

12. Terrestrial Ecology

Appendix 12.1

TERRESTRIAL ECOLOGY ECIA APPENDIX



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12.0 Biodiversity

12.1 Professional Statement

- 12.1.1 This ES Technical Appendix relating to biodiversity has been reviewed against the following aspects of the application site (and related assessments within this ES) and changes have been made to the following:
- Legislation/policy revisions: relevant policy within the draft Liverpool Local Plan have been updated, however there have been no related updates to legislation/policy that have affected either the methodology or findings of this assessment;
 - Amendments to construction methodology: revisions to dock fill methodology have been reviewed and re-assessed in relation to relevant ecological receptors;
 - The relevance and scale of the proposed development amendments (including amendments to the stadium design);
 - Addition of new cumulative schemes: 20F/0217 – proposed hotel adjacent to Bramley-Moore Dock, 17F/2628 - Northern Link Road, 18F/1419 - Southern Link Road & 19F/1745 - District Heating Network at Central Docks;
 - Revisions to air quality, lighting and noise and vibration assessments; and
 - Statutory consultee (Natural England (NE), Merseyside Environmental Advisory Service (MEAS) and Environment Agency) comments received following submission of the planning application to Liverpool City Council in December 2019 (application ref. 20F/0001).
- 12.1.2 Therefore, in accordance with the methodology outlined in Chapter 2, ES Volume II, a Level 2 update has been undertaken. Limited technical assessment has been undertaken relating to biodiversity to confirm the validity of the previous conclusions. The relevant assessment information is presented/discussed within this appendix and therefore this report has been revised to reflect these updates.
- 12.1.3 The baseline data was reviewed as part of the updates and it was confirmed that there have been no relevant changes to the baseline data, and the results of all ecological surveys completed in relation to the application site remain valid.
- 12.1.4 The sections that have been updated are detailed below:
- Section 12.4 – Planning Application consultation;
 - Section 12.6 – Planning Policy and Legislation (updates to local policy)
 - Section 12.8 - Baseline information (updated references to technical appendices) and updates to winter bird data
 - Section 12.9 – Mitigation within the submitted design (update with regard to CMP content);
 - Section 12.10 – Likely Significant Environmental Effects of the Scheme (update assessment of designated sites and ecological receptors during construction and operation phases)
 - Section 12.11 – Cumulative effects (update to include additional cumulative schemes);
 - Section 12.12 – Additional Mitigation, Compensation and Enhancement Measures

12.2 Introduction

- 12.2.1 This Ecological Impact Assessment (EcIA) assesses the likely effects on biodiversity from the proposed development at Bramley-Moore Dock (BMD), Liverpool (the application site).
- 12.2.2 The Ecological Impact Assessment (EcIA) presents the baseline ecology and nature conservation aspects of the application site, assesses the likely significant effects of the proposed development upon ecological receptors, outlines mitigation measures proposed to reduce adverse effects and promote biodiversity gains; and summarises the overall predicted ecological effects (i.e. the residual effects) of the proposed development. The assessment has been undertaken with regard to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (2018 v1.1).
- 12.2.3 The ES has been developed to support a full planning application. A detailed description of the proposed development is provided in Chapter 3 of this Environmental Statement submitted with the full planning application.
- 12.2.4 In summary, the proposed development is for a 52,888 seated capacity stadium with associated facilities and infrastructure to UEFA Category 4. To enable the proposed development, all buildings will be demolished with the exception of the Grade II listed Hydraulic Tower which will be retained. The dock waterbody is to be filled with marine-won aggregate with the Grade II listed BMD walls retained. A shallow water channel, oriented north to south, will be excavated from the infill on the western side of the dock.
- 12.2.5 The proposed stadium will be set within extensive hard landscaped areas with some soft landscaping. A new water channel is to be located to the west of the proposed stadium (excavated from the initial infill exercise) and will provide hydrological connectivity between Sandon Half-Tide Dock and Nelson Dock. This will be a non-navigable channel with isolation structures at its northern and southern ends. The isolation structure at the southern end is an existing structure. Hydrological connectivity will be achieved via a series of pipes through each structure.
- 12.2.6 This EcIA assesses the proposed development as outlined above, as this is considered likely to result in significant impacts in terms of biodiversity, in the absence of any mitigation.

12.3 Study Area

Application Site

- 12.3.1 The application site is located at Bramley-Moore Dock (BMD) in Liverpool, National Grid Reference SJ3345292491. BMD forms a small part of a larger dock and canal network along the River Mersey. The outlet to the Leeds and Liverpool canal is approximately 0.5km south of the site into Stanley Dock via Collingwood Dock.
- 12.3.2 The site is 8.67 hectares (redline boundary extent) and is bounded to the north by the United Utilities waste water treatment plant and Sandon Half Tide Dock, to the east by Regent Road, to the south by Nelson Dock and to the west by the River Mersey wall. The western boundary of the site is limited to the foot of the concrete crown wall, built on top of the River Mersey wall.
- 12.3.3 The application site is currently occupied by a two-storey structure that sits at the western end of the north wharf and a shed structure on the southern wharf. Both structures are unlisted and proposed to be demolished. The Hydraulic Engine House, which is Grade II Listed (referred to as Hydraulic Tower), is located to the northeast corner of the site and is to be retained within the proposed scheme. Temporary (to secure the structure during the construction phase) and permanent works (to make good / renovate the



structure) will be subject to separate Listed Building Consent (LBC) submissions in due course; the full planning application only seeks approval for the proposed change of use of the building to an exhibition/cultural centre.

- 12.3.4 Other small structures will be demolished as shown in the demolitions plan submitted with the application.

Study Area

- 12.3.5 The area of search for the desk study incorporates the application site plus a 2km search area around the application site.

- 12.3.6 The desk study area was extended to 10km for Natura 2000 and Ramsar sites to incorporate internationally designated sites based on pre-application consultation advice received from Natural England (NE) 29th June 2017 and Merseyside Environmental Advisory Service (MEAS) 23rd June 2017, 21st August 2019 (MEAS) and 2nd September 2019 (NE) – see Appendix 1. It should be noted that in 2017 Natural England stated in their consultation response that the following sites should be included in this assessment:

- Mersey Narrows & North Wirral Foreshore SPA & Ramsar
- Mersey Estuary SPA
- Liverpool Bay SPA
- Ribble & Alt Estuaries SPA & Ramsar
- Mersey Narrows SSSI
- North Wirral Foreshore SSSI

- 12.3.7 Advice provided by NE in 2017 indicated that Sefton Coast SAC and Dee Estuary SAC & SPA should be considered. However, this advice was revisited during a meeting with NE on 19th September 2019 and given the distance of these Natura 2000 sites from the application site it was agreed that it was unlikely that potential impact pathways would affect these designated sites since;

- Dee estuary SAC/SPA is 2.8km north-west from the development site and largely isolated from any impacts by the Wirral Peninsula
- Sefton coast SAC is 5.21km north, this site is designated for habitats which support internationally important population of great crested newt *Triturus cristatus* and petalwort *Petalophyllum ralfsii*, none of which are likely to occur within the application site or surrounding area, nor is the site considered likely to form functional habitat for these species.

- 12.3.8 It was therefore agreed with NE and MEAS that Sefton coast SAC and Dee estuary SAC/SPA could be excluded from consideration within this report.

- 12.3.9 The Extended Phase 1 habitat survey and bat surveys were undertaken within the red line of the application site only. No suitable habitat for badgers was present within 30m of the site boundary and therefore these areas were not searched. In order to determine value of areas surrounding the site for breeding and wintering birds, the survey area was extended to 400m beyond the application site for breeding, wintering and passage bird surveys.

12.4 Planning Application Consultation

- 12.4.1 In April 2020 both NE and MEAS provided comments on the submitted planning application (Liverpool CC ref. 20F/0001 – submitted December 2019). A subsequent meeting was held between WYG ecologists, NE and MEAS advisors in July 2020. The majority of comments made were in relation to the Shadow Habitats

Regulations Assessment (HRA) for this project. Their comments have been addressed where appropriate within the revised Shadow HRA (Technical Appendix 4 of this report). Where their comments on HRA also applied to other EclA receptors, these have also been addressed below in the following sections (and within chapter 12, ES Volume II):

- Revised assessment text relating to consultee comments include: effects of vessel trips while infilling BMD, effects of lighting on ecological receptors and bat mitigation measures in relation to BMCL works.
- MEAS and NE also requested further information be included in relation to the effects of shading upon sensitive ecological receptors. The effects of shading upon aquatic ecological receptors has been addressed within the aquatic ecology chapter (see Chapter 13). This states that the significance of overshadowing upon aquatic ecology receptors such as fish and shellfish as a result of this project is considered to be negligible. It is therefore considered that there would be a negligible effect upon terrestrial ecological receptors that may depend upon aquatic species (i.e. piscivorous birds). As a result, the effects of shading have been screened out of this terrestrial EclA.

- 12.4.2 On the 15th of January 2021 Natural England were consulted regarding changes to CMP which may affect water quality within Nelson Dock (directly to the south of BMD). The conclusion of this consultation was a requirement for the Shadow HRA to be updated in order to take into account the likely effects of the removal of monitoring and mitigation measures from the CMP for the application site. The revised Shadow HRA is presented in Technical Appendix 4 of this report.

- 12.4.3 A summary of comments received from Natural England and MEAS and relevant sections within this chapter and the HRA where such comments are addressed is provided in Technical Appendix 4.

12.5 Previous Planning Consent

Liverpool Waters Outline Consent

- 12.5.1 Peel Land & Property secured outline planning permission (LPA ref. 100/2424 – latest approved Non-Material Amendment (NMA) is ref. 19NM/1121, a further NMA is currently pending determination – reference 20NM/1801) in 2013 for a mixed-use development comprising a maximum of 1,690,000m² of mixed use including 9,000 dwellings and 310,000m² of office space (figures rounded). The site stretches from Princes Dock in the south to Bramley-Moore Dock to the north. The timeframe for full delivery of the scheme at the time of planning application was 2041.

- 12.5.2 Developments which have been consented at Princes Dock and the Liverpool Waters site since planning approval include the standalone applications. The Lexington (16F/1370 & 17F/2056 325 apartments), Quay Central and Park Central (17F/1628 2 blocks of 237 apartments), Liverpool Cruise Liner Terminal (17O/3230 & 19NM/1037) and Isle of Man Ferry Terminal (18F/3231).

- 12.5.3 Since planning permission was granted, Peel Land & Property has submitted a series of discharge of conditions applications, reserved matters and non-material amendment applications. A neighbourhood masterplan for the Central Docks was approved in November 2019 (ref: 19DIS/1315) in accordance with the requirements of the planning conditions attached to the outline planning permission.

- 12.5.4 Reserved matters applications have been submitted in the Princes Dock area for the William Jessop House, a 6 storey office development which is in planning terms part of Liverpool Waters (18RM/1554 & 19RM/1817).



Bramley-Moore Dock

- 12.5.5 It should be noted that the proposed stadium site is located within the Northern Docks (comprising Nelson Dock and Bramley-Moore Dock) proposed in the Liverpool Waters planning application for development to take place between 2036 and 2041 for the following uses:
- C3 Dwellings- 219,500m².
 - A1 Retail- 5,000m².
 - A2 Financial & Professional services- 300m².
 - A3 Food & drink- 2,200m².
 - A4 Drinking establishments- 1,200 m².
 - B1 Business- 1,800m²
 - D1 Non-Residential Institutions- 6,600m².
 - D2 Assembly and Leisure-1,000m².

- 12.5.6 The amount of the development listed above which relates to Bramley-Moore Dock (excluding Nelson Dock) is not specified in the permission, which details the amount of development per Neighbourhood only.

12.6 Planning Policy and Legislation

- 12.6.1 Section 38(6) of the Planning and Compulsory Purchase Act 2004 and Section 70(2) of the Town & Country Planning Act 1990 require that planning applications to be determined in accordance with the statutory development plan, unless material considerations indicate otherwise. The statutory development plan for the City of Liverpool currently comprises the Unitary Development Plan (adopted 2002).
- 12.6.2 A summary of the statutory development plan policies relevant to the application proposal is set out below. The following policies and guidance are material considerations which also inform the assessment include:
- Saved Liverpool Unitary Development Plan: A Plan for Liverpool (2002)
 - Liverpool Local Plan (Submission Draft, May 2018); and
 - National Planning Policy Framework (revised February 2019).

National Policy

- 12.6.3 A revised National Planning Policy Framework (NPPF, Ministry of Housing Communities & Local Government, 2019) was issued on 19th February 2019 and currently supplements government Circular 06/2005, Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System.
- 12.6.4 Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. Paragraph 170 of the NPPF also states that:
- "Planning policies and decisions should contribute to and enhance the natural environment by:*
- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*

- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate*
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and,*
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*

- 12.6.5 Paragraph 174 then goes on to confirmed that:

When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest (SSSI), and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and,*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*

- 12.6.6 Regarding EcIA's and HRA's – any sites identified, or required, as compensatory measures for adverse effects on any Natura 2000/habitats site should also be given the same level as protection as the pSPA's (Potential Special Protection Area) and cSAC's (Candidate Special Area of Conservation) themselves. In addition, when an application is being determined, Paragraph 177 clarifies that:

"The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other



plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site."

12.6.7 Paragraph 180 is also relevant as:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:...

c) Limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."

Local Policy – Liverpool Unitary Development Plan

12.6.8 The application site is located within Liverpool City Centre. Policy OE5 "PROTECTION OF NATURE CONSERVATION SITES AND FEATURES" within the saved Liverpool Unitary Development Plan: A Plan for Liverpool (2002) states:

12.6.9 *"The City Council will seek to protect the nature conservation interest of open land and the water environment in the City by not permitting development which would:*

- i. destroy, fragment or adversely affect directly or indirectly a designated or proposed Special Protection Area (SPA), Ramsar site, or Site of Specific Scientific Interest (SSSI), unless the City Council is satisfied that there is no alternative solution and there are imperative reasons of overriding public interest;*
- ii. destroy, fragment or adversely directly or indirectly affect a Site of Nature Conservation Value as identified by the City Council unless it can be clearly demonstrated that there are reasons for the proposal including benefits to the community, which outweigh the need to safeguard the substantive nature conservation value of the site;*
- iii. destroy, fragment or adversely affect, directly or indirectly, a Regionally Important Geological /Geomorphological Site (RIGS) unless it can be demonstrated that the benefits of the proposal to the community outweigh the need to safeguard the geological value of the site;*
- iv. have an adverse effect on legally protected wildlife species; or*
- v. destroy, fragment or adversely affect, indirectly or directly, sites with known conservation value in a neighbouring authority area.*
- In assessing criteria ii to iv full account will be taken of proposed mitigation measures."*

Local Policy – Emerging Liverpool Local Plan

12.6.10 The emerging Liverpool Local Plan (2018) (as modified in 2020) is pending examination and therefore has substantial but not full weight in decision taking. Policy G15 'Protection of Biodiversity and Geodiversity' states:

"Development which may result in a likely significant effect on an internationally important site must be accompanied by sufficient evidence to enable the Council to make a Habitats Regulations Assessment. Adverse effects should be avoided and/or mitigated to ensure that the integrity of internationally important sites is protected. Development which may adversely affect the integrity

of internationally important sites will only be permitted where there are no alternative solutions and there are imperative reasons of overriding public interest and suitable compensatory provision is secured. This also applies to sites and habitats outside the designated boundaries that support species listed as being important in the designations of the internationally important sites. [Emphasis added]

Development which may cause direct or indirect significant harm to other designated sites of nature or geological conservation importance, Priority Habitats, legally protected species and / or Priority Species will only be permitted on:

- National sites (Mersey Estuary Ramsar site/Mersey Estuary Site of Special Scientific Interest (SSSI)): where there are no alternatives and where the benefits of development clearly outweigh the impact on the features of the site that make it of special scientific interest and its broader contribution to the national network;*
- Local Sites (Local Nature Reserves (LNRs), Local Wildlife Site (LWS) and Regionally Important Geological/Geomorphological Sites (RIGS): where the reasons for and the benefits of development clearly outweigh the impact on the nature conservation value of the site and its broader contribution to the*
- Liverpool City Region (LCR) Ecological Network; Sites including Priority Habitats/ Irreplaceable habitats (including ancient woodlands and aged or veteran trees) where there are wholly exceptional reasons and a suitable compensation strategy exists having regard to.*

Where it has been demonstrated that significant harm cannot be avoided, appropriate mitigation, replacement or other compensatory provision may be required.

Where significant harm resulting from development cannot be avoided, adequately mitigated or, as a last resort, compensated, then planning permission will be refused.

Development proposals which affect sites of nature conservation importance, priority habitats, legally protected species or priority species must be supported by an Ecological Appraisal and include details of avoidance, mitigation and /or compensation where appropriate.

The policy applies where development proposals in Liverpool may directly or indirectly affect sites with known conservation value in a neighbouring authority area.

This policy will apply to other sites recognised during the Plan period as being of nature conservation importance, including land provided as compensation."

12.6.11 This EcIA addresses relevant planning policy and local policy and plans by presenting the biodiversity baseline, assessing the likely impacts and addressing these through the mitigation hierarchy, in accordance with BS 42020.

Biodiversity 2020: A Strategy for England's Wildlife & Ecosystem Services

12.6.12 Biodiversity 2020 replaces the previous UK Biodiversity Action Plan (BAP) and sets national targets to be achieved. The intent of Biodiversity 2020, however, is much broader than the protection and enhancement of less common species and is meant to embrace the wider countryside as a whole. The priority species and habitats considered under Biodiversity 2020 are the Species of Principal Importance (SPI) & Habitats of Principal Importance (HPI) detailed under Natural Environment and Rural Communities (NERC) Act 2006.

The Merseyside Biodiversity Group



12.6.13 The Merseyside Biodiversity Group was formed in 1997 to progress biodiversity action within Merseyside. It is a partnership of local authorities, statutory agencies, conservation organisations, higher education institutions and local people. The group is formed of a range of partners across Liverpool City Region working together to put forward a submission to Government to form a Local Nature Partnership. Local Nature Partnerships (LNPs) were introduced in Defra's Natural Environment White Paper *The Natural Choice: securing the value of nature*, published in 2011, recognising that partnership working is essential to deliver strategic ambitions for the natural environment at a local level. The Merseyside Biodiversity Group are the lead the Mersey Biodiversity Action Plan incorporating a total of 44 species and habitat action plans for the local area.

