Liverpool Bay SPA and the Mersey Narrows & North Wirral Foreshore.

- 5.67 It is noted that Wirral's Issues and Options Document already recognises the emerging Liverpool Recreation and Avoidance Mitigation Strategy (referred to as the Liverpool City Region Recreation Mitigation Strategy in the Issues and Options Document; RMS). Wirral's Preferred Approach to internationally important sites indicates that such a strategy will enable sustainable housing and tourism development, while ensuring the long-term protection of Wirral's European sites. In particular, the Plan's text states that *'A policy setting out the Council's approach to recreation mitigation will be included in the Local Plan. The policy will need to include a recreation mitigation and avoidance mechanism for Wirral in advance of the LCR-wide study being completed, approved and implemented'*. The Issues and Options Document goes on to identify that *'Wirral Council will continue to work in collaboration with the LCR Combined Authority to contribute to the delivery of a RMS to address potential damage from increased recreation and visitor pressure on the species and habitats of the designated sites within the Borough on a City Region wide basis'*. The Preferred Approach notes that the RMS is likely to require mitigation for residential developments within 5km of European sites through a mixture of access management, habitat management and provision of Suitable Alternative Greenspace (SANG). Current evidence from visitor surveys in the European sites surrounding Wirral indicates that the core visitor catchment of most sites (e.g. the Sefton Coast SAC) is considerably larger than 5km. Therefore, it is recommended that the mitigation zone is identified in consultation with Natural England. Overall, it is considered that the Issues and Options Document contains sufficient text (and is in line with the current developments on recreation mitigation) to provide adequate protection to Wirral's estuarine and coastal European sites. It is recommended that the emerging Local Plan is continually updated to reflect any upcoming changes or evidence in relation to the RMS.
- 5.68 In the intervening period, and until such time as the Strategy has been adopted by Wirral and is in the process of implementation, recreational pressure from development (housing, employment and tourism) will need to be considered on a case by case basis as part of the planning and development management process. The emerging Strategy evidence base can be drawn upon to inform project-specific assessments. In undertaking these project-specific assessments, care will need to be taken to ensure that the approach complies with the "People Over Wind" ECJ ruling¹²² with regard to avoiding reliance on mitigation measures at the Test of Likely Significant Effects stage.
- 5.69 In summary, it is recommended that the following key steps are undertaken by Wirral Council and incorporated into the next iteration of the Local Plan, prior to the formal adoption of the RMAS in 2021:
- Publish the evidence report underpinning the future RMAS as an interim position;
 - Introduce an explicit statement of intent into the Plan to collaborate with other authorities in the Liverpool City Region, Natural England and the National Trust to complete and implement the RMAS; and
 - Prepare an Interim Guidance Note that sets out the Council's interim position on housing development and the mitigation of recreational pressure.

Recreational Pressure in Functionally Linked Habitat to the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, the Mersey Estuary SPA and Ramsar, and Liverpool Bay SPA

- 5.70 Recreational pressure is an impact pathway that is also relevant for functionally linked habitat, as recreation might affect the ability of qualifying species to use such supporting land. In fact, because it is likely to be closer to urban development, functionally linked habitat might be much more easily accessible than European sites, resulting in a high disturbance potential of qualifying bird species. One such area in Wirral are the Birkenhead Docks, which are particularly noteworthy, because it supports qualifying birds from nearby European sites.

¹²² People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

- 5.71 A bird survey commissioned in 2013 and undertaken by TEP¹²³, showed that the Birkenhead Docks are regularly used by birds from the surrounding estuarine and coastal European sites. For example, qualifying shelduck, redshank, black-tailed godwit and little gull all use the docks in winter. However, only relatively low numbers (< 1%) and occasional usage by these birds were observed. Towards spring, the usage of the docks by shelduck increased to 41%, which was just under 1% of the Mersey Estuary SPA and Ramsar population.
- 5.72 Most notably, cormorant (a qualifying species of the Mersey Narrows and North Wirral Foreshore SPA and Ramsar) was regularly observed fishing on the West Float and East Float in Birkenhead, reaching a peak count of 35 individuals. This is equivalent to 4.7% of the population in the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. The bird survey report therefore concluded that the Birkenhead Docks are likely to form functionally linked habitat for cormorants stemming from the SPA and Ramsar.
- 5.73 Wirral Waters is a large residential site with existing outline consent, is located directly adjacent to the docks. The largest component sites (Marina View and Vittoria Studios) have anticipated capacities of 1,795 and 1,705 residential dwellings respectively. It is unlikely that residents from these dwellings will have recreational access to the water in the docks, but these schemes will result in greater activity levels on paths / future greenspaces in immediate proximity of both the West and East Float.
- 5.74 Therefore, it is advised that this development scheme will require further detailed consents. Furthermore, a bespoke mitigation scheme for the development will need to be produced by the developer to minimise any disturbance arising from the net local population growth. This mitigation strategy could involve some of the measures already recommended in relation to the RMAS, adapted to the specific circumstances for Wirral Waters:
- Providing for a part-time wardening post that covers the parts of the docks that are most vulnerable to recreational disturbance (e.g. the West and East Float)
 - Installing information boards and / or dog-on-lead notices to increase public awareness of the sensitivity of qualifying bird species using the docks
 - Circulating flyers to residents of Wirral Waters that inform them about the ecological importance of the docks for the integrity of nearby European sites
 - Restricting access directly onto the docks by planning the path network accordingly (i.e. use of a precautionary distance); potential path closure during sensitive periods

Loss of Functionally Linked Habitat

- 5.75 Wirral is surrounded by three European sites, all of which are designated for their waterfowl species and overall waterbird assemblages. All these species are mobile and few solely depend on tidal habitats in estuarine and marine sites. Depending on prey availability and season, many of these species frequently move beyond the boundary of European sites, foraging and roosting in freshwater habitats, grassland and farmland. Many parcels of such functionally linked habitat can be located many kilometres inland, where greenfield sites might be used by significant flocks of these qualifying species. Because Wirral is adjacent to several European sites with similar qualifying species that might all use greenfield sites allocated in the emerging Reg. 19 Local Plan, the following Appropriate Assessment combines the discussion of the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, the Dee Estuary SPA and Ramsar, the Mersey Estuary SPA and Ramsar and the Ribble and Alt Estuaries SPA and Ramsar. Combining these sections also avoids unnecessary replication of analysis.

¹²³ Available at: <http://www.meas.org.uk/media/5279/4/157005-assessment-of-supporting-habitat-liverpool-docks-excl-drawings-aug-2015.pdf> [Accessed on the 28/11/2019]

Mersey Narrows and North Wirral Foreshore SPA and Ramsar, Dee Estuary SPA and Ramsar, Mersey Estuary SPA and Ramsar and Ribble and Alt Estuaries SPA and Ramsar

Qualifying species that depend on functionally linked land

- 5.76 Table 5 summarises the qualifying waterfowl species in the three European sites and their likelihood of using functionally linked habitat in Wirral. This information was collated using several information sources, including the Cheshire and Wirral Bird Atlas, and information from the RSPB and BTO websites. The data indicate that 14 of the 23 qualifying species are known to regularly forage, roost or rest in land towards the centre of Wirral in winter, including freshwater, grassland and farmland habitat. The following paragraphs discuss some of these mobile species. It is to be noted that the largest flocks of these species are likely to be associated with intertidal habitats on the coasts of Wirral, but significant assemblages have been documented in other habitat tetrads, as highlighted in the Cheshire and Wirral Bird Atlas.
- 5.77 For example, **golden plover**, a qualifying species of the Mersey Estuary SPA and Ramsar, breed in upland areas of Britain, but are found on lowland coastal marshes, estuaries, wetland and farmland during winter, where they eat worms, beetles and insects. Golden plovers also often form large flocks with lapwing, a qualifying feature of the Dee Estuary SPA and Ramsar; in the breeding season they generally remain within 3km of their nesting sites¹²⁴. There is no specific information regarding the distance inland that they may forage or roost during the winter, but anecdotal evidence suggests that significant congregations can be found 5km away. **Curlew**, a qualifying species of the Dee Estuary SPA and Ramsar, move to estuaries and adjacent areas in winter, feeding on a variety of worms, crabs and molluscs. The Cheshire and Wirral Bird Atlas highlights that most of the tetrads in which curlew were found were farmland (56%), although the largest flocks occurred in tidal areas. Evidence evaluated by Scottish Natural Heritage¹²⁵ suggests that this species generally remains within 2-3km of its associated SPAs in winter. RSPB's land Management for Wildlife Advice suggests that farmland is important as curlew feeding habitat¹²⁶, particularly regarding earthworms and other soil invertebrates. **Wigeon** are grazers, more like geese than other duck species, that predominantly feed on estuarine saltmarsh, particularly the grass *Puccinellia maritima*. However, there have also been found in at least 14 agricultural improved grassland habitats. Most inland records are from freshwater bodies, but according to the authors of the Bird Atlas this is most likely due to the ducks resting on water during the day and feeding in grassland at night (when counters are not present).
- 5.78 The Ribble and Alt Estuaries SPA and Ramsar is designated for several goose / swan species, notably Bewick's swan, whooper swan and pink-footed goose. In contrast to some of the other waterfowl, these species are much more regularly seen foraging on winter stubble and are therefore considered to be much more closely linked with dry, off-site habitats than the likes of wigeon. Natural England's Supplementary Advice Note¹²⁷ states that Bewick's swans '*feed in the inner estuary and on arable land outside of the SPA boundary*'. For the pink-footed goose the Advice note state that '*this species has complex flyways and movements between roosting and feeding areas within the SPA and outwith - particularly agricultural land in the wider region*'. Pink-footed goose can travel up to 15-20km from its roosting sites to forage inland (in contrast to Bewick and whooper swan that will usually remain within 5km)¹²⁸. However, the Cheshire and Wirral Bird Atlas documents few, if any, records of these species in inland tetrads in Wirral. One explanation for this is that the birds are likely to undertake the shortest possible trips to reach suitable roosting or foraging ground. The Ribble and Alt Estuaries SPA and Ramsar is on the Sefton coast and therefore much closer to arable land in Sefton and West Lancashire. To reach

¹²⁴ <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> [Accessed on the 28/11/2019]

¹²⁵ <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> [Accessed on the 28/11/2019]

¹²⁶ <https://www.rspb.org.uk/globalassets/downloads/documents/conservation-sustainability/land-management-for-wildlife/land-management-for-wildlife---curlew.pdf> [Accessed on the 14/11/2019]

¹²⁷ <https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9005103&SiteName=ribble&SiteNameDisplay=Ribble+and+Alt+Estuaries+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAAra=&NumMarineSeasonality=20> [Accessed on the 21/11/2019]

¹²⁸ <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> [Accessed on the 28/11/2019]

greenfield sites in Wirral the geese and swans would have to cross the Mersey Narrows and to navigate over the highly urbanised north-eastern part of Wirral. However, given that these species are known to travel several up to 15km to foraging grounds, they have been marked as a potential concern in Table 5.

- 5.79 Other species that are marked as potentially using habitats inland in Table 5, are less likely to be affected by Wirral's Issues and Options Document. Species like cormorant, pintail, teal, mallard and great-crested grebe are likely to be associated with freshwater bodies, such as ponds, lakes and reservoirs. It is unlikely that the Plan would allocate Green Belt sites with significant freshwater habitat features, but any emerging Green Belt allocations would have to be screened for such habitats prior to development. However, as already discussed, recreational impacts on SPA species using the Birkenhead Docks would need to be addressed for the adjacent Wirral Waters development.
- 5.80 Having established that some of the qualifying bird species in SPAs / Ramsars adjacent to Wirral use functionally land outside the respective European site boundaries, the HRA next investigates whether the currently proposed development options have the potential to affect any such functionally linked habitat parcels.

Option 1A: Urban Intensification

- 5.81 Wirral Borough Council currently identifies Option 1A (Urban Intensification) as its preferred development option. Regarding functionally linked habitat this would be preferable, because this would limit development to existing highly developed areas. With the exception of land at the Birkenhead Docks (which comprise off-site habitat for some SPA and Ramsar species), Wirral's brownfield sites are generally considered to be unsuitable as functionally linked habitat because these lack feeding opportunities or the habitats required for roosting and resting. Furthermore, most sites (both residential and employment) proposed for allocation under Option 1A are too small (many are under 2ha) to realistically function as important roosting or feeding locations. Option 1A does propose the allocation of some sites over 2ha in size, some of which comprise grassland elements. However, a review of satellite imagery for these sites indicates that these are generally in very industrialised parts of Birkenhead and Bebington. Sites proposed for allocation under Option 1A, with the exception of those which form part of the Wirral Waters development, are therefore unlikely to be used as functionally linked habitat (please see Table 4 for general comments on the habitats and locations of the proposed allocations).

Table 4: Summary of the potential development sites over 2ha in size and a general comment regarding their habitats and locations.

Site Code	Site Name	Site Area (ha)	General Comments
ELPS 330	Plantation Road	2	Grassland and scattered trees, but industrial centre
ELPS 234	Caldbeck Road	2.24	Grassland, but too disturbed
ELPS 417	Former Gas Holders	2.31	Brownfield site
ELPS 017	East of Tulip	3.12	Mainly trees and scrubland, not suitable habitat
ELPS 324	Prices Way	3.45	Brownfield site
ELPS 415	East of Riverbank Road	3.61	Brownfield site
ELPS 049	Southwood Road	3.81	Mainly trees and scrub in industrial area, not suitable habitat
ELPS 265	Wirral Waters - Sky City	5.5	Brownfield site
ELPS 006	QE2 Dock	6.54	Grassland (may need further consideration)
ELPS 229	SMM Business Park	6.86	Brownfield site
ELPS 074	Old Hall Road	8.04	Disturbed greenfield site (motorcycling)

ELPS 043	East of Georgia Avenue	8.07	Mainly trees with sandy areas, heavily industrialised area
ELPS 357	Wallasey Bridge Road	9.22	Brownfield site
ELPS 100	Southern Reclamation Area	9.25	Mainly trees and scrub in industrial area, not suitable habitat
ELPS 013	North Road	9.32	Mainly trees and scrub in industrial area, not suitable habitat
ELPS 3043	Dock Road South	10.48	Brownfield site
ELPS 081	North of Beaufort Road	14.22	Brownfield site
ELPS 079	Bidston Dock	16.64	Brownfield site
SHLAA 2081	Legacy	2.49	Heavily built-up area, Wallasey
SHLAA 3095	Greenfield Estate	2.75	Small grassland but surrounded by housing
SHLAA 2068	Typhoo	3.08	Small grassland but surrounded by industrial estate
SHLAA 0557	Beaufort Road	3.57	Grassland with scattered trees, but heavily industrialised area
SHLAA 1665	Rock Ferry High	4.56	Located in highly urbanised area of Birkenhead and Bebington
SHLAA 0753	Marina View	5.16	Brownfield site
SHLAA 0755	Vittoria Studios	6.76	Brownfield site
SHLAA 4078	Hind Street	7.87	Brownfield site
SHLAA 0752	Woodside	9.33	Brownfield site
SHLAA 2072	Prices Way	3.45	Brownfield site
SHLAA 2050	Clatterbridge Hospital (GBelt)	4.75	Mixed grassland and scrub, but in a developed area
SHLAA 0754	Sky City	5.5	Brownfield site
SHLAA 4084	Wirral Business Park	5.8	Brownfield site

5.82 Considering the relatively small size of most proposed allocations, the fact that most are brownfield sites and that they are generally located in built up areas, it is considered that Option 1A would have little potential for the loss of functionally linked habitat (see ToLSE decisions in Table 5) and would be far less likely to pose conflict with functionally linked habitat than either Options 2A and 2B (discussed in the following sections), both of which would involve the release of Green Belt land for development.

Option 2A: Release of Green Belt (Dispersed Development)

5.83 At the time of writing, no bespoke bird surveys have been undertaken of the sites proposed for development. The Cheshire and Wirral Bird Atlas¹²⁹ was therefore consulted to determine whether any of the qualifying species identified in Table 5, use the wider area around the proposed greenfield sites. Note that the Bird Atlas identifies presence / absence and abundance

¹²⁹ <http://www.cheshireandwirralbirdatlas.org/species/> [Accessed on the 14/11/2019]

in 4km² tetrads and is therefore much coarser in scale than needed for a definitive assessment of the greenfield sites. Therefore, the data is no evidence for the birds being present within the included greenfield sites. However, the atlas provides the best available, relevant evidence for bird records throughout Wirral.

- 5.84 Option 2A includes the possible release from the Green Belt of three greenfield sites (**parcels 7.25, 7.26 and 7.27**) in the north-western part of Heswall and one greenfield site (**parcel 5.13**) for residential development. These sites are all much larger than 2ha and primarily comprise arable land, improved grassland and smaller compartments of grazing land. As such, these proposals are large enough and provide suitable habitats to potentially support SPA and Ramsar birds, such as golden plover. It is noted that all proposals lie close to existing residential development. However, this does not preclude the suitability of these sites as functionally linked habitat. Qualifying birds are known to utilise sites in close proximity to urban development in other areas, such as the Solent. It is also noted that some of these sites, particularly parcels 7.26, 7.27, are large (96.6ha and 62.8ha respectively) and have uninterrupted flightlines to the Dee Estuary SPA and Ramsar. It is therefore highly likely that birds from the SPA and Ramsar, which have been recorded in this tetrad, such as curlew and lapwing, will be using these land parcels in winter. Of further note is parcel 7.5 (23.4ha in size), which comprises arable and grazing land. As this parcel is directly adjacent to the Dee Estuary SPA and Ramsar, therefore offering a short uninterrupted flightline, there is a high potential that this parcel is functionally linked habitat. SPA and Ramsar birds are expected to fly the shortest possible distance to suitable feeding or resting areas to conserve energy. Indeed, several species including redshank, curlew, oystercatcher and lapwing. Further greenfield sites (e.g. parcels 4.8, 4.10, 4.11) would be proposed for release from the Green belt to the south of Bebington, all of which are considered to be sufficiently large and comprise suitable habitats.
- 5.85 Option 2A also includes ten greenfield sites to the south of Bebington, which are all relatively close to the Mersey Estuary SPA and Ramsar. However, it is also noted that the atlas shows very few birds records in tetrads approx. covering these potential development sites. Furthermore, many of these parcels (e.g. parcels 4.4, 4.5, 4.6, 4.8, 4.9, 4.10, 4.11 and 4.13) are separated from the SPA and Ramsar by substantial areas of existing development and in relatively close proximity to the M53, potentially impeding sight- and flightlines for qualifying birds and involving high baseline disturbance levels. Therefore, it is considered that the suitability of these parcels as functionally linked habitat is likely to be generally lower than for greenfield sites in western Wirral. However, due to their proximity and their clear sight- and flightlines to the SPA and Ramsar, two of the sites (parcels 4.15 - 13.7ha and 4.18 - 41.8ha) might have a higher potential to be used by SPA and Ramsar birds. However, a review of satellite imagery shows that these parcels comprise an existing golf course and several sports pitches, which are not considered to be highly suitable for SPA and Ramsar birds.
- 5.86 As identified above, the most significant Green Belt releases would be north-west and south of Heswall. Overall, records of the following SPA and Ramsar bird species occur in tetrads that approximately overlap with these Green Belt sites: redshank, dunlin, oystercatcher, cormorant, curlew, pintail, shelduck, teal, black-tailed godwit, mallard, lapwing, golden plover, wigeon and great-crested grebe. While not all these species will be using the respective greenfield sites or will reach numbers that amount to 1% of the SPA and Ramsar population, this indicates the potential for these sites to be functionally linked habitat.
- 5.87 Overall, the closest Green Belt Release site that isn't urban infill (parcel 5.13) to the Mersey Narrows and North Wirral Foreshore SPA and Ramsar and the Mersey Estuary SPA and Ramsar, lies over 4km from these European sites. However, there are numerous large Green Belt release sites between 0 and 4km from the Dee Estuary SPA and Ramsar. Regarding the potential loss of functionally linked habitat, the Dee Estuary SPA and Ramsar is therefore of greater concern than the other SPAs and Ramsars.
- 5.88 It is noted that since the writing of this HRA, Wirral Council has further narrowed down the sites that could potentially be included under Option 2A. Most notably, the parcels 7.5, 7.26 and 5.13 (some of the sites that are flagged above, particularly with regard to the Dee Estuary SPA and Ramsar) are now unlikely to be taken forward. While this removes some of the sites with the highest potential risk for the loss of functionally linked habitat, the risk for this impact pathway in relation to the remaining Green Belt sites remains (particularly due to limitations associated with

the coarse-scale data available). As such, the screening decisions in Table 5 and the recommendations for the next iteration of the Local Plan are upheld.