Key Legislation

12.6.14 This assessment has been considered in the context of relevant UK, EU and international biodiversity and conservation legislation including:

- The Convention on Wetlands of International Importance especially as Waterfowl Habitat 1972 (the Ramsar or Wetlands Convention).
- The EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC). The Conservation of Habitats and Species Regulations 2017 (as amended) represents the UK's implementation of the Directive (the Habitats Regs).
- The Convention on the Conservation of European Wildlife and Natural Habitats 1979 (the Bern Convention) - which carries an obligation to protect and conserve over 500 wild plant species and more than 1,000 wild animal species.
- The EC Council Directive on the Conservation of Wild Birds (79/409/EEC) - which provides a framework for the conservation and management of, and human interactions with, wild birds in Europe.
- The Wildlife and Countryside Act (WCA) 1981 (as amended).
- The Countryside and Rights of Way (CROW) Act 2000.
- The Natural Environment and Rural Communities (NERC) Act 2006.

12.7 Methodology and Scope

Scoping Assessment Stage

- 12.7.1 A formal scoping report in relation to the application site was submitted to statutory consultees in 2017 (CBRE 2017) and responses were received in relation to ecology from NE (June 2017) and MEAS (June 2017).
- 12.7.2 No formal scoping report was produced for this project in 2019, however a meeting was held between WYG, NE and MEAS on Monday the 9th of August 2019 in order to confirm requirements of both consultees in relation to this assessment. Written correspondence from both NE and MEAS following this meeting are presented within Appendix 1. In summary it was agreed that this EclA should include an assessment based on the findings of the following surveys:
- Extended Phase 1 habitat survey
 - Breeding bird survey
 - Passage bird survey

- Wintering bird survey
- Bat emergence/re-entry survey

12.7.3 NE confirmed the following designated sites should be considered within this assessment:

- Mersey Narrows & North Wirral Foreshore SPA & Ramsar
- Mersey Estuary SPA
- Liverpool Bay SPA
- Ribble & Alt Estuaries SPA & Ramsar
- Mersey Narrows SSSI
- North Wirral Foreshore SSSI

12.7.4 In addition to the above, although not highlighted by NE as a site to be considered, we have also elected to include the Mersey Estuary Ramsar site within this assessment. This is due to the fact that this Ramsar shares the same boundary as the Mersey Estuary SPA.

12.7.5 A Shadow Habitats Regulations Assessment (HRA) has been produced which provides both an Assessment of Likely Significant Effects (ALSE) and an Appropriate Assessment (AA), this report has been produced separately to the EclA but is referred to in the relevant sections of this report.

Assessment Methodology

12.7.6 The impact assessment for biodiversity has been carried out with reference to the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018 v1.1), hereafter referred to as the 'CIEEM Guidelines'. The impact assessment process involves:

- Identifying and characterising impacts;
- Incorporating measures to avoid or mitigate (reduce) these impacts;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects; and
- Identifying opportunities for ecological enhancement.

12.7.7 The starting point for any assessment of impacts is to determine which ecological features are important and should be subject to detailed assessment. Ecological features can be important for a variety of reasons, for example, the quality or extent of designated sites or habitats, habitat/species rarity, the extent to which they are threatened throughout their range, or their rate of decline (CIEEM, 2018).

Determining Importance

12.7.8 The CIEEM Guidelines recommend that the importance of ecological features is considered within a defined geographical context. For the purpose of this assessment, the following levels have been used:

- **International** – SPAs, SACs, Ramsar Sites;
- **National** – Sites designated at UK level, e.g. SSSI;
- **Regional** – Habitats or populations of species of importance at a regional (i.e. north-west of England) level;

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- **County** – Designated Sites, such as Site of Importance for Nature Conservation (SINC or habitats / species populations of importance at a county (i.e. Merseyside) level;
- **Local** – Habitats or species populations of importance in a local (e.g. Liverpool Waters) context; and
- **Negligible** – Habitats or species populations were either:
 - not detected on site;
 - the potential for them to be present is negligible; or
 - the habitat / species is present, but its presence is considered insignificant in relation to the application site and wider environment.

Habitats

- 12.7.9 With reference to the CIEEM Guidelines, the importance of habitats is measured against published selection criteria where available. Habitat types of European (international) conservation importance are listed on Annex I of the Habitats Directive. Habitats that are considered a priority for conservation in England are listed as HPis under Section 41 of the NERC Act 2006. Reference is also made to the local Habitat Action Plans (LHAPs).
- 12.7.10 Where important habitat types are affected but are currently in a degraded or unfavourable condition, their potential importance is considered, including the potential to contribute to conservation objectives. In accordance with the guidance, the assessor can use their informed professional judgment to assign certain features a greater importance if there is a reasonable chance that they can be restored to that higher importance in the future.

Species

- 12.7.11 Species of European (international) conservation importance are listed in Annexes II, IV and V of the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC) and Annex I of the EC Council Directive on the Conservation of Wild Birds (79/409/EEC). Species that are considered to be priorities for conservation in England are listed under Section 41 of the NERC Act 2006.
- 12.7.12 In accordance with the CIEEM Guidelines, the importance of species populations is measured using existing criteria where available. Contextual information about distribution and abundance is considered, including trends based on any historical records available.

Predicting and Characterising Ecological Impacts

- 12.7.13 With regards to the CIEEM Guidelines, when describing impacts, the following characteristics are considered – noting that not all these are relevant to every impact:
- **Positive or negative** – if an impact will improve or reduce the quality of the environment;
 - **Extent** – the spatial or geographical area over which the impact/effect may occur;
 - **Magnitude** – refers to size, amount, intensity and volume. If an impact is deemed to be significant then its magnitude, in quantitative terms, should be assessed;
 - **Duration** – the time for which an impact is expected to last;
 - **Timing and frequency** – whether impacts occur during critical life-stages or seasons; and,
 - **Reversibility** – an irreversible effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it. A reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation.

Direct and Indirect Ecological Impacts

- 12.7.14 Both direct and indirect impacts are considered within this assessment. A direct impact is directly attributable to a defined action such as the physical loss of a habitat or the immediate mortality of an individual of a particular species. Indirect impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or ecological feature. An example of an indirect effect would be the loss of an important prey species for a predator.

Effect Significance

- 12.7.15 In accordance with the CIEEM Guidelines, the assessment will only describe those characteristics relevant to understanding the ecological effects and determining significance. A significant effect, in ecological terms, is defined as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Effects can be considered significant at a wide range of scales from international to local.
- 12.7.16 As noted above, impacts are only assessed in detail for features of recognised importance, such that impacts upon them may be significant, or where a legal offence is predicted to occur. Therefore, for the purposes of this assessment, impacts are assessed in detail only for those ecological features that are of at least **local** importance or are subject to some form of **legal protection**. Impacts on any features of lower importance would, by definition, have no significant effect on the wider ecology / population of that feature.
- 12.7.17 After assessing the effects of the proposal, all reasonable attempts are made to avoid and mitigate ecological impacts. Once measures to avoid and mitigate ecological impacts have been finalised, assessment of the residual impacts that will result in effects that are significant, and proposed compensatory measures, will be the factors considered against ecological objectives (legislation and policy) in determining the outcome of the application (CIEEM, 2018).

Limitations of the Assessment

- 12.7.18 There are no significant overall limitations that are considered to compromise the overall validity and robustness of this EclA, however any qualifications or limitations that are specifically relevant to a particular floral or faunal survey are provided in the relevant Technical Appendices.

12.8 Baseline Environment

Existing baseline

- 12.8.1 The application site has been subject to various ecological surveys undertaken by WYG between 2016 and 2019. Key findings are summarised in this section, to illustrate the level of importance assigned to each of the receptors identified. Detailed studies incorporating survey results gathered in 2016 and in 2019 are presented in Technical Appendices 1-6 as follows:
- Technical Appendix 1 – WYG, (2020a), *Bramley-Moore Dock: Ecological Appraisal*, Report on behalf of Everton Stadium Development Limited, Project Number A100795.
 - Technical Appendix 2 – WYG, (2020b), *Bramley-Moore Dock: Bird Surveys Report*, Report on behalf of Everton Stadium Development Limited, Project Number A100795.
 - Technical Appendix 3 – WYG, (2020c), *Bramley-Moore Dock: Bat Survey Report*, Report on behalf of Everton Stadium Development Limited, Project Number A100795.

Appendix 12.1 Biodiversity



- Technical Appendix 4 – WYG, (2020d), *Bramley-Moore Dock: Shadow Habitats Regulations Assessment Stage 1 and Stage 2*, Report on behalf of Everton Stadium Development Limited, A100795.
- Technical Appendix 5 – Consultee Comments and Responses.
- Technical Appendix 6 – WYG, (2020), *Bramley-Moore Dock: Biodiversity Net Gain Report*, for Everton Stadium Development Limited, A100795.

Statutory Sites

- 12.8.2 A total of seven internationally designated sites (SPA and Ramsar) are recorded within the area of search, the closest of which is Liverpool Bay SPA which is located adjacent the western boundary of the application site.
- 12.8.3 In addition, two nationally designated sites (SSSI) are recorded within the area of search, the closest of which is Mersey Narrows SSSI (approximately 1.2km west of the application site).
- 12.8.4 There are also two Local Wildlife Sites recorded within the area of search, the closest is the Leeds and Liverpool Canal which is located 0.37km south-east of the application site.
- 12.8.5 Details regarding each designated site and their qualifying/notifiable features are presented in Table 12.1 – they are also mapped on Figure 3 in Technical Appendix 1.

Table 12.1 Statutory and designated sites for wildlife

Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
SPA	Liverpool Bay (Lawson et al. 2016)	Adjacent western boundary	<p>ARTICLE 4.1 QUALIFICATION (79/409/EEC) Over winter the area regularly supports:</p> <p>Red-throated diver, <i>Gavia stellata</i>, 6.89% of the GB population (5-year peak mean 2004/05 - 2010/11), 1,171 individuals</p> <p>Little gull, <i>Hydrocoloeus minutus</i>, (wintering) (5-year peak mean 2004/05 - 2010/11), 319 individuals</p> <p>Little tern, <i>Sternula albifrons</i>, (breeding) 6.84% of the GB population 5-year mean 2010 – 2014), 130 pairs (260 individuals)</p> <p>Common tern, <i>Sterna hirundo</i>, (breeding) 1.80% of the GB population 5-year mean 2011 – 2015), 180 pairs (360 individuals)</p>	International

Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports:</p> <p>Common scoter, <i>Melanitta nigra</i>, 10.31% of the NW European population regularly occurring migrant (5-year mean of peaks 2004/05 - 2010/11), 56,679 individuals</p> <p>ARTICLE 4.2 QUALIFICATION (79/409/EEC) an internationally important assemblage of birds.</p> <p>Over winter the area regularly supports: 69,687 water birds (5-year peak mean 2004/05 - 2010/11) including: (over 1% GB or 2000 individuals) red-throated diver, little gull, red-breasted merganser <i>Mergus serrator</i>, cormorant <i>Phalacrocorax carbo</i>; (less than 1% GB or less than 2000 individuals) black-headed gull <i>Chroicocephalus ridibundus</i>, common gull <i>Larus canus</i>, common eider <i>Somateria mollissima</i>, northern fulmar <i>Fulmarus glacialis</i>, great black-backed gull <i>Larus marinus</i>, great crested grebe <i>Podiceps cristatus</i>, common murre <i>Uria aalge</i>, northern gannet <i>Morus bassanus</i>, Atlantic puffin <i>Fratercula arctica</i>, herring gull <i>Larus argentatus</i>, black-legged kittiwake <i>Rissa tridactyla</i>, lesser black-backed gull <i>Larus fuscus</i>, common loon <i>Gavia immer</i>, European shag <i>Phalacrocorax aristotelis</i>, razorbill <i>Alca torda</i> and velvet scoter <i>Melanitta fusca</i>.</p>	
SPA	Mersey Narrows and North Wirral Foreshore (Natural England, 2013)	1.22km west	<p>ARTICLE 4.1 QUALIFICATION (2009/147/EC): Over winter the area regularly supports:</p> <p>Bar-tailed godwit <i>Limosa lapponica</i>, (5.5% of the GB population 5-year peak mean 2004/05 - 2008/09), 3,344 individuals</p> <p>Common tern, 213 individuals – non-breeding (2004/05 – 2008/09)</p> <p>On passage the area regularly supports:</p>	International



Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>Little gull: 213 individuals (no national population estimate)</p> <p>Common tern: 1,475 individuals (no national population estimate)</p> <p>In the breeding season the area regularly supports:</p> <p>Common tern: 1.8% of the GB population (2005-2009), 177 pairs (354 individuals)</p> <p>ARTICLE 4.2 QUALIFICATION (2009/147/EC).</p> <p>Over winter the area regularly supports:</p> <p>Red knot <i>Calidris canutus islandica</i> (2.4% W Europe/ Waddensea/Britain/Ireland population 5-year peak mean (2004/05 - 2008/09)), 10,655 individuals</p> <p>ARTICLE 4.2 QUALIFICATION (2009/147/EC): An internationally important assemblage of birds in the non-breeding season the area regularly supports:</p> <p>32,366 individual water birds (five-year peak mean 2004/05 - 2008/09)</p> <p>Including: cormorant, oystercatcher <i>Haematopus ostralegus</i>, grey plover <i>Pluvialis squatarola</i>, sanderling <i>Calidris alba</i>, red knot, dunlin <i>Calidris alpina alpina</i>, bar-tailed godwit and redshank <i>Tringa totanus</i>.</p>	
Ramsar	Mersey Narrows and North Wirral Foreshore (JNCC, 1995)	1.22km west	<p>The site qualifies under CRITERION 4 because it 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.</p>	International

Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>The site qualifies under CRITERION 5 because it regularly supports 20,000 or more water birds. During the winters 2004/05 - 2008/09, the Mersey Narrows and North Wirral Foreshore Ramsar site supported an average peak of 32,402 individual water birds.</p> <p>The site qualifies under CRITERION 6 because it regularly supports 1% of the individuals in the populations of the following species or subspecies of water bird in any season. During the winters 2004/05 - 2008/09, the Mersey Narrows and North Wirral Foreshore Ramsar site supported 2.4% of the red knot <i>islandica</i> subspecies, W Europe / Waddensea / Britain / Ireland (non-breeding) population of knot and 2.8% of the <i>lapponica</i> subspecies W Europe / NW Africa (non-breeding) population of bar-tailed godwits.</p>	
SPA	Ribble and Alt Estuaries (Natural England, 2002)	4.52km NW	<p>ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports:</p> <p>Ruff <i>Philomachus pugnax</i> (Western Africa - wintering), 1 nest, 9.1% of the GB breeding population Count as at late 1980s</p> <p>Common tern (Northern/Eastern Europe - breeding), 182 pairs (264 individuals), 1.5% of the GB breeding population Count as at 1996</p> <p>Over winter the area regularly supports:</p> <p>Tundra swan <i>Cygnus columbianus bewickii</i> (Western Siberia/North-eastern & North-western Europe), 276 individuals, 3.9% of the GB population 5-year peak mean 1993/94 - 1997/98</p> <p>Whooper swan <i>Cygnus cygnus</i> (Iceland/UK/Ireland), 182 individuals, 3.3% of the GB population 5-year peak mean 1993/94 - 1997/98</p>	International



Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>Bar-tailed godwit (Western Palearctic - wintering), 20,086 individuals, 37.9% of the GB population 5-year peak mean 1993/94 - 1997/98</p> <p>Golden plover <i>Pluvialis apricaria</i> [North-western Europe - breeding], 3,598 individuals, 1.4% of the GB population 5-year peak mean 1993/94 - 1997/98</p> <p>ARTICLE 4.2 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports:</p> <p>Lesser black-backed gull (Western Europe/Mediterranean/Western Africa), 1,800 pairs (3,600 individuals), 1.5% of the breeding population Count as at 1993</p> <p>Over winter the area regularly supports:</p> <p>Northern pintail <i>Anas acuta</i> (North-western Europe), 2,731 individuals 4.6% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Teal <i>Anas crecca</i> (North-western Europe), 7,157 individuals, 1.8% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Wigeon <i>Anas penelope</i> (Western Siberia/North-western/North-eastern Europe), 85,259 individuals, 6.8% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Pink-footed goose <i>Anser brachyrhynchus</i> (Eastern Greenland/Iceland/UK), 11,764 individuals, 5.2% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Sanderling (Eastern Atlantic/Western & Southern Africa - wintering), 2,882 individuals, 2.9% of the population 5-year peak mean 1993/94 - 1997/98</p>	

Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>Dunlin (Northern Siberia/Europe/Western Africa), 39,376 individuals, 2.8% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Red knot (North-eastern Canada/Greenland/Iceland/North-western Europe), 68,922 individuals, 19.7% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Oystercatcher (Europe & Northern/Western Africa), 18,535 individuals, 2.1% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Black-tailed godwit (Iceland - breeding), 1,273 individuals, 1.8% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Grey plover (Eastern Atlantic - wintering), 9,355 individuals, 6.2% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Common shelduck <i>Tadorna tadorna</i> (North-western Europe), 4,925 individuals, 1.6% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Common redshank (Eastern Atlantic - wintering), 2,505 individuals, 1.7% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>On passage the area regularly supports:</p> <p>Sanderling (Eastern Atlantic/Western & Southern Africa - wintering), 6,535 individuals, 6.5% of the population 5-year peak mean 1993 - 1997</p> <p>Ringed plover <i>Charadrius hiaticula</i> (Europe/Northern Africa - wintering), 1,657 individuals, 3.3% of the population 5-year peak mean 1993 - 1997</p> <p>THE SITE QUALIFIES UNDER ARTICLE 4.2 OF THE DIRECTIVE (79/409/EEC) as it is used regularly by over 20,000 water birds (water</p>	



Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>birds as defined by the Ramsar Convention) in any season:</p> <p>In the non-breeding season, the area regularly supports 323,861 individual water birds (5-year peak mean 1993/94 - 1997/98), including cormorant, Bewick's Swan, whooper swan, pink-footed goose, shelduck, wigeon, teal, pintail, scaup <i>Aythya marila</i>, common scoter, oystercatcher, ringed plover, golden plover, grey plover, lapwing <i>Vanellus vanellus</i>, knot <i>Calidris canutus</i>, sanderling, dunlin, black-tailed godwit, bar-tailed godwit, whimbrel <i>Numenius phaeopus</i>, curlew <i>Numenius arquata</i> and redshank.</p> <p>THE SITE QUALIFIES UNDER ARTICLE 4.2 OF THE DIRECTIVE (79/409/EEC) as it is used regularly by over 20,000 seabirds in any season:</p> <p>In the breeding season, the area regularly supports 29,236 individual seabirds (count period ongoing), including Black-headed Gull, Lesser Black-backed Gull and Common Tern.</p>	
Ramsar	Ribble and Alt Estuaries (JNCC, 2005)	4.52km NW	<p>CRITERION 2 This site supports up to 40% of the Great Britain population of natterjack toads <i>Bufo calamita</i>.</p> <p>As plant species: Petalwort <i>Petalophyllum ralfsii</i> (Conservation status: European Red List: Vulnerable; EC Habitats Directive: Annex II)</p> <p>CRITERION 5 Assemblages of international importance:</p> <p>Species with peak counts in winter: 222,038 waterfowl (5-year peak mean 1998/99-2002/2003)</p> <p>CRITERION 6 Species/populations occurring at levels of international importance.</p>	International

Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>Qualifying Species/populations (as identified at designation): Species regularly supported during the breeding season: Species with peak counts in spring/autumn:</p> <p>Black-tailed godwit, Iceland/W Europe, 3323 individuals, representing an average of 7% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Common redshank, 4465 individuals, representing an average of 1.7% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Dunlin, W Siberia/W Europe 38,196 individuals, representing an average of 2.8% of the population (5-year peak mean 1998/9-2002/3 - spring peak)</p> <p>Grey plover, E Atlantic/W Africa -wintering 11,021 individuals, representing an average of 4.4% of the population (5-year peak mean 1998/9-2002/3 - spring peak) Red knot.</p> <p>Red knot, W & Southern Africa (wintering) 42,692 individuals, representing an average of 9.4% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Ringed plover, Europe/Northwest Africa, 3761 individuals, representing an average of 5.1% of the population (5-year peak mean 1998/9-2002/3 - spring peak)</p> <p>Sanderling, Eastern Atlantic 7401 individuals, representing an average of 6% of the population (5-year peak mean 1998/9-2002/3 - spring peak)</p> <p>Species with peak counts in winter:</p> <p>Bar-tailed godwit, W Palearctic 13,935 individuals, representing an average of 11.6% of the population (5-year peak mean 1998/9-2002/3)</p>	



Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>Oystercatcher, Europe & NW Africa -wintering 18,926 individuals, representing an average of 1.8% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Teal, NW Europe 5107 individuals, representing an average of 1% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Wigeon, NW Europe 69,841 individuals, representing an average of 4.6% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Northern pintail, NW Europe 1,497 individuals, representing an average of 2.5% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Pink-footed goose, Greenland, Iceland/UK 6,552 individuals, representing an average of 2.42% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Tundra swan, NW Europe 230 individuals, representing an average of 1.1% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Whooper swan, Iceland/UK/Ireland 211 individuals, representing an average of 1% of the population (5-year peak mean 1998/9-2002/3)</p>	
SPA	Mersey Estuary (Natural England, 2004)	4.45km S	<p>ARTICLE 4.1 QUALIFICATION (79/409/EEC) Over winter the area regularly supports:</p> <p>Golden plover (North-western Europe – breeding), 3,040 individuals, 1.2% of the GB population 5-year peak mean, 1993/94 -1997/98</p> <p>ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports:</p>	International

Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>Northern pintail (North-western Europe), 1,169 individuals, 1.9% of the population 5-year peak mean, 1993/94 - 1997/98</p> <p>Teal (North-western Europe), 11,723 individuals, 2.9% of the population 5-year peak mean, 1993/94 - 1997/98</p> <p>Wigeon, (Western Siberia/North-western/North-eastern Europe), 11,886 individuals, 4.2% of the population in Great Britain 5-year peak mean, 1993/94-1997/98</p> <p>Dunlin, (Northern Siberia/Europe/Western Africa), 48,789 individuals 3.6% of the Population 5-year peak mean, 1993/94 -1997/98</p> <p>Black-tailed godwit, (Iceland - breeding), 976 individuals, 1.6% of the population 5-year peak mean, 1993/94 -1997/98</p> <p>Curlew, (Europe - breeding), 1,300 individuals, 1.1% of the population in Great Britain 5-year peak mean, 1993/94 -1997/98</p> <p>Grey plover, (Eastern Atlantic - wintering), 3,040 individuals, 2.3% of the population in Great Britain 5-year peak mean, 1993/94 - 1997/98</p> <p>Great crested grebe (North-western Europe - wintering), 136 individuals, 1.4% of the population in Great Britain 5-year peak mean, 1993/94 - 1997/98</p> <p>Shelduck, (North-western Europe), 6,476 individuals, 2.2% of the population 5-year peak mean, 1993/94 - 1997/98</p> <p>Redshank, (Eastern Atlantic - wintering), 4,513 individuals, 2.8% of the population 5-year peak mean, 1993/94 - 1997/98</p> <p>Lapwing, (Europe - breeding), 10,544 individuals, 0.7% of the population in Great</p>	



Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>Britain 5-year peak mean, 1993/94 - 1997/98 On passage the area regularly supports:</p> <p>Ringed plover, (Europe/Northern Africa - wintering), 505 individuals, 1.7% of the population in Great Britain 5-year peak mean, 1993 - 1997</p> <p>Redshank, (Eastern Atlantic - wintering), 4,513 individuals, 3.8% of the population 5-year peak mean, 1993/1997</p>	
Ramsar	Mersey Estuary (JNCC, 1995)	4.45km S	<p>The Mersey is a large, sheltered estuary which comprises large areas of saltmarsh and extensive intertidal sand and mudflats, with limited areas of brackish marsh, rocky shoreline and boulder clay cliffs, within a rural and industrial environment. The intertidal flats and saltmarshes provide feeding and roosting sites for large and internationally important populations of waterfowl. During the winter, the site is of major importance for duck and waders. The site is also important during spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain.</p> <p>CRITERION 5 Assemblages of international importance Species with peak counts in winter: 89576 waterfowl (5-year peak mean 1998/99-2002/2003)</p> <p>CRITERION 6 – species/populations occurring at levels of international importance.</p> <p>Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn:</p> <p>Common shelduck, NW Europe 12,676 individuals, representing an average of 4.2% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Black-tailed godwit, Iceland/W Europe 2,011 individuals, representing an average of 5.7%</p>	International

Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			<p>of the population (5-year peak mean 1998/9-2002/3)</p> <p>Common redshank, 6,651 individuals, representing an average of 2.6% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Species with peak counts in winter:</p> <p>Teal, NW Europe 10,613 individuals, representing an average of 2.6% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Northern pintail, NW Europe 565 individuals, representing an average of 2% of the GB population (5-year peak mean 1998/9-2002/3)</p> <p>Dunlin, W Siberia/W Europe 48,364 individuals, representing an average of 3.6% of the population (5-year peak mean 1998/9-2002/3)</p>	
SSSI	Mersey Narrows (Natural England, 2000)	1.22km west	<p>Notified features for this SSSI are: Aggregations of non-breeding birds – Cormorant, Redshank and Turnstone <i>Arenaria interpres</i></p> <p>Habitats on site: Isolated saline lagoons Moderately exposed sandy shores (with polychaetes and bivalves) Sheltered muddy shores (including estuarine muds) <i>Suaeda maritima</i> saltmarsh</p>	National
SSSI	North Wirral foreshore (Natural England, no date)	3.1km north-west	<p>Notified features for this SSSI are: Aggregations of non-breeding birds - Bar-tailed Godwit, Dunlin, Knot and Turnstone</p> <p>Habitats on site: Sheltered muddy shores (including estuarine muds) Transitional low marsh vegetation with common saltmarsh grass <i>Puccinellia maritima</i>, annual</p>	National



Designation	Site Name	Distance and Direction	Summary of Features	Evaluation
			Grassworts <i>Salicornia</i> species and Annual sea-blite <i>Suaeda maritima</i> <i>Spartina anglica</i> saltmarsh Wave exposed sandy shores (with burrowing crustaceans and polychaetes)	
LWS	Melrose Cutting	1.37km south-west	This is a mosaic of habitats along an ~750m section of old railway cutting. Locally rare plant species include wall rue <i>Asplenium ruta-muraria</i> , common boomrape <i>Orobancha minor</i> , hare's-foot clover <i>Trifolium arvense</i> , heath woodrush <i>Luzula multiflora</i> and yellow-wort <i>Blackstonia perfoliata</i> .	County
LWS	Leeds-Liverpool Canal	0.37km SE	The canal connects with the River Mersey via the Stanley Dock to Pier Head Link and supports a variety of plant species, including nine locally rare species, these being common mallow <i>Malva neglecta</i> , hemp agrimony <i>Eupatorium cannabinum</i> , marsh woundwort <i>Stachys palustris</i> , reed sweet-grass <i>Glyceria maxima</i> , sheep's fescue <i>Festuca ovina</i> , wavy hair grass <i>Deschampsia flexuosa</i> , wild carrot <i>Daucus carota</i> , wood sage <i>Teucrium scorodonia</i> and yellow water-lily <i>Nuphar lutea</i> . Many water birds breed along the canal, including mute swan <i>Cygnus olor</i> , mallard <i>Anas platyrhynchos</i> , coot <i>Fulica atra</i> , moorhen <i>Gallinula chloropus</i> and grey wagtail <i>Motacilla cinerea</i> . The canal is also important for wintering birds, including kingfisher <i>Alcedo atthis</i> , great crested grebe and goldeneye <i>Bucephala clangula</i> .	County

Appendix 12.1 Biodiversity

**Habitats**

12.8.6 The application site predominantly consists of hard stand surrounding an open dock water body with a number of buildings (some vacant and some in operation). Habitats recorded on site are presented within Technical Appendix 1, in summary these were:

- Scattered scrub
- Tall ruderal vegetation
- Ephemeral /short perennial vegetation
- Introduced scrub
- Bare ground – Hard standing
- Buildings
- Open water

12.8.7 A detailed description of these habitats is provided below.

Scattered Scrub

12.8.8 There were several small areas of scattered scrub recorded throughout the application site. Dominant scrub species present included; elder *Sambucus nigra*, bramble *Rubus fruticosus* agg. and buddleja *Buddleja davidii*. In addition the following grass and herbaceous species were recorded; common ragwort *Senecio jacobaea*, Yorkshire fog *Holcus lanatus*, cock's-foot grass *Dactylis glomerata*, spear thistle *Cirsium vulgare*, ribwort plantain *Plantago lanceolata*, ragged robin *Lychnis flos-cuculi*, common stork's-bill *Erodium cicutarium*, scarlet pimpernel *Anagallis arvensis* ssp. *arvensis*, Canadian fleabane *Conyza canadensis* and common nettle *Urtica dioica*.

Tall ruderal vegetation

12.8.9 Several small areas of tall ruderal vegetation were recorded throughout the application site. Dominant species present were rosebay willowherb *Chamerion angustifolium*, broad-leaved dock *Rumex obtusifolius* and mugwort *Artemisia vulgaris*. In addition, the following scrub, grasses and flowering plant species were present within the area of tall ruderals: snowberry *Symphoricarpos albus*, annual meadow-grass *Poa annua*, Spanish bluebell *Hyacinthoides hispanica* and red osier dogwood *Cornus sericea* were occasionally present.

Ephemeral/Short Perennial vegetation

12.8.10 Several small areas and scattered patches of ephemeral/short perennial vegetation were identified across the application site. Species recorded were broad-leaved willowherb *Epilobium montanum*, common ragwort, Canadian fleabane, common birds-foot trefoil *Lotus corniculatus*, wavy bittercress *Cardamine flexuosa*, white clover *Trifolium repens*, ribwort plantain, colt's-foot *Tussilago farfara*, hemlock Conium *maculatum*, white stonecrop *Sedum album* and English stonecrop *Sedum anglicum*.

Introduced shrub

12.8.11 A small area adjacent to the eastern site wall (Grade II listed Regent Road wall) and a small area within the timber yard within the south-east corner of the application site had been planted with non-native shrub species and cultivars including forsythia, cultivated rose *Rosa* sp., golden honeysuckle *Lonicera x heckrottii*, Olearia, fuchsia, rosemary *Rosmarinus officinalis* and lilac *Syringa vulgaris*.

12.8.12 All of the above habitats are comprised of common and widespread floral species with each habitat supporting a low level of species richness. However, given the urban/industrial context of the application site (vacant dockland) in which these habitats were recorded it is considered likely that these habitats may

present localised ecological value. All of the above habitats are therefore assessed as having **negligible** importance.

Bare Ground - Hardstanding

12.8.13 The majority of the application site surrounding the dock water-body was bare ground comprising of hardstanding with two sand mounds, one along the northern length of the application site and the second in the north-west corner. These sand mounds were removed from site in August 2019. Hard standing and bare ground areas on site are considered unlikely to support any species of conservation value and are therefore considered to be of **negligible** importance.

Buildings and Structures

12.8.14 There were nine buildings and three tunnel structures within the application site and a large sea wall (the River Mersey wall) forms the sites western boundary.

12.8.15 The buildings on site were not considered to offer any ecological value and are therefore assessed as having **negligible** importance. However, their importance for roosting bats and nesting birds is discussed in the following sections.

Open Water / Dock Waterbody

12.8.16 The centre of the application site is comprised of a large deep waterbody which leads into Sandon Half-Tide Dock (gates open) from the north-west corner and into Nelson Dock from the south west corner (existing isolation structure in situ to separate Bramley-Moore from Nelson Dock physically). Evaluation of importance, and assessment of impacts upon this habitat are discussed separately within the **aquatic ecology chapter (Chapter 13)**. This habitat is therefore not discussed further within this report.

Protected and Notable Species**Breeding Birds**

12.8.17 The desk-top study returned eight bird species of note within 2km of the application site (but none from the application site itself). Such records include house sparrow *Passer domesticus*, song thrush *Turdus philomelos*, skylark *Alauda arvensis*, bullfinch *Pyrrhula pyrrhula*, dunnoek *Prunella modularis*, swift *Apus apus*, starling *Sturnus vulgaris* and peregrine falcon *Falco peregrinus*.

12.8.18 Breeding bird surveys completed on the application site in 2017 and 2019 recorded a maximum of eight species breeding on the application site or within the survey area (400m radius). Detailed breeding bird survey information is presented within Technical Appendix 2, Table 12.2 summarises data recorded.



Table 12.2: Schedule 1, SPA and notable breeding bird species recorded breeding within the application site (+400m) during 2017 and 2019.

Common Name	Scientific Name	Status*	No of Breeding Pairs 2017	No of Breeding Pairs 2019	Location of Breeding Pairs	Peak Count of individuals for 2017 and 2019**
Common Tern	<i>Sterna hirundo</i>	SPA, BoCC Amber	1	1	+400m, 2017/2019	3
Common Linnet	<i>Linaria cannabina</i>	BoCC Red	0	1	Within application site 2019	6
Lapwing	<i>Vanellus vanellus</i>	SPA, BoCC Red	0	1	+400m, 2019	1
Lesser Black-backed Gull	<i>Larus fuscus</i>	SPA, BoCC Amber	1	1	Within application site 2017/2019	2
Herring Gull	<i>Larus argentatus</i>	SPA, BoCC Red	2	0	Within application site 2017	79
Oystercatcher	<i>Haematopus ostralegus</i>	SPA, BoCC Amber	1	1	Within application site 2017, +400m 2019	7

* BoCC Categories:

Red list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years.

Amber list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localised in 10 sites or fewer and those whose 20% of the European population is found in the UK.

Green list species are all regularly occurring species that do not qualify under any of the red or amber criteria are green listed.

** The highest number of individual birds seen during any one visit across surveys undertaken in 2017 and 2019.

12.8.19 Two species which form qualifying features of the Ribble & Alt Estuary SPA & Ramsar and Liverpool Bay SPA were recorded during breeding bird surveys in both 2017 and 2019 - lesser black-backed gull – on site and common tern off-site but within 400m of the application site boundary. The percentage this represents of the qualifying count for each relevant designated site is presented in table 12.3.

Table 12.3 Percentage representation of relevant designated sites qualifying features recorded within the application site (+400m) during breeding bird surveys.

Common Name	Scientific Name	No of Breeding Pairs Recorded	Relevant designated site	Breeding populations recorded within designated site	Percentage of qualifying features recorded during breeding bird survey
Common Tern	<i>Sterna hirundo</i>	1	Ribble & Alt Estuary SPA	182 pairs	0.54%
			Liverpool Bay SPA	180 pairs	0.55%
			Mersey Narrows & Wirral foreshore SPA	177 pairs	0.56%
Lesser Black-backed Gull	<i>Larus fuscus</i>	1	Ribble & Alt Estuary SPA	1,800 pairs	0.05%

12.8.20 It is noted that Lapwing, herring gull and oyster catcher also form qualifying features of designated sites however this is for wintering birds only and therefore these species are not included in assessment of the breeding bird assemblage.

Non-breeding birds

12.8.21 An additional twelve bird species were recorded on the application site or within 400m of the application site during the breeding bird surveys in 2017 and 2019. Breeding was not confirmed for these species. However, such species are considered to form component of the breeding bird assemblage due to their presence during the breeding season.

12.8.22 Details of all non-breeding species recorded are summarised in table 12.4.

Table 12.4 Summary of non-breeding birds recorded within the application site (+ 400m radius) during breeding bird surveys 2017 and 2019.

Common Name	Scientific Name	Status	Peak Count 2017	Peak Count 2019	Within application site or +400m
Shelduck	<i>Tadorna tadorna</i>	SPA, BoCC Amber;	13	23	Within application site 2017/2019
Cormorant	<i>Phalacrocorax carbo</i>	SPA	1	2	Within application site 2017/2019



Common Name	Scientific Name	Status	Peak Count 2017	Peak Count 2019	Within application site or +400m
Mallard	<i>Anas platyrhynchos</i>	BoCC Amber	2	1	Within application site 2017/2019
Tufted Duck	<i>Aythya fuligula</i>	BoCC Green	1	0	+400m, 2017
Great Crested Grebe	<i>Podiceps cristatus</i>	BoCC Green	1	0	Within application site 2017
Ringed Plover	<i>Charadrius hiaticula</i>	BoCC Red, SPA	0	1	+400m, 2019
Wheatear	<i>Oenanthe oenanthe</i>	BoCC Green	1	0	Within application site 2017
Moorhen	<i>Gallinula chloropus</i>	BoCC Green	0	1	Within application site 2019
Carriion Crow	<i>Corvus corone</i>	BoCC Green	0	2	Within application site 2019
Pied wagtail	<i>Motacilla alba</i>	BoCC Green	1	2	Within application site 2017/2019
Goldfinch	<i>Carduelis carduelis</i>	BoCC Green	2	2	Within application site 2017/2019
Blackbird	<i>Turdus merula</i>	BoCC Green	1	0	Within application site 2017

12.8.23 It is noted that shelduck was recorded as a non-breeding bird during the breeding bird surveys. This species forms a qualifying feature of the Ribble & Alt Estuaries SPA and Mersey Estuary Ramsar during the breeding season. However, birds recorded represents less than 1% of the qualifying feature for these designated sites (the 2017 results = 0.26% of the Ribble & Alt Estuary SPA and 0.1% of Mersey Estuary population. The 2019 results represent 0.46% of the Ribble & Alt Estuary SPA and 0.18% of the Mersey estuary Ramsar). The application site is therefore not considered to form a valuable resource for this species during the breeding period and this is not considered further within this assessment. No other breeding bird species form qualifying features of designated sites. Therefore, percentage representations have not been calculated and these species are not discussed further.