Option 2B: Release of Green Belt (Urban Extension)

- 5.89 An alternative to the dispersed development scenario is Option 2B, the release of Green Belt in the form of outward urban expansion. This option concentrates Green Belt release in the form of one large site between Heswall and the A551 (parcels 7.15 – 7.18), comprising mainly arable land and improved agricultural grassland. An alternative second large site was originally identified to the south of Bebington and Bromborough (parcels 4.8 – 4.13), comprising arable land, grassland, a golf course and small parcels of woodland. The total area of the urban extensions around Heswall and Bebington amount to 176.3ha and 265.8ha respectively.
- 5.90 A review of the Cheshire and Wirral Bird Atlas shows that the following SPA and Ramsar birds have been documented in a 4km² tetrad encompassing or adjacent to the proposed urban expansion sites: redshank, oystercatcher, cormorant, curlew, pintail, shelduck, teal, black-tailed godwit, mallard, lapwing, golden plover and great-crested grebe. As highlighted earlier, some of these species (e.g. mallard, shelduck, pintail, oystercatcher and great-crested grebe) are mainly linked to inland freshwater habitat, which is unlikely to be present in the proposed development sites. No information on relative abundance or frequency of occurrence is recorded and therefore it is impossible to determine whether they are present in significant numbers (i.e. regularly used by more than 1% of the SPA population). Dunlin and wigeon were not present in any nearby tetrads. Interestingly, few of the above listed qualifying species were recorded around Bebington and Bromborough, but all of them were present to the south-east of Heswall. This is potentially due to the slightly more rural character of Heswall, compared to the more populated area around Bebington and the nearby M53. It is therefore considered that development of the urban extension site in Bebington represents a slightly lower risk regarding the loss of functionally linked habitat compared to Heswall.
- 5.91 The urban extension sites are both much larger than the greenfield sites included under Option 2a. Therefore, there might be the potential for bringing forward residential development while also preserving on-site foraging habitat for the birds. The feasibility (and necessity) of this requires further information, including:
- Non-breeding bird surveys to establish whether the Urban Expansion sites are used by 1% of the population of any SPA and Ramsar bird species;
 - Masterplans for the two urban expansion sites to identify potential bird habitat for retention;
 - Number of dwellings to be delivered (assuming a typical density of 30 dwellings per ha, this can be used to work out the amount of space that might be available); and
 - Parkland or greenspace to be delivered (this would remove land available for bird habitat retention).
- 5.92 Wirral Council has since undertaken another evaluation of the Urban Expansion sites potentially included in the emerging Reg. 18 Local Plan. AECOM has been advised that the Urban Expansion site in the eastern part of Wirral (south of Bebington) is now unlikely to be taken forward, which means that the potential for loss of functionally linked habitat to the Mersey Estuary SPA and Ramsar is reduced. However, the Urban Expansion site east of Heswall, which has a higher likelihood of being functionally linked habitat, is still being considered. Therefore, it is considered that the screening decisions in Table 5 and the recommendations provided remain applicable.
- 5.93 Table 5 below identifies the potential of Options 2A and 2B to result in the loss of functionally linked habitat to relevant qualifying bird species.

Table 5: Summary of qualifying waterfowl species of the coastal and estuarine sites surrounding Wirral, their likelihood of using functionally linked habitat within Wirral and how the different Options in Wirral's Issues and Options Document might affect such land. Note that species marked with * are components of the overall qualifying waterbird assemblage for the respective European site. Furthermore, some species are qualifying features of multiple European sites, but they are only listed for the site in relation to which they first appear (e.g. redshank is a qualifying species of all three sites, but is only listed for the Mersey Narrows and North Wirral Foreshore SPA and Ramsar).

European site	Species	Present Inland in Winter	Allocation Potential for Functionally Linked Habitat
Mersey Narrows and North Wirral Foreshore SPA and Ramsar	Bar-tailed godwit (<i>Limosa lapponica</i>)	No (This species is rarely found away from tidal areas in winter, with the last such record dating back to 1996)	NA
	Little gull (<i>Hydrocoloeus minutus</i>)	No (This species is only rarely found inland and usually in small numbers)	NA
	Knot (<i>Calidris canutus</i>)	No (The Cheshire and Wirral Bird Atlas notes that knot is a rare species inland, with only one record of one bird from 2004)	NA
	Common tern (<i>Sterna hirundo</i>)	No	NA
	Redshank* (<i>Tringa totanus</i>)	Yes	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – Yes
	Turnstone (<i>Arenaria interpres</i>)	No (Turnstone stick to rocky shores and roost sites on man-made structures along the coast)	NA
	Grey plover* (<i>Pluvialis squatarola</i>)	No (Grey plover is a habitat specialist that is very rarely found away from tidal areas. Its main habitat is estuaries, open shores and saltmarsh)	NA

	Oystercatcher* (<i>Haematopus ostralegus</i>)	Yes	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – Yes
	Cormorant* (<i>Phalacrocorax carbo</i>)	Yes	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – Yes
	Sanderling* (<i>Calidris alba</i>)	No (This species is very loyal to feeding grounds and roost sites which are generally near the tidal areas)	NA
Dee Estuary SPA and Ramsar	Little tern (<i>Sterna albifrons</i>)	No	NA
	Sandwich tern (<i>Sterna sandvicensis</i>)	No	NA
	Dunlin (<i>Calidris alpina alpina</i>)	Yes	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – None
	Curlew (<i>Numenius arquata</i>)	Yes	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – Yes
	Pintail (<i>Anas acuta</i>)	Yes	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – Yes
	Shelduck (<i>Tadorna tadorna</i>)	Yes	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – Yes
	Teal (<i>Anas crecca</i>)	Yes	Option 1A (Urban Intensification) – None

				Option 2A (Dispersed Green Belt Development) – Yes
				Option 2B (Urban Extension Green Belt Development) – Yes
Black-tailed (<i>Limosa islandica</i>)	godwit (<i>limosa</i>)	Yes		Option 1A (Urban Intensification) – None
				Option 2A (Dispersed Green Belt Development) – Yes
				Option 2B (Urban Extension Green Belt Development) – Yes
Mallard* (<i>platyrhynchos</i>)	(<i>Anas</i>)	Yes		Option 1A (Urban Intensification) – None
				Option 2A (Dispersed Green Belt Development) – Yes
				Option 2B (Urban Extension Green Belt Development) – Yes
Lapwing* (<i>vanellus</i>)	(<i>Vanellus</i>)	Yes		Option 1A (Urban Intensification) – None
				Option 2A (Dispersed Green Belt Development) – Yes
				Option 2B (Urban Extension Green Belt Development) – None
Wigeon* (<i>penelope</i>)	(<i>Anas</i>)	Yes		Option 1A (Urban Intensification) – None
				Option 2A (Dispersed Green Belt Development) – Yes
				Option 2B (Urban Extension Green Belt Development) – None
Mersey Estuary SPA and Ramsar	Golden plover (<i>Pluvialis apricaria</i>)	Yes		Option 1A (Urban Intensification) – None
				Option 2A (Dispersed Green Belt Development) – Yes
				Option 2B (Urban Extension Green Belt Development) – Yes
	Ringed plover* (<i>Charadrius hiaticula</i>)	No (This species forages primarily at the tidal edge, foraging for marine worms, crustaceans and molluscs. It is rarely found inland)		NA
	Great-crested grebe* (<i>Podiceps cristatus</i>)	Yes		Option 1A (Urban Intensification) – None
				Option 2A (Dispersed Green Belt Development) – Yes
				Option 2B (Urban Extension Green Belt Development) – Yes

Ribble and Alt Estuaries SPA and Ramsar	Ruff (<i>Philomachus pugnax</i>)	No (No records in inland areas of Wirral)	NA
	Bewick's swan (<i>Cygnus columbianus bewickii</i>)	Yes (As a precautionary measure. The Cheshire and Wirral Bird Atlas shows no records in Wirral, but Bewick's swans are known to forage in agricultural land)	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – Yes
	Whooper swan (<i>Cygnus cygnus</i>)	Yes (As a precautionary measure. The Cheshire and Wirral Bird Atlas shows few records inland in Wirral, but whooper swans are known to forage on winter cereals and grass)	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – Yes
	Lesser black-backed gull (<i>Larus fuscus</i>)	Yes	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – Yes
	Pink-footed goose (<i>Anser brachyrhynchus</i>)	Yes (As a precautionary measure. The Cheshire and Wirral Bird Atlas shows only one record inland in Wirral, but pink-footed geese are well known to forage on winter cereals and grass)	Option 1A (Urban Intensification) – None Option 2A (Dispersed Green Belt Development) – Yes Option 2B (Urban Extension Green Belt Development) – Yes
	Common scoter* (<i>Melanitta nigra</i>)	No (This is a species of the shallow open water; there are no inland records for Wirral)	NA

5.94 Options 2A and 2B both involve the strategic release of Green Belt land, which is sufficiently large (over 2ha) and comprises suitable habitats for SPA and Ramsar birds. If any of the Green Belt release options (or parts thereof) come forward, these could involve the loss of functionally linked habitat. This would also require habitat suitability and bird surveys to be undertaken prior to granting planning permission.

5.95 If either of these options (or variations thereof) are included in the Reg.19 Local Plan, the following text (or similar) should be inserted into an appropriate policy of the Plan: ***'To meet the requirements of the Habitats Directive, the applicant should be required to provide evidence that the development will not result in adverse effects on the integrity of nearby European sites (namely the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, the Dee Estuary SPA and Ramsar and the Mersey Estuary SPA and Ramsar) regarding their qualifying bird species. To demonstrate this, a survey will be required to determine the habitats and current site use to verify if the land parcel is indeed suitable for***

supporting a significant population¹³⁰ of designated bird species. Where habitats are suitable, non-breeding bird surveys will be required to determine if the site and neighbouring land constitute a significant area of supporting habitat. Bird surveys will need to be undertaken during autumn, winter and spring. If habitat within the site or adjacent land are identified to support significant populations of designated bird species, avoidance measures and mitigation will be required, and the planning application will likely need to be assessed through a project specific Habitats Regulations Assessment to ensure that the development does not result in adverse effects on integrity.'

Water Quality

Dee Estuary SAC & Dee Estuary SPA and Ramsar

- 5.96 Large portions of the Dee Estuary SAC and the Dee Estuary SPA and Ramsar overlap to the west of Wirral, with the Dee Estuary SAC extending further north and also running along the northern shore of Wirral. Furthermore, the two sites are also ecologically linked in that the SAC provides the supporting habitats for the SPA and Ramsar birds. Given this geographic and ecological linkage, this section combines the Appropriate Assessment for the impact pathway water quality regarding both the Dee Estuary SAC and the Dee Estuary SPA and Ramsar.
- 5.97 TOLSE of the Dee Estuary SPA and Ramsar indicated that the site is highly sensitive to changes in water quality, such as its organic and inorganic nutrient loading. Nutrient enrichment is most likely to affect the SPA and Ramsar birds indirectly by altering food availability. A higher concentration of nutrients can lead to an increase in benthic populations of opportunistic marine worms, from which some birds might benefit. However, enrichment also tends to be associated with reduced species diversity, which might negatively affect the more specialised birds.
- 5.98 Very high nutrient loadings can have a profound effect upon the estuary, and sand- and mudflats of the Dee Estuary SAC, primarily by leading to eutrophication, which is associated with excessive algal blooms of opportunist algae, such as gutweed *Enteromorpha* species and sea lettuce *Ulva lactuca*. Algal growth is often associated with deoxygenation of water and sediments, leading to the death of invertebrate species. Aerobic bacteria that break down organic matter are more active under high nutrient regimes, thereby contributing to oxygen depletion. Oxygen depletion also increases the biological oxygen demand of aquatic species, which fuels both ammonia and hydrogen sulphide release that is toxic for aquatic life.
- 5.99 Natural England's and Natural Resources Wales' Conservation Advice for the Dee Estuary SPA and Ramsar and the Dee Estuary SAC highlights that the nutrient enrichment is caused by various factors, including river input and direct discharge. Discharge from Wastewater Treatment Works (WwTWs) is particularly mentioned regarding the Chester and Queensferry works, both of which lie near the mouth of the River Dee and contribute the highest nutrient loadings to the estuary. The high nutrient loadings in the Dee Estuary SPA and Ramsar led to the site being designated as a Sensitive Area to Eutrophication under the Waste Water Treatment Directive, based on biological and chemical water quality parameters. This has led to WwTWs being 'secondary treated' to remove some of the organic matter that is being discharged into the estuary. However, recent analyses have determined that the faunal communities near WwTWs are still unbalanced and considered as polluted. Nutrient loading is a particular issue in the lower canalised section of the River Dee (where it enters the estuary), due to limited freshwater input and a relatively low dilution factor.
- 5.100 It is noted that in contrast to the estuarine sites in the Solent (where warmer water, low suspended sediment loading and low wave action all promote the formation of macroalgal mats), the waters around Wirral are colder, have a much higher suspended sediment loading and stronger wave action. This generally slows down macroalgal growth and breaks up any large mats that do occur. Notwithstanding this, attention needs to be given to appropriate wastewater treatment infrastructure because nutrient enrichment from treated sewage effluent is still a potential issue, especially for the saltmarshes of the Dee Estuary SAC (in the Heswall Beach area) because this could stimulate growth of more competitive species.

¹³⁰ A significant population is classified as a site that regularly used by 1% or more of the population of qualifying bird species

5.101 A review of the WwTW infrastructure serving the western part of Wirral shows that there are WwTWs near Neston (in the adjacent authority of Cheshire West and Chester) and Heswall (operated by Dwr Cymru Welsh Water), which are likely to be serving the new development proposals around West Kirby and Heswall. These WwTWs will be discharging into the Dee Estuary SPA and Ramsar and have the potential to affect the invertebrate communities in the intertidal sand- and mudflats. However, Wirral's Issues and Options Document proposes relatively few new dwellings in this part of Wirral and it is considered unlikely that the Plan will result in adverse effects on the water quality in the Dee Estuary SPA and Ramsar alone.

In-Combination Assessment

5.102 Nevertheless, the development proposed in the western part of Wirral needs to be set into the context of growth in adjacent authorities, particularly Flintshire, and Cheshire West and Chester. These authorities are developing their own Local Plans or Development Plans with allocated growth. Given that WwTWs within these authorities will discharge into the hydrological catchment of the Dee Estuary SPA and Ramsar and the Dee Estuary SAC, their wastewater will contribute to the nutrient loading in these European sites, potentially resulting in a cumulative water quality impact.

5.103 Avoiding adverse effects regarding water quality is largely the responsibility of water companies (by investing in future sewage treatment infrastructure) and the Environment Agency (by consenting effluent discharges that take consideration of qualifying features of European sites). Local authorities need to contribute to this process by ensuring that there is enough headroom in the existing wastewater treatment infrastructure to accommodate new development, prior to this being consented.

5.104 Therefore, to ensure that there is no potential for an in-combination effect, it is advised that the following text (or similar) is inserted into a relevant policy of the Reg. 19 version of the Local Plan: ***'The Council will liaise with United Utilities and Dwr Cymru Welsh Water to confirm there is sufficient headroom in the existing discharge consent to accommodate the growth planned for Wirral over the entire Plan period. If constraints are identified, housing delivery will need to be phased to keep in line with the available wastewater treatment infrastructure.'*** Given that the permitted headroom considers the qualifying features of European sites, and that the Plans of adjoining authorities would have to ensure this compliance as well, it would be concluded that there is no adverse in-combination effect of the Reg. 19 Wirral Local Plan on the Dee Estuary SPA and Ramsar and SAC regarding water quality.

Mersey Estuary SPA and Ramsar

5.105 The Mersey Estuary SPA and Ramsar extends from the mouth of the River Mersey northward, alongside the eastern part of Wirral. It should be noted that this part of the Peninsula is heavily urbanised (both residential and industrial development) and is likely to contribute a relatively high nutrient load to the SPA and Ramsar already. TOLSE of Wirral's Issues and Options Document indicated that the site comprises several species of waterfowl that are sensitive to changes in nutrient loading, primarily indirectly via changes to their food resources.

5.106 Review of online information indicates that there are several sewage discharge points in Birkenhead and Bebington (e.g. Birkenhead WwTW, Bromborough WwTW), which directly discharge into the Mersey Estuary SPA and Ramsar. Wirral's Preferred Option proposes to allocate a large portion of residential and employment in this section of Wirral, which would therefore contribute to the existing nutrient load generated in this part of the authority. In principle, this could deteriorate the water quality in the European site and lead to cascading effects on its qualifying waterfowl species.

5.107 Natural England's Supplementary Advice Note acknowledges a potential impact of eutrophication. However, it also clearly states that the risk of eutrophication across the site has been assessed as low using the Environment Agency's Weight of Evidence approach, which accounts for Water Framework Directive targets for opportunistic macroalgae and phytoplankton quality elements. The regulations stipulate that algae should be limited to under 15% in cover and low biomass (<500 g/m²) in the intertidal habitat and the area affected by opportunistic macroalgae should also be limited to under 15%.

- 5.108 However, the Issues and Options Document makes reference to wastewater treatment infrastructure. On page 62 the Plan document states that *'high level engagement with utility providers has identified that there is sufficient spare capacity within the current electricity, gas, wastewater and telecommunications networks to accommodate the level of growth identified for the Local Plan period without large scale reinforcement being required.'* It remains unclear what the term 'large scale reinforcements' means exactly, but the statement indicates that the proposed growth is unlikely to require major improvements in WwTW infrastructure.
- 5.109 Research studies¹³¹ have confirmed that combined pollution pressure from run-off and waste water discharge around the Mersey Estuary SPA and Ramsar has been a significant historic pressure. However, a study of the water quality in the Mersey showed that due to a clean-up scheme in the 1970's, significant improvements in water quality have been achieved (e.g. in biological oxygen demand and total nutrient loads). These have been most important in the reaches above the tidal limit, where the dilution factor is much lower. In 2011 a Water Cycle Study (WCS) for the mid-Mersey identified that tidal influences within the lower reaches of the Mersey Estuary SPA and Ramsar help reduce potential impacts from WwTWs discharge by enhancing the estuary's dilution factor. Due to the low sensitivity of the SPA and Ramsar to eutrophication and significant improvements in the water quality of the Mersey, it is considered that Wirral's Issues and Options Document will not result in adverse effects on site integrity alone. Notwithstanding, a residual risk for eutrophication of the Mersey Estuary SPA and Ramsar remains, particularly when considering Wirral's growth in-combination with that of adjacent authorities.

In-Combination Assessment

- 5.110 The growth proposed in the eastern part of Wirral needs assessing in the context of growth in the adjacent authorities of Liverpool, Halton, and Cheshire West and Chester. Significant growth is allocated in these authorities over the period covered by Wirral's Issues and Options Document. Given that WwTWs within these authorities will discharge directly into the Mersey Estuary SPA and Ramsar (or into watercourses feeding into the SPA and Ramsar), their wastewater will contribute to the existing high nutrient input into the site, potentially resulting in a cumulative water quality impact. To ensure that there is no potential for an in-combination effect, the text recommended in relation to the Dee Estuary SPA and Ramsar and the Dee Estuary SAC would also address any water quality risks in relation to the Mersey Estuary SPA and Ramsar. This text is recommended for insertion into the Reg.19 version of the Local Plan: ***'The Council will liaise with United Utilities to confirm there is sufficient headroom in the existing discharge consent to accommodate the growth planned for Wirral over the entire Plan period. If constraints are identified, housing delivery will need to be phased to keep in line with the available wastewater treatment infrastructure.'*** Given that the permitted headroom considers the qualifying features of European sites, and that the Plans of adjoining authorities would have to ensure this compliance as well, it would be concluded that there is no adverse in-combination effect of the Reg.19 Wirral Local Plan on the Mersey Estuary SPA and Ramsar regarding water quality.

Mersey Narrows and North Wirral Foreshore SPA and Ramsar

- 5.111 As established for the previous European sites, the TOLSE identified that the Mersey Narrows and North Wirral Foreshore SPA and Ramsar is sensitive to changes in water quality. This is mainly because high nutrient concentrations can cause phytoplankton and macroalgal blooms, reduce dissolved oxygen concentrations and have a negative impact on the food resources of SPA and Ramsar birds. Natural England's Supplementary Advice Note highlights that any further deterioration in water quality should be avoided. In order to achieve this, algal cover should be limited to below 15% and a low biomass (< 500 g/m²)¹³². Furthermore, the Advice Note highlights dissolved oxygen as one of the most important water quality components, which is directly linked

¹³¹ Langston, W.J., Chesman, B.S. and Burt, G.R. (2006). *Characterisation of European Marine Site: the Mersey Estuary Special Protection Area*, Marine Biological Association Occasional Publication No18.

¹³²

<https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9020287&SiteName=mersey+narrows&SiteNameDisplay=Mersey+Narrows+and+North+Wirral+Foreshore+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAAra=&NumMarineSeasonality=5> [Accessed on the 15/11/2019]

to nutrient loading. Low dissolved oxygen levels can result in lethal or sublethal effects on fish, infauna and epifauna communities of marine sites.

- 5.112 In terms of the site's ecological interest, the most important wader feeding grounds and roost sites are along the North Wirral Foreshore, particularly to the north of Hoylake and Moreton. It is noted that this is a relatively rural area and that Wirral's Issues and Options Document allocates relatively little net additional development here. As such, the additional wastewater discharge into the Mersey Narrows and North Wirral Foreshore SPA and Ramsar as a result of the plan will be relatively small. A review of online information shows that there is a WwTW at Carr Lane near Meols, which discharges off the North Wirral coast via a long sea outfall. While the North Wirral Foreshore is the component of the SPA and Ramsar that is most sensitive to eutrophication, it is noted that the additional amount of growth proposed for this part of Wirral is relatively small.
- 5.113 It is noted that in contrast to the estuarine sites in the Solent (where warmer water, low suspended sediment loading and low wave action all promote the formation of macroalgal mats), the waters around Wirral are colder, have a much higher suspended sediment loading and stronger wave action. This generally slows down macroalgal growth and breaks up any large mats that do occur. Supporting this, Natural England's Supplementary Site Conservation Advice Note highlights the site's risk of eutrophication to be low. Furthermore, evidence from surveys and / or monitoring shows the bird qualifying features to be in good condition (relating to both nutrient and dissolved oxygen levels) and currently un-impacted by anthropogenic activities.

In-Combination Assessment

- 5.114 The potential water quality impacts of the growth in Wirral, particularly in its northern part that lies closest to the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, needs assessing in the context of growth in the surrounding authorities such as Liverpool, Halton and Flintshire. Given that WwTWs within these authorities will discharge into coastal waters that might be hydrologically connected to the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, their wastewater could contribute to the nutrient input load in the site, potentially resulting in a cumulative water quality impact. However, the site's geographic location also requires consideration. The SPA and Ramsar lies several kilometres from coastal wastewater discharge points and over 20km from where the respective rivers (Dee, Mersey) feed into other nearby European sites. Therefore, it is considered that attenuation processes would remove a significant portion of nutrients, before these can reach the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. Regardless, a residual risk of eutrophication remains, and plans need to ensure that any risks of adverse effects on water quality in European sites are minimised.
- 5.115 The text that was recommended in relation to the Dee Estuary SPA and Ramsar and the Mersey Estuary SPA and Ramsar, would also ensure that there are no adverse effects on the Mersey Narrows and North Wirral Foreshore SPA and Ramsar in-combination with other plans (please see previous sections for details on policy wording).

Liverpool Bay SPA

- 5.116 The ToLSE identified that the Liverpool Bay SPA is likely to be sensitive to changes in water quality, primarily due to an increased nutrient loading and reduced dissolved oxygen concentrations associated with treated sewage effluent. Changes in water quality might affect the basal elements of the marine food chain, ultimately changing the composition of the fish community. Furthermore, low dissolved oxygen concentrations might also have direct lethal or sub-lethal effects on the fish. Red-throated diver and common scoter both rely on the sufficient supply of suitable fish species for survival.
- 5.117 The Liverpool Bay SPA is a marine site that commences beyond the North Wirral Foreshore and extends both westward past the coast of Flintshire and eastward part the Sefton coast. Therefore, any WwTWs within Wirral that discharge into the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, will also contribute to the nutrient load in the Liverpool Bay SPA. Furthermore, to its unique geographic setting, the Liverpool Bay SPA is also likely to be subject to water quality pressures from development in other authorities (e.g. Flintshire and Sefton) and hydrologically

connected waterbodies (e.g. the Dee Estuary SPA and Ramsar and the Mersey Estuary SPA and Ramsar). As such, there might be a potential for adverse water quality effects in-combination with those arising from other authorities.

- 5.118 Natural England's Supplementary Advice was also consulted. Notably, the Site Improvement Plan for the SPA and Ramsar mentions water quality only in relation to oil spills arising from marine traffic¹³³. One of the reasons why water quality is not considered to be a major threat to the SPA is likely the dilution effect. Firstly, any non-toxic contaminant nutrients (such as nitrogen) enter a large body of water, meaning that they will be instantly diluted. Furthermore, a large proportion of the site (and its qualifying waterbirds) is relatively far off-shore and any nutrient contaminants will also be greatly diluted with distance from the coastline (see also¹³⁴). Given that water quality is not highlighted as a pressure on the SPA by Natural England and the dilution factor discussed above, it is concluded that Wirral's Issues and Options Document will not result in adverse effects on site integrity, both alone and in-combination with other plans.

Ribble and Alt Estuaries SPA and Ramsar

- 5.119 The ToLSE indicated that the Ribble and Alt Estuaries SPA and Ramsar is sensitive to changes in water quality, primarily due to an increased nutrient loading and reduced dissolved oxygen concentrations associated with treated sewage effluent. Changes in water quality might alter the plant and invertebrate communities of the sand- and mudflats, ultimately limiting the type of prey that is available for the waterbirds and waders. Natural England's Supplementary Conservation Advice highlights that nutrient loading should be limited (to avoid algal blooms) and dissolved oxygen concentrations should be maintained at 5.7 mg/l¹³⁵.
- 5.120 The Issues and Options Document, through the provision of housing and employment has the potential to result in a deterioration of water quality through the process of wastewater discharge. While the Borough of Wirral is approx. 1.5km to the south-west of the SPA and Ramsar, there is hydrological connectivity with estuarine sites closer to Wirral, most importantly the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. As such, a deterioration in water quality is likely to arise as an in-combination effect with water quality conditions in the River Mersey. The Appropriate Assessment of the impact pathway water quality in relation to the estuarine sites closer to Wirral was undertaken in previous sections. Importantly, these indicated that the qualifying species of these site are currently unaffected by water quality impacts from anthropogenic sources.
- 5.121 Furthermore, it is worth considering that any sewage effluent discharged by WwTws in Wirral is most likely to enter the Mersey Estuary SPA and Ramsar or the Mersey Narrows further north. The points of discharge might therefore be many kilometres from the Ribble and Alt Estuaries SPA and Ramsar. Water pollutants are attenuated with increasing distance from the source of pollution, meaning that they will be converted into other products. There will also be a dilution effect of pollutants, especially as they enter more open water beyond the Mersey Narrows. It is therefore concluded that there will be no in-combination effect of the Issues and Options Document on the site integrity of the Ribble and Alt Estuaries SPA and Ramsar regarding water quality.
- 5.122 In addition, the text that was recommended in relation to the Mersey Estuary SPA and Ramsar and the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, would also ensure that there are no adverse effects on the Ribble and Alt Estuaries SPA and Ramsar in-combination with other plans (please see previous sections for details on policy wording).

¹³³ <http://publications.naturalengland.org.uk/publication/5296526586806272> [Accessed on the 21/11/2019]

¹³⁴ Natural England Conservation Advice for the Liverpool Bay SPA mentions nutrient dilution as a major mitigating factor for the site. <http://archive.incc.gov.uk/default.aspx?page=7507> [Accessed on the 21/11/2019]

¹³⁵ <https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=JK9005103&SiteName=ribble&SiteNameDisplay=Ribble+and+Alt+Estuaries+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAAra=&NumMarineSeasonality=20> [Accessed on the 22/11/2019]

Visual and Noise Disturbance

5.123 ToLSE identified that the three European sites that are sensitive to visual and noise disturbance arising from the Issues and Options Document are the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, the Mersey Estuary SPA and Ramsar, the Dee Estuary SPA and Ramsar and the Ribble and Alt Estuaries SPA and Ramsar. All these sites are designated for their non-breeding waterfowl and waders, which are potentially sensitive to noise and visual disturbance deriving from construction work or other urban processes. Additionally, the sites also provide shelter for breeding terns in the summer. This impact pathway is therefore relevant throughout all the year. The HRA will discuss the implications of the different strategic growth options, focusing particularly on Options 2A and 2B (which involve the loss of significant greenfield sites) for all European sites together. This is because due to the relatively small size of the Borough and it being surrounded by European sites on all sides, it is conceivable that birds from any of the SPAs / Ramsars could use functionally linked habitat anywhere in Wirral. This section will then conclude with overarching mitigation recommendation that is applicable to all sites.

Direct disturbance on SPAs / Ramsars

5.124 Option 1A proposes the allocation of numerous sites that lie within 200m of estuarine or coastal sites, all of which have the potential for visual and noise disturbance on non-breeding SPA and Ramsar bird species. This applies especially to the area around Bebington, where multiple potential employment sites (e.g. ELPS 050, ELPS 043, ELPS 100, ELPS 116, ELPS 263, ELPS 415, ELPS 3043, ELPS 017, ELPS 242, ELPS 330 and ELPS 013) lie within 200m of a thin strip of the Mersey Estuary SPA and Ramsar.

5.125 North of the Kingsway Road Tunnel, Option 1A proposes to allocate several sites within 200m of the Egremont Foreshore, which forms part of the Mersey Narrows and North Wirral Foreshore SPA and Ramsar. This includes the Potential Extra Sites SHLAA 0468, SHLAA 04643, the Proposed Housing Sites SHLAA 2022, SHLAA 2023 and SHLAA 2005, and Potential Mixed-use Allocations SHLAA XXXX (not yet included in the Issues and Options Document) and SHLAA 0020.

5.126 There are few greenfield sites included under Options 2A and 2B that have a direct disturbance potential for the SPAs / Ramsars. Regarding the Dee Estuary SPA and Ramsar, there are two potential sites (parcels 6.20 and 7.5) in which construction or artificial lighting could have a direct disturbance potential for SPA and Ramsar birds, as these are both directly adjacent to the intertidal sand- and mudflats of the Dee Estuary. None of the other greenfield sites are within the 200m precautionary distance that applies to this impact pathway.

5.127 All potential development sites listed above would have the potential for direct visual and noise disturbance on the SPAs / Ramsars, potentially resulting in birds ceasing their normal foraging and / or roosting routes. In extreme cases (i.e. if disturbance stimuli are particularly strong or close to the birds), this might result in birds taking flight and leaving their normal habitats, As such, activity in these proposals could affect the long-term viability of the SPA and Ramsar birds, thus requiring mitigation.

Disturbance of functionally linked habitat

5.128 Because the integrity of European sites depends on land parcels beyond the site boundary (see concept of functionally linked habitat), this also extends to any disturbance that may limit the birds' use of such land. In other words, visual and noise disturbance within 200m of known functionally linked habitat parcels should be avoided. Consultation of Cheshire and Wirral Bird Atlas highlighted that many of the bird species from nearby SPAs / Ramsars use functionally linked habitat in the non-breeding period and development near such parcels could affect the birds' pattern of use of this land. It is noted that visual and noise disturbance of functionally linked habitat is primarily an impact pathway that would be associated with Options 2A and 2B, which include sites in the much more rural western section of Wirral. Many of the main settlements (e.g. West Kirby and Heswall) are surrounded by agricultural land, which has a high likelihood of being used by SPA and Ramsar birds. Greenfield sites included around Heswall (under Options 2A and

- 2B) are a particularly high risk, given the many parcels of agricultural land that are nearby and the numerous existing winter records of SPA and Ramsar birds in this location.
- 5.129 A definitive Appropriate Assessment of this impact pathway would require more detailed bird survey data, particularly from the western part of Wirral. The Cheshire and Wirral Bird Atlas only provides records for 4km² tetrads, while a much higher level of detail is required for this analysis. It is therefore recommended to establish a more detailed ornithological evidence base for Wirral by undertaking bespoke bird surveys (which will be a requirement if any of the Green Belt release options come forward to establish whether parcels are functionally linked to the SPAs / Ramsars). To assess any potential for visual and noise disturbance of functionally linked habitat, such surveys should also cover adjacent land that could be used by SPA and Ramsar birds. The bird surveys should be carried out in the autumn, winter and early spring to cover the period in which SPA and Ramsar birds are most likely to use inland habitat. Other authorities (e.g. Halton Borough Council) have also commissioned bird surveys to inform their Local Plan HRAs, by assessing the potential for visual and noise disturbance.
- 5.130 In devising appropriate mitigation measures, species-specific responses to noise disturbance need to be considered. For example, redshank are highly sensitive to noise and might be flushed at noise levels of 72dB¹³⁶. For other species (e.g. dunlin and golden plover), while likely to be disturbed by excessive levels of noise, a noise level of 72 dB measured at the birds is likely to be acceptable, as birds will habituate to such noise levels¹³⁷. Given the proximity of suitable habitats to the proposed development sites (especially those under Options 2A and 2B), mitigation measures would have to be incorporated into relevant policies in the Reg.19 Local Plan to avoid adverse effects on the coastal and estuarine SPAs / Ramsars regarding the impact pathway visual and noise disturbance.
- 5.131 Previous research on noise disturbance provides some guidance on whether development sites might require mitigation measures. Studies indicate that noise levels in excess of 84 dB(A) typically elicit a flight response in birds¹³⁸ and it is recommended that construction noise levels are kept below 70 dB to avoid excessive disturbance of birds¹³⁹. Impact piling is known to be one of the noisiest forms of construction, emitting atmospheric noise of 100-110 dB at 1m from source. Since noise attenuates at a rate of 6 dB with every doubling distance, it follows that noise pollution from impact piling will have dropped to under 70 dB at 100m from the source.
- 5.132 Moreover, specific regard should also be given to visual disturbance, as visual stimuli in most instances create a disturbance effect before any associated noise becomes influential. Similar to noise disturbance, high level visual disturbance might result in birds responding by major flight or, if they remain in the area, in the temporary cessation of foraging. Either of these responses might negatively affect the survival rates or breeding success of individual birds. Visual disturbance can be exacerbated by workers operating outside of equipment, moving fast, using large machinery and encroaching on mudflats. Curlew (taking flight at 275m distance to a stimulus) and redshank (taking flight at a distance of 250m) are the wildfowl that are most sensitive to visual stimuli¹⁴⁰. Generally, little effect of visual disturbance on birds has been demonstrated at distances of 300m and above¹⁴¹.
- 5.133 Overall, several recommendations are made to guide development proposed in the Issues and Options Document. Given Wirral's unique situation amidst several European sites designated for their bird interest, it is also recommended that this is included in the supporting text of, or, in condensed form, within an appropriate policy of the Reg.19 Local Plan. The advice regarding visual and noise disturbance is the following:

¹³⁶ Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects. Institute of Estuarine Coastal Studies, University of Hull. 2013. Available at: <http://bailey.persona-pi.com/Public-Inquiries/M4%20-%20Revised/11.3.67.pdf> [Accessed on 18/07/2019]

¹³⁷ Cutts, N., Phelps, A. and Burdon, D. (2009) Construction and waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Report to Humber INCA, Institute of Estuarine and Coastal Studies, University of Hull.

¹³⁸ Cutts N & Allan J. 1999. Avifaunal Disturbance Assessment. Flood Defence Works: Saltend. Report to Environment Agency).

¹³⁹ Cutts, N., Phelps, A. and Burdon, D. (2009) Construction and waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Report to Humber INCA, Institute of Estuarine and Coastal Studies, University of Hull

¹⁴⁰ Waterbird Disturbance Mitigation Toolkit. Available at: <http://bailey.persona-pi.com/Public-Inquiries/M4%20-%20Revised/11.3.67.pdf> [Accessed 18/07/2019]

¹⁴¹ Ibid.

- **To minimise the effect of visual and noise disturbance, it is recommended that any construction work (and associated road infrastructure) is located more than 200m away from the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, the Dee Estuary SPA and Ramsar and the Mersey Estuary SPA and Ramsar, or is undertaken during periods when bird populations of the sites are low (i.e. summer).**
- **Furthermore, given the presence of highly sensitive bird species on functionally linked habitat near development allocations, it is advisable that such a distance is also maintained regarding functionally linked habitat. Construction within 100-200m of the SPAs / Ramsars, or functionally linked habitat parcels, should be carried out between April and August, when most qualifying species will not be present. This particularly applies to construction processes associated with high noise levels (e.g. impact piling).**
- **If construction cannot be timed to avoid the winter and passage periods then an impact assessment will need to be undertaken to confirm that noise levels will remain below 70 dB at the bird, and that there will be no visual disturbance. Mitigation may be required in order to achieve this, including the provision of screens, selection of less noisy equipment or techniques, damping and noise shielding of equipment or avoidance of lighting in sensitive locations.**
- **Finally, it is advised that construction sites within 300m of known bird roosts in the SPA or on functionally linked habitat, have appropriate screening in place to minimise visual disturbance.**

Atmospheric Pollution

Dee Estuary SAC, SPA and Ramsar

5.134 The TOLSE section identified that LSEs of Wirral's Issues and Options Document on the Dee Estuary SAC regarding atmospheric pollution cannot be excluded. As highlighted earlier, the dune systems are the qualifying habitats most sensitive to atmospheric pollution. However, these habitat components are situated near the outer edge of the SAC, on the sea-ward coastlines of Wirral and Flintshire. Importantly, the dune segments in Wirral that form part of the SAC are beyond 200m of the A540, the closest major road, and therefore beyond the threshold distance set for atmospheric pollution impacts. However, there are sensitive SAC habitat elements (e.g. saltmarsh, intertidal sand- and mudflats) within 200m of the A548 in Flintshire, which may experience an increase in commuter journeys as a result of Wirral's Issues and Options Document.

Geographic Setting and Commuter Traffic

5.135 The Dee Estuary SAC is sandwiched between the authorities of Wirral (England) and Flintshire (Wales) and thus is likely to be affected by commuter traffic between these authorities. This might be especially the case for car-based journeys along the A548 involving potential commuters between the settlements of Connah's Quay, Flint and Holywell (all in Flintshire) and Wirral. According to road traffic statistics by the Department for Transport, the A548 is also a relatively busy A road. A traffic count point 99645¹⁴², an Annual Average Daily Traffic flow of 10,249 cars, 2,211 light goods vehicles and 1,308 heavy goods vehicles was observed.

5.136 Data from the 2011 Census shows that Flintshire is the third most popular destination for Wirral residents, with 2,828 (6.3% of the 45,025 total outward trips¹⁴³) daily outward journeys. However, it is to be noted that both Liverpool (18,094 journeys; 40.2%), and Cheshire West and Chester (10,189 journeys; 22.6%) are significantly more popular destinations, accounting for the largest proportion of commuter traffic. Therefore, Flintshire contributes relatively little to Wirral's overall traffic footprint. There is slightly less inward movement on this trajectory with only 991 journeys (5.7% of the 17,291 inward trips) into Wirral from Flintshire.

¹⁴² <https://roadtraffic.dft.gov.uk/manualcountpoints/99645> [Accessed on the 18/11/2019]

¹⁴³ Wirral Employment land and Premises Study – Final Report.

5.137 Furthermore, it is to be noted that a large proportion of out-commuters from Wirral are likely to work in the Deeside Business Park, which lies in the eastern part of Flintshire close to the boundary of Wirral. Therefore, many commuters accessing employment in the business park are likely to have turned off the A548 before reaching the Flintshire Bridge, and the sensitive area of saltmarsh identified above. Overall, due to the relatively small number of commuter journeys into Flintshire and the low likelihood that commuters will actually traverse the Flintshire Bridge, it is concluded that Wirral's Issues and Options Document will not result in adverse effects on the Dee Estuary SAC regarding the impact pathway atmospheric pollution.

6. Summary of Conclusions & Recommendations

6.1 Wirral's Issues and Options Document covers the years between 2020 and 2035 and will plan for a minimum of 12,000 net new residential dwellings and 80ha of employment land, while seeking to protect Wirral's natural assets. Three strategic growth options (urban intensification, urban expansion and dispersed Green Belt development) are currently proposed. This HRA assessed the potential impact pathways of the Issues and Options Document on European sites, particularly focussing on the two Green Belt release options. The following impact pathways of Wirral's Issues and Options Document were identified:

- Recreational pressure (both in European sites and in functionally linked habitat)
- Loss of functionally linked habitat
- Water quality
- Water resources
- Visual and noise disturbance (both in European sites and in functionally linked habitat)
- Atmospheric pollution

Recreational Pressure

6.2 Regarding recreational pressure, the HRA determined that the Issues and Options Document might result in adverse effects on the Dee Estuary SPA and Ramsar and the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, both alone and in-combination with Plans of other authorities. Furthermore, the Issues and Options Document might result in in-combination effects on the Sefton Coast SAC and the Ribble and Alt Estuaries SPA and Ramsar. In contrast, because the Mersey Estuary SPA and Ramsar is not accessible on its southern shoreline in Wirral, it was determined that there would be no adverse effects on that European site.

6.3 The Merseyside authorities have commissioned a Recreation Mitigation and Avoidance Strategy (RMAS) for all European sites in the City Region in partnership with Natural England and the National Trust, which is intended to be completed by the end of 2020. This strategy was initiated to avoid adverse effects from recreational pressure on the aforementioned European sites. The core visitor catchment requiring mitigation should be identified in agreement with Natural England. Overall, it is considered that the Issues and Options Document contains sufficient text (and is in line with the current developments on recreation mitigation) to provide adequate protection to Wirral's estuarine and coastal European sites. It is recommended that the emerging Local Plan is continually updated to reflect any upcoming changes or evidence in relation to the RMAS.

6.4 It is recommended that the main focus of the mitigation strategy is on measures relating to Strategic Access Management and Monitoring (SAMM), including for example:

- Formalising the currently voluntary wardening that is in place at the SPA and Ramsar, and extending it to other relevant European sites on the Wirral peninsula

- Providing additional professional wardening posts, or increasing wardening hours, covering recreation hotspots; giving wardens a specific public liaison role to increase public awareness of the sensitivities of the sites and specifically address problematic activity
- Improving and unifying signage across the European sites, including information boards, waymarkers and dog-on-lead notices; a particular focus should be on communicating why measures are put into place, as this is known to increase compliance
- Develop a partnership for the most prevalent user groups, establishing Codes of Conduct and a coordinating employment post
- Undertaking standardised visitor surveys at all European sites sensitive to recreational pressure in the LCR region to establish an improved evidence base
- Funding of academic research studies as identified useful / necessary by Natural England / Natural Resources Wales, for example an investigation into the impact of recreational fishing on feeding wader birds¹⁴⁴
- Exploring regulatory measures to reduce the impact of recreation on waders, such as temporary footpath or access closures during sensitive periods, rerouting of footpaths and dog exclusion zones, as well as potentially tighter management of areas currently zoned for activities such as kite-surfing, if necessary.

6.5 In the intervening period, and until such time as the Strategy has been adopted by Wirral and is in the process of implementation, recreational pressure from development (housing, employment and tourism) will need to be considered on a case by case basis as part of the planning and development management process. The emerging Strategy evidence base can be drawn upon to inform project-specific assessments. In undertaking these project-specific assessments, care will need to be taken to ensure that the approach complies with the “People Over Wind” ECJ ruling¹⁴⁵ with regard to avoiding reliance on mitigation measures at the Test of Likely Significant Effects stage.

6.6 It is recommended that the following key steps are undertaken by Wirral Council and incorporated into the next iteration of the Local Plan, prior to the formal adoption of the RMAS in 2021:

- **Publish the evidence report underpinning the future RMAS as an interim position;**
- **Introduce an explicit statement of intent into the Plan to collaborate with other authorities in the Liverpool City Region, Natural England and the National Trust to complete and implement the RMAS; and**
- **Prepare an Interim Guidance Note/local plan policy that sets out the Council’s interim position on housing development and the mitigation of recreational pressure.**

Recreational Pressure in Functionally Linked Habitat

6.7 Some large developments (notably Wirral Waters) will also need to devise their own recreation management measures which would address not only nearby European sites but also recreational pressure on significant areas of functionally-linked habitat adjacent to the development, notably Birkenhead Docks which is known to be used extensively by birds associated with the Wirral European sites, notably Liverpool Bay SPA and the Mersey Narrows & North Wirral Foreshore.

6.8 The HRA further identified that there is a potential for adverse effects resulting from the development of Wirral Waters, the largest residential site that is located directly adjacent to the Birkenhead docks that are known to be functionally linked to the nearby SPAs and Ramsars.

¹⁴⁴ This is identified as important research in Natural England’s Site Improvement Plan with an estimated cost of £15,000. Available at: <http://publications.naturalengland.org.uk/publication/6579320399069184> [Accessed on the 14/11/2019]

¹⁴⁵ People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

While it is unlikely that residents from Wirral Waters will have direct access to the water in the docks, the scheme will result in greater activity levels on paths / future greenspaces in immediate proximity of the West and East Float in the docks.