12.8.24 Fuller (1980) described a method for assessing the ornithological interest of sites, whereby the importance of a site is defined by the number of breeding species present which is shown in Table 12.5 below.

Table 12.5 Site importance by number of breeding bird species

Number of breeding bird species	Site Importance
<25	Local
26-49	District
50-69	County
70-84	Regional
>85	National

12.8.25 Based on the low number of species recorded within the breeding bird assemblage during surveys completed in 2017 and 2019, coupled with the fact that presence of qualifying features recorded during breeding bird surveys equals less than 1% of the relevant designated sites population for each species; it is considered that the application site is of **local** importance for breeding birds.

Kittiwake

12.8.26 No Kittiwakes were recorded on site or within 400m of the application site during surveys undertaken in 2017 and 2019 (See Technical Appendix 2), therefore the development site is considered to be of **negligible** importance for this species.

Wintering birds

12.8.27 An aggregate of twenty-six bird species were recorded within the application site during the wintering bird surveys undertaken in 2016/17, with only one additional species recorded in the vicinity of the application site (400m radius). During surveys undertaken in 2018/19 an aggregate of twenty-one species were recorded within the application site, and a further five were recorded in the vicinity of the application site (400m radius). A summary of the peak counts for each species recorded on site during each survey visit is provided in Table 12.6.

Table 12.6 Summary of wintering bird survey data – birds recorded within the application site and surrounding area (400m).

Common name	Status	Peak counts			
		2016/17		2018/19	
		On site	Within 400m	On site	Within 400m
Black-headed Gull	SPA, BoCC Amber	44	103	104	232
Canada Goose <i>Branta canadensis</i>	BoCC Green	20	16	18	24
Carriion Crow	BoCC Green	3	1	2	-
Common Gull	SPA, BoCC Amber	1	150	-	21
Coot	BoCC Green	-	-	1	8

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Common name	Status	Peak counts			
		2016/17		2018/19	
		On site	Within 400m	On site	Within 400m
Cormorant	SPA, BoCC Green	5	6	11	12
Dunnock	BoCC Amber	-	-	1	-
Feral Pigeon <i>Columba livia domestica</i>	BoCC Green	206	50	159	8
Goldfinch	BoCC Green	4	-	-	5
Great Black-backed Gull	SPA, BoCC Amber	2	10	1	1
Great Crested Grebe	SPA, BoCC Green	1	-	-	-
Grey Heron <i>Ardea cinerea</i>	BoCC Green	1	3	1	1
Herring Gull	SPA, BoCC Red	74	130	115	180
Kingfisher	BoCC Amber	1	1	1	-
Lesser Black-backed Gull	SPA, BoCC Amber	5	10	7	-
Linnet	BoCC Red	30	6	20	14
Magpie <i>Pica pica</i>	BoCC Green	2	-	3	2
Mallard	BoCC Amber	2	-	-	-
Meadow Pipit <i>Anthus pratensis</i>	BoCC Amber	2	-	-	2
Moorhen	BoCC Green	1	-	1	1
Mute Swan	BoCC Amber	4	5	2	2
Oystercatcher	SPA, BoCC Amber	7	6	15	2
Peregrine	BoCC Green	-	1	-	1
Pied Wagtail <i>Motacilla alba</i>	BoCC Green	2	3	3	2
Robin <i>Erithacus rubecula</i>	BoCC Green	3	-	-	1
Rock Pipit <i>Anthus petrosus</i>	BoCC Green	1	-	1	-
Shelduck	SPA, BoCC Amber	2	1	17	2
Starling <i>Sturnus vulgaris</i>	BoCC Red	300	1	156	90

Common name	Status	Peak counts			
		2016/17		2018/19	
		On site	Within 400m	On site	Within 400m
Turnstone	BoCC Amber	2	-	-	-

12.8.28 In order to determine the importance of the wintering birds recorded during surveys which form qualifying features of the relevant designated sites, a comparison between the peak survey data has been added with the relevant population counts which inform the citation for each designated site. This comparison is displayed in table 12.7.



Table 12.7 Comparison between wintering survey data and designated site qualifying feature survey data.

Species Name	Designated site	Qualifying feature population status (5-year mean peak)	Peak application site count (over winter)	% of the qualifying feature on application site	Peak count in 400m buffer over winter	% of the qualifying feature within 400m of site
Black-headed gull	Liverpool Bay SPA	Assemblage Qualification 22,000 individuals (5-year peak mean 04/05 – 10/11)*	104	0.47%	232	1.05%
Common gull	Liverpool Bay SPA	Assemblage Qualification 1,494 individuals (5-year peak mean 04/05 – 10/11)*	1	0.07%	150	10.04%
Cormorant	Liverpool Bay SPA	Assemblage Qualification 732 individuals (5-year peak mean 04/05 – 10/11)*	11	1.5%	12	1.64%
	Mersey Narrows and North Wirral Foreshore SPA	Article 4.2 Assemblage of birds, 972 individuals (12/13-17/18 moving average) (Out of total of 32,366 individuals in any season)***		1.13%		1.24%
	Ribble and Alt Estuaries SPA	Article 4.2 Assemblage Waterbirds, 1,820 individuals (12/13-17/18 moving average)** (Out of a total of 23,861 individuals in any season)		0.6%		0.66%
	Mersey Narrows SSSI	Aggregations of non-breeding birds: 11 individuals (12/13-17/18 moving average)**	11	100%	12	109.09%
Great Black-backed Gull	Liverpool Bay SPA	Assemblage Qualification 760 individuals (5-year peak mean 04/05 – 10/11)*	2	0.26%	10	1.32%
Great Crested Grebe	Liverpool Bay SPA	Assemblage Qualification 5 individuals (5-year peak mean 04/05 – 10/11)*	1	20%	-	-
Herring Gull	Liverpool Bay SPA	Assemblage Qualification 1,377 individuals (5-year peak mean 04/05 – 10/11)*	115	8.35%	180	13.07%
Lesser Black-backed Gull	Liverpool Bay SPA	Assemblage Qualification 226 individuals (5-year peak mean 04/05 – 10/11)*	7	3.1%	10	4.43%



Species Name	Designated site	Qualifying feature population status (5-year mean peak)	Peak application site count (over winter)	% of the qualifying feature on application site	Peak count in 400m buffer over winter	% of the qualifying feature within 400m of site
	<i>Ribble and Alt Estuaries SPA</i>	Article 4.2 <i>1,800 pairs</i> (during breeding season – count in period 1993) ***		0.39%		0.56%
		Assemblage of birds <i>5,024 individuals (12/13-17/18 moving average)**</i> (Out of total of 323,861 individuals in any season)		0.14%		0.20%
Oystercatcher	Mersey Narrows and North Wirral Foreshore SPA	Article 4.2 Assemblage of birds <i>2,718 individuals (12/13-17/18 moving average)***</i> (Out of a total of 32,366 individuals in any season)	15	0.55%	6	0.22%
	<i>Ribble and Alt Estuaries SPA</i>	Article 4.2 <i>18,535 individuals in breeding season</i> (5-year peak mean 1993/94 - 1997/98) ***		0.08%		0.03%
		Assemblage Waterbirds <i>13,017 individuals (12/13-17/18 moving average)**</i> (Out of a total 323,861 individuals in any season)		0.12%		0.05%
	<i>Ribble and Alt Estuaries Ramsar</i>	Criterion 6 <i>18,926 individuals in breeding season</i> (5-year peak mean 98/99-02/03)***		0.08%		0.03%
Shelduck	<i>Mersey estuary SPA</i>	Article 4.2 <i>6,476 individuals over winter</i> (5-year peak mean 93/94 - 97/98)***	17	0.26%	2	0.03%
	<i>Mersey estuary RAMSAR</i>	Criterion 6 <i>4,510 individuals</i> (5-year peak mean 87/88 to 91/92 (Out of a total of 12,676 individuals in breeding season)***		0.38%		0.04%
	<i>Ribble and Alt Estuaries SPA</i>	Article 4.2 <i>4,925 individuals in breeding season</i> (5-year peak mean 93/94 - 97/98) ***		0.35%		0.04%
		Assemblage Waterbirds <i>3,860 individuals (12/13-17/18 moving average)**</i> (Out of a total 323,861 individuals in any season)		0.44%		0.05%

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Species Name	Designated site	Qualifying feature population status (5-year mean peak)	Peak application site count (over winter)	% of the qualifying feature on application site	Peak count in 400m buffer over winter)	% of the qualifying feature within 400m of site
Turnstone	Mersey Narrows SSSI	Aggregations of non-breeding birds: <i>128 individuals (12/13-17/18 moving average)</i> **	2	1.56%	-	-
	North Wirral foreshore SSSI	Aggregations of non-breeding birds: <i>500+ individuals (unknown date)</i> ***		Species specific information unavailable at the time of reporting	-	-

*JNCC Report No: 576 – Liverpool Bay SPA **BTO website ***Citation documents for each site



12.8.29 In addition to wintering bird data collected specifically for the application site and surrounding 400m, a review was completed of new bird survey data contained within the Liverpool Waters Strategic Ecological Mitigation Plan (SEMP) (ARUP, 2020). The SEMP provides bird data collected during breeding, passage and wintering bird seasons over the period 2009 – 2019. The SEMP identifies a peak count of 36 Oyster catcher within the north-western section of the application site and to the south of the redline boundary of the application site (south of Nelson Dock but included within the 400m survey buffer used in our surveys), 33 Cormorant (of which a peak count of 27 were recorded within or adjacent to the application site, including the 400m buffer used during our surveys) and 35 shelduck recorded primarily within the north-western boundary of the application site. It is considered that the population(s) of birds recorded during the WYG surveys, are part of the same population(s) recorded within the SEMP. Such peak count data indicates that the application site (and its immediate surroundings) supports a population of cormorant and oystercatcher that exceeds the 1% population threshold for Liverpool Bay SPA, Mersey Narrows and North Wirral Foreshore SPA and Ribble & Alt Estuaries SPA.

12.8.30 It should be noted that populations of lesser black-backed gull, herring gull and great crested grebe recorded on site exceed 1% of the SPA population for Liverpool Bay SPA. The SEMP indicates that great crested grebe has been recorded at a peak of 4 birds and lesser black-backed gull at a peak of 75 birds within the Liverpool Waters scheme boundary. Exact locations are not provided within the SEMP, however it is considered that the population recorded form a component of this population and the application site is considered to form habitat for these species. Detailed peak count information for herring gull is not provided within the SEMP, therefore this species has only been considered in the context of the application site alone.

12.8.31 Overall, the wintering bird assemblage recorded on site is therefore considered to be of **International Importance**.

Passage birds

12.8.32 A maximum of 24 species were recorded within the application site and surrounding 400m in the autumn 2017 and early spring 2018 and autumn 2019.

12.8.33 A summary of the peak counts for each species recorded on site during each survey visit is provided in Table 12.8.

Table 12.8 Summary of Passage bird survey data (peak counts in bold)

Species Name	Status	Peak count 2017/2018 on application site	Peak count 2017/2018 within 400m of application site	Peak count 2019 on application site	Peak count 2019 within 400m of application site
Black-headed Gull	SPA, BoCC Amber	43	-	26	43
Canada Goose	BoCC Green	30	19	2	82
Carriion Crow	BoCC Green	3	-	3	-
Cormorant	SPA, BoCC Green	3	10	6	5
Dunnoch	BoCC Amber	1	2	-	-

Species Name	Status	Peak count 2017/2018 on application site	Peak count 2017/2018 within 400m of application site	Peak count 2019 on application site	Peak count 2019 within 400m of application site
Feral Pigeon	BoCC Green	98	-	214	59
Goldfinch	BoCC Green	20	40	3	6
Great Crested Grebe	SPA, BoCC Green	-	2	-	-
Great Tit	BoCC Green	-	2	-	-
Grey Heron	BoCC Green	1	-	-	-
Herring Gull	SPA, BoCC Red	56	-	140	25
Kingfisher	BoCC Amber	1	-	2	-
Lesser Black-backed Gull	SPA, BoCC Amber	24	-	1	2
Linnet	BoCC Red	24	40	2	24
Magpie	BoCC Green	5	-	18	1
Meadow Pipit	BoCC Amber	6	6	-	5
Moorhen	BoCC Green	1	1	4	1
Mute Swan	BoCC Amber	-	2	4	1
Oystercatcher	SPA, BoCC Amber	2	19	3	2
Pied Wagtail	BoCC Green	9	5	1	2
Raven <i>Corvus corax</i>	BoCC Green	1	-	-	-
Ringed Plover	SPA, BoCC Red,	1	-	-	-
Robin	BoCC Green	1	-	1	-
Shelduck	SPA, BoCC Amber	13	4	-	-
Sparrowhawk <i>Accipiter nisus</i>	BoCC Green	1	-	-	-
Starling	BoCC Red	52	-	14	11
Wheatear <i>Oenanthe oenanthe</i>	BoCC Green	1	-	-	1

12.8.34 It is noted that a single ringed plover was recorded during passage surveys. This species forms a qualifying feature of the Ribble & Alt Estuaries SPA. However, this single bird represents 0.06% of the passage

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population of the Ribble & Alt SPA, 0.07% of the water bird assemblage and 0.03% of the Ramsar population. The application site is therefore not considered to form a valuable resource for this species during the passage period and this is not considered further within this assessment. No other passage bird species form qualifying features of designated sites. Therefore, percentage representations have not been calculated and these species are not discussed further.

- 12.8.35 Due to the low number of species recorded (24) it is considered that the passage bird assemblage recorded on site is considered to be of **local** importance.

Bats

- 12.8.36 Detailed bat survey data is presented within Technical Appendix 3. Data obtained from Merseyside Biobank, RECORD and MAGIC data search returned 32 records of bats within 2km of the application site, of which 25 were records of roosts. The majority of the records are of common pipistrelle *Pipistrellus pipistrellus*, followed by unidentified bat species. There was one record of roosting noctule bats *Nyctalus noctula*.

- 12.8.37 MAGIC returned no records of granted bat EPSLs within 2km of the application site, as of 24th July 2019.

- 12.8.38 The buildings on site were appraised for their suitability to support roosting bats during an EA undertaken in June 2017 (Technical Appendix 1). The condition of these buildings has not changed since then and three buildings and the sea wall (River Mersey wall), were assessed in accordance with Bat Conservation Trust guidelines (2016) to have the following suitability to support roosting bats:

- Building B1 (Hydraulic Engine House (Grade II listed)) – Moderate potential; and
- Building B2, B5 and sea wall (River Mersey wall) – Low Potential.

- 12.8.39 All other buildings and features on site were assessed as forming negligible suitability to support roosting bats.

- 12.8.40 During dusk emergence surveys completed in 2019, two common pipistrelle bats were recorded **emerging from the northern elevation of building B1 (Hydraulic Tower) on site**. A single common pipistrelle was recorded entering this building during dawn re-entry surveys. Due to the low number of bats recorded emerging/entering B1 (Hydraulic Tower) it is considered that this building supports a **day roost** defined by BCT as:

'a place where individual bats or small groups of male bats rest or shelter in the day but are rarely found by night in the summer'.

- 12.8.41 An update survey completed in July 2020 (involving a single dusk emergence survey) to inform mitigation (discussed below) recorded no roosting bats at the time of the survey.

- 12.8.42 Due to very low numbers of common bat species roosting on site it is considered that the application site is of local importance for roosting bats only.

- 12.8.43 The application site was considered to provide **negligible** potential for foraging and commuting bats due to a lack of habitat features which are likely to attract insects (WYG, 2017a; 2019).

- 12.8.44 Activity levels on site were extremely low, with only occasional passes by individual bats during each emergence survey with no obvious patterns of behaviour. This confirms that the application site is of **negligible** importance for foraging and commuting bats.

Amphibians, Reptiles, Mammals, Invertebrates and Plants

- 12.8.45 No protected / notable terrestrial mammals (other than those discussed above) reptiles or amphibian records were returned during the desk study and the application site contains no suitable habitats for any of these species.

- 12.8.46 Four records for water vole *Arvicola amphibius* within 2km of the application site were returned (along Leeds-Liverpool canal LWS). However, no suitable habitat to support water vole was recorded on site, this species is therefore considered highly unlikely to occur on site at any time.

- 12.8.47 A total of nine species of notable invertebrate recorded within 2km of the application site were returned during the desk study. These were: Adonis ladybird *Hippodamia variegata*, banded demoiselle *Calopteryx splendens*, blue tailed damselfly *Ischnura elegans*, brown hawkler *Aeshna grandis*, common blue damselfly *Enallagma cyathigerum*, common darter *Sympetrum striolatum*, emperor dragonfly *Anax imperator*, marsh pond snail *Lymnaea palustris*, southern hawkler *Aeshna grandis* and wall (butterfly) *Lasiommata megera*. No notable invertebrates were recorded incidentally during any ecology surveys and habitat recorded within the application site is considered unsuitable for such species.

- 12.8.48 The data search also returned records of five notable flora species from within 2km of the application site. These were bluebell *Hyacinthoides non-scripta*, cat-mint *Nepeta cataria*, dune fescue *Vulpia fasciculata*, large flowered hemp-nettle *Galeopsis speciose* and rock stonecrop *Sedum forsterianum*. However, there is no suitable habitat within the application site for these notable plant species and none of them were recorded during ecological surveys.

- 12.8.49 The application site importance for all the features detailed above is therefore considered to be **negligible**.

Invasive Species

- 12.8.50 The desk study returned multiple records of 12 invasive species of plants and animals, listed in Schedule 9 of the Wildlife & Countryside Act (as amended) for which it is a specific offence to introduce them into the wild, or encourage their spread.

- 12.8.51 The invasive species recorded within 2km of the application site were water fern *Azolla filiculoides*, Canadian pondweed *Elodea canadensis*, curly waterweed *Lagarosiphon major*, Himalayan (Indian) balsam, Japanese knotweed, Japanese rose *Rosa rugosa*, montbretia *Crocasmia x crocosmiiflora*, Nuttall's waterweed *Elodea nuttallii*, Rhododendron ponticum *Rhododendron ponticum*, black rat *Rattus rattus* and Eastern grey squirrel *Sciurus carolinensis*.

- 12.8.52 No invasive species of plants or mammals were recorded during any ecological surveys completed at the application site.