- 6.9 Therefore, it is advised that a bespoke mitigation scheme for the development will need to be produced by the developer to minimise any disturbance arising from the net local population growth. This mitigation strategy could involve some of the measures already recommended in relation to the RMAS, adapted to the specific circumstances for Wirral Waters and adjusted to take account of measures already agreed and committed for that development, such as:
- Providing for a part-time wardening post that covers the parts of the docks that are most vulnerable to recreational disturbance (e.g. the West and East Float)
 - Installing information boards and / or dog-on-lead notices to increase public awareness of the sensitivity of qualifying bird species using the docks
 - Circulating flyers to residents of Wirral Waters that inform them about the ecological importance of the docks for the integrity of nearby European sites
 - Restricting access directly onto the docks by planning the path network accordingly (i.e. use of a precautionary distance); potential path closure during sensitive periods

Loss of Functionally Linked Habitat

- 6.10 Regarding the loss of functionally linked habitat the HRA determined that the Issues and Options Document might result in adverse effects on several European sites designated for mobile qualifying waterfowl, particularly if Options 2A and 2B were taken forward. Both of these options would include large greenfield sites (over 2ha) with potentially suitable habitat (e.g. agricultural stubble) in close proximity to SPAs and Ramsars. Specific land parcels included in Option 2a that have a high potential to be functionally linked habitat are parcel 7.5 (directly adjacent to the Dee Estuary SPA and Ramsar) and parcels 7.25, 7.26 and 7.27 (agricultural land with uninterrupted flightlines to the Dee Estuary SPA and Ramsar. Further greenfield sites (e.g. parcels 4.8, 4.10, 4.11) would be included to the south of Bebington, all of which are sufficiently large and comprise potential foraging habitat for SPA and Ramsar birds. However, the potential for the loss of functionally linked habitat here is considered to be lower than around Heswall, due to the more built-up nature of Bebington (i.e. existing industrial development and the M53).
- 6.11 It is advised that if either of the options 2A and 2B (or variations thereof) are included in the Reg.19 Local Plan, the following text (or similar) should be inserted into an appropriate policy of the Plan to avoid adverse effects on the integrity of European sites designated for their non-breeding waterfowl: ***'To meet the requirements of the Habitats Directive, the applicant should be required to provide evidence that the development will not result in adverse effects on the integrity of nearby European sites (namely the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, the Dee Estuary SPA and Ramsar and the Mersey Estuary SPA and Ramsar) regarding their qualifying bird species. To demonstrate this, a survey will be required to determine the habitats and current site use to verify if the land parcel is indeed suitable for supporting a significant population¹⁴⁶ of designated bird species. Where habitats are suitable, non-breeding bird surveys will be required to determine if the site and neighbouring land constitute a significant area of supporting habitat. Bird surveys will need to be undertaken during autumn, winter and spring. If habitat within the site or adjacent land are identified to support significant populations of designated bird species, avoidance measures and mitigation will be required, and the planning application will likely need to be assessed through a project specific Habitats Regulations Assessment to ensure that the development does not result in adverse effects on integrity.'***
- 6.12 Allocating sites for development prior to full wintering bird surveys being undertaken is legally compliant provided there is an adequate protective policy framework in the plan to ensure that no adverse effects could be permitted to arise in practice. The law accepts that ecological

¹⁴⁶ A significant population is classified as a site that regularly used by 1% or more of the population of qualifying bird species

investigation to support plan development must be tiered, with more detailed investigation undertaken at each subsequent stage:

- The Court of Appeal¹⁴⁷ has ruled that provided the competent authority is duly satisfied that mitigation can be achieved in practice (in other words that solutions exist that are likely to be effective) this will suffice to enable a conclusion that the proposed development would have no adverse effect. In this case, other than Birkenhead Docks, the inland habitats in question are common, widespread and easily recreated (or managed in a more favourable manner) and the species in question (particularly pink-footed geese) do not have highly specific habitat requirements. Moreover, larger developments have a higher risk of affecting significant areas of functionally-linked land but also have greater potential for delivering growth in parts of the site while leaving other parts of the site to continue to function as supporting habitat if significant populations are found;
- The High Court¹⁴⁸ has ruled that for '*a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of the Habitats Regulations*'.
- Advocate-General Kokott¹⁴⁹ has commented that '*It would also hardly be proper to require a greater level of detail in preceding plans or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible on the basis of the precision of the plan. This assessment is to be updated with increasing specificity in subsequent stages of the procedure*'.

6.13 That said, the ideal situation would be for some surveys would be undertaken before the plan is adopted in order to ensure that key developments are deliverable at the requisite scale, particularly for large sites.

Water Quality

6.14 Regarding water quality in the estuarine and coastal European sites immediately surrounding Wirral, it was determined that the Issues and Options Document might result in adverse effects on site integrity, unless appropriate policy wording is inserted into the next iteration of the Local Plan. Water quality is an issue for the Mersey Narrows and the North Wirral Foreshore SPA and Ramsar, the Dee Estuary SPA and Ramsar, and the Mersey Estuary SPA and Ramsar, particularly in-combination with development in the wider Merseyside region.

6.15 Therefore, it is recommended that the following text (or similar) is inserted into an appropriate policy of the Reg. 19 version of the Local Plan: '***The Council will liaise with United Utilities and Dwr Cymru Welsh Water to confirm there is sufficient headroom in the existing discharge consent to accommodate the growth planned for Wirral over the entire Plan period. If constraints are identified, housing delivery will need to be phased to keep in line with the available wastewater treatment infrastructure.***' Given that the permitted headroom considers the qualifying features of European sites, and that the Plans of adjoining authorities would have had to ensure this compliance as well, it would be concluded that there are no adverse in-combination effects of the Reg. 19 Local Plan on European sites sensitive to changes in water quality.

¹⁴⁷ No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17th February 2015

¹⁴⁸ High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015

¹⁴⁹ Opinion of Advocate General Kokott, 9th June 2005, Case C-6/04. Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland, paragraph 49.
<http://curia.europa.eu/juris/document/document.jsf?docid=58359&dclang=EN>

Visual and Noise Disturbance (both in European sites and in functionally linked habitat)

- 6.16 Wirral's Issues and Options Document includes several potential development sites that would result in visual or noise disturbance of qualifying SPA and Ramsar bird species, due to the sites being within the precautionary screening distances for these impact pathways. Visual and noise disturbance is an impact pathway that is relevant to development sites adjacent to the European sites as well as land parcels identified as functionally linked habitat.
- 6.17 To avoid adverse effects on the populations of qualifying birds both within European sites and in functionally linked habitat, detailed recommendations are made to guide development proposed in the Issues and Options Document. Given Wirral's unique situation amidst several European sites designated for their bird interest, it is also recommended that this text is included in the supporting text of, or, in condensed form, within an appropriate policy of the Reg. 19 Local Plan. The following advice regarding visual and noise disturbance should be inserted:
- ***“To minimise the effect of visual and noise disturbance, it is recommended that any construction work (and associated road infrastructure) is located more than 200m away from the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, the Dee Estuary SPA and Ramsar and the Mersey Estuary SPA and Ramsar, or is undertaken during periods when bird populations of the sites are low (i.e. summer).***
 - ***Furthermore, given the presence of highly sensitive bird species on functionally linked habitat near development allocations, it is advisable that such a distance is also maintained regarding functionally linked habitat. Construction within 100-200m of the SPAs / Ramsars, or functionally linked habitat parcels, should be carried out between April and September, when most qualifying species will not be present. This particularly applies to construction processes associated with high noise levels (e.g. impact piling).***
 - ***If construction cannot be timed to avoid the winter and passage periods then an impact assessment will need to be undertaken to confirm that noise levels will remain below 70 dB at the bird, and that there will be no visual disturbance. Mitigation may be required in order to achieve this, including the provision of screens, selection of less noisy equipment or techniques, damping and noise shielding of equipment or avoidance of lighting in sensitive locations.***
 - ***Finally, it is advised that construction sites within 300m of known bird roosts in the SPA or on functionally linked habitat, have appropriate screening in place to minimise visual disturbance.”***






Atmospheric Pollution

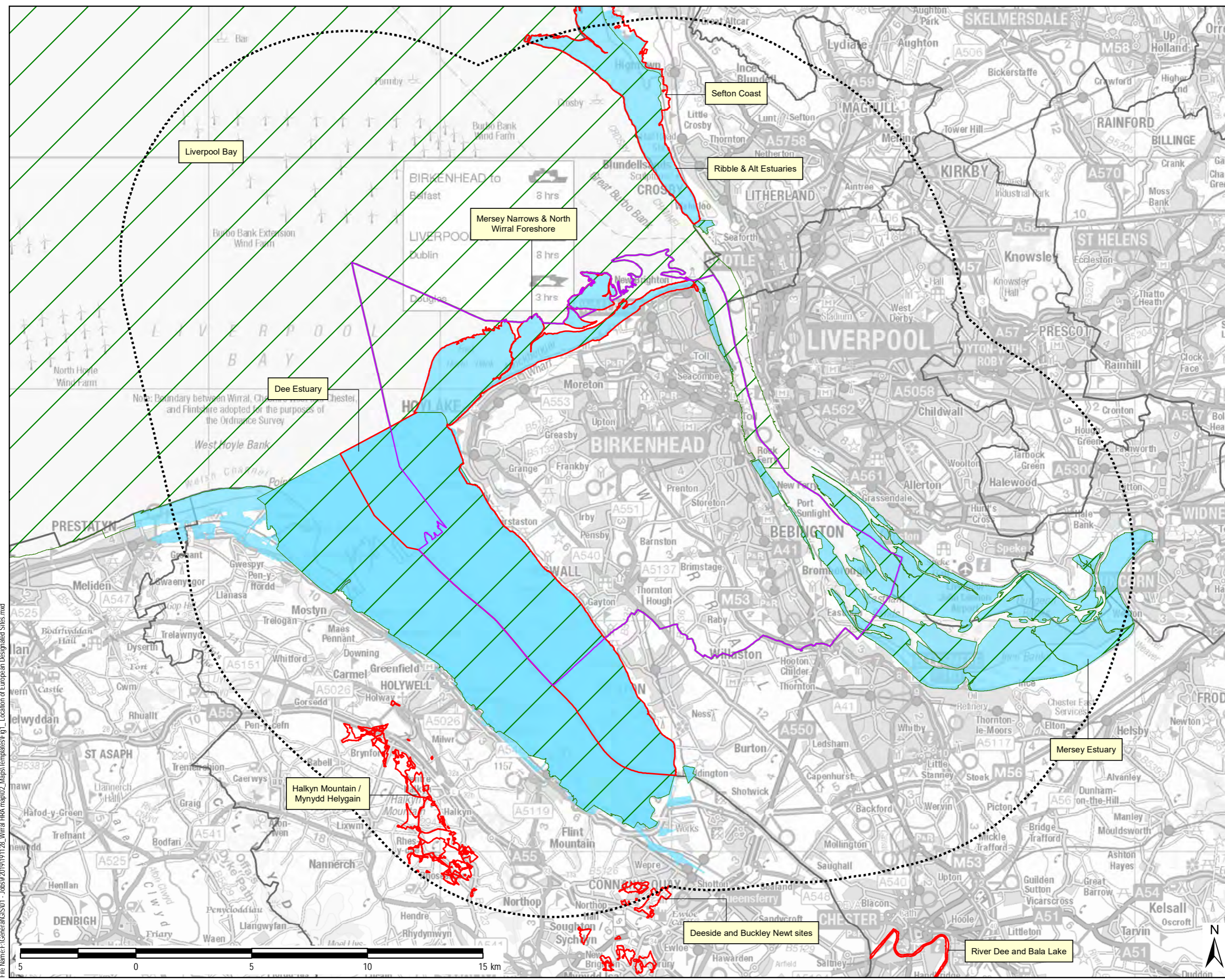
- 6.18 Regarding atmospheric pollution it was determined that the only European site requiring further consideration is the Dee Estuary SAC (and the overlapping Dee Estuary SP and Ramsar). Atlantic saltmarsh, a qualifying habitat of the SAC that is also used by bird species in the SPA and Ramsar, is located within 200m (approx. 50m) of the A548 to the east of the Flintshire Bridge. While the HRA established that Flintshire is a destination and source of commuters to / from Flintshire, it was also shown that the number of car-based journeys to this authority is relatively small and that a large proportion of commuters is unlikely to cross the Flintshire Bridge (which would bring them within 200m of sensitive habitats). Therefore, it is concluded that Wirral's Issues and Options Document will not result in adverse effects on the Dee Estuary SAC.

Appendix A Maps of Strategic Growth Options and European Sites

Appendix 1: Map of European sites within 10km of the Borough of Wirral, which could be affected by impact pathways linking to Wirral's Issues and Options Document.

Legend

-  Wirral District Boundary
-  Study Area Buffer -10km
-  Special Areas of Conservation (SAC)
-  Special Protection Area (SPA)
-  Ramsar



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Purpose of Issue: **DRAFT**

Client: **WIRRAL METROPOLITAN BOROUGH COUNCIL**

Project Title: **HRA OF THE REG.18 WIRRAL LOCAL PLAN**

Drawing Title: **EUROPEAN SITES WITHIN 10KM OF THE BOROUGH OF WIRRAL**

Drawn AM	Checked NS	Approved DW	Date 10/12/2019
AECOM Internal Project No. 60470919		Scale @ A3 1:150,000	

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AECOM
 Midpoint
 Alcon Link, Basingstoke
 Hampshire, RG21 7PP
 Telephone (01256) 310200
 Fax (01256) 310201
 www.aecom.com



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Appendix 2: Map of strategic growth Option 1A (Urban Intensification) in relation to European sites within 10km of the Borough of Wirral. Shown are SHLAA Housing Sites, Potential Extra Housing Sites and Employment Sites.

Legend

-  Wirral District Boundary
-  Study Area Buffer - 10km
-  Employment Sites
-  Housing Allocations - SHLAA Sites
-  HSG Not Started
-  HSG PPU Under Construction
-  Potential Extra Housing
-  Special Areas of Conservation (SAC)
-  Special Protection Area (SPA)
-  Ramsar

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Client **WIRRAL METROPOLITAN BOROUGH COUNCIL**

Project Title **HRA OF THE REG.18 WIRRAL LOCAL PLAN**

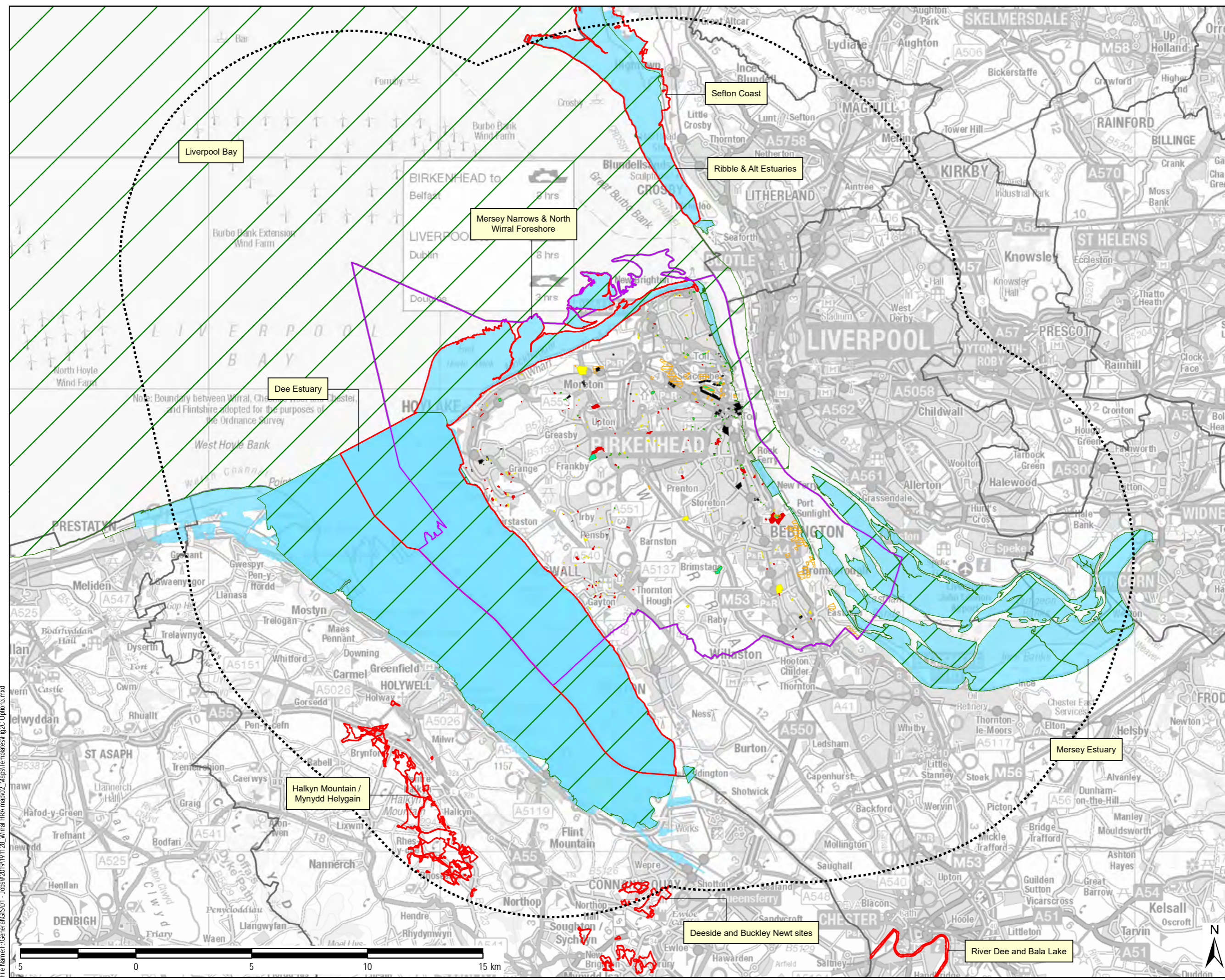
Drawing Title **URBAN INTENSIFICATION**

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Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
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Appendix 3: Map of strategic growth Option 2A (Dispersed Green Belt Release) in relation to European sites within 10km of the Borough of Wirral.

Legend

-  Wirral District Boundary
-  Study Area Buffer - 10km
-  Greenfield weak parcels
-  Special Areas of Conservation (SAC)
-  Special Protection Area (SPA)
-  Ramsar

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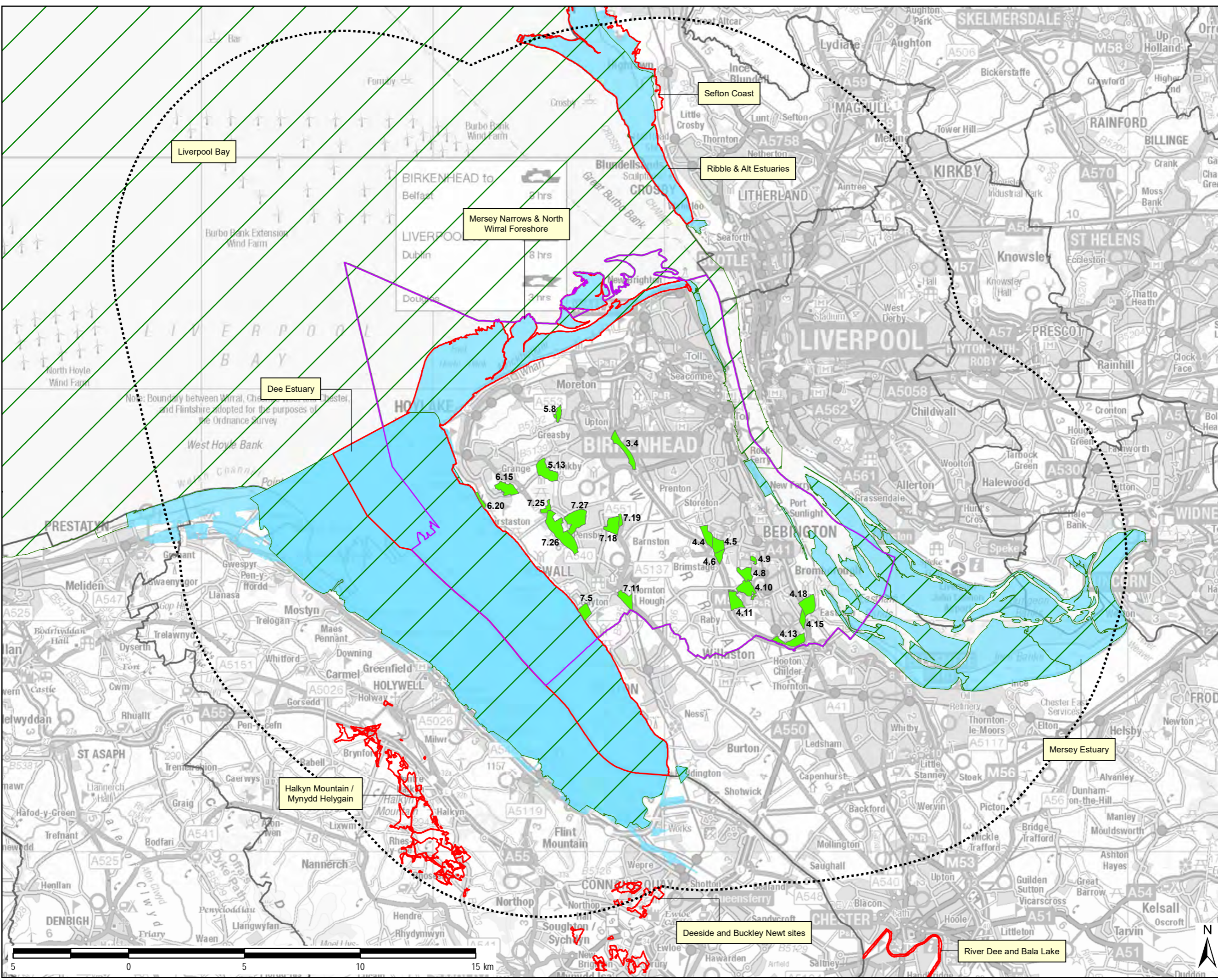
Project Title: **HRA OF THE REG.18 WIRRAL LOCAL PLAN**

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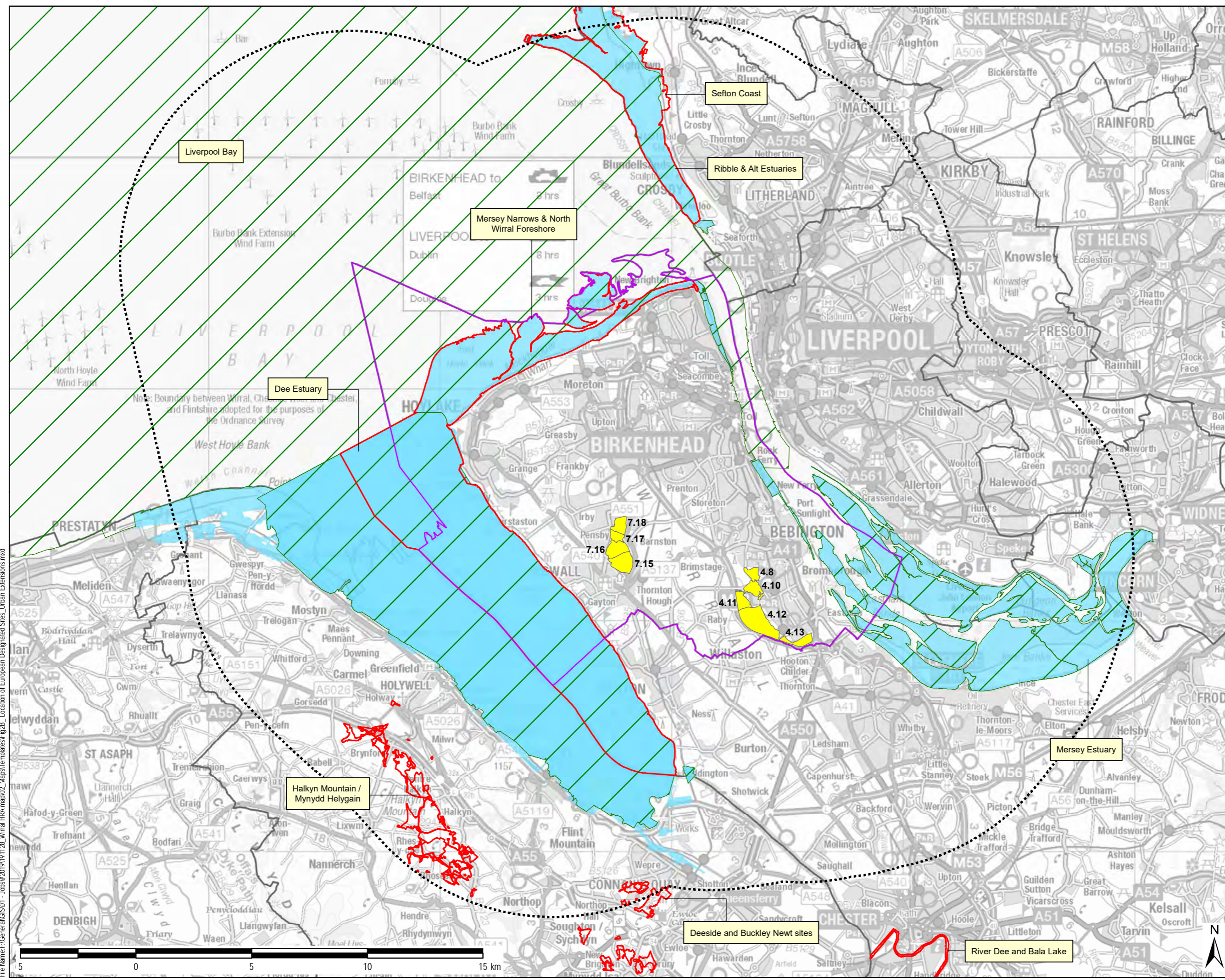


File Name: F:\General\GIS\01 - Jobs\2019\191128_Wirral HRA map02_Maps\Templates\Fig2A_Location of European Designated Sites_Greenfield weak parcels.mxd

Appendix 4: Map of strategic growth Option 2B (Urban Expansion) in relation to European sites within 10km of the Borough of Wirral.

Legend

- Wirral District Boundary
- Study Area Buffer - 10km
- Urban Extensions
- Special Areas of Conservation (SAC)
- Special Protection Area (SPA)
- Ramsar



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Client: **WIRRAL METROPOLITAN BOROUGH COUNCIL**

Project Title: **HRA OF THE REG.18 WIRRAL LOCAL PLAN**

Drawing Title: **URBAN EXPANSION**

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File Name: F:\General\GIS\01 - Jobs\2019\1128_Wirral HRA map02_Maps\Templates\Fig2B_Location of European Designated Sites_Urban Extensions.mxd

Appendix B Relevant European sites

Mersey Narrows & North Wirral Foreshore SPA and Ramsar

Introduction

The SPA sits on the north-west coast of England and is fed by the Mersey and Dee estuaries. The site mainly comprises intertidal habitat at the Egremont foreshore, man-made lagoons at the Seaforth Nature Reserve and extensive intertidal flats at the North Wirral Foreshore. Both Egremont Foreshore and the North Wirral Foreshore are important as feeding habitat for waders at low tide and the latter additionally includes important high-tide roost sites. Seaforth Nature Reserve is primarily important as a high-tide roost site. Perhaps the most notable feature of the SPA is the high density of non-breeding turnstone *Arenaria interpres*. Birds from the Mersey Narrows & North Wirral Foreshore SPA and Ramsar also regularly move to the Dee Estuary SPA, the Ribble and Alt Estuaries SPA and, to a lesser extent, the Mersey Estuary SPA.

SPA Qualifying Features¹⁵⁰

The site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

- Bar-tailed godwit *Limosa lapponica* (non-breeding)
- Common tern *Sterna hirundo* (breeding / non-breeding)
- Knot *Calidris canutus* (non-breeding)
- Little gull *Hydrocoloeus minutus* (non-breeding)

In the non-breeding season, the area regularly supports 32,366 individual waterbirds (5 year peak mean 2004/05 - 2008/09), comprised of 2,414 wildfowl and 29,952 waders including: cormorant *Phalacrocorax carbo*, oystercatcher *Haematopus ostralegus*, grey plover *Pluvialis squatarola*, sanderling *Calidris alba*, knot *Calidris canutus*, dunlin *Calidris alpina alpina*, bar-tailed godwit *Limosa lapponica* and redshank *Tringa totanus*.

Ramsar Qualifying Features¹⁵¹

The Mersey Narrows and North Wirral Foreshore is designated a **Ramsar** site under the following criteria:

Criterion 4:

- Regularly supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions. During 2004/05 - 2008/09 the Mersey Narrows and North Wirral Foreshore Ramsar site supported important numbers of non-breeding little gulls and common terns.

Criterion 5:

- Regularly supports 20,000 or more waterbirds: During the winters 2004/05 - 2008/09, the Mersey Narrows and North Wirral Foreshore Ramsar site supported an average peak of 32,402 individual waterbirds.

¹⁵⁰

<https://designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UK9020287&SiteName=mersey%20narrows&countyCode=&responsiblePerson=&SeaArea=&IFCAAarea=&HasCA=1&NumMarineSeasonality=5&SiteNameDisplay=Mersey%20Narrows%20and%20North%20Wirral%20Foreshore%20SPA> [Accessed 22/10/2019]

¹⁵¹ <https://incc.gov.uk/incc-assets/RIS/UK11042.pdf> [Accessed 22/10/2019]

Criterion 6:

- During winter the site regularly supports at least 1% of the individuals in the populations of the following species or subspecies of waterbird:

Bar-tailed godwit *Limosa lapponica*;

Black-tailed godwit *Limosa limosa islandica*;

Knot *Calidris canutus*;

Conservation Objectives¹⁵²

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.

Threats / Pressures to Site Integrity¹⁵³

The following threats and pressures to the site integrity of the Mersey Narrows and North Wirral SPA have been identified in Natural England's Site Improvement Plan:

- Public access / disturbance
- Changes in species distributions
- Invasive species
- Climate change
- Coastal squeeze
- Inappropriate scrub control
- Water pollution
- Fisheries: Commercial marine and estuarine
- Inappropriate coastal management
- Overgrazing
- Direct impact from third party
- Marine litter
- Predation
- Planning permission: General
- Marine consents and permits
- Wildfire / arson

¹⁵² <http://publications.naturalengland.org.uk/publication/6521906232557568> [Accessed 22/10/2019]

¹⁵³ <http://publications.naturalengland.org.uk/publication/6579320399069184> [Accessed 22/10/2019]

- Air pollution: Impact of atmospheric nitrogen deposition
- Transportation and service corridors
- Physical modification

Dee Estuary SPA and Ramsar

Introduction

The Dee Estuary SPA and Ramsar lies on the north-west coast of Britain between England and Wales. It is the sixth largest estuary in the UK, which is shaped like a funnel and is sheltered. It comprises extensive areas of intertidal sandflats, mudflats and saltmarsh. Where little land has been converted for agricultural use, there is gradation of saltmarsh into transitional brackish and swamp vegetation inland. Furthermore, the SPA and Ramsar also includes three sandstone islands of Hilbre with important cliff vegetation and maritime heathland. The two shorelines of the estuary illustrate a significant difference in usage from the industrial nature in coastal Wales to the recreational and residential usage in western England.

Most notably, the Dee Estuary SPA and Ramsar is of major importance for waterbirds. In winter, the intertidal sand- and mudflats, and the saltmarshes provide both feeding and roosting sites for significant populations of ducks and wading birds. Additionally, in summer the SPA and Ramsar acts as the breeding ground for two tern species, occurring at levels of European importance. The site also provides a crucial stopover point for numerous migratory birds, which resupply energy reserves on their long journeys from non-breeding to breeding grounds.

SPA Qualifying Features¹⁵⁴

The 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:

During the breeding season

- Common tern *Sterna hirundo*; 277 pairs representing at least 2.3% of the breeding population in Great Britain (5 year mean 1991-95)
- Little tern *Sterna albifrons*, 56 pairs representing at least 2.3% of the breeding population in Great Britain (RSPB, 5 year mean 1991-95)

On passage

- Sandwich tern *Sterna sandvicensis*, 818 individuals representing at least 5.8% of the population in Great Britain (5 year mean 1991-95)
- Knot *Calidris canutus* (non-breeding)
- Little gull *Hydrocoloeus minutus* (non-breeding)

Over winter

- Bar-tailed godwit *Limosa lapponica*, 1,013 individuals representing at least 1.9% of the wintering population in Great Britain (5 year peak mean 1991/2-1995/6)

The site qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

On passage

- Redshank *Tringa tetanus*, 8,451 individuals representing at least 4.8% of the Eastern Atlantic wintering population (5 year peak mean 1991/2-1995/6)

Over winter

¹⁵⁴ <http://archive.incc.gov.uk/default.aspx?page=2053> [Accessed 22/10/2019]

- Black-tailed godwit *Limosa limosa islandica*, 1,739 individuals representing at least 2.5% of the wintering Iceland breeding population (5 year peak mean 1991/2-1995/6)
- Curlew *Numerius arquata*, 4,028 individuals representing at least 1.2% of the wintering Europe breeding population (5 year peak mean 1991/2-1995/6)
- Dunlin *Calidris alpina alpina*, 22,479 individuals representing at least 1.6% of the wintering Northern Siberia / Europe / Western Africa population (5 year peak mean 1991/2-1995/6)
- Grey plover *Pluvialis squatarola*, 2,193 individuals representing at least 1.5% of the wintering Eastern Atlantic population (5 year peak mean 1991/2-1995/6)
- Knot *Calidris canutus*, 21,553 individuals representing at least 6.2% of the wintering Northeastern Canada / Greenland / Iceland / Northwestern Europe population (5 year peak mean 1991/2-1995/6)
- Oystercatcher *Haematopus ostralegus*, 28,434 individuals representing at least 3.2% of the wintering Europe & Northern / Western Africa population (5 year peak mean 1991/2-1995/6)
- Pintail *Anas acuta*, 6,498 individuals representing at least 10.8% of the wintering Northwestern Europe population (5 year peak mean 1991/2-1995/6)
- Redshank *Tringa totanus*, 6,382 individuals representing at least 4.3% of the wintering Eastern Atlantic population (5 year peak mean 1991/2-1995/6)
- Shelduck *Tadorna tadorna*, 6,827 individuals representing at least 2.3% of the wintering Northwestern Europe population (5 year peak mean 1991/2-1995/6)
- Teal *Anas crecca*, 5,918 individuals representing at least 1.5% of the wintering Northwestern Europe population (5 year peak mean 1991/2-1995/6)

Assemblage qualification: A wetland of international importance

The area qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.

Over winter, the area regularly supports 130,408 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Black-tailed godwit *Limosa limosa islandica*, shelduck *Tadorna tadorna*, teal *Anas crecca*, pintail *Anas acuta*, oystercatcher *Haematopus ostralegus*, grey plover *Pluvialis squatarola*, bar-tailed godwit *Limosa lapponica*, dunlin *Calidris alpina alpina*, sanderling *Calidris alba*, curlew *Numerius arquata*, redshank *Tringa totanus*, cormorant *Phalacrocorax carbo*, wigeon *Anas penelope*, mallard *Anas platyrhynchos*, lapwing *Vanellus vanellus*, knot *Calidris canutus*.

Ramsar Qualifying Features¹⁵⁵

The Dee Estuary is designated a **Ramsar** site under the following criteria:

Criterion 1:

- Contains extensive intertidal mud and sand flats (20km by 9km) with large expanses of saltmarsh towards the head of the estuary. Habitats Directive I features present on the pSAC 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, *Salicornia* and other annual colonising mud and sand, Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*), embryonic shifting dunes, shifting dunes along the shoreline with *Ammophila arenaria* (white dunes), fixed dunes with herbaceous vegetation (grey dunes) and humid dune slacks

Criterion 2:

- Supports breeding colonies of the vulnerable Natterjack Toad, *Epidalea calamita*.

¹⁵⁵ <https://jncc.gov.uk/jncc-assets/RIS/UK11082.pdf> [Accessed on 23/10/2019]

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

- 120,726 individual waterbirds (5 year peak mean 1994/5 – 1998/9).

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

Species with peak counts in spring / autumn:

- Redshank *Tringa tetanus*; 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:

- Redshank *Tringa totanus*; 5,293 individuals representing an average of 3.5% of the Eastern Atlantic population (5 year peak mean 1994/95-1998/99)
- Bar-tailed godwit *Limosa lapponica*; 1,150 individuals representing an average of 1.2% of the Europe population (5 year peak mean 1994/95-1998/99)
- Black-tailed godwit *Limosa limosa islandica*; 1,747 individuals representing an average of 2.5% of the Icelandic population (5 year peak mean 1994/95-1998/99)
- Curlew *Numenius arquata*; 3,899 individuals representing an average of 1.1% of the Europe and NW Africa population (5 year peak mean 1994/95-1998/99)
- Dunlin *Calidris alpina alpina*; 27,769 individuals representing an average of 2% of the Europe population (5 year peak mean 1994/95-1998/99)
- Grey plover *Pluvialis squatarola*; 1,643 individuals representing an average of 1.1% of the GB population (5 year peak mean 1994/95-1998/99)
- Knot *Calidris canutus*; 12,394 individuals representing an average of 3.5% of the GB population (5 year peak mean 1994/95-1998/99)
- Oystercatcher *Haematopus ostralegus*; 22,677 individuals representing an average of 2.5% of the Europe and W Africa population (5 year peak mean 1994/95-1998/99)
- Pintail *Anas acuta*; 5,407 individuals representing an average of 9% of the NW Europe population (5 year peak mean 1994/95-1998/99)
- Shelduck *Tadorna tadorna*; 7,725 individuals representing an average of 2.6% of the NW Europe population (5 year peak mean 1994/95-1998/99)
- Teal *Anas crecca*; 5,251 individuals representing an average of 1.3% of the NW Europe population (5 year peak mean 1994/95-1998/99)

SPA Conservation Objectives¹⁵⁶

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.

¹⁵⁶ <http://publications.naturalengland.org.uk/publication/6557770283220992> [Accessed on 23/10/2019]

Threats / Pressures to Site Integrity¹⁵⁷

The following threats and pressures to the site integrity of the Dee Estuary SPA have been identified in Natural England's Site Improvement Plan:

- Public access / disturbance
- Changes in species distributions
- Invasive species
- Climate change
- Coastal squeeze
- Inappropriate scrub control
- Water pollution
- Fisheries: Commercial marine and estuarine
- Inappropriate coastal management
- Overgrazing
- Direct impact from 3rd party
- Marine litter
- Predation
- Planning permission: General
- Marine consents and permits
- Wildfire / arson
- Air pollution: Impact of atmospheric nitrogen deposition
- Transportation and service corridors
- Physical modification

Dee Estuary SAC

Introduction

The Dee Estuary SAC is a 15,805.27ha maritime site comprising a wide variety of habitats, including tidal rivers, estuaries, mudflats and sandflats (81.8%), salt marshes and steppes (16.1%), coastal sand dunes (0.5%), shingle and sea cliffs (0.5%), and bogs and marshes (0.4%). While the SAC covers a similar area to the SPA and Ramsar, and is therefore also important for waterbirds, its main features are the habitats and their associated plant species. For example, the Dee Estuary is designated for its pioneer glasswort *Salicornia* spp. saltmarsh. The *Salicornia* saltmarsh forms extensive stands in the Dee, particularly on the sandy muds with reduced tidal surges. It occurs primarily on the seaward fringes as a pioneer and forms landward transitions to common saltmarsh-grass *Puccinellia maritima* saltmarsh.

Furthermore, the SAC represents Atlantic salt meadows in the north-west of the UK. It forms the most extensive saltmarsh in the Dee and has displaced large tracts of non-native common cord-grass *Spartina anglica* since the 1980s. The current high abundance of saltmarsh in turn favours further development of this type of vegetation. The Atlantic salt meadows are regularly covered by the sea and harbour salt-tolerant species, such as saltmarsh-grass *Puccinellia maritima*, sea aster *Aster tripolium* and sea arrowgrass *Triglochin maritima*.

¹⁵⁷ <http://publications.naturalengland.org.uk/publication/6579320399069184> [Accessed on 23/10/2019]

Qualifying Features¹⁵⁸

Annex I habitats that are a primary reason for selection of this site:

- Mudflats and sandflats not covered by seawater at low tide
- *Salicornia* and other annuals colonising mud and sand
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Estuaries
- Annual vegetation of drift lines
- Vegetated sea cliffs of the Atlantic and Baltic coasts
- Embryonic shifting dunes
- Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes')
- Fixed coastal dunes with herbaceous vegetation ('grey dunes')
- Humid dune slacks

Annex II species present as a qualifying feature, but not a primary reason for site selection:

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

Conservation Objectives¹⁵⁹

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.

Threats / Pressures to Site Integrity¹⁶⁰

The following threats and pressures to the site integrity of the Dee Estuary SAC have been identified in Natural England's Site Improvement Plan:

- Public access / disturbance
- Changes in species distributions
- Invasive species
- Climate change

¹⁵⁸ <https://sac.incc.gov.uk/site/UK0030131> [Accessed on 23/10/2019]

¹⁵⁹ <http://publications.naturalengland.org.uk/publication/6124489284780032> [Accessed on 23/10/2019]

¹⁶⁰ <http://publications.naturalengland.org.uk/publication/6579320399069184> [Accessed on 23/10/2019]

- Coastal squeeze
- Inappropriate scrub control
- Water pollution
- Fisheries: Commercial marine and estuarine
- Inappropriate coastal management
- Overgrazing
- Direct impact from 3rd party
- Marine litter
- Predation
- Planning permission: General
- Marine consents and permits
- Wildfire / arson
- Air pollution: Impact of atmospheric nitrogen deposition
- Transportation and service corridors
- Physical modification

Mersey Estuary SPA and Ramsar

Introduction

The Mersey Estuary is a 5,033.14ha maritime site that is located on the Irish Sea coast in north-west England. It is a large sheltered estuary that comprises areas of saltmarsh and extensive intertidal sandflats and mudflats. There is also some limited brackish marsh, rocky shoreline and boulder cliffs. The SPA and Ramsar is set within a largely rural and industrial environment. The site receives drainage from a catchment area of approx. 5,000km² encompassing the conurbations of Liverpool and Manchester, and including the River Mersey, the River Bollin and their tributaries in Cheshire and Merseyside.

The intertidal sand- and mudflats within the site provide feeding and roosting ground for a large assemblage of waterbirds. Especially in winter, the site is of major importance for ducks and waders. However, it is also of importance as a stopover point in the spring and autumn migration periods, particularly for wader populations that move along the western coast of Britain.

SPA Qualifying Features¹⁶¹

The 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:

Over winter

- Golden plover *Pluvialis apricaria*, 3,070 individuals representing at least 1.2% of the wintering population in Great Britain (5 year peak mean 1991/2-1995/6)

The site qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

On passage

- Redshank *Tringa tetanus*; 3,516 individuals representing at least 2% of the Eastern Atlantic wintering population (5 year peak mean, 1987-1991)

¹⁶¹ <http://archive.incc.gov.uk/default.aspx?page=1986> [Accessed on 23/10/2019]

- Ringed plover *Charadrius hiaticula*; 1,453 individuals representing at least 2.9% of the Europe / Northern Africa wintering population (Count as at 1989)

Over winter

- Dunlin *Calidris alpina*; 44,300 individuals representing at least 3.2% of the wintering Northern Siberia / Europe / Western Africa population
- Pintail *Anas acuta*; 2,744 individuals representing at least 4.6% of the wintering Northwestern Europe population
- Redshank *Tringa totanus*; 4,689 individuals representing at least 3.1% of the wintering Eastern Atlantic population
- Shelduck *Tadorna tadorna*; 5,039 individuals representing at least 1.7% of the wintering Northwestern Europe population
- Teal *Anas crecca*; 11,667 individuals representing at least 2.9% of the wintering Northwestern Europe population

Assemblage qualification: A wetland of international importance

The area qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl

The area regularly supports 99,467 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: curlew *Numenius arquata*, black-tailed godwit *Limosa limosa islandica*, lapwing *Vanellus vanellus*, grey plover *Pluvialis squatarola*, wigeon *Anas penelope*, great-crested grebe *Podiceps cristatus*, redshank *Tringa totanus*, dunlin *Calidris alpina alpina*, pintail *Anas acuta*, teal *Anas crecca*, shelduck *Tadorna tadorna*, golden plover *Pluvialis apricaria*.