12.9 Mitigation within the Submitted Design

- 12.9.1 The impacts have been assessed against the proposals for the application site including the inherent mitigation measures described below. These measures have been 'designed-in' to the development plans to reduce the general impacts of the scheme following a review of the baseline data and consultation:

- Standard pollution prevention measures will be employed during the construction phase, implemented through a Construction Environmental Management Plan (CEMP).
- Lighting will be used to designed to reduce effects on ecological receptors in accordance with recommendation made within the lighting assessment for this Chapter 16, ES Volume II.
- Lighting designed to minimise impacts on bats and birds.
- Glazing to be installed on the north and south façade (large windows) along and the west stand portal (hospitality areas) will have graphics applied in order to reduce transparency/reflective potential of the glass and thereby reduce the potential for bird strike within the operational application site. Other areas of glazing (e.g. the pavilions between the stadium façade and roof structure which are associated with



the upper level hospitality areas) should also be of a specification to reduce transparency/reflective potential (the specification of the glazing can be subject to appropriate planning condition(s)).

Construction Phase

Construction Environmental Management Plan

- 12.9.2 Construction of the proposed development will follow the Construction Management Plan (Laing O'Rourke, 2020) provided in Appendix 4.1, ES Volume III, and will be constructed in accordance with industry standard techniques and mandatory minimum standards, and suitably experienced contractors will be appointed to design, construct and commission the development.
- 12.9.3 The environmental aspects of the project will be managed in accordance with the project CEMP and Environmental Management System (EMS). The CEMP/EMS will include environmental controls and mitigation measures to eliminate reduce or offset likely significant adverse environmental effects during the demolition and construction phase. It is anticipated that these controls would be secured by an appropriate planning condition or other such binding obligation.
- 12.9.4 Applicable environmental legislation will need to be identified in a register, to ensure that appropriate systems are put in place to comply with the legal requirements in question.

12.10 Likely Significant Environmental Effects of the Scheme

- 12.10.1 As stated in the assessment methodology section, impacts are only assessed in detail for valuable ecological features potentially vulnerable to significant effects arising from the development that would be significant in EIA terms. Consequently, impacts have only been assessed in detail for those receptors that are of at least **Local** value or are subject to **legal protection**.
- 12.10.2 Therefore, our detailed impact assessment only considers the following features:
- Mersey Narrows and North Wirral Foreshore SPA & Ramsar, Liverpool Bay SPA, Ribble and Alt Estuaries SPA & Ramsar, Mersey Estuary SPA & Ramsar (collectively referred to as Natura 2000 and Ramsar sites – international sites);
 - Mersey Narrows SSSI & North Wirral SSSI (national sites);
 - Melrose Cutting LWS, Leeds-Liverpool Canal LWS;
 - Wintering birds;
 - Breeding birds;
 - Passage birds and,
 - Roosting Bats.

- 12.10.3 Where possible, ecological receptors have been assessed together in order to facilitate understanding and avoid repetition of identical impacts.

Construction Phase Effects

Internationally Statutory Designated Sites (SPA and Ramsar)

- 12.10.4 The closest internationally statutory designated site is Liverpool Bay SPA and Ramsar (located directly adjacent site beyond the River Mersey sea wall which forms the western application boundary).

- 12.10.5 The other internationally designated sites highlighted above (12.8) are located approximately 12.7km apart from each other but are connected by coastal habitat or hydrologically connected by the Mersey Estuary/Mersey Bay.

- 12.10.6 Each of the internationally designated sites are designated due to their value for breeding, wintering and passage bird species. Therefore, SPAs and Ramsars are considered to be functionally linked and, in addition to supporting their respective percentage of the national population of relevant qualifying features, each site is considered to support individual birds which migrate between sites.

- 12.10.7 The Shadow **HRA Stage 1 and Stage 2** (Technical Appendix 4) provides a detailed Assessment of Likely Significant Effects (ALSE) during the construction phase. This is summarised below in table 12.10. This table provides the broad potential effects which may occur as a result of the construction phase of this project and then defines the likely significant effects anticipated (or not) as a result of these effects.

Table 12.10 Likely significant effects from construction upon internationally designated sites (in the absence of mitigation)

Construction Phase Impact Pathway		
Potential effect	Likely Significant Effect anticipated	Likely Significant Effect not anticipated
Habitat loss	Habitat loss within Functionally Linked Land beyond the boundary of the designated sites	Habitat loss within the designated sites
Degradation of habitats (via air and water pollution)	<p>Mobilisation of contaminated material via surface run off into designated sites or functionally linked habitat</p> <p>Habitat degradation - water quality impacts as a result of pollution events</p> <p>Habitat degradation - deposition of waste/litter</p> <p>Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill</p> <p>Habitat degradation – effects on water quality at Nelson dock during dock infill</p>	<p>Hydrological change to designated sites</p> <p>Habitat degradation – air quality & dust deposition</p> <p>Habitat degradation – effects on water quality during dock infill</p> <p>Disturbance of qualifying features during transfer of aggregate to site</p>



Construction Phase Impact Pathway		
Potential effect	Likely Significant Effect anticipated	Likely Significant Effect not anticipated
Disturbance (Visual and auditory)	Disturbance of qualifying features – visual and auditory disturbance.	Displacement of prey species for bird species forming qualifying features – noise and vibration Disturbance of qualifying features – lighting effects

12.10.8 Analysis of bird survey data collected by WYG and to inform the SEMP (ARUP 2020) have determined that cormorant, lesser black-backed gull, herring gull, great crested grebe and oystercatcher are the only qualifying features recorded at population levels on site (or the surrounding area) at or above 1% of the qualifying population of Liverpool Bay and Mersey Narrows and North Wirral Foreshore SPA & Ramsar. The above impact pathways are therefore only considered relevant to these qualifying features and internationally designated sites. Such potential impacts are considered to be significant at the **International Level**.

Nationally Designated Sites (SSSI's)

12.10.9 The closest nationally designated site is Mersey Narrows (1.22km from the application site). This site is connected to North Wirral Foreshore SSSI at its north-western point. Each of the nationally designated sites are designated (in part) due to their value for breeding, wintering and passage bird species. Therefore, these sites are considered to be functionally linked and, in addition to supporting their respective percentage of the national population of relevant qualifying features, each site is considered to support individual birds which migrate between sites.

12.10.10 Table 12.11 provides assessment of potential effects upon nationally designated sites located within 2km of the application site.

Table 12.11 Likely effects upon nationally designated sites

Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
Mersey Narrows SSSI	Direct habitat loss	Aggregations of non-breeding birds: Cormorant	No loss of habitat used by cormorant within the SSSI boundary will occur as a result of the construction phase. However, it is considered likely that the cormorant population recorded within the application site and surrounding 400m forms a component of the population which forms a notifiable feature of this SSSI. Construction works on the application site will result in the	Significant at the national level

Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
			permanent loss of foraging and resting habitat for this species which may adversely affect the conservation status of the population associated with this SSSI.	
		Aggregations of non-breeding birds: Redshank	Redshank were not recorded on the application site or the surrounding area during bird surveys, habitats on the application site are considered unsuitable for this species and are unlikely to provide resources for redshank in future years. Habitats which support this species within the SSSI boundary are located approximately 4.5km north of the application site. Therefore, no direct loss of habitat which supports redshank is considered likely as a result of the construction phase of this project.	Not significant
		Aggregations of non-breeding birds: Turnstone	No turnstone were recorded within the application site itself (two birds observed were recorded at low tide beyond the redline boundary of the application site, but within 400m of the application site). Hard standing habitats associated with the application site do not form suitable habitat for turnstone. Therefore, no direct loss of habitat which supports redshank is considered likely as a result of the construction phase of this project.	
		Isolated saline lagoons	No notifiable habitats were recorded within the application site. Therefore, no direct loss of these features is anticipated as a result of the construction phase of this project.	
		Moderately exposed sandy shores (with polychaetes and bivalves)		
		Sheltered muddy shores (including		



Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
		estuarine muds)		
		SM9 - <i>Suaeda maritima</i> saltmarsh		
		Overall significance of effect (Direct habitat loss: cormorant)		
	Degradation of habitats (via air and water pollution via surface water run off, dock raking and dock infill)	Aggregations of non-breeding birds: Cormorant	Airbourne pollution The air quality assessment chapter for this project (ES Volume II, Chapter 8) states that the impact description of effects is determined to be 'negligible' at all existing receptors for NO ₂ , PM ₁₀ and PM _{2.5} exposure during the construction phase of this project. It is therefore considered that there will be no adverse effect upon notifiable features of this designated site as a result of air quality during the construction phase of this project. Enabling and construction works are likely to result in dust emissions during this phase of works. However, in accordance with the guidance provided by IAQM (2014), the effects of fugitive dust would be limited to within 50 m of sources and are therefore highly unlikely to adversely affect habitats which form and support notifiable features of this SSSI due to the distance this site is located from BMD (i.e. 3.1km). Waterbourne pollution In accordance with the DIMP (Buro Happold, 2019), infilling of BMD will require the displacement of water into Sandon Half-Tide Dock.	Not significant
		Aggregations of non-breeding birds: Redshank		
		Aggregations of non-breeding birds: Turnstone		
		Isolated saline lagoons		

Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
			The SSSI is located approximately 3.1km from the application site, it is therefore considered that any particulate discharge into the docks will have settled out before reaching this SSSI and is therefore highly unlikely to adverse to conservation status of habitats which form or support notifiable features of the SSSI. In addition, it is proposed that appropriate measures will be designed and implemented within the CEMP to capture potential pollutants prior to entering the wider Dock system (and subsequently the River Mersey) in order to comply with relevant discharge consents required to undertake such work.	
		Moderately exposed sandy shores (with polychaetes and bivalves)		
		Sheltered muddy shores (including estuarine muds)		
		SM9 - <i>Suaeda maritima</i> saltmarsh		
	Overall significance of effect (Degradation of habitats (via air and water pollution))			Not significant
	Disturbance (Visual and auditory)	Aggregations of non-breeding birds: Cormorant	Construction is anticipated to take place from the first quarter of 2021 until 2023. Visual, Noise and Vibration effects from enabling and construction works are likely to occur over at least three winter periods when wintering birds associated with internationally designated sites are likely to be present on site or in the surrounding area. It is however recognised that the nature and intensity of such works will alter as the construction phase progresses. Construction works on site will result in an increased level of human presence on site (many of which will be wearing high visibility Personal Protective Equipment). However, the application site and adjacent areas within the dock system has been subject to disturbance for a number of years prior to works commencing as a result of various	Not significant



Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
			<p>operations associated with this site and land directly adjacent. (i.e. boat traffic within BMD and adjacent docks and processing of aggregate materials).</p> <p>It is therefore considered that, while there may be a short-term disturbance to cormorant during the construction phase, it is considered likely that this species will become accustomed to such works and continue to rest and forage adjacent to the application site and make use of the 2 rafts installed (prior to commencement of construction) in Nelson Dock in the long term.</p> <p>Construction works will also result in increased vehicle movements within the application site (however marine-won aggregate will be transported to site by dredger and pumped from moorings within the River Mersey). However, the Noise assessment chapter (ES Volume II, Chapter 9) has determined that the baseline noise level of the application site is recorded at a range of between 47-52dB. Construction works will result in a maximum noise level of 67.4dB on the application site decreasing to a minimum of 40.2dB approximately 500m from site. However, peak noise levels anticipated are based on a worst-case scenario and are not considered likely to be experienced constantly through-out the site. In addition, noise levels are will reduce as the construction phase progresses (i.e. noise levels required to fit out internal areas of the application site in the final year of construction will be significantly lower than those experienced during construction of the substructure and superstructure within the application site). There is no guidance currently available regarding disturbance threshold noise levels for cormorant. Therefore, the generic</p>	

Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
			<p>precautionary disturbance threshold of 70dB as determined within the Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects, (Cutts et al 2013) is adopted within this assessment., Noise levels predicted for the construction phase of this project are considered likely to present as both regular and irregular events (as defined by Cutts et al 2013).. Therefore, although noise levels are predicted to exceed baseline noise levels within the site, such levels during the construction phase of this project remain below the threshold set by the Disturbance Mitigation Toolkit. They are considered likely to cause primarily low levels of disturbance (with the exception of regular and irregular noises ranging 50- 70dB and occasional crane movements which are considered likely to cause moderate-low response to waterbirds) and are therefore unlikely to cause significant disturbance to foraging and resting birds which form relevant qualifying features of designated sites included within this assessment. In addition, the Tide Handbook recognises that the effects of noise disturbance may be reduced where visual stimuli are obscured. As discussed above it is considered that the acoustic hoarding will screen out some of the visual disturbance and therefore this is also considered likely to reduce the effects of noise disturbance during the construction phase of works. It is noted that hoarding is unlikely to screen out the visual effects of crane usage however, crane usage is considered likely to be short term only during construction, and unlikely to cause a constant disturbance. In addition, cranes are used elsewhere within the wider dock environment and therefore species associated with</p>	



Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
			designated sites are considered likely to be accustomed to their use. Such disturbance effects are therefore considered highly unlikely to adversely affect the conservation status of this notifiable feature of the designated site during the construction phase of this project.	
		Aggregations of non-breeding birds: Redshank	<p>Redshank were not recorded on site or within 400m. Habitats which support these species within the designated site are located approximately 1.23km away from the application site. Therefore, visual disturbance of notifiable features is considered highly unlikely during the construction phase of this project.</p> <p>Redshank have been recorded foraging in close proximity to construction plant (less than 50m) and the disturbance threshold noise levels at this distance are considered to be 100-105dB (Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects, Cutts et al. 2013). Noise levels during the construction phase of works have been assessed as ranging from a maximum of 67.4dB (within 50m of the application site) to a minimum of 40.2dB (500m from the application site) during the construction phase of this project. Such noise levels are below disturbance threshold for Redshank. It is therefore considered highly unlikely that visual or auditory disturbance will cause any negative effect upon the notifiable features of this SSSI.</p>	Not significant
		Aggregations of non-breeding birds: Turnstone	Turnstone are considered to have a low sensitivity to noise and visual disturbance and have been recorded as being tolerant to disturbance events a	Not significant

Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
			<p>minimum of 10m and max of 45m before birds are flushed from an area (depending on level of habituation).</p> <p>Turnstone have been recorded foraging within 50m of works and are considered to have a disturbance threshold of 107 – 112dB (Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects, Cutts et al 2013). Noise levels during the construction phase of works have been assessed as ranging from a maximum of 67.4dB (within 50m of the application site) to a minimum of 40.2dB (500m from the application site) during the construction phase of this project. Such noise levels are below disturbance threshold for turnstone. It is therefore considered highly unlikely that visual or auditory disturbance will cause any negative effect upon the notifiable features of this SSSI.</p>	
		Overall significance of effect (Disturbance (Visual and auditory))		Not significant
North Wirral Foreshore SSSI	Direct habitat loss	<p>Aggregations of non-breeding birds: Bar-tailed Godwit</p> <p>Aggregations of non-breeding birds: Dunlin</p> <p>Aggregations of non-breeding birds:</p>	<p>Bar tailed godwit, dunlin and knot were not recorded on site or the surrounding area during surveys completed. Nor was any suitable roosting or foraging habitat. In addition, habitats which support these species within the SSSI are located approximately 1.23km from the application site. Therefore, no adverse effects upon the conservation status of non-breeding bird populations are anticipated as a result of habitat loss during the construction phase of this project.</p>	Not significant



Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
		Knot		
		Aggregations of non-breeding birds: Turnstone	No turnstones have been recorded within the application site itself (two birds recorded were recorded at low tide beyond the redline boundary of the application site but within 400m of the application site). Hard standing habitats associated with the application site do not form suitable habitat for turnstone. Therefore, no direct loss of habitat which supports turnstone is considered likely as a result of the construction phase of this project.	
		Sheltered muddy shores (including estuarine muds)	Habitats associated with this SSSI are located approximately 1.23km from the application site boundary. Therefore, no direct habitat loss will occur within this SSSI as a result of the construction phase of this project and no adverse effects upon conservation status of habitats which form notifiable features of the designated site are anticipated.	
		SM10 - Transitional low marsh vegetation with <i>Puccinellia maritima</i> , annual <i>Salicornia</i> species and <i>Suaeda maritima</i>		
		SM6 - <i>Spartina anglica</i> saltmarsh		

Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
		Wave exposed sandy shores (with burrowing crustaceans and polychaetes)		
		Overall significance of effect (Direct habitat loss)		Not significant
	Degradation of habitats (via airbourne and waterbourne pollution via surface water run off, dock raking and dock infill)	Aggregations of non-breeding birds: Bar-tailed Godwit	Airbourne pollution The air quality assessment chapter for this project (Chapter 8) states that the impact description of effects is determined to be 'negligible' at all existing receptors for NO ₂ , PM ₁₀ and PM _{2.5} exposure during the construction phase of this project. It is therefore considered that there will be no adverse effect upon notifiable features of these designated site as a result of air quality during the construction phase of this project.	Not significant
		Aggregations of non-breeding birds: Dunlin		
		Aggregations of non-breeding birds: Knot	Enabling and construction works are likely to result in dust emissions during this phase of works. However, in accordance with the guidance provided by IAQM (2014), the effects of fugitive dust would be limited to within 50 m of sources and are therefore highly unlikely to adversely affect habitats which form and support notifiable features of this SSSI.	
		Aggregations of non-breeding birds: Turnstone		
Sheltered muddy shores (including		Waterbourne pollution In accordance with the DIMP (Buro Happold, 2019), infilling of BMD will		



Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect
		estuarine muds)	require the displacement of water into the surrounding dock system.	
		SM10 - Transitional low marsh vegetation with <i>Puccinellia maritima</i> , annual <i>Salicornia</i> species and <i>Suaeda maritima</i>	The SSSI is located approximately 1.23km from the application site, it is therefore considered that any particulate discharge into the docks will have settled out before reaching this SSSI and is therefore highly unlikely to adverse to conservation status of habitats which form or support notifiable features of the SSSI. In addition, it is proposed that appropriate measures will be designed and implemented within the CEMP to capture potential pollutants prior to entering the wider Dock system (and subsequently the River Mersey) in order to comply with relevant discharge consents required to undertake such work.	
		SM6 - <i>Spartina anglica</i> saltmarsh		
		Wave exposed sandy shores (with burrowing crustaceans and polychaetes)		
		Overall significance of effect (Degradation of habitats (via airborne and waterborne pollution))		
	Disturbance (Visual and auditory)	Aggregations of non-breeding birds: Bar-tailed Godwit	Bar tailed godwit, dunlin and knot were not recorded on site or the surrounding area. Habitats which support these species within the designated site are located approximately 1.23km away from the application site. Therefore, visual disturbance of notifiable features is considered highly unlikely during the construction phase of this project.	Not significant
		Aggregations of non-breeding birds:	A review of "Waterbird Disturbance Mitigation Toolkit Informing Estuarine	