Ramsar Qualifying Features¹⁶²

The Mersey Estuary is designated a **Ramsar** site under the following criteria:

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

- 89,576 individual waterbirds (5 year peak mean 1998/99 – 2002/2003).

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

Species with peak counts in spring / autumn

- Common shelduck *Tadorna tadorna*; 12,676 individuals representing an average of 4.2% of the Europe population (5 year peak mean 1998/99-2002/03)
- Black-tailed godwit *Limosa limosa islandica*; 2,011 individuals representing an average of 5.7% of the Iceland and Western Europe population (5 year peak mean 1998/99-2002/03)
- Redshank *Tringa totanus*; 6,651 individuals representing an average of 2.6% of the population (5 year peak mean 1998/99-2002/03)

Species with peak counts in winter

- Eurasian teal *Anas crecca*; 10,613 individuals representing an average of 2.6% of the NW Europe population (5 year peak mean 1998/99-2002/03)
- Northern pintail *Anas acuta*; 565 individuals representing an average of 2% of the GB population (5 year peak mean 1998/99-2002/03)

¹⁶² <http://archive.incc.gov.uk/pdf/RIS/UK11041.pdf> [Accessed on 23/10/2019]

- Dunlin *Calidris alpina alpina*; 48,364 individuals representing an average of 3.6% of the W Siberia and W Europe population (5 year peak mean 1998/99-2002/03)

SPA Conservation Objectives¹⁶³

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.

Threats / Pressures to Site Integrity¹⁶⁴

The following threats and pressures to the site integrity of the Mersey Estuary SPA have been identified in Natural England's Site Improvement Plan:

- Changes in species distributions
- Invasive species
- Public access / disturbance

Liverpool Bay SPA

Introduction

The Liverpool Bay SPA is a maritime site that is approx. 252,800ha in size and lies in the east of the Irish Sea, bordering northern England and north Wales. The site comprises exposed mudflats and sandbanks in places, but extends up to 20km from the shoreline. Most of this distant area from the coast is relatively shallow water up to 20m deep. The SPA and Ramsar is contiguous with several other European sites, including the Ribble and Alt Estuaries SPA and Ramsar, the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, and the Mersey Estuary SPA and Ramsar. It is primarily classified for the protection of red-throated diver, common scoter and little gull outside the breeding season and for breeding common tern and little tern. Furthermore, the SPA and Ramsar harbours a waterbird assemblage of European importance.

The proposal for the Liverpool Bay SPA Extension is to extend the SPA to support internationally important populations of common tern, little tern and little gull. The area proposed for extension is particularly important for the terns as much of the sea around their breeding colonies is the ideal habitat for plunge diving for food. The proposal is also to add cormorant and red-breasted merganser to the waterbird assemblage as named species.

Qualifying Features¹⁶⁵

The 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:

During the breeding season

- Little tern *Sterna albifrons*, at least 6.8% of the GB population

¹⁶³ <http://publications.naturalengland.org.uk/publication/5790848037945344> [Accessed on 23/10/2019]

¹⁶⁴ <http://publications.naturalengland.org.uk/publication/6273450410770432> [Accessed on 23/10/2019]

¹⁶⁵ <http://archive.incc.gov.uk/default.aspx?page=7507> [Accessed on 23/10/2019]

- Common tern *Sterna hirundo*, at least 1.8% of the GB population

The site qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

Over winter

- Red-throated diver *Gavia stellata*, at least 6.9% of the GB population
- Little gull *Hydrocoloeus minutus*, count not available
- Common scoter *Melanitta nigra*, at least 10.3% of the NW Europe population

The site qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

On passage

- Redshank *Tringa tetanus*; 3,516 individuals representing at least 2% of the Eastern Atlantic wintering population (5 year peak mean, 1987-1991)

Designated as a **SPA** for its:

Non-breeding:

- Red-throated diver *Gavia stellata*
- Little gull *Larus minutus*
- Common scoter *Melanitta nigra*

Foraging areas for breeding colonies:

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

Assemblage qualification: A wetland of international importance

In the non-breeding season, the site regularly supports at least 555,597 individual waterbirds (2001/02–2002/03), including red-throated diver and common scoter.

Conservation Objectives¹⁶⁶

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.

Threats / Pressure to Site Integrity¹⁶⁷

- Fisheries: Commercial marine and estuarine
- Transportation and service corridors

¹⁶⁶ <http://publications.naturalengland.org.uk/publication/5089733892898816?cache=1571828814.29> [Accessed on 23/10/2019]

¹⁶⁷ <http://publications.naturalengland.org.uk/publication/5296526586806272> [Accessed on 23/10/2019]

- Fisheries: Recreational marine and estuarine
- Extraction: Non-living resources
- Siltation
- Water pollution

Ribble & Alt Estuaries SPA and Ramsar

Introduction

The Ribble and Alt Estuaries SPA and Ramsar is approximately 12,361ha in size, and is located in north-west England. It comprises two estuaries with the Ribble Estuary being the much larger one of the two. It forms part of a system of marine European sites along the western coastline of the UK, which provides a migratory route for non-breeding birds. There is significant movement of birds between these sites and it is therefore important to maintain this functional network of sites.

The site comprises extensive sand- and mudflats and, particularly in the Ribble Estuary, large areas of saltmarsh. There are also areas of coastal grazing marsh located behind the sea embankments. The saltmarshes, coastal grazing marshes, and intertidal sand- and mudflats all support high densities of grazing wildfowl and are used as high-tide roosts. Important populations of waterbirds occur in winter, including swans, geese, ducks and waders. The highest densities of feeding birds are on the muddier substrates of the Ribble.

The SPA is also of major importance during the spring and autumn migration periods, especially for wader populations moving along the west coast of Britain. The saltmarsh and areas of coastal grazing marsh support breeding birds during the summer, including large numbers of gulls and terns. These seabirds feed both offshore and inland, outside of the SPA site boundary. Several species, most notably pink-footed goose *Anser brachyrhynchus*, utilise feeding areas on functionally linked land.

SPA Qualifying Features¹⁶⁸

The 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:

During the breeding season

- Common tern *Sterna hirundo*, 182 pairs representing at least 1.5% of the breeding population in Great Britain (Count as at 1996)
- Ruff *Philomachus pugnax*, 1 pair representing at least 9.1% of the breeding population in Great Britain (Count as at late 1980's)

Over winter

- Bar-tailed godwit *Limosa lapponica*, 18,958 individuals representing at least 35.8% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)
- Bewick's swan *Cygnus columbianus bewickii*, 229 individuals representing at least 3.3% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)
- Golden plover *Pluvialis apricaria*, 4,277 individuals representing at least 1.7% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)
- Whooper swan *Cygnus cygnus*, 159 individuals representing at least 2.9% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

The site qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

¹⁶⁸ <http://archive.incc.gov.uk/default.aspx?page=1984> [Accessed on the 06/11/2019]

During the breeding season

- Lesser black-backed Gull *Larus fuscus*, 1,800 pairs representing at least 1.5% of the breeding Western Europe/Mediterranean/Western Africa population (Count, as at 1993)

On passage

- Ringed plover *Charadrius hiaticula*, 995 individuals representing at least 2.0% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6)
- Sanderling *Calidris alba*, 6,172 individuals representing at least 6.2% of the Eastern Atlantic/Western & Southern Africa - wintering population (3 year mean May 1993 - 1995)

Over winter

- Black-tailed godwit *Limosa limosa islandica*, 819 individuals representing at least 1.2% of the wintering Iceland - breeding population (5 year peak mean 1991/2 - 1995/6)
- Dunlin *Calidris alpina alpina*, 39,952 individuals representing at least 2.9% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1991/2 - 1995/6)
- Grey plover *Pluvialis squatarola*, 6,073 individuals representing at least 4.0% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6)
- Knot *Calidris canutus*, 57,865 individuals representing at least 16.5% of the wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)
- Oystercatcher *Haematopus ostralegus*, 16,159 individuals representing at least 1.8% of the wintering Europe & Northern/Western Africa population (5 year peak mean 1991/2 - 1995/6)
- Pink-footed goose *Anser brachyrhynchus*, 23,860 individuals representing at least 10.6% of the wintering Eastern Greenland/Iceland/UK population (5 year peak mean 1991/2 - 1995/6)
- Pintail *Anas acuta*, 3,333 individuals representing at least 5.6% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)
- Redshank *Tringa totanus*, 2,708 individuals representing at least 1.8% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6)
- Sanderling *Calidris alba*, 2,859 individuals representing at least 2.9% of the wintering Eastern Atlantic/Western & Southern Africa - wintering population (5 year peak mean 1991/2 - 1995/6)
- Shelduck *Tadorna tadorna*, 4,103 individuals representing at least 1.4% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)
- Teal *Anas crecca*, 7,641 individuals representing at least 1.9% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)
- Wigeon *Anas penelope*, 84,699 individuals representing at least 6.8% of the wintering Western Siberia/Northwestern/Northeastern Europe population (5 year peak mean 1991/2 - 1995/6)

Assemblage qualification: A wetland of international importance

The area qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 seabirds.

During the breeding season, the area regularly supports 29,236 individual seabirds including: Black-headed gull *Larus ridibundus*, lesser black-backed gull *Larus fuscus*, common tern *Sterna hirundo*.

Assemblage qualification: A wetland of international importance

The area qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.

Over winter, the area regularly supports 301,449 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Grey plover *Pluvialis squatarola*, whooper swan *Cygnus cygnus*, golden plover *Pluvialis apricaria*, bar-tailed godwit *Limosa lapponica*, pink-footed goose *Anser brachyrhynchus*, shelduck *Tadorna tadorna*, wigeon *Anas penelope*, teal *Anas crecca*, Bewick's swan *Cygnus columbianus bewickii*, oystercatcher *Haematopus ostralegus*, curlew *Numenius arquata*, knot *Calidris canutus*, sanderling *Calidris alba*, dunlin *Calidris alpina alpina*, black-tailed godwit *Limosa limosa islandica*, redshank *Tringa totanus*, cormorant *Phalacrocorax carbo*, common scoter *Melanitta nigra*, lapwing *Vanellus vanellus*, pintail *Anas acuta*.

Ramsar Qualifying Features¹⁶⁹

The Ribble & Alt Estuaries is designated as a **Ramsar** site under the following criteria:

Criterion 2:

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

Criterion 5: Assemblages of international importance

- Species with peak counts in winter: 222,038 waterfowl (5 year peak mean 1998/99-2002/03)

Criterion 6: Species / populations occurring at levels of international importance

Species regularly supported during the breeding season

- Lesser black-backed gull *Larus fuscus graellsii*, 4,108 apparently occupied nests, representing an average of 2.7% of the breeding W Europe / Mediterranean / W Africa population (Seabird 2000 Census)

Species with peak counts in spring / autumn

- Ringed plover *Charadrius hiaticula*, 3,761 individuals, representing an average of 5.1% of the Europe / Northwest Africa population (5 year peak mean 1998/9-2002/3 - spring peak)
- Grey plover *Pluvialis squatarola*, 11,021 individuals, representing an average of 4.4% of the E Atlantic / W Africa wintering population (5 year peak mean 1998/9-2002/3 - spring peak)
- Red knot *Calidris canutus islandica*, 42,692 individuals, representing an average of 9.4% of the W & Southern Africa population (5 year peak mean 1998/9-2002/3)
- Sanderling *Calidris alba*, 7,401 individuals, representing an average of 6% of the Eastern Atlantic population (5 year peak mean 1998/9- 2002/3 - spring peak)
- Dunlin *Calidris alpina alpina*, 38,196 individuals, representing an average of 2.8% of the W Siberia / W Europe population (5 year peak mean 1998/9-2002/3 - spring peak)
- Black-tailed godwit *Limosa limosa islandica*, 3,323 individuals, representing an average of 9.4% of the Iceland / W Europe population (5 year peak mean 1998/9-2002/3)
- Common redshank *Tringa totanus totanus*, 4,465 individuals, representing an average of 1.7% of the population (5 year peak mean 1998/9-2002/3)
- Lesser black-backed gull *Larus fuscus graellsii*, 1,747 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 *Cygnus columbianus bewickii*, 230 individuals, representing an average of 2.8% of the NW Europe population (5 year peak mean 1998/9- 2002/3)
- Whooper swan *Cygnus cygnus*, Iceland/UK/Ireland 211 individuals, representing an average of 1% of the Iceland / UK / Ireland population (5 year peak mean 1998/9- 2002/3)

¹⁶⁹ <https://jncc.gov.uk/incc-assets/RIS/UK11057.pdf> [Accessed on the 06/11/2019]

- Pink-footed goose *Anser brachyrhynchus*, 6,552 individuals, representing an average of 2.7% of the Greenland / Iceland / UK population (5 year peak mean 1998/9-2002/3)
- Common shelduck *Tadorna tadorna*, 2,944 individuals, representing an average of 3.7% of the NW Europe population (5 year peak mean 1998/9-2002/3)
- Eurasian wigeon *Anas penelope*, 69,841 individuals, representing an average of 4.6% of the NW Europe population (5 year peak mean 1998/9-2002/3)
- Eurasian teal *Anas crecca*, 5,107 individuals, representing an average of 1.2% of the NW Europe population (5 year peak mean 1998/9-2002/3)
- Northern pintail *Anas acuta*, 1,497 individuals, representing an average of 2.4% of the NW Europe population (5 year peak mean 1998/9-2002/3)
- Eurasian oystercatcher *Haematopus ostralegus ostralegus*, 18,926 individuals, representing an average of 1.8% of the Europe & NW wintering Europe population (5 year peak mean 1998/9-2002/3)
- Bar-tailed godwit *Limosa lapponica lapponica*, 13,935 individuals, representing an average of 11.6% of the W Palearctic population (5 year peak mean 1998/9-2002/3)

SPA Conservation Objectives¹⁷⁰

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.

Threats / Pressure to Site Integrity¹⁷¹

The following threats and pressures to the site integrity of the Ribble and Alt Estuaries SPA and Ramsar have been identified in Natural England's Site Improvement Plan:

- Coastal squeeze
- Air pollution: Risk of atmospheric nitrogen deposition
- Inappropriate scrub control
- Invasive species
- Hydrological changes
- Public access / disturbance
- Inappropriate coastal management
- Fisheries: Commercial marine and estuarine
- Change to site conditions
- Inappropriate coastal management

¹⁷⁰ <http://publications.naturalengland.org.uk/publication/4868920422957056> [Accessed on the 06/11/2019]

¹⁷¹ <http://publications.naturalengland.org.uk/publication/6274126599684096> [Accessed on the 06/11/2019]

- Shooting / scaring
- Invasive species

Sefton Coast SAC

Introduction

The Sefton Coast SAC is approx. 4,592ha in size and comprises tidal rivers and estuaries (50%), coastal sand dunes and beaches (30%), heath and scrub (10%) and coniferous woodland (10%). The SAC is a large sand dune system, stretching from Southport in the north to Crosby in the south. Both rapid erosion and active shifting dunes are present within the site. In the mobile dunes, marram *Ammophila arenaria* is dominant. Where rates of sand deposition are lower, lyme grass *Leymus arenarius*, sea-holly *Eryngium maritimum* and cat's-ear *Hypochaeris radicata* occur. The dunes around Formby Point have been eroding since 1906, which has significantly reduced shifting dunes in this area.

There are also extensive dune slacks, where creeping willow *Salix repens* is dominant. 99ha (43%) of the total English dune slack resource dominated by creeping willow is found here. Creeping willow is also prominent in free-draining grassland. Despite nearby urban and recreational development, these successional processes are active and well conserved. A large population of great-crested newts *Triturus cristatus* lives in pools among the fixed dunes. Furthermore, petalwort *Petalophyllum ralfsii* is abundant, especially on footpaths with a light trampling damage.

Much of the SAC has public access, including to the Ainsdale Sand Dunes and Cabin Hill National Nature Reserves, and the Ainsdale and Birkdale Sandhills Local Nature Reserves. Furthermore, there are five golf courses and a military camp within the SAC. This accessibility and the proximity to the Merseyside conurbation means that there is significant recreational usage and a risk of recreational disturbance. Disturbance of wildlife and habitats by dog walkers is a particularly significant issue for the site.

Qualifying Features¹⁷²

Annex I habitats that are a primary reason for selection of this site:

- Embryonic shifting dunes
- Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")
- Fixed coastal dunes with herbaceous vegetation ("grey dunes")
- Dunes with *Salix repens* spp. *argentea* (*Salicion arenariae*)
- Humid dunes slacks

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Atlantic decalcified fixed dunes (*Calluno-Ulicetea*)

Annex II species that are a primary reason for selection of this site

- Petalwort *Petalophyllum ralfsii*

Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Great-crested newt *Triturus cristatus*

Conservation Objectives¹⁷³

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;

¹⁷² <https://sac.incc.gov.uk/site/UK0013076> [Accessed on the 06/11/2019]

¹⁷³ <http://publications.naturalengland.org.uk/publication/6588974160150528> [Accessed on the 06/11/2019]

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.

Threats / Pressures to Site Integrity

The following threats and pressures to the site integrity of the Sefton Coast SAC have been identified in Natural England's Site Improvement Plan:

- Coastal squeeze
- Air pollution: Risk of atmospheric nitrogen deposition
- Inappropriate scrub control
- Invasive species
- Hydrological changes
- Public access / disturbance
- Inappropriate coastal management
- Fisheries: Commercial marine and estuarine
- Change to site conditions
- Inappropriate coastal management
- Shooting / scaring
- Invasive species

River Dee & Bala Lake SAC

Introduction

The source of the River Dee lies in upland Wales (Snowdonia) and includes the tributaries of Ceiriog, Meloch, Tryweryn and Mynach. The SAC's catchment is very broad, including high mountains around Bala, steep woodland valleys and countryside plains. The tidal influence extends up to Farndon with high tides regularly exceeding the Chester weir crest level.

Its aquatic plant community includes Wirtgen's water-crowfoot *Ranunculus x bacchii* and pond water-crowfoot *R. peltatus*. The water crowfoot forms extensive beds along the entire length of the River, where flow conditions are suitable.

The Dee is one of the most important waterbodies in northern Wales for Atlantic salmon, with the Mynach, Meloch and Ceiriog tributaries being the most significant spawning grounds. Other anadromous fish using the River Dee include river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus*. Non-migratory fish include bullhead *Cottus gobio* and brook lamprey *Lampetra planeri*.

Two SSSIs underpin the SAC divided by national boundaries, which are the Afon Dyfrdwy (River Dee) SSSI and the River Dee SSSI.

Qualifying Features¹⁷⁴

Annex I habitats that are a primary reason for selection of this site:

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation

Annex II species that are a primary reason for selection of this site

- Atlantic salmon *Salmo salar*
- Floating water-plantain *Luronium natans*

Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Sea lamprey *Petromyzon marinus*
- Brook lamprey *Lampetra planeri*
- River lamprey *Lampetra fluviatilis*
- Bullhead *Cottus gobio*
- Otter *Lutra lutra*

Conservation Objectives¹⁷⁵

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.

Threats / Pressures to Site Integrity¹⁷⁶

There is no Site Improvement Plan for the River Dee and Bala Lake SAC. The following issues have been derived from Natural Resources Wales' Core Management Plan:

- Sedimentation
- Water quality
- Fishing: Recreational
- Public access / disturbance
- Bankside habitat management
- Dredging

¹⁷⁴ <https://sac.incc.gov.uk/site/UK0030252> [Accessed on the 06/11/2019]

¹⁷⁵ <http://publications.naturalengland.org.uk/publication/4660149109129216> [Accessed on the 06/11/2019]

¹⁷⁶ https://naturalresources.wales/media/673374/River_De_Bala_Lake_32_Plan.pdf [Accessed on the 06/11/2019]

- Invasive species
- Habitat connectivity

Halkyn Mountain SAC

Introduction

The Halkyn Mountain SAC is approx. 604ha in size and comprises a variety of habitats, such as heath and scrub (42%), dry grassland and steppes (28.1%), improved grassland (21.7%), and mines and industrial sites (2.6%).

Most of the site is located in north-eastern Wales, 4km north-west of Mold in Flintshire. It mostly comprises common land that is situated on an elongated plateau of Lower Carboniferous Limestone. The SAC contains many former mineral workings, such as metalliferous mine spoil tips and limestone quarries. Two small outlying component sites near the town of Holywell support calaminarian grassland over old lead workings.

The Halkyn Mountain SAC supports a mosaic of calcareous grassland, bracken and dry heath with heavy metal tolerant vegetation, which occurs locally. Areas with impeded drainage comprise rush pasture, wet heath, marshy grassland and fen communities. The various pools and pits in disused quarries support one of the largest known great-crested newt populations in Wales.

Qualifying Features¹⁷⁷

Annex I habitats that are a primary reason for selection of this site:

- Calaminarian grasslands of the *Violetalia calaminariae*

Annex II species present as a qualifying feature, but not a primary reason for site selection:

- European dry heaths
- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*; important orchid sites)
- *Molinia* meadows on calcareous, peaty or clayey-silt laden soils (*Molinion caeruleae*)

Annex II species that are a primary reason for selection of this site

- Great-crested newt *Triturus cristatus*

Conservation Objectives¹⁷⁸

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- 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
- The conservation status of its typical species is favourable.

The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' when:

- population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and

¹⁷⁷ <https://sac.incc.gov.uk/site/UK0030163> [Accessed on the 06/11/2019]

¹⁷⁸ https://naturalresources.wales/media/672548/Halkyn%20SAC%20Plan%20Eng_.pdf [Accessed on the 06/11/2019]

- 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.