Designated Site	Potential effect	Relevant Notifiable feature	Effect during construction phase	Significance of effect	
		Dunlin	Planning & Construction Projects” (Cutts et al. 2013) indicates noise level thresholds likely to cause disturbance to estuarine birds (such as those which form notifiable features of the SSSI). This document indicates that knot are tolerant of auditory disturbance within 75-100m of roosting location, however the disturbance threshold for this species is 100-105dB. Dunlin are also considered to be tolerant of auditory disturbance and have been found to forage within approximately 50- 75m of works areas. The disturbance threshold for this species is 102-107dB. Although Bar-tailed godwit are relatively tolerant of low levels of disturbance, high levels of disturbance (i.e. producing noise levels ranging from 115-130 decibel) can cause disturbance at up to 500m. Turnstone have been recorded foraging within 50m of works and are considered to have a disturbance threshold of 107 – 112dB. Noise levels during the construction phase of works have been assessed as ranging from a maximum of 67.4dB (within 50m of the application site) to a minimum of 40.2dB (500m from the application site) during the construction phase of this project. Such noise levels are below the disturbance threshold levels for bird species which form notifiable features of the SSSI. It is therefore considered highly unlikely that visual or auditory disturbance will cause any negative effect upon the notifiable features of this SSSI.		
		Aggregations of non-breeding birds:			
		Knot			
		Aggregations of non-breeding birds:			
		Turnstone			
		Overall significance of effect Disturbance (Visual and auditory)			Not significant

12.10.11 In addition to the above it is noted that infilling of the dock within the application site will require the shipment of aggregate (currently assumed to be from extraction area 457) which may cause disturbance to birds due to an increase in traffic within the Mersey Estuary. However, allowing for 24/7 non-tidal



working, we anticipate the 'Freeway' will deliver one load of aggregate every 7 hours (via approved shipping routes) delivering 46,500m³ of aggregate per week. In order to provide enough aggregate to fill the dock to the required level (480,000m³) it is anticipated this will take approximately 100 round trips to dredge material, deliver to BMD and return to the dredging site over the course of approximately 10 weeks. Information provided by "UK Port Freight Statistics: 2018" (Department for Transport 2019) indicates there were 10,100 cargo related vessel arrivals at Liverpool Docks in 2018. Therefore, (assuming cargo deliveries to the docks do not significantly reduce in the next year) the number of vessel trips required for this project is considered likely to represent an increase in boat traffic in the river Mersey by c.0.9%. Cargo departure statistics are not included within this document however, according to Department for Transport data (<http://maps.dft.gov.uk/port-freight-statistics/interactive-dashboard/>), of the 32 million tonnes of cargo processed at Liverpool Docks, approximately 26% of this constitutes outward freight indicating a further increase to boat traffic within the Mersey. Passenger vessel data is omitted from the above statistics and that data is presented within Sea Passenger Statistics 2019: Short Sea Routes (DFT 2019). However, it is shown as passenger numbers and not vessel trips.

12.10.12 While passenger data is not comparable with vessel trip data associated with this project, it is recognised that approximately 0.2-0.3 million passengers travelled between Liverpool and Belfast and between Liverpool and Douglas in 2019. This number of passengers would have contributed to higher vessel usage of Liverpool Docks and the Mersey Estuary than inward bound freight alone. It should also be noted that any effect of increase in boat traffic as a result of this project is temporary in nature. It is therefore considered that in reality boat traffic associated with this project will contribute to < 0.9% increase in overall shipping traffic. It is considered unlikely that such a minor increase in boat traffic as a result of the project would result in any significant disturbance to notifiable features of the designated sites during delivery and transfer works to infill the dock.

12.10.13 It is therefore considered that visual or auditory disturbance caused by increased boat traffic will not have a **significant** effect upon the notifiable features of this SSSI.

Non statutory designates sites (LWS)

12.10.14 The closest of the three LWS is located 0.37km south-east (Leeds and Liverpool Canal). Therefore, construction activities (which will not extend beyond the red line boundary of the application site) will not result in the direct loss or damage of habitats which form or support features of the non-statutory designated sites.

12.10.15 Melrose cutting LWS is designated for its botanical interest. Therefore, any visual or auditory disturbance can be screened out for this site. In addition, although the Leeds – Liverpool Canal is of value to bird species it is considered that this LWS is sufficiently isolated from the application site to avoid any disturbance effects on the local bird interest as a result of the construction phase of this project.

12.10.16 Both LWS lie beyond 50m of the application site (and 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the application site entrance(s)). Therefore, no indirect negative effects upon LWS as a result of airborne pollution are considered likely during the construction phase of this project (in accordance with the Air Quality Assessment for this project (Es Volume II, Chapter 8)).

12.10.17 The Leeds and Liverpool Canal is partially hydrologically connected to the application site via the isolation structure between BMD and Nelson Dock (located between the application site and Leeds and Liverpool Canal). This isolation structure is infrequently opened and closed to manage dock water levels, at the time of writing it is understood that this feature is closed. However, water flows from the canal into the lock system and subsequently into the docks. In addition, the isolation feature connecting the application site with the dock system to the south is to be closed during construction works preventing flow of

contaminated water towards Leeds – Liverpool Canal. It is therefore highly unlikely that any water-borne pollutant would flow into this LWS from the application site as a result of the construction phase.

12.10.18 It is therefore considered that there will be **no significant adverse effect** upon LWS as a result of the construction phase of this project.

Species

12.10.19 Table 12.12 provides assessment of potential effects of construction activities upon species recorded during surveys on site and within the area of search.

Table 12.12 Likely effects upon species recorded

Species	Construction phase effect	Significance of effect (in the absence of mitigation)
Breeding bird assemblage and Passage Bird assemblage	<i>Permanent loss of foraging and potential nesting habitat used by breeding and passage bird assemblage on site.</i> Works associated with the construction phase of works will result in the permanent loss of potential nesting, foraging and resting habitat within the application site. However, features such as the River Mersey sea wall (which support 1 pair of nesting common tern within the adjacent Sandon Half-Tide Dock) will be retained. No loss of nesting, foraging and resting habitat beyond the redline boundary of the application site will occur as a result of the construction phase of this project.	Significant at the local level.
	<i>Degradation of habitats used by breeding and passage bird assemblage (air quality effects)</i> The air quality assessment chapter for this project (Chapter 8) states that the impact description of effects is determined to be 'negligible' at all existing receptors for NO ₂ exposure during the construction phase of this project. It is therefore considered that there will be no adverse effect upon the breeding and passage bird assemblage as a result of air pollution during the construction phase of this project.	Not significant
	<i>Degradation of habitats (water quality effects during BMD infill)</i> In accordance with the DIMP (Buro Happold, 2019), infilling of BMD will require the displacement of water into Sandon Half-Tide Dock. It is considered likely that any suspended solids within the water column of BMD will be allowed to settle out before being displaced into the wider dock system. Therefore, while some species of the breeding bird assemblage depend on aquatic habitats for foraging, it is	Not significant



Species	Construction phase effect	Significance of effect (in the absence of mitigation)
	considered highly unlikely that displaced water will adversely effect foraging success of such species.	
	<p>Degradation of habitats (water quality effects - pollution via surface water run-off, dock raking and dock infill)</p> <p>Construction works adjacent to this designated site carry the risk of causing pollution events as a result of accidental chemical (fuel & oil) spill from machinery used during the construction phase. It is proposed that appropriate measures will be designed within the CEMP for this project and implemented on site to capture potential pollutants prior to entering the wider Dock system (and subsequently the River Mersey) in order to comply with relevant discharge consents required to undertake such work. It is therefore considered unlikely that water quality degradation as a result of pollution during construction works will result in an adverse effect upon the breeding and passage bird assemblage.</p>	Not significant
	<p>Temporary disturbance of breeding and passage bird assemblage within the application site and surrounding area (visual and auditory disturbance).</p> <p>Visual disturbance as a result of construction works is highly likely to result in the displacement of species that would ordinarily use the application site and surrounding area for nesting purposes. Such displacement is likely to have a short-term adverse effect on the conservation value of the breeding bird assemblage associated with the application site. However, species recorded on site are largely tolerant of such disturbance and given the existing level of disturbance within the application site prior to works commencing (boat traffic, sand and gravel processing works) it is considered likely that the breeding bird assemblage will become acclimatised to visual disturbance on site as construction works progress. Noise levels predicted for construction phase of this project are anticipated to increase in comparison to baseline conditions (pre-construction), such an increase is anticipated to result in short term temporary disturbance to the breeding bird assemblage. However, noise levels are likely to reduce over the duration of the construction phase and species recorded are likely to acclimatise to such disturbance as construction works progress. Disturbance as a result of noise levels during</p>	Not significant

Species	Construction phase effect	Significance of effect (in the absence of mitigation)
	the construction phase of this project are therefore likely to be short term and temporary and unlikely to significantly affect the conservation evaluation of the breeding bird assemblage.	
Wintering birds	The value of the wintering bird assemblage on site is in due to the presence of qualifying species of the above international and nationally designated sites. The potential effects have therefore already been discussed under Statutory Designated Sites above.	
Bats	<p>Permanent loss of habitat</p> <p>Permanent loss of a day roost occupied by low numbers of a single species of bat (common pipistrelle) as a result of refurbishment of the Hydraulic Tower on site (noting the tower is to be subject to separate Listed Building Consent submissions for temporary (stabilise) and permanent (renovation / fit-out) works).</p>	Significant at the local level.
	<p>Degradation of habitats used by bats (air quality effects)</p> <p>The air quality assessment chapter for this project (ES Volume II, Chapter 8) states that the impact description of effects is determined to be 'negligible' at all existing receptors for NO₂, PM₁₀ and PM_{2.5} exposure during the construction phase of this project.</p> <p>It is therefore considered that there will be no adverse effect upon roosting bats as a result of air pollution during the construction phase of this project.</p>	Not significant
	<p>Degradation of habitats (water quality effects during BMD infill and pollution)</p> <p>Roosting bats are not dependent upon the saline water associated with BMD or the surrounding dock areas for roosting purposes. Therefore, this impact pathway is screened out as having any effect upon the status of roosting bats on site during the construction phase of works.</p>	Not significant
	<p>Temporary disturbance of bats within the application site and surrounding area (Visual and auditory disturbance).</p>	Not significant



Species	Construction phase effect	Significance of effect (in the absence of mitigation)
	Visual disturbance as a result of the construction phase will take place during daylight hours. As bats will be roosting within the Hydraulic Tower on site during daylight hours (and therefore screened from any visual disturbance) no adverse effects upon roosting bats are anticipated. It is noted that the site compound will be subject to security lighting after dark, however due to the location of the compound in relation to roosting bats it is not anticipated that such lighting will affect emerging or re-entering bats to the roost space and therefore no effects are anticipated as a result of site security lighting upon roosting bats. Noise levels predicted for construction phase of this project are anticipated to increase in comparison to baseline conditions (pre-construction), such an increase is anticipated to result in short term temporary disturbance to the roosting bats. However, noise levels are likely to reduce over the duration of the construction phase and roosting bats are likely to acclimatise to such disturbance as construction works progress. Disturbance as a result of noise levels during the construction phase of this project are therefore likely to be short term and temporary and unlikely to significantly affect the conservation evaluation of the roosting bat assemblage. In addition, noise levels predicted for construction phase of this project are anticipated to be lower than baseline conditions recorded on site. Therefore, auditory disturbance of roosting bats as a result of the construction phase is highly unlikely.	

Operational Phase Effects

12.10.20 This section of the assessment addresses operational effects of the project upon ecological receptors assessed as having a minimum of local importance or legal protection and will remain on site/within the surrounding area during the operational phase.

Statutory designated sites

12.10.21 The Shadow HRA (Technical Appendix 4) provides a detailed assessment of the Likely Significant effects anticipated as a result of operation of the application site. Table 12.13 summarises the potential impact pathways that have been assessed in relation to this project.

Table 12.13 Likely effects from operation upon internationally designated sites (in the absence of mitigation)

Operational Phase impact pathway	
Likely Significant Effect anticipated	Likely Significant Effect not anticipated
Loss of qualifying features - potential bird strike Habitat degradation - deposition of waste/litter	Habitat degradation within designated sites and functionally linked land- as a result of increased visitor numbers causing trampling effects and disturbance to bird species Disturbance of qualifying features – visual disturbance. Disturbance of qualifying features – auditory disturbance Disturbance of qualifying features – lighting effects. Habitat degradation - water quality impacts as a result of surface water run off within the application site Habitat degradation - water quality impacts as a result of pollution (foul water/fertilizer/herbicide application associated with pitch management) Habitat degradation – air pollution Displacement of prey species for bird species forming qualifying features – noise and vibration

12.10.22 As with the construction phase, analysis of bird survey data collected by WYG and to inform the Liverpool Waters SEMP have determined that cormorant, lesser black-backed gull, herring gull, great crested grebe and oystercatcher are the only qualifying features recorded at population levels on site (or the surrounding area) that are $\geq 1\%$ of the qualifying feature population of Liverpool Bay and Mersey Narrows and North Wirral Foreshore SPA & Ramsar. The above impact pathways are therefore only considered relevant to these qualifying features and internationally designated sites. As discussed within the Shadow HRA (Technical Appendix 4), the potential impact of regular mortality events as a result of collisions with the operational stadium has the potential to significantly reduce the number of cormorants, lesser black-backed gull, herring gull, great crested grebe and oystercatchers in the local area. Therefore, there is the potential to adversely affect the conservation status of these qualifying features of the designated site. Such potential impacts are therefore considered to be significant at the **International Level**.

12.10.23 Potential effects upon the nationally designated sites as a result of the operational phase of this project are discussed in Table 12.14.



Table 12.14 Likely effects during operation upon statutory designated sites (in the absence of mitigation)

Potential effect	Designated site	Effect during Operational phase	Significance of effect
Habitat degradation as a result of increased visitor numbers	North Wirral Foreshore SSSI	<p>It is recognised that the operational phase of this project will result in an increase in visitor numbers to the local area to an anticipated maximum of 52,888 people (plus a staffing level of 2,000 people) on match days (with an annual total of approximately 28 home match events played at the stadium) along with approximately 4 non match day events (comprising music or other sports such as rugby or boxing) at full capacity.</p> <p>Additional non-match day events will include (but may not be limited to) conferences, weddings, Christmas parties (anticipated visitor numbers for such events will vary considerably but are considered to be significantly less than during match day and full capacity non match day events).</p> <p>It is also noted that the application site will incorporate a "river walk" which forms an extension to the Mersey View Esplanade which runs through the Wider Liverpool Docks area. This section of the River Walk will run adjacent the sea wall and terminates at the northern boundary of the application site. Use of this river walk may result in minor increase in the presence of pedestrians walking along the sea wall. However, pedestrian access would be restricted to this walk or within hard standing areas of the application site. Such an increase in pedestrian access may increase in comparison to baseline conditions it is not anticipated that such a rise would be significant. In addition, cormorant are relatively tolerant of human presence and any disturbance caused is likely to adversely affect the foraging or resting ability of individual cormorants that may be present either within the application site or surrounding area.</p>	Not significant
	Mersey Narrows SSSI		

Potential effect	Designated site	Effect during Operational phase	Significance of effect
		<p>However, it is anticipated that the majority of visitors to the operational site will be visiting for the specific reason of attending match and non-match events or functions held on site. It is therefore considered highly unlikely that such visitors to the operational site will also visit statutory designated sites included within this assessment and are therefore unlikely to increase in visitor numbers within the designated sites. It is therefore considered highly unlikely that the operational site will result in degradation of habitats which form or support qualifying or notifiable features of designated sites as a result of the operation of this project.</p>	
Visual and auditory disturbance	North Wirral Foreshore SSSI	<p>It is anticipated that match day events are unlikely to exceed 4.5 hours on average (estimated at 1.5 hours for attendees to arrive, 1.5 hour match and 1.5 hours for attendees to leave) and non-match day events may occasionally exceed this slightly (depending upon the nature of the event).</p> <p>Such events will result in increased levels of vehicular and pedestrian traffic on the application site. In addition, noise levels will range from 76.2dB (within 50m of the application site boundary) and 68.2dB (500m from the application site boundary during match days. Noise levels during music events held on the application site (potentially full capacity) on non-match</p>	Not significant



Potential effect	Designated site	Effect during Operational phase	Significance of effect
	Mersey Narrows SSSI	<p>days range between 72dB (within 50m of the application site boundary) and 55dB (500m from the application site boundary). It is noted that the maximum noise level during match day event exceeds the baseline noise level. However, as such events are temporary in nature it is considered that any displacement of species present on the application site or within Liverpool Bay SPA (adjacent the application site) which form qualifying features of the designated sites will also be temporary. In addition, given the high levels of tolerance to disturbance attributed to qualifying features likely to remain on the application site during the operational phase (cormorant) it is considered likely that such species may become desensitised to these disturbance events over the long-term operational phase of the project.</p> <p>It is also considered that all non-match day events will be held within the building infrastructure within the operational site. Therefore, with the exception of very short-term, low intensity disturbance associated with attendees arriving on the application site and walking across pedestrian areas, non-match day events are considered highly unlikely to cause disturbance and displacement of bird species which form qualifying features of the designated sites.</p> <p>Furthermore (with the exception of Liverpool Bay), it is considered that bird species which form qualifying features of the designated sites resident within the boundaries of each designated site are located a sufficient distance from the operational site to avoid any displacement via visual or auditory disturbance.</p> <p>It is therefore highly unlikely that the operational phase of this project will adversely affect the favourable conservation status of qualifying features</p>	

Potential effect	Designated site	Effect during Operational phase	Significance of effect
		of designated sites as a result of visual and auditory disturbance.	
Visual disturbance (lighting)	North Wirral Foreshore SSSI	The lighting assessment for this project (Chapter 16 ES volume II) states that, in the absence of any guidance regarding ecological receptors, impacts are considered potentially significant where predicted illuminance significantly exceeds 2 lux at ecological receptors in line with the ILP criteria. This assessment has determined that operational lighting will exceed 2 lux at six locations at Nelson Dock to the south and the entrance to Sandon Half-Tide Dock to the north of the application site.	Not significant
	Mersey Narrows SSSI	<p>No guidance is currently available regarding light levels which may cause disturbance to wintering birds such as those which form notifiable feature of SSSI's. However, "The Impact of artificial Light on waterfowl behaviour" (BTO 1990) (provided to us by MEAS) indicates that waterbirds that forage within estuarine habitats may benefit from artificial lighting as this has the potential to increase foraging time.</p> <p>Given that the event day scenario is only expected to occur fewer than 32 times a year including football matches (depending on Everton's progress in Domestic and European cup competitions – with not all games in the evening) and concerts, the overall impact of lighting on ecological receptors from event day lighting is not considered significant. In addition, non-</p>	



Potential effect	Designated site	Effect during Operational phase	Significance of effect
		<p>event day lighting along the western, southern and northern boundary levels will not exceed the post-curfew ILP criteria of 2 lux, except for location E35 (at 0.75m and 1.5m, with levels at 5m being below 2lux). This is the entrance to Sandon Half-Tide Dock and the results do show that the locations surrounding this area and further back into the dock will be below 2 lux.</p> <p>Such lighting is therefore considered unlikely to cause displacement or disturbance to notifiable features of SSSI's. However, such lighting effects have the potential to enhance foraging/hunting success and therefore benefit notifiable features in accordance with the above BTO study.</p> <p>It is therefore highly unlikely that the operational phase of this project will adversely affect the conservation status of notifiable features of designated sites as a result of lighting on site.</p>	
Habitat degradation – Air quality	North Wirral Foreshore SSSI	The air quality chapter for this project (ES Volume II, Chapter 8) has concluded that the long-term significance of the effects associated with this project with respect to nitrogen dioxide and particulate matter exposure is determined to be 'negligible' at all existing sensitive receptor locations.	Not significant
	Mersey Narrows SSSI	It is therefore considered that adverse effect upon qualifying/notifiable features of designated sites as a result of the operational phase of this project are highly unlikely.	