Threats / Pressure to Site Integrity¹⁷⁹

There is no Site Improvement Plan for the Halkyn Mountain SAC. The following issues have been derived from Natural Resources Wales' Core Management Plan:

- Appropriate grazing management
- Public access / disturbance
- Nutrient enrichment
- Hydrology
- Water quality

Deeside and Buckley Newt Sites SAC

Introduction

The Deeside and Buckley Newt Sites SAC is a composite site on the coastal slopes of Flintshire, overlooking the Dee Estuary. Waterbodies traversing the site support one of the largest breeding populations of great-crested newts in Great Britain, one of the strongholds of this species in Western Europe.

However, newt habitat is under continuing threat due to agricultural intensification, pond senescence and urban expansion. Other amphibian species that are supported within the site are smooth newt *Triturus vulgaris*, palmate newt *T. helveticus*, common frog *Rana temporaria* and common toad *Bufo bufo*.

Qualifying Features¹⁸⁰

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

Annex II species that are a primary reason for selection of this site:

- Great crested newt *Triturus cristatus*

Conservation Objectives¹⁸¹

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- 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

¹⁷⁹ https://naturalresources.wales/media/672548/Halkyn%20SAC%20Plan%20Eng_.pdf [Accessed on the 06/11/2019]

¹⁸⁰ <https://sac.incc.gov.uk/site/UK0030132> [Accessed on the 06/11/2019]

¹⁸¹ https://naturalresources.wales/media/671740/Deeside_and_Buckley_WES32_Plan_English.pdf [Accessed on the 06/11/2019]

- The conservation status of its typical species is favourable. The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations.

The conservation status will be taken as 'favourable' when:

- population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- 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.

Threats / Pressures to Site Integrity¹⁸²

There is no Site Improvement Plan for the Deeside and Buckley Newt Sites SAC. The following issues have been derived from Natural Resources Wales' Core Management Plan:

- Water quality
- Woodland and scrub management
- Grassland management
- Invasive species
- Recreational pressure

River Eden SAC

Introduction

The River Eden SAC is a floristically rich river flowing over sandstone and hard limestone. The SAC has a large hydrological catchment, which include headwaters from the Yorkshire Dales, the North Pennines, the eastern fells of the Lake District and Ullswater Lake. The streams contributing to the SAC that derive from limestone are calcareous, while others are more acidic. Overall, the nutrient loading increases towards the mouth of the river.

Owing to its variations in geology and flow, the SAC has a high number of aquatic plant species with over 180 recorded species. The site supports natural riparian habitats of wet woodland and swamp. Regarding animal species, the River Eden is one of the most important locations for Atlantic salmon, bullhead and lamprey in the UK. It also supports an significant population of white-clawed crayfish.

Qualifying Features¹⁸³

Annex I habitats that are a primary reason for selection of this site:

- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and / or the *Isoeto-Nanojuncetea*
- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)

Annex II species that are a primary reason for selection of this site

- White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*

¹⁸² https://naturalresources.wales/media/671740/Deeside_and_Buckley_WES32_Plan_English.pdf [Accessed on the 06/11/2019]

¹⁸³ <https://sac.incc.gov.uk/site/UK0012643> [Accessed on the 06/11/2019]

- Sea lamprey *Petromyzon marinus*
- Brook lamprey *Lampetra planeri*
- River lamprey *Lampetra fluviatilis*
- Atlantic salmon *Salmo salar*
- Bullhead *Cottus gobio*
- Otter *Lutra lutra*

Conservation Objectives¹⁸⁴

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.

Threats / Pressure to Site Integrity¹⁸⁵

The following threats and pressures to the site integrity of the River Eden SAC have been identified in Natural England's Site Improvement Plan:

- Water pollution
- Agricultural management practices
- Physical modification
- Invasive species
- Changes in species distributions
- Forestry and woodland management
- Hydrological changes
- Disease
- Air pollution: Risk of atmospheric nitrogen deposition

¹⁸⁴ <http://publications.naturalengland.org.uk/publication/5935614042046464> [Accessed on the 06/11/2019]

¹⁸⁵ <http://publications.naturalengland.org.uk/publication/5920746052255744> [Accessed on the 06/11/2019]

Appendix C ToLSE of Wirral's Preferred Approaches

Appendix 5: This table presents a ToLSE of the Strategic Growth Options and Preferred Approaches underpinning Wirral's Issues and Options Document. Where text has been coloured green in the 'Test of Likely Significant Effect' column, this indicates that the plan's wording does not contain potential impact pathways linking to European sites and therefore has been screened out from further consideration. Where text has been coloured orange in the 'Test of Likely Significant Effect' column, this indicates that the plan's text provides for potential impact pathways linking to European designated sites and has been screened in for Appropriate Assessment.

Chapter / Name	Text	Test of Likely Significant Effect
4.2 Option 1A: Urban Intensification	<p>The option for Urban Intensification plans for all the Borough's development needs to be met within the existing urban areas, by developing urban sites and by increasing densities across all the settlements in Wirral in accordance with our approach to density set out in Section Error! Reference source not found. It also seeks to accelerate delivery, as far as the Council is able, through joint working arrangements with our investment and funding partners.</p> <p>This is the Council's preferred approach, seeking to prioritise developing brownfield land ahead of any Green Belt release, in line with the National Planning Policy Framework, paragraph 137.</p>	<p>Likely Significant Effects on European sites cannot be excluded.</p> <p>This text identifies that Wirral Council primarily intends to deliver growth in the 2020-2035 Plan period within existing urban areas. This would mean that development would be restricted to brownfield sites, while protecting Green Belt land. While this is preferable to the other strategic growth options, Likely Significant Effects cannot be excluded, because this option still provides for development within Wirral.</p>
Option 1B Urban Intensification with Stepped approach	<p>If it can be established that there is enough suitable, available and achievable capacity to meet all of the Borough's future development needs within the existing urban area but that it would not be possible to deliver sufficient homes for the first five years, the Local Plan may be allowed to follow a 'stepped approach'. This would mean the same amount of housing and employment would be delivered in the plan period, but with a lower proportion in the first five years.</p>	<p>Potential impact pathways are present:</p> <ul style="list-style-type: none"> • Recreational pressure (both in SPAs and Ramsars, and functionally linked habitat) • Loss of functionally linked habitat • Water quality • Water resources • Atmospheric pollution

		<ul style="list-style-type: none"> Noise and visual disturbance from urbanization (e.g. construction, light pollution) <p>Due to these potential linking impact pathways, the option is screened in for Appropriate Assessment.</p>
<p>4.4 Option 2A: Dispersed Green Belt Release</p>	<p>This option proposes the release of a series of small to medium sized areas of land, which when added together would allow sufficient land to be allocated to meet any residual housing needs within the Plan period.</p> <p>This option spreads development across the Borough, thereby spreading the impacts of new development on existing infrastructure and ensuring that single settlements are not impacted disproportionately. The final number of sites required will depend on the scale of the residual need which has not been able to be met within the urban area.</p>	<p>Likely Significant Effects on European sites cannot be excluded.</p> <p>This text identifies that Wirral Council considers the delivery of growth in the form of dispersed Green Belt release. This growth option would release several small- to medium-sized Green Belt parcels to meet any residual housing need in Wirral. As identified in the main body of text, Option 2A is likely to be the growth option with the highest potential for the loss of functionally linked land. In addition, further impact pathways also need to be considered.</p> <p>Potential impact pathways are present:</p> <ul style="list-style-type: none"> Recreational pressure (both in SPAs and Ramsars, and functionally linked habitat) Loss of functionally linked habitat Water quality Water resources Atmospheric pollution Noise and visual disturbance from urbanization (e.g. construction, light pollution)

		<p>Due to these potential linking impact pathways, the option is screened in for Appropriate Assessment.</p>
<p>4.5 Option 2B: Single Urban Extension</p>	<p>The alternative option to dispersed release is to focus development more strategically into a single larger area around an existing settlement. This option still relies on the weakly performing Green Belt areas but groups these together to identify a larger area for urban expansion. The most suitable location would be on land west of Barnston Road, Heswall.</p>	<p>Likely Significant Effects on European sites cannot be excluded.</p> <p>This option identifies that the Council could focus development strategically into a large area of Green Belt land surrounding an existing settlement. While this could still result in the loss of functionally linked land, the main body of text identifies that a single urban extension site would potentially facilitate the provision of on-site mitigation measures (compared to the release of a network of smaller Green Belt sites under Option 2A). Similar to the other strategic growth options there is a potential for LSEs from other impact pathways.</p> <p>Potential impact pathways are present:</p> <ul style="list-style-type: none"> • Recreational pressure (both in SPAs and Ramsars, and functionally linked habitat) • Loss of functionally linked habitat • Water quality • Water resources • Atmospheric pollution • Noise and visual disturbance from urbanization (e.g. construction, light pollution) <p>Due to these potential linking impact pathways, the option is screened in for Appropriate Assessment.</p>

<p>2.4 Settlement Hierarchy – Our Preferred Approach</p>	<p>Our preferred option is to use the settlement hierarchy set out in Error! Reference source not found., to form the overarching basis of future planning policy. This will:</p> <ul style="list-style-type: none"> • encourage increased development and public and private sector investment within the ‘Urban Conurbation’ as the first priority of the Local Plan before the provision of supporting development; and, • meet locally identified needs, within the remaining surrounding urban settlements, large and small villages and then the single hamlet. <p>This focused priority will cover all development types including retailing and the provision of public services and will guide the Local Plan’s approach to site selection and the prioritisation of investment.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text identifies the settlement hierarchy within Wirral, including urban conurbations (e.g. Birkenhead, Bebington), urban settlements, large villages, small villages and hamlets. Importantly, this approach identifies urban conurbations as the main focus of further development, which reduces the potential for loss of functionally linked habitat (see Appropriate Assessment section).</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>2.9 Delivering Growth Through Regeneration – Our Preferred Approach</p>	<p>The Birkenhead Regeneration Framework (BRF) will provide the overall strategy for the regeneration of the Birkenhead Area and set the spatial and infrastructure context for the delivery of strategic development and investment at:</p> <ul style="list-style-type: none"> • Wirral Waters; • Hind Street; and • Birkenhead Town Centre, including the Central Business District; and • Woodside <p>Through the BRF and other detailed work relating to strategic sites the Council will seek to maximise the development capacity and where feasible the accelerated delivery of strategic sites to be set out in the draft final Local Plan as explained in Appendix 2.1.</p> <p>The BRF will explore the concepts of a ‘Left Bank- Regeneration Zone’ and a ‘Birkenhead Urban Garden City’ and set out the Council’s overall Regeneration Strategy for Birkenhead.</p> <p>Masterplans will be prepared for New Brighton and Liscard which will inform the Council’s wider Regeneration Strategy for the Borough to be included in the draft final Local Plan.</p>	<p>Likely Significant Effects on European sites cannot be excluded.</p> <p>This text identifies that growth in the 2020-2035 Plan period will be delivered through regeneration, most notably in the Wirral Waters development and Birkenhead Town Centre. While it does not propose for a quantum of development, the preferred approach clearly identifies that the development capacity in these strategic sites will be maximized.</p> <p>Potential impact pathways are present:</p> <ul style="list-style-type: none"> • Recreational pressure (both in SPAs and Ramsars, and functionally linked habitat • Loss of functionally linked habitat

	<p>The Council will work with our strategic partners: the Government, Homes England and the Combined Authority to make available sufficient resources to deliver a comprehensive regeneration strategy for Birkenhead to facilitate the delivery of strategic sites and realise the potential of Broad Locations for Growth.</p> <p>The Council will work with our strategic partners to establish an appropriate Regeneration delivery model for the scale of regeneration required.</p>	<ul style="list-style-type: none"> • Water quality • Water resources • Atmospheric pollution • Noise and visual disturbance from urbanization (e.g. construction, light pollution) <p>Due to these potential linking impact pathways, the text is screened in for Appropriate Assessment.</p>
<p>5.2 Our Homes - Our Preferred Approach</p>	<p>Our preferred approach will be to seek to deliver an appropriate mix of dwelling size and type across the Borough through a Local Plan policy and/or specific site allocations for new housing based on the following dwelling mix:</p> <p>1-bedroom (8%) 2-bedroom (32%) 3-bedroom (41%) four or more-bedroom 19%</p> <p>60% houses 22% flats 18% bungalows (or level-access accommodation)</p> <p>The implementation of any policy for dwelling type and mix will need to be assessed and agreed on a case by case basis, based on location, site characteristics and development viability and applicants particularly on larger, more viable sites will need to show why they cannot meet these proportions, if they propose to vary from them.</p> <p>The policy will be subject to high-level viability appraisal before being included in the final draft Local Plan and will be secured through site allocations and through conditions and obligations attached to planning permissions.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text details the dwelling type and mix to be delivered across the Borough, such as the relative proportion of 1-bedroom, 2-bedroom and 3-bedroom flats / houses. However, it does not provide an actual quantum of housing.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>

<p>5.3 Affordable Housing Need – Our Preferred Approach</p>	<p>Our preferred approach will be to seek to achieve up to 30% affordable housing¹⁸⁶ on all schemes of 10 or more dwellings¹⁸⁷, with the following dwelling mix, on a 60% rented and 40% intermediate basis, unless a high-level viability assessment shows that this would not be viable within a certain type of location or development¹⁸⁸:</p> <ul style="list-style-type: none"> • 17% of new affordable dwellings should have one-bedroom; • 47% of new affordable dwellings should have two-bedrooms; • 30% of new affordable dwellings should have three-bedrooms; and • 6% of new affordable dwellings should have four or more-bedrooms. <p>Our preferred approach will be to accommodate this requirement as part of the scheme to be developed on each site but in some cases a commuted sum, equivalent to the cost of providing the same affordable requirement off-site, may be appropriate, secured through a legal agreement attached to the planning permission for the development proposed.</p> <p>The policy will be subject to high-level viability appraisal before being included in the draft final Local Plan and will be secured through site allocations and through conditions and obligations attached to planning permissions.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text sets the targets for affordable housing and the specifications to which this will be delivered (i.e. how many bedrooms such development will have). However, the text does not provide an actual quantum of housing.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>5.4 The needs of other groups – Our Preferred Approach</p>	<p>Based on the evidence of need set out in the Draft Strategic Housing Market Assessment 2019, our Preferred Approach is:</p> <ul style="list-style-type: none"> • To continue to encourage the provision of specialist housing for older people on appropriate sites with easy access to local services; and • To include a policy in the Local Plan to require that all schemes of 10 or more dwellings make suitable provision for M4(3) wheelchair user and M4(2) accessible and adaptable dwellings. 	<p>There are no LSEs of this text on European sites.</p> <p>This text considers the needs of other resident groups, such as older people and wheelchair users. The text does not provide for any housing or employment developments that are associated with impact pathways.</p>

¹⁸⁶ NPPF paragraph 64 states that where major development involving the provision of housing is proposed, planning policies and decisions should expect at least 10% of the homes to be available for affordable home ownership as part of the overall affordable housing contribution from the site unless this would significantly prejudice the ability to meet the identified affordable housing needs of specific groups.

¹⁸⁷ NPPF paragraph 63 states that provision of affordable housing should not be sought for residential developments that are not major developments, other than in designated rural areas and that to support the re-use of brownfield land, where vacant buildings are being reused or redeveloped, any affordable housing contribution should be reduced by a proportionate amount equivalent to the existing gross floorspace of the existing buildings.

¹⁸⁸ NPPF paragraph 57 states that it will be up to the applicant to demonstrate whether particular circumstances justify the need for a viability assessment at the application stage

	<p>The policy will be subject to high-level viability appraisal before being included in the draft Final Local Plan and will be secured through site allocations and through conditions and obligations attached to planning permissions.</p>	<p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>5.5 Empty Properties - Our Preferred Approach</p>	<p>Our preferred approach is to include an allowance for the return of long term empty homes as part of the future housing land supply, which will allow for the tapered delivery set out under Option 2 above, equivalent to 1,350 additional homes over the Plan period.</p> <p>Our preferred approach will also include a positive policy framework by including a Local Plan policy which will say:</p> <p>“The Council will support proposals for bringing suitable empty homes and buildings back into residential use. Where changes require planning permission, the Council will work proactively with applicants to progress applications, to ensure that any changes proposed meet the requirements of any other relevant Local Plan policies.”</p>	<p>Likely Significant Effects on European sites cannot be excluded.</p> <p>This text identifies that empty homes will deliver part of the residential growth in Wirral during the Plan period of 2020-2035, equivalent to 1,350 homes. While this is partly positive – for example brownfield sites rarely constitute functionally linked habitat – this text still provides for a population growth in Wirral.</p> <p>Potential impact pathways are present:</p> <ul style="list-style-type: none"> • Recreational pressure • Water quality • Atmospheric pollution • Noise and visual disturbance from urbanization (e.g. construction, light pollution) <p>Due to these potential linking impact pathways, the text is screened in for Appropriate Assessment.</p>
<p>5.6 Gypsies, Travellers and Travelling Show People - Our Preferred Approach</p>	<p>Based on the findings of the Wirral Local Plan Gypsy and Traveller Accommodation Assessment 2019, our preferred approach is to include a criteria-based policy in the Local Plan similar to the policy already consulted upon as part of the preparation of the previous Core Strategy Local Plan, which was published in December 2012 and modified in December 2014¹⁸⁹.</p>	<p>Likely Significant Effects on European sites cannot be excluded.</p> <p>This text highlights that the needs of gypsies, travelers and travelling show people will be considered in the Plan period of 2020-2035. Depending on where such plots will be</p>

¹⁸⁹ Policy CS24 – Gypsies and Travellers, which can be viewed at <https://www.wirral.gov.uk/planning-and-building/local-plans-and-planning-policy/local-plans/core-strategy-local-plan/further> refers

	<p>The needs of households who no longer meet the planning definition will be addressed as part of general housing need and through separate Local Plan Policies for housing.</p>	<p>delivered, there is a potential for negative effects on European sites.</p> <p>Potential impact pathways are present:</p> <ul style="list-style-type: none"> • Recreational pressure • Loss of functionally linked habitat • Water quality • Atmospheric pollution • Noise and visual disturbance from urbanization (e.g. construction, light pollution) <p>Due to these potential linking impact pathways, the text is screened in for Appropriate Assessment.</p>
<p>5.8 Houses in Multiple Occupation - Our Preferred Approach</p>	<p>The Council wants to support the provision of housing in multiple occupation in well-designed premises that can achieve safe and healthy living conditions with a high standard of amenity for future occupiers where unacceptable impacts on the neighbour's amenity and the character of the area would be avoided.</p> <p>Our approach is to include a criteria-based policy in the Local Plan as set out in Appendix 5.1. The policy sets out minimum room sizes and the basic amenities that should be provided.</p> <p>It also includes similar criteria to Policy HS14 in the current Unitary Development Plan, to protect the character and amenity of the area.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text supports the provision of housing in multiple occupation in well designed premises. The text does not provide for any housing or employment developments that are associated with impact pathways.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>6.2 Provisions for Future Employment Growth – Our Preferred Approach</p>	<p>The council will seek to allocate a minimum of 80ha of employment land with employment growth and economic revitalisation focusing on the key employment areas at Birkenhead, Bromborough and Port Wirral. Development will be supported in these locations whereby:</p> <ul style="list-style-type: none"> • The employment space caters for small and medium sized enterprises for B1 and B2 uses; or 	<p>Likely Significant Effects on European sites cannot be excluded.</p> <p>The Preferred Approach provides for 80ha of employment land in strategic areas, including Birkenhead, Bromborough and Port Wirral during the Plan period of 2020-2035.</p>

	<ul style="list-style-type: none"> • Significant B1 office development is directed towards existing centres and then to existing employment areas and other locations with easy access to high-frequency public transport corridors. <p>The proposed release of some employment sites in the Bromborough area for residential development will be balanced out by the inclusion of sites in Wirral Waters as part of the employment land supply for allocation in the Local Plan.</p> <p>Alternative Approach</p> <p>The council will allocate 80ha of employment land within defined employment zones in urban and Green Belt sustainable locations across the borough, with a focus on locations around transport hubs and primary road networks, to maximise accessibility, to support local economic need and expansion of existing businesses.</p>	<p>The Alternative Approach allocates the 80ha of employment land in sustainable locations in urban areas and within the Green Belt. Both of the approaches would be associated with impact pathways.</p> <p>Potential impact pathways are present:</p> <ul style="list-style-type: none"> • Loss of functionally linked habitat • Water quality • Atmospheric pollution • Noise and visual disturbance from urbanization (e.g. construction, light pollution) <p>Due to these potential linking impact pathways, the text is screened in for Appropriate Assessment.</p>
<p>6.2.1 Protection of Existing Employment Areas - Our Preferred Approach</p>	<p>The council will seek to protect all sites currently in use, or allocated, for employment and resist development change of use to ensure continuation of employment uses for those sites. The council will specifically seek to protect employment land on:</p> <ul style="list-style-type: none"> • land used, or allocated, in strategic employment areas; • land where there is market demand for employment uses; and • land allocated for employment in rural areas which meets local needs. <p>The council will only consider reallocating employment sites for other uses where it is demonstrated that there is no reasonable prospect of the site being utilised for employment uses and it is demonstrated that demand for employment land can be met in more sustainable locations.</p> <p>Alternative Approach</p> <p>The council will not take forward a policy to protect existing employment land and will let the market determine future use, taking account of tests for sustainable development.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text protects the existing employment land (both currently in use and allocated) in Wirral. This is a positive approach as existing employment land is already developed and its protection means that fewer greenfield sites will need to be developed.</p> <p>Existing employment land already contributes to impact pathways (e.g. water quality, atmospheric pollution) and would have already been assessed in a previous HRA.</p>

		<p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>6.3 Town Centres and Retail – Our Preferred Approach</p>	<p>Our preferred approach is to focus on promoting the vitality and viability of the hierarchy of centres within newly defined town centre boundaries that will best meet the limited need for retail development, and to carefully consider the potential role of East Float in the future. Primary shopping areas will be defined in accordance with the National Planning Policy Framework (NPPF) requirements. We will identify local thresholds for impact assessment where necessary.</p> <p>We propose developing policy to best accommodate and encourage flexible uses in addition to retail that will complement their roles as town centres to maximise their vitality and viability. This will include residential development as well as the NPPF defined town centre uses.</p> <p>Allocate a suitable range of sites within the defined town centre boundaries to meet defined need over the first ten years of the plan.</p>	<p>There are no LSEs of this text on European sites.</p> <p>The Preferred Approach is to focus on the vitality and viability of the hierarchy of centres within newly defined town centre boundaries. The text further identifies that primary shopping areas will be defined in accordance with the NPPF. However, the text does not in itself provide for a quantum of residential or employment development.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>6.4 Tourism – Our Preferred Approach</p>	<p>A growth in sustainable tourism will be focused on the quality of the Borough's natural environment; built heritage; country parks; and coastline, with appropriate visitor facilities at Birkenhead, New Brighton, Leasowe, Hoylake, West Kirby, Thurstaston and along the Mersey coast, managed to avoid harm to European Sites and their supporting habitat.</p> <p>Tourism investment will be targeted to support regeneration in Birkenhead; provide improvements within the coastal resorts of New Brighton, Hoylake and West Kirby and along the Mersey coastline (supported by the preparation of masterplans where appropriate); and to improve public access to the coast and countryside subject to the protection of European Sites and their supporting habitats.</p>	<p>Likely Significant Effects on European sites cannot be excluded.</p> <p>This text provides for a sustainable growth in tourism opportunities in Wirral's natural environment, including areas such as Hoylake, West Kirby, Thurstaston and the Mersey coast. The text also acknowledges the need for protecting the European sites and their supporting habitats. Nevertheless, there would be the potential for LSEs on European sites.</p> <p>The potential impact pathways for an increase in tourism are:</p> <ul style="list-style-type: none"> • Recreational pressure • Loss of functionally linked habitat

		<ul style="list-style-type: none"> • Water quality • Atmospheric pollution • Noise and visual disturbance from urbanization (e.g. construction, light pollution) <p>Due to these potential linking impact pathways, the text is screened in for Appropriate Assessment.</p>
<p>7.1 Infrastructure Planning – Our Preferred Approach</p>	<p>The Council will produce an Infrastructure Delivery Plan (IDP) to provide the evidence that the Local Plan is deliverable in infrastructure terms. It will identify the costs of necessary infrastructure to support development and how these costs can be met including recommendations on the contribution through planning obligations or a Community Infrastructure Levy towards critical, essential or desirable infrastructure that can be borne by developers through viability assessment.</p> <p>The Council proposes to develop the Infrastructure Delivery Plan in two stages:</p> <p>Stage 1: The production of an IDP Evidence Base Report for the Borough documenting the physical, social and environmental infrastructure and a schedule of planned infrastructure that may be needed for the proposed options over the next Local Plan period; and</p> <p>Stage 2: Identification of the infrastructure requirements, costs and funding opportunities for Local Plan site allocations and planned development (once known).</p> <p>Further stakeholder engagement including liaison with site promoters will be undertaken to assess potential site allocation infrastructure requirement, and studies to assess cumulative impact will be undertaken to produce the final IDP and IDP Schedule.</p> <p>The IDP Schedule will include the type and location of new infrastructure needed, provider, phasing, cost, funding source any funding gap. The final IDP will provide evidence to enable the Council to identify priority areas for infrastructure provision and protect sites which could be critical in developing infrastructure within the Local Plan.</p> <p>The Council will need to decide on whether funding will need to be secured through a fixed charge by way of a Community Infrastructure Levy and/or through planning obligations via individual planning applications.</p>	<p>There are no LSEs of this text on European sites.</p> <p>The text stipulates that Wirral Council will produce an Infrastructure Delivery Plan to provide evidence that the Local Plan is deliverable. This will include the physical, social and environmental infrastructure and identify any improvements that are needed to deliver the Local Plan. An IDP is positive because this would also help ensure that there are no adverse effects on European sites. For example, an IDP would assess Wirral’s wastewater treatment infrastructure, establishing its headroom to cater for new development.</p> <p>There are no impact pathways associated with this text and, specifically, the text does not provide for a quantum of residential or employment development.</p> <p>Overall, there are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>

<p>7.2 Transport – Our Preferred Approach</p>	<p>The Council is committed to using the Local Plan to support our transition to a lower carbon economy, and to supporting the Council’s Climate Change Action Plan.</p> <p>As a result, our preferred approach will be to propose new development in locations which are well supported by existing public transport provision, or where new public and active travel links can be provided to ensure that those developments can be provided with genuine modal choice which reduces reliance on the car.</p> <p>We will support and where appropriate ensure that existing public transport networks within Wirral are improved. This will ensure that existing urban areas around Wirral are provided with the most attractive possible non-car transport options. We will also support and plan for improvements to the Borough’s highway networks, both to alleviate existing congestion challenges and support new growth. These will particularly be prioritised where evidence shows that these schemes will reduce pollution and/or improve air quality in the vicinity of those locations. Electric vehicle charging infrastructure will also be expected to be provided as part of new development.</p>	<p>There are no LSEs of this text on European sites.</p> <p>The text stipulates that Wirral Council supports a low-carbon economy. It identifies that new development will be prioritized in locations with good public transport links to reduce the reliance on cars. Furthermore, the Council will work to improve the public transport network in Wirral. It is considered that a reduction in the number of car journeys would be positive for the estuarine sites that are sensitive to atmospheric pollution.</p> <p>Importantly, this text does not provide for a quantum of residential or employment development.</p> <p>Overall, there are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>7.3 Utilities – Our Preferred Approach</p>	<p>Through the Local Plan the Council will promote opportunities for reduced reliance on fossil fuels, improved water efficiency and sustainable drainage within new development to support the Council’s Climate Change Action Plan. The Council will work with partners to implement the recommendations of borough wide and Wirral Waters and Birkenhead Sustainable Energy Studies.</p> <p>Early and continued detailed discussions with utility service providers will be undertaken to identify improvements to utilities infrastructure to support sustainable growth and ensure network resilience on a site by site and cumulative basis.</p> <p>We will monitor changes to government policy and regulation changes impacting the level of energy use and advancements in technology.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text summarises Wirral’s approach to utilities, detailing a reduced reliance on fossil fuels, improving water efficiency and introducing sustainable drainage systems. It also states that utility service providers will be consulted to identify any required improvements to infrastructure, such as WwTWs. This is positive text as it will ensure that European sites are not adversely affected.</p>

		<p>Importantly, the text also does not provide for a quantum of residential or employment development.</p> <p>Overall, there are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>7.4 Communications Infrastructure – Our Preferred Approach</p>	<p>The Council considers that high quality digital infrastructure is essential infrastructure vital to the delivery of sustainable development.</p> <p>The Local Plan will seek to support the provision of high-quality digital infrastructure from a range of providers as part of new development and support the expansion of electronic communications networks.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text identifies that the Local Plan will deliver high-quality digital infrastructure, which does not have any impact pathways on European sites. The text does not provide for a quantum of residential or employment development.</p> <p>Overall, there are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>7.5 Social Infrastructure – Our Preferred Approach</p>	<p>Social infrastructure planning will be embedded into the Local Plan site selection and master planning process through early and continued engagement across council departments and service providers. New and / or improved social infrastructure will be required to support new housing development which will be addressed through detail Development Management policies (Appendix 9.1).</p> <p>The Council will identify the likely school yield for all education phases (0-19) and Special Educational Needs from development based on past trends. An assessment of the capacity within school planning area catchment to accommodate likely pupil requirement will be undertaken and the opportunity for potential school expansion or new school provision reviewed as required. Following DfE Guidance on securing contributions for education. Our approach to developer contributions will be set out within the Local Plan and requirements per site allocation will be identified within the final IDP.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text states that social infrastructure planning, including the provision of schools and sports facilities, will be included in the Local Plan. This is positive because the provision of leisure facilities helps draw people away from sensitive European sites. It is a key complimentary mitigation approach to protect sites from adverse effects.</p>

	<p>The Council will continue to work with NHS Wirral and engage Primary Care Networks to identify any increased pressure on existing services and the opportunity for potential expansion or new provision as appropriate.</p> <p>The Council will implement the recommendations of the Indoor Sports Facilities Needs Assessment and work with Wirral Growth Company to identify opportunities for new leisure centre facilities if existing sites are affected by proposals.</p>	<p>Furthermore, the text does not provide for a quantum of residential or employment development.</p> <p>Overall, there are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>8.1 Climate Change – Our Preferred Approach</p>	<p>The Council is committed to using the Local Plan to meet local climate goals and objectives where this is appropriate and, feasible.</p> <p>To inform the Local Plan the Council will complete a Climate Change and Renewable energy study in 2020. This is to advise how the Local Plan should best meet its statutory requirements and to provide guidance on how to implement appropriate elements of the Borough’s Climate strategy through the Local Plan. This will include the development of a positive strategy to promote the delivery of renewable and low carbon energy and which would incorporate requirements on housing, employment, retail, leisure and tourism development to meet higher standards of energy efficiency.</p>	<p>There are no LSEs of this text on European sites.</p> <p>The Preferred Approach stipulates that the Council is committed to meeting climate goals. To this end a Climate Change and Renewable energy study will be undertaken in 2020. The Council will also promote the delivery of renewable and low-carbon energy. Furthermore, the text does not provide for a quantum of residential or employment development.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>8.2 Green and Blue Infrastructure – Our Preferred Approach</p>	<p>Green and Blue Infrastructure Standards</p> <p>The Local Plan will set Borough-wide standards for the quantity, quality and accessibility of parks and gardens; natural and semi-natural greenspace; outdoor sports provision; amenity greenspace; provision for children and young people; and allotments.</p> <p>The Borough-wide standards will be used to protect and enhance existing provision and facilities and will identify priorities for new provision and improvements. Contributions for new or improved provision resulting from the demands of new development will be sought through developer contributions or through a Community Infrastructure Levy.</p> <p>New Development</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text provides for a comprehensive Green and Blue Infrastructure Strategy for Wirral. It stipulates that the Local Plan will set standards for the quantity, quality and accessibility of public greenspaces.</p> <p>Most importantly, it states that new developments will need to contribute towards</p>

Where appropriate, new development will be required to contribute towards the provision, protection and enhancement of green and blue infrastructure, whether on site or through developer contributions. Developers should secure multi-functional benefits to the Borough's identified green and blue network including:

- providing enough good quality, accessible public open space;
- mitigating and adapting to the impacts of climate change;
- maintaining and enhancing landscape features;
- sustainable management of surface water and drainage issues
- enhancing ecological networks;
- preserving and enhancing biodiversity and geodiversity assets;
- protecting and enhancing identified green and blue networks; and
- supporting health and wellbeing and enable sustainable patterns of development.

All development proposals and land allocations will be assessed against their contribution to:

- the standards to be set out in the Green and Blue Infrastructure Study 2020
- the priorities for the particular settlement(s) concerned;
- the delivery of the Council's overall Strategy for Green Infrastructure;
- the delivery of any other related initiatives and strategies; and
- the avoidance and mitigation of an adverse impact on internationally important wildlife.
- Tree Planting Strategy

In support of the emerging climate strategy the Council is also developing a Tree Strategy as a natural way to store carbon.

The vision for the Tree Strategy is '*In the ten-year span of this strategy we will raise woodland cover in the Borough to at least 10% to boost the benefits of trees and woodlands. We will*

both green and blue infrastructure, either on-site or through developer contributions. Such infrastructure includes publicly accessible open space, ecological networks and biodiversity. Development will be required to avoid and mitigate adverse impacts on internationally important wildlife, a key mechanism to protect Wirral's European sites. The text does not specify a location or quantum of residential and employment development.

There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.

	<p><i>seek to share these benefits across Wirral. Our planting will be based on "the right tree for the right place" building a strong legacy for our tree stock. For every tree Wirral Council are forced to fell we will net plant at least two more. We will work constructively with individuals and groups to deliver this vision'.</i></p> <p>The Local Plan is seen as a key mechanism to implement this Strategy.</p>	
<p>8.3 Open space, sport and recreation – Our Preferred Approach</p>	<p>The Council has reviewed the open spaces to be protected from development in line with national policy in paragraphs 96 and 97 of the National Planning Policy Framework. The proposed boundaries to each of these sites, which are also listed in Appendix 8.1, can be viewed on the Council's website¹⁹⁰. The sites are based on the existing designations in the previous Unitary Development Plan and on the findings of the most recent Open Space Assessment and Playing Pitch Strategy.</p> <p>The Wirral Local Plan will include revised standards for the provision of open space in line with the recommendations to be contained within the Wirral Open Space Assessment 2019, which new development will also be required to comply with.</p> <p>Policies to support the continued provision of other sports facilities will also be included in the Local Plan, in line with the findings of the Playing Pitch and Outdoor Sports Strategy 2016 and the Indoor and Built Facilities Assessment and Strategy 2019.</p> <p>The Wirral Local Plan will include revised standards for the provision of open space in line with the recommendations to be contained within the Wirral Open Space Assessment 2019, which new development will also be required to comply with.</p> <p>Policies to support the continued provision of other sports facilities will also be included in the Local Plan, in line with the findings of the Playing Pitch and Outdoor Sports Strategy 2016 and the Indoor and Built Facilities Assessment and Strategy 2019.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text sets the standard for the provision of open spaces within Wirral. Furthermore, it states that the provision of further sports facilities will be ensured through specific Local Plan policies. This is therefore considered to be positive text, because the provision of recreational infrastructure will aid in reducing recreational pressure in European sites.</p> <p>The text does not specify a location or quantum of residential and employment development.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>8.4 Local Green Space – Our Preferred Approach</p>	<p>The Council will consider designating sites nominated by local communities which meet the requirements for designation as set out in national policy and guidance</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text stipulates that the Council will consider designating sites nominated by local communities as local green spaces.</p>

¹⁹⁰ <https://www.wirral.gov.uk/planning-and-building/local-plans-and-planning-policy/local-planning-evidence-and-research-reports-3>

		<p>The text does not specify a location or quantum of residential and employment development.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>8.5 Landscape – Our Preferred Approach</p>	<p>Landscape is a fundamental part of the visual and cultural character of Wirral and its biodiversity. It is important that the Local Plan contains policies which protect and enhance Wirral’s most valuable landscapes.</p> <p>Additional Landscape Assessments</p> <p>To inform the Local Plan and complete the site selection process, additional landscape sensitivity assessments will be required for any additional areas identified through public consultation or in the Wirral Green Belt Review 2019 before the final draft Local Plan is prepared.</p> <p>A review of the Areas of Special Landscape Value (ASLV) within Wirral is also required following the introduction of the phrase ‘valued landscapes’ in paragraph 170 of the National Planning Policy Framework. This review will set out the justification for any continued or revised ASLV designations in terms of special character and qualities and where necessary, provide amendments to boundaries and / or allocate new areas, in order to provide evidence to underpin a robust set of up-to-date ASLVs.</p> <p>New Development</p> <p>The LSA provides general guidance for any potential development within each of the landscape areas assessed.</p> <p>Any new development would therefore need to take this guidance into consideration. Examples of this guidance include:</p> <ul style="list-style-type: none"> • Conserving and managing hedgerows as important wildlife habitats and landscape features. • Conserving, enhancing and managing any other valued habitats that have formed within the area. 	<p>There are no LSEs of this text on European sites.</p> <p>This text protects Wirral’s landscape and biodiversity. It states that any new development would have to conserve / manage hedgerows as important wildlife habitats, enhance network connectivity and protect public rights of way.</p> <p>The text does not specify a location or quantum of residential and employment development.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>

	<ul style="list-style-type: none"> • Conserving and reinforcing the network of native hedgerows and seeking to create a stronger landscape structure to integrate development by increasing the presence of hedgerow trees and providing additional native woodland planting. • Avoiding visually intrusive development on more elevated areas. • Protecting and enhancing public rights of way and promoting further opportunities to increase access and enjoyment of the landscape in association with any new development. <p>It is intended that appropriate policies will be included in the Local Plan, to ensure that the findings of the Landscape Character Assessment and Landscape Sensitivity Assessment are taken into account in land allocations and development management decisions.</p>	
<p>8.6 Flood Risk and Coastal Change – Our Preferred Approach</p>	<p>The Local Plan will support climate change adaptation through the management of residual risk by guiding the appropriate location, layout and design of development to take account of flood risk and coastal change and by requiring the use of effective Sustainable Drainage Systems (SuDS) and other flood risk management practices to reduce the impacts of flooding, such as safeguarding land and Natural Flood Management (NFM), as outlined in the Level1 Strategic Flood Risk Assessment 2019, without having an adverse impact on water quality.</p> <p>The Local Plan will also provide policies to support the sustainable management of surface water and the maintenance of effective flood defences, land drainage infrastructure and river corridors, and to support improvements to water quality.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text provides for flood risk management and adaptation to climate change. It stipulates that Sustainable Drainage Systems will be employed and surface water courses will be managed sustainably. Furthermore, the Local Plan will contain policies to protect river corridors and water quality.</p> <p>The text does not specify a location or quantum of residential and employment development.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>8.7 Habitats and Biodiversity – Our Preferred Approach</p>	<p>The Council will seek to protect and enhance the natural environmental assets of the Borough, including the designated biodiversity and geodiversity sites; priority habitats and species; ancient woodland; and ancient and veteran trees found outside ancient woodland; and wherever possible provide net gains in biodiversity and establish coherent ecological networks.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text provides for the explicit protection of European sites in the Liverpool City Region</p>

	<p>Internationally Important sites: Our Preferred Approach</p> <p>The Liverpool City Region (LCR) Combined Authority is proposing to prepare a sub-regional Recreation Mitigation Strategy (RMS) which will seek to address the implications of growth across the Liverpool City Region for the City Region’s wildlife sites of international importance. It will enable sustainable housing and tourism development within the City Region, whilst securing sustainable, long term protection of the internationally important wildlife sites.</p> <p>A policy setting out the Council’s approach to recreation mitigation will be included in the Local Plan. The policy will need to include a recreation mitigation and avoidance mechanism for Wirral in advance of the LCR-wide study being completed, approved and implemented. The policy is likely to require that mitigation will be required for recreational disturbance from new residential development within 5km of the coast, through the funding of a strategy which will involve a mix of access management, habitat management and provision of alternative recreational space, to be secured through a legal agreement before planning permission is granted.</p> <p>In the meantime, Wirral Council will continue to work in collaboration with the LCR Combined Authority to contribute to the delivery of a RMS to address potential damage from increased recreation and visitor pressure on the species and habitats of the designated sites within the Borough on a City Region wide basis.</p> <p>An updated Habitat Regulations Assessment for the Local Plan is currently being undertaken which will examine whether the forthcoming policy framework will be sufficient to enable the avoidance or mitigation of adverse effects on European designated sites.</p>	<p>from the adverse effects of recreational pressure. The text makes reference to the emerging Recreation Mitigation Strategy, intending to address the in-combination effects of recreational pressure. This mitigation will likely include a combination of access management, habitat management and provision of alternative greenspaces. Importantly, the Preferred Approach also refers to the present Habitat Regulations Assessment, which will ensure that the Local Plan has no adverse effects on Wirral’s European sites.</p> <p>The text does not specify a location or quantum of residential and employment development.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>8.8 Healthy Communities – Our Preferred Approach</p>	<p>Improving health will be a cross cutting theme in the final draft local plan and will be addressed in environment, design and infrastructure policies. In addition, a specific policy “Improving Health and addressing health inequalities” will be included in the Plan. This would provide details of when a Health Impact Assessment may be required to be submitted in support of certain types of development.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text outlines that a specific policy on improving health and addressing health inequalities will be included in the plan. .</p> <p>The text does not specify a location or quantum of residential and employment development.</p>

		<p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>8.9 Heritage – Our Preferred Approach</p>	<p>The Local Plan will set a positive strategy for the conservation and enjoyment of the Borough’s heritage assets through the vision, objectives, broad spatial strategy, strategic priorities for settlement areas and policies for:</p> <ul style="list-style-type: none"> • Achieving Sustainable Places; • Protection of Heritage Assets; • Each designated Conservation Area 	<p>There are no LSEs of this text on European sites.</p> <p>This text aims at the protection of the Borough’s heritage through a broad spatial strategy.</p> <p>The text does not specify a location or quantum of residential and employment development.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
<p>8.10 Minerals – Our Preferred Approach</p>	<p>It is recommended that the following topics be covered by individual policies in the emerging Local Plan;</p> <ul style="list-style-type: none"> • General criteria for minerals development • Maintaining the supply of aggregates; • Safeguarding Mineral Reserves & Infrastructure; • Use of Secondary and Recycled Aggregates; • Oil and Gas Exploration; and • Site restoration <p>Proposed draft policies are set out within the Wirral Local Plan Minerals Report 2019, for public consultation.</p>	<p>There are no LSEs of this text on European sites.</p> <p>The text identifies that the Local Plan will contain specific policies relating to the extraction, supply and safeguarding of minerals resources during the Plan period.</p> <p>The text does not specify a location or quantum of residential and employment development.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>

<p>8.11 Waste Management – Our Preferred Approach</p>	<p>Waste policy objectives for Wirral will mainly be delivered through the policies in the Joint Waste Local Plan for Merseyside and Halton, which will continue to remain in force and will not be superseded by the policies in the Wirral Local Plan and through any associated supporting policies for development management set out in the Wirral Local Plan.</p> <p>Additional guidance on the space that will be necessary to allow safe access for the on-site storage, collection and emptying of containers and on the control of litter will be included in relevant Supplementary Planning Documents.</p> <p>The Joint Waste Local Plan expires in 2027, mid-way through the Wirral Local Plan period. It is proposed that following completion of the 5th AMR 2018/19, a high-level 5-year review of the Waste Local Plan is undertaken. The review should identify areas which are sufficiently ineffective or out of date to trigger full review.</p>	<p>There are no LSEs of this text on European sites.</p> <p>This text stipulates that waste management will be primarily through the Joint Waste Local Plan for Merseyside and Halton, which is set to expire in 2027. Any additional guidance on waste management will be stipulated in Supplementary Planning Documents.</p> <p>The text does not specify a location or quantum of residential and employment development.</p> <p>There are no impact pathways present and this text can thus be screened out from Appropriate Assessment.</p>
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