Potential effect	Designated site	Effect during Operational phase	Significance of effect
Habitat degradation from pollution via surface water runoff and foul water drainage	North Wirral Foreshore SSSI	<p>The proposed foul water drainage strategy presented within Drainage Strategy presented in Appendix 11.4 of ES Volume III states that onsite foul water drainage will be managed by Everton football club and will utilise existing penetrations infrastructure. Such infrastructure will discharge into existing foul water chamber located at the Regent Road / Blackstone Street junction, United Utilities chamber. Foul water discharge is therefore highly unlikely to adversely affect any statutory designated site during the operational phase of this project.</p> <p>The Drainage Strategy also confirms that only areas of the application site open the elements will drain to the surface water drainage network. This will discharge into River Mersey, and Nelson Dock via appropriately designed measures (i.e. downstream defenders).</p>	Not significant
	Mersey Narrows SSSI	<p>All covered areas (including storage yards/works areas at higher risk of causing pollution) of the application site (including the field of play) will drain to the foul water network. The system will have an overflow to the foul water network. This is due to the presence of fertilisers in the discharge making it unsuitable for discharge to the adjacent docks.</p> <p>It is considered that surface water drainage has been designed appropriately to avoid adversely affecting habitats which form or support qualifying/notifiable features of relevant designated sites.</p>	

Non statutory designated sites

12.10.24 The closest of the three LWS is 0.37km to the south-east (Leeds and Liverpool Canal). The operational activities will not result in the direct loss or damage of habitats which form or support features of the non-statutory designated sites.

12.10.25 Melrose cutting LWS is designated for its botanical interest. Therefore, any visual or auditory disturbance during operational phase can be screened out for this site.

Appendix 12.1 Biodiversity



12.10.26 In addition, although the Leeds – Liverpool Canal is of value to bird species it is considered that this LWS is sufficiently isolated from the application site to avoid any disturbance effects on the local bird interest as a result of the operational phase of this project.

12.10.27 The Leeds and Liverpool Canal is partially hydrologically connected to the application site (i.e. the isolation structure between BMD and Nelson Dock (located between the application site and Leeds and Liverpool Canal) is infrequently opened and closed to manage dock water levels, at the time of writing it is understood that this feature is closed). However foul water and surface water drainage systems have been appropriately designed to ensure that foul water will not enter this non-statutory designated site. Surface water will drain directly into Nelson Dock adjacent the application site. However, the surface water drainage strategy presented in Appendix 11.4, ES Volume III will pass through interceptor/seperator units before draining into Nelson Dock therefore preventing surface water pollution entering this non statutory designated site. It is therefore highly unlikely that any water-borne pollutant would flow into this LWS from the application site as a result of the operational phase.

12.10.28 It is therefore considered that there will be **no significant adverse effect** upon LWS as a result of the operational phase of this project.

Species**Breeding bird assemblage**

12.10.29 All the existing nesting habitat for the breeding birds will have been lost during the construction phase of works and the operational site is not designed to encourage nesting on site. It is however anticipated that low numbers of common urban bird (feral pigeon) and gull species may attempt nesting on site during operational phase. Such species are highly tolerant of disturbance events and are unlikely to be discouraged during operational phase of the project. Therefore, use of a range of measures to prevent nesting within/on the stadium structure (e.g. roof spans, PV panels, barrel roof openings) are to be agreed with relevant statutory consultation bodies prior to installation. An appropriately worded planning condition requiring the submission of this detail is proposed.

12.10.30 The exterior façade of the stadium will comprise reflective surfaces made of glass on all aspects of the stadium. This will include, large glazed windows on the North and South stands, a glazed balcony area below the large glazed window on the South Stand, a large (single) glazed portals in the middle of the East and West stand façade and a part glazed pavilion structure between the stadium façade and roof structure. It is therefore considered that there is some risk of collision with the building and accidental mortality of individual birds.

12.10.31 Long term continued bird strike incidents have the potential to adversely affect the conservation importance of the breeding bird assemblage. It is therefore anticipated that there will be a **significant effect at the local level** upon the breeding bird assemblage during the operational phase of the project.

Wintering birds

12.10.32 The potential effects upon wintering birds during the operational phase of the project are discussed above in terms of qualifying/notifiable features of relevant internationally and nationally designated sites.

Passage birds

12.10.33 All the existing foraging and resting habitat used by the passage bird assemblage will have been lost during the construction phase of works and the operational site is not designed to encourage use by the passage bird assemblage. It is however anticipated that (based on detailed discussion regarding noise, light and physical disturbance from site visitors during match and non-match day events) that conditions on site will remain suitable to support resting birds which visit the application site during the passage season.

12.10.34 However, as the exterior façade of the stadium will comprise reflective surfaces made of glass (as described above) it is considered that there is some risk of collision with the building and accidental mortality of individual birds.

12.10.35 Long-term continued bird strike incidents have the potential to adversely affect the conservation importance of the passage bird assemblage. It is therefore anticipated that there will be a **significant effect at the local level** effect upon the passage bird assemblage during the operational phase of the project.

Bats

12.10.36 It is noted that the Hydraulic Tower within the application site will be subject to architectural lighting (subject to separate listed building consent). The lighting principles for the hydraulic tower include low level lighting and will be compliant with the 'Bats and Artificial Lighting in the UK' guidance document. A warm white spectrum will be used which has less of an effect on bat activity. It should also be noted that pipistrelles are one of the species least sensitive to artificial light. Therefore, it is considered that such architectural lighting will not adversely affect roosting bats within this building.

12.10.37 The operational site will be comprised of hard standing with scattered ornamental trees which is considered to be of negligible value for bat foraging. However, the application site will be located adjacent Nelson Dock (which is beyond the boundary of the application site) which may provide potential commuting value for bats visiting the application site or emerging from roost locations provided on site (see mitigation section).

12.10.38 Temporary maximum lux levels over the operational phase of the project (at a maximum of approximately 4) are considered highly unlikely to adversely affect foraging and commuting behaviour of any bats which may roost within the operational site. Nor is such lighting considered likely to discourage bats from roosting within suitable features within the operational site.

12.10.39 In addition, the noise assessment for this project has determined that noise levels on site during operation of the application site will increase in comparison to baseline conditions (i.e. prior to the proposed development taking place). Such increased noise levels during operation will be short term and temporary in nature and therefore considered highly unlikely to cause significant disturbance to roosting, foraging and commuting bats within the application site. As a result, it is anticipated that there will be a **non-significant effect** upon roosting, foraging and commuting bats during the operational phase of the project.

12.11 Cumulative Effects

12.11.1 A list of other forthcoming developments has been identified for consideration in the cumulative assessments in the EIA (see Chapter 2, ES Volume II for further details of these developments).

12.11.2 Key cumulative developments have been identified as:

- The Peel Liverpool Waters permission (Ref. 100/2424) as varied by the non-material amendments to the original permission, the most recent of which was approved on 23rd August 2019 (reference 19NM/1121) and a further NMA which was submitted in July 2020 and is currently pending determination (ref 20NM/1801), and any subsequent reserved matters applications (e.g. Application Ref: 18RM/1554; 19RM/1817) and the Central Docks masterplan, submitted under a discharge of conditions application (Discharge of Condition 11 application ref. 19DIS/1315); and
- Standalone applications for schemes at Liverpool Waters (e.g. Your Housing and Peel Land & Property (A06) – Application Ref: 20F/1203), Plaza 1821 (A05 – Application Ref: 17F/0913), The Lexington (A04 – Application Ref: 16F/1370 and 17F/2056), Cruise Liner Terminal (Application Ref:



170/3230 and Application Ref:19RM/1037); Isle of Man Ferry Terminal (Application Refs: 18F/3231 & 18L/3232);

- Wirral Waters;
- Goodison Park proposal (note this is only relevant for the post-construction assessment as will require the Club's move & occupation of BMD first) (Application Ref: 200/0997);
- The Ten Streets Strategic Regeneration Framework (2018);
- Liverpool Cruise Liner Hotel (Ref:19F/1038);
- Proposed Hotel, Regent Road/Blackstone Street (Ref:20F/0217); and
- Proposed Residential-led Mixed-Use Scheme, 2-6 Lightbody Street, Liverpool (Ref: 20F/1947).

12.11.3 In addition, consultation with Natural England and MEAS in July 2020 identified the following projects that should now also be considered cumulatively with the application site:

- District Heating Network at Central Docks (LPA ref: 19F/1745);
- Isle of Man Ferry development (Application Refs: 18F/3231 & 18L/3232);
- Northern Link Road scheme (LPA ref: 17F/2628); and
- Southern Link Road (18F/1419).

12.11.4 Table 12.14 presents the cumulative assessment scenarios associated with the above schemes and projects.

Table 12.14 Summary of cumulative assessment scenarios

Scenario	Construction phase	Operational phase
1 – The 'proposed development + Liverpool Waters' Scenario	Effect of the proposed development's & Liverpool Waters' construction works on expected baseline conditions at this time assuming proposed stadium comes forward at site and Liverpool Waters permission is built-out in surrounding area (including the re-provision of the original Liverpool Waters proposals for BMD, elsewhere within the wider Liverpool Waters consented area).	Effect of the proposed development & Liverpool Waters' operational phase on expected baseline conditions at this time assuming proposed stadium comes forward at site and Liverpool Waters permission is built-out in surrounding area (including re-provision of the original BMD proposals within the wider Liverpool Waters consented area).
2- Future Baseline – The Liverpool Waters Permission (the outline consent)	Effect of Liverpool Waters construction works on expected future baseline conditions at this time assuming Liverpool Waters permission built out on-site and in surrounding area.	Effect of Liverpool Waters operational phase on expected future baseline conditions at this time assuming Liverpool Waters permission built out on-site and in surrounding area.

Scenario	Construction phase	Operational phase
+ non-material amendments)		
3 – The 'proposed development + Liverpool Waters + Cumulatives' Scenario	Effect of proposed development's & Liverpool Waters' & cumulative schemes' construction works on expected baseline conditions at this time assuming proposed stadium comes forward at site, Liverpool Waters permission is built-out in surrounding area (including re-provision of the original Liverpool Waters BMD proposals within the wider Liverpool Waters consented area) and cumulative schemes come forward.	Effect of proposed development & Liverpool Waters' & cumulative schemes' operational phase on expected baseline conditions at this time assuming proposed stadium comes forward at site, Liverpool Waters permission is built-out in surrounding area (including re-provision of Liverpool Water proposals for application site within the wider Liverpool Waters consented area) and cumulative schemes come forward.
4 – Baseline ('Do Nothing')	Expected evolution of baseline conditions surveyed 2017/2018/2019 assuming no change to current site use and Liverpool Waters not coming forward in surrounding area.	Expected evolution of baseline conditions surveyed 2017/2018/2019 assuming no change to current site use and Liverpool Waters not coming forward in surrounding area.
5 – The 'Proposed Development' Scenario	Effect of the proposed development construction works on baseline conditions at this time assuming proposed stadium comes forward at site and no further elements of Liverpool Waters permission built out in surrounding area.	Effect of proposed development operational phase on baseline conditions at this time assuming proposed stadium comes forward at site and no further elements of Liverpool Waters permission built out in surrounding area.

12.11.5 The EcIA for this proposed development identified the following potential impacts as a result of construction and operational phases of this project:



- Construction – Loss of functionally linked habitat used by bird species which form qualifying/notifiable features of designated site (Cormorant);
- Construction – Loss of nesting bird habitat and disturbance to nesting birds;
- Construction – Loss of bat roost habitat; and
- Operation – Risk of bird strike.

12.11.6 Table 12.15 provides details of cumulative assessment for these ecological receptors based on the above three scenarios.

Table 12.15 Cumulative assessment

Potential impact pathway	Construction phase	Operational phase
Scenario 1 – The 'proposed development + Liverpool Waters' Scenario		
Designated sites Loss of functionally linked habitat used by bird species which form qualifying/notifiable features of international and nationally designated site (Cormorant, lesser black-backed gull, herring gull, great crested grebe and oystercatcher).	The ES for the Liverpool Waters Project (LPA ref. 100/2424) states that the cormorants recorded (30) equated to 6.99% of the Mersey Narrows & North Wirral Foreshore pSPA/pRamsar total population (429). Activities on site that may cause disturbance include piling, loading and unloading of vessels, intermittent moving of large loads and people and movement of vehicles and plant. Assumed noise generating construction activities are also a significant source of disturbance. However, if waders and wildfowl are disturbed to the point they are temporarily displaced from site, there are numerous alternative roosting/feeding sites within the local area that these species may and do use. Therefore, it is considered disturbance impacts to waders and wildfowl will not be a	The ES for the Liverpool Waters Project states that the operation of the application site will increase noise, light and human activity disturbance. However due to low numbers of water birds present and likelihood of habituation to the presence of new infrastructure and use of the dock network instead, this impact is considered not significant at a local level .

Potential impact pathway	Construction phase	Operational phase
	significant impact at a local level. It is therefore considered highly unlikely that the effects of the Liverpool Waters project will interact with the effects of this project during the construction phase.	
Cumulative effect	Construction and operation phases of the Liverpool Waters Project are considered to have no significant effect upon qualifying features of the designated site. Therefore, cumulative effects associated with this scenario are not considered to significantly alter the conclusion drawn when this project is considered in isolation, and the negative effect of this development remains significant at the international level .	
Loss of nesting bird habitat and disturbance to nesting birds.	The ES for the Liverpool Waters project (LPA ref. 100/2424) states that: The loss of scrub, tall ruderal and ephemeral/short perennial habitats, all of which offer value for nesting, there is thought to be a significant impact within the zone of influence , confidence in this assessment is probable . When the Liverpool waters project is taken into consideration with this project cumulative effects at the local level are anticipated in terms of habitat loss as a result of the construction phase of this project.	The ES for the Liverpool Waters Project states: Habitat lost incurred by construction will be offset by the end of construction due to the creation of new habitats as mitigation, specifically the creation of amenity grassland areas, although this habitat is of lower value than those being lost. In the long-term development, ecological inputs to inform the landscape plan should result in some benefit through enhancement of nesting habitat on the application site, for example if trees and shrubs are introduced. However, based on proposals at time of writing the impact is considered to be not significant at a local level .
Cumulative effect	Construction phase of the Liverpool Waters Project is considered to have significant negative effect within the zone of influence and a negligible effect during the operational phase. Therefore, cumulative effects associated with this scenario are not considered to significantly alter the conclusion drawn when this project is considered in isolation, and the	



Potential impact pathway	Construction phase	Operational phase
	negative effect of this development remains significant at the local level .	
Loss of bat roost habitat.	<p>The ES for the Liverpool Waters project states:</p> <p>No bat roosting sites were recorded. However, several buildings were considered to have some bat roost potential and due to the length of the phasing of the development, buildings may become occupied over time. However, only common pipistrelle were recorded on site, which may be easily mitigated for should they occupy the buildings in future, using bat boxes or bricks. Therefore, impacts are considered to be not significant at a local level.</p> <p>It is therefore considered highly unlikely that the effects of the Liverpool Waters project will interact with the effects of this project during the construction phase.</p>	<p>The ES for the Liverpool Waters Project states:</p> <p>Potential for bat roosts to establish over time in existing buildings or in buildings that are constructed as part of the scheme. Current buildings that have potential for bats include the Hydraulic Engine House/Tower, Victoria Clock Tower and the office and workshop buildings south of Collingwood Dock. It is recommended that where building lighting is required adjacent to frontages of the retained buildings, that a sympathetic lighting scheme is employed with respect to bats where it is considered/assessed that there is a likelihood of potential bat presence.</p> <p>Due to the current lack of known bat roosts and limited use by foraging bats, it is considered the impacts are not significant at a local level.</p>
Cumulative effect	<p>Construction phase of the Liverpool Waters Project is considered to have a significant negative effect within the zone of influence and a negligible effect during the operational phase.</p> <p>Therefore, cumulative effects associated with this scenario are not considered to significantly alter the conclusion drawn when this project is considered in isolation, and the negative effect of this development remains significant at the local level.</p>	
Risk of bird strike affecting qualifying features of designated sites	N/A	<p>The ES for Liverpool Waters project states:</p> <p>The operation of the site will include several tall buildings which can have two main potential effects on birds: the collision of migrating birds at night and collision of diurnal resident and migrant</p>

Potential impact pathway	Construction phase	Operational phase
		<p>feeding birds with glass windows. However, most available data associated with these collision events relates to migrant passerines rather than water birds. Also, there is no fixed definition as to what constitutes a 'tall building', Although Drewett & Langston (2008) defined it as any building over five storeys in height. Under this definition 228 tall buildings will be constructed and operated as part of this project. However, it is known that water birds fly up and down the River Mersey between roosting and feeding, including to and from internationally protected sites. The application site only had small numbers of water birds and the closest area of intertidal feeding is c. 700m away, on the other side of the river. Therefore, birds are more likely to be taking off and landing in these areas, whilst using the river to migrate, rather than flying across the city. Overall this reduces collision risk.</p> <p>Surveys undertaken confirmed only small numbers of qualifying species were using the development site, but flight lines associated with these were associated with those disturbed, departing, circling or returning to site. No significant numbers of these species were observed migrating over the footprint of the development, indicating that it does not contribute significantly to the migration route the river offers. It is also considered that due to the phased nature of the project that as the tall number of buildings increases, birds will likely habituate to their presence and therefore collision risk will decrease increasingly with time. Therefore, the impacts of tall buildings are considered not significant at a local level. Confidence in this prediction is probable.</p>



Potential impact pathway	Construction phase	Operational phase
Cumulative effect	Operational phase of the Liverpool Waters Project is considered to have a negligible effect during the operational phase. Therefore, cumulative effects associated with this scenario are not considered to significantly alter the conclusion drawn when this project is considered in isolation, and the negative effect of this development remains significant at the international level .	
Scenario 2 - Future Baseline - The Liverpool Waters Permission (the outline consent + non-material amendments)		
Loss of functionally linked habitat used by bird species which form qualifying/notifiable features of international and nationally designated site (Cormorant, lesser black-backed gull, herring gull, great crested grebe and oystercatcher).	<div>The non-material amendments for Liverpool Waters do not include any detailed ecological assessment. However, the Liverpool Waters, Princes Dock Neighbourhood Ecological and Biodiversity Strategy (NEBS) (WYG 2018) is included. This document highlights measures to monitor and mitigate/enhance ecological features associated with wider Liverpool Waters scheme (including BMD). Measures include:</div> <ul style="list-style-type: none">• Monitoring for wintering and passage birds.• Monitoring of peregrine falcon.• Biennial black redstart surveys.• Daytime and nocturnal bat surveys.• Fish and aquatic species surveys.• In addition, measures to reduce bird-strike at buildings are provided.	
Loss of nesting bird habitat and disturbance to nesting birds.		
Loss of bat roost habitat.		
Risk of bird strike affecting qualifying features of designated sites		
Cumulative effect	Provided the measures recommended within the NEBS are implemented then it is considered unlikely that cumulative impacts will occur as a result of this scenario. It is therefore considered highly unlikely that the effects of the Liverpool Waters project + non-material amendments will interact with the effects of this project during the construction or operational phase. Therefore, effects of this project are considered to be not significant when considered cumulatively with the application site.	
Scenario 3 - The 'proposed development + Liverpool Waters + Cumulatives' Scenario		

Potential impact pathway	Construction phase	Operational phase
Loss of functionally linked habitat used by bird species which form qualifying/notifiable features of international and nationally designated site (Cormorant, lesser black-backed gull, herring gull, great crested grebe and oystercatcher).	<p>Of the cumulative schemes assessed only 5 include assessments of potential effects upon designated sites. Schemes B13 (application reference 18F/1035) and B28 (application ref 18F/0417) include reports to inform Habitats Regulations Assessment which both screen out likely significant effects upon designated sites as a result of these developments during the operational phase. Scheme B3 (application ref 170/3230 & 19RM/1037) scopes out any impact upon cormorant within the ES for this project. Ecological assessment for Scheme B105 (application ref unknown) concludes that operational phase of the proposed development has the potential to result in increased disturbance levels which may affect designated site bird assemblages as a result of increase in amenity use in the local area. In addition, increased lighting within the operational site associated with this scheme has the potential to cause disorientation of migrating and night flying birds and buildings may create obstacles to such species. Such operational effects have been assessed as being likely to represent a probable direct long-term negative impact on a receptor of 'International' value for nature conservation.</p> <p>Scheme B6 (application ref 18F/3247) forms a component of the Liverpool Water project the HRA for this project concludes a likely significant effect upon Liverpool Bay and Mersey Narrows and North Wirral Foreshore SPA/Ramsar as a result of loss of supporting habitat for Cormorant.</p> <p>The assessment for the proposed development at Goodison Park will not result in any direct loss for habitat which support qualifying features of designated sites.</p>	<p>Of the 51 cumulative schemes assessed only 5 include assessments of potential effects upon designated sites. Schemes B13 (application reference 18F/1035) and B28 (application ref 18F/0417) include reports to inform Habitats Regulations Assessment which both screen out likely significant effects upon designated sites as a result of these developments during the operational phase. Scheme B3 (application ref 170/3230 & 19RM/1037) scopes out any impact upon cormorant within the ES for this project. Ecological assessment for Scheme B105 (application ref unknown) concludes that operational phase of the proposed development has the potential to result in increased disturbance levels which may affect designated site bird assemblages as a result of increase in amenity use in the local area. In addition, increased lighting within the operational site associated with this scheme has the potential to cause disorientation of migrating and night flying birds and buildings may create obstacles to such species. Such operational effects have been assessed as being likely to represent a probable direct long-term negative impact on a receptor of 'International' value for nature conservation.</p> <p>Scheme B6 (application ref 18F/3247) forms a component of the Liverpool Water project and concludes a likely significant effect upon Liverpool Bay and Mersey Narrows and North Wirral Foreshore SPA/Ramsar as a result of noise and visual disturbance. However, when mitigation measures (installation of floating pontoons at Salisbury Dock) were taken into consideration the effects of the operational phase of</p>



Potential impact pathway	Construction phase	Operational phase
	<p>Nor is habitat degradation via air and water pollution or disturbance of qualifying features likely as a result of construction phase of this project. It is therefore considered that the effects of this scheme upon designated site qualifying features is negligible. All other cumulative schemes exclude ecology within their planning application information or exclude an assessment in relation to designated sites supporting cormorant indicating that such projects are unlikely to affect populations of cormorant associated with designated sites. Further investigation reveals that such developments involve refurbishment of existing built structures in close proximity to the docks (Tobacco Warehouse and Southern warehouse) and are therefore unlikely to result in any adverse impact upon wintering cormorant or are located within Liverpool City Centre. Such projects do not form functional habitat for cormorant associated with designated sites and can therefore be screened out of cumulative assessment in relation to this ecological receptor.</p> <p>The Planning application for plot A06 (Re: 20F/1203) of the Liverpool Waters scheme includes a HRA for this project which concludes that LSE is anticipated as a result of</p>	<p>this scheme are considered to be negligible.</p> <p>The assessment for the proposed development at Goodison Park (C10) concludes that the operational phase of this scheme will not result in any direct loss for habitat which support qualifying features of designated sites. Nor is habitat degradation via air and water pollution or disturbance of qualifying features likely as a result of the operational phase of this project. However, the operational phase is likely to result in an increase in the local population which may in turn result in an increase in visitor numbers to designated sites. Such an increase in visitor numbers has the potential to result in long term degradation of habitats which support qualifying features of the designated sites. It is therefore considered that the effects of the operational phase of this scheme upon qualifying features of the designated site during operational phase will result in a long-term negative effect at the international level.</p> <p>The HRA for plot A06 (Ref: 20F/1203) concludes that operation of this scheme will result in LSE as a result of recreational pressure. However, as recreational pressure is not considered likely to have any significant effect upon the application site this project is screened out of any cumulative assessment.</p> <p>All other cumulative schemes exclude ecology within their planning application information or exclude an assessment in relation to designated sites supporting cormorant indicating that such projects are unlikely to affect populations of cormorant associated with designated sites. Further investigation reveals that</p>

Potential impact pathway	Construction phase	Operational phase
	<p>construction related pollution and noise disturbance. In addition, all of the projects highlighted for inclusion in this assessment by NE and MEAS have considered potential effects upon internationally designated sites. However, only the HRA for the Southern Link Road highlights potential for LSE during the construction phase.</p>	<p>such developments involve refurbishment of existing built structures in close proximity to the docks (Tobacco Warehouse and Southern warehouse) and are therefore unlikely to result in any adverse impact upon wintering cormorant or are located within Liverpool City Centre. Such projects do not form functional habitat for cormorant associated with designated sites and can therefore be screened out of cumulative assessment in relation to this ecological receptor.</p>
Cumulative effect	<p>Based on the above information it is considered that when this scheme is considered cumulatively with scenario 3 a significant negative effect at the international level is anticipated during construction and operational phases.</p>	
Loss of nesting bird habitat and disturbance to nesting birds.	<p>Of the schemes considered for cumulative assessment, a total of 12 schemes (A4, A14, A17, A27, A28, A33, A51, B6, B11, B105, 2-6 Lightbody Street, Liverpool & the District Heating Network at Central Docks) have considered impacts upon nesting birds during the construction phase. Value of nesting habitat is considered to be low in most cases due to the lack of semi-natural habitat and absence of recorded bird nesting. Therefore, when such schemes are considered cumulatively with BMD a significant negative effect at the local level is anticipated as a result of the construction phase.</p>	<p>Operational effects upon nesting birds are only considered within ecological assessments for schemes A4, B1, B3, B6 & B105. Schemes B1 & B3 assess operational effects upon nesting birds to have a negligible effect. Increased human disturbance during operation phase is cited within assessments for scheme A4, B6 and B105 as having a significant negative effect at the local level during the operational phase.</p>
Cumulative effect	<p>Based on the above information it is considered that when this scheme is considered cumulatively with scenario 3 a significant negative effect</p>	



Potential impact pathway	Construction phase	Operational phase
	at the local level is anticipated during construction and operational phases.	
Loss of bat roost habitat.	<p>Of the potential schemes considered for cumulative assessment, a total of three schemes (A5, A6 & 2-6 Lightbody Street, Liverpool) have considered impacts upon roosting bats during the construction phase. Impacts upon roosting bats within scheme A5 range from low to major as a result of the construction phase. However, in terms of EcIA guidelines the impacts of construction phase works are interpreted to result in significant negative effect at the local level (based on low numbers of common bat species being recorded during surveys associated with this scheme).</p> <p>The ecology report for scheme A6 also states that impacts as a result of the construction phase are unlikely to be significant to the favourable conservation status of the local population.</p> <p>The bat survey report (Wardell Armstrong 2020) for 2-6 Lightbody Street identifies the presence of a day roost used by a single common pipistrelle and a single soprano pipistrelle bat within the building on site. The bat report considers this to be of low conservation value. However, in terms of EcIA guidelines this roost is given conservation value of Local. Loss of this roost is considered</p>	Operational effects upon roosting bats are not considered within any of the cumulative schemes.

Potential impact pathway	Construction phase	Operational phase
	to be significant at the local level.	
Cumulative effect	Based on the above information it is considered that when this project is considered cumulatively with scenario 3 a significant negative effect at the local level is anticipated during construction phase only.	
Risk of bird strike affecting qualifying features of designated sites	Potential bird strike issues are not considered during the construction phase of cumulative schemes.	Of the schemes considered for cumulative assessment, a total of 2 schemes (B1 & B105) have considered impacts upon migratory birds which form qualifying features of designated sites. Impacts associated with B1 are discussed above. Scheme B105 concludes that the impacts of bird strike upon qualifying features of the designated sites is anticipated to be negligible at the local level (however specific species are not considered).
Cumulative effect	<p>The majority of cumulative schemes scope out the effects of bird strike on bird species which form qualifying features of the designated site.</p> <p>The above schemes have scoped this effect into the ES and concluded that the effects are considered to be significant at the local level.</p> <p>However, this project has assessed the potential impact of mortality through bird strike to form a significant effect at the international level. Therefore, this worst-case assessment is applied to the cumulative assessment on the assumption that bird strike associated with other schemes (no matter how minor) has the potential to adversely affect favourable conservation status of qualifying features associated with the designated site.</p>	
Scenario 4 Baseline ('Do Nothing')		
Scenario 4 will involve no physical change to the application site and therefore no effect upon any of the relevant ecological receptors is anticipated. Therefore, this scenario is screened out of the cumulative assessment.		
Scenario 5 The 'Proposed Development' Scenario		



Potential impact pathway	Construction phase	Operational phase
The potential ecological effects of the construction and operation of the application site are assessed in isolation in the preceding sections, this scenario is therefore screened out of the cumulative assessment		

12.12 Additional Mitigation, Compensation and Enhancement Measures

12.12.1 The following mitigation, compensation and enhancement recommendations are made in relation to the ecological receptors that will be adversely affected during construction and/or operational phases of the project.

Construction Phase

Designated sites - Wintering birds

12.12.2 In order to mitigate for the loss of functional habitat used by cormorant, provision should be made during and after construction for designated areas of surrounding dockland to be maintained and undisturbed, specifically for roosting and foraging birds.

12.12.3 One improvement will be the creation of two floating rafts within the surrounding docks for qualifying features such as cormorants to perch/roost on when foraging for fish. Such floating rafts should be positioned within Nelson Dock (located immediately to the south of BMD) and will consist of a frame, platform, floats and fittings for mooring. Specifications are provided in 'Nestboxes Extracts from British Trust for Ornithology Field Guide Number 23 with some additions and amendments' (Du Feu, 2005). Positioning of these features in close proximity to habitat that will be lost as a result of construction phase of the project is considered likely to increase potential uptake of such features by species associated with the designated site which have been recorded during survey. These mitigation features will be installed prior to commencing dock infill works. These mitigation measures align with mitigation effort employed within the Wider Liverpool Docks area as presented within "Liverpool Cruise Terminal Framework Construction Environmental Management Plan (CEMP)" (Waterman Group 2019) and the SEMP for the Liverpool Waters scheme. As such, this mitigation represents a co-ordinated approach to mitigation as requested during consultation with NE and MEAS. Such a co-ordinated approach will result in beneficial effects to relevant qualifying features of the designated sites by replacing and enhancing resting habitat used by cormorant in the wider dock network. The floating pontoons will be monitored by Everton Stadium Developments for the first year post-installation, however beyond Year 1, it is currently anticipated that the monitoring would be adopted under the wider Liverpool Waters SEMP and would be undertaken by appropriately skilled ecologists as appointed by Peel Holdings (who manage the Liverpool Waters scheme). Maintenance of pontoons will be undertaken by Peel Holdings as part of its wider Liverpool Waters ecology strategy.

12.12.4 Good practice measures to minimise effects upon bird species which form qualifying features of the designated site will include, (but may not be limited to):

- Ensuring all equipment is appropriately maintained;
- Appropriate noise suppression modifications are installed on machinery and equipment (i.e. mufflers); and,

- Timing of works to ensure high levels of noise disturbance avoid sensitive periods (i.e. piling works avoid winter period (November – February) when wintering bird species/assemblage associated with the designated site are most likely to be affected by construction works.

Passage birds

12.12.5 Although the passage bird assemblage (and species associated with this assemblage) does not form a qualifying feature of the designated sites included within this assessment, the additional mitigation measures provided for wintering birds are considered likely to also reduce the effects of the construction phase of the proposed development.

Breeding birds

12.12.6 It is recommended that vegetation clearance, demolition and construction works should be scheduled to take place outside of the bird nesting season (March – September) in order to avoid causing an offence under the Wildlife & Countryside Act, 1981 (as amended).

12.12.7 Where works need to be conducted within the application site during the nesting season period, nesting bird checks will be required to be undertaken by a suitably qualified Ecological Clerk of Works (ECOW) in advance of those works being commenced. Checks of the roofs of the existing buildings should be included, as some species, especially gulls, have been recorded nesting on these areas on site.

12.12.8 If nesting birds are identified, the ECOW will advise on suitable working methods and establish exclusion zones to avoid damage to the nest and disturbance to the breeding birds. The measures recommended would depend on the nature of the works in the area close to the nest, as well the nesting bird species, and could result in delays to undertaking works within specific areas of the application site until all the chicks have fledged.

12.12.9 If works cease for longer than 72 hours within the March to September period, then nesting bird checks should be repeated prior to the recommencement of those works.

12.12.10 Where demolition and construction takes place during the bird breeding season, the routes taken by demolition and construction traffic in relation to the location of any bird nests identified by the ECOW will also have to be considered. The distance that construction traffic would be required to keep from the nest would depend on the nesting bird species and would therefore be advised by the ECOW following the checks.

12.12.11 In order to compensate for the loss of nesting habitat and enhance the application site for future nesting it is recommended that additional nesting habitats are provided for those protected and notable bird species recorded breeding during the breeding bird surveys in 2017 and 2019.

12.12.12 It is considered that the floating rafts recommended for cormorant will also benefit relevant species within the breeding bird assemblage. It is important that these areas will be left undisturbed during the bird breeding season, between March and September. Positioning within Nelson Dock will achieve this undisturbed quality.

Bats

12.12.13 As previously detailed, both temporary and permanent works to the Grade II listed Hydraulic Tower will be subject to separate listed building consent submissions; the full planning application which this ES informs only seeks to establish the principle of changing the approved use of the existing tower to a museum with ancillary café.

12.12.14 In order to mitigate for the loss of a bat roost, on site mitigation and enhancement options - as part of site registration under a Bat Mitigation Class Licence (BMCL) by licenced ecologist - are to be submitted post planning and will include (but not be limited to):



- Provision of a Schwegler 1FF bat box (or equivalent) as an alternative roosting provision prior to works commencing in order to provide a safe place to transport any captured bats to. This will be positioned east facing on a pole a minimum of 3m above ground level. The final location of the bat boxes will be determined by the named ecologist on the BMCL in consultation with NE as appropriate.
 - Prior to any works starting, all contractors will be made aware (by means of a tool box talk) of the risk of bats being present within working areas, of their legally protected status, of the working methods to be adhered to, and the appropriate course of action to be taken if bats are found in an unexpected location. This is a legal requirement of the BMCL.
 - Works can be undertaken at any time of year as the roost is of low conservation value. This is in accordance with the provisions when working under a BMCL.
 - Pre-works inspection by the bat licensed ecologist in order to identify potential roosting locations and search them by torch and endoscope.
 - Sensitive soft-strip of potential roosting features under supervision of a suitably licensed bat ecologist. This will include the roofing of the one-storey section of Building B1 (Hydraulic Tower) and other features on the building with bat roost potential such as tiles and brick gaps and on the entire building.
 - Use of one-way exclusion devices to allow bats to exit the building, but not re-enter on features which cannot be fully visualised and cannot be removed using soft strip techniques. Exclusion should take place during bat active season (March-October) and must be installed where necessary for a minimum of five consecutive nights in suitable weather conditions. At the end of the five-day period, the feature will be inspected and then may be sealed or destroyed to prevent any further use by bats.
- 12.12.15 Natural England will assess the BMCL application against the three derogation tests and the BMCL Registered Consultant is suitably qualified and experienced to ensure that such site works meet the requirements of the three tests.
- 12.12.16 Given that bats are also active in the general area it is recommended that enhancement be made on site to increase the general suitability for foraging and roosting bats. An additional two Schwegler 1FF bat boxes (or equivalent) should be installed to avoid direct illumination as far as practicable. The provision and location of these boxes can be agreed through appropriate planning condition.

Operation Phase

Designated sites - wintering birds

- 12.12.17 It is thought that bird strike with buildings is due to birds' inability to detect the difference between clear air and glass. During the daytime, they see the reflections of the surrounding landscape or are able to see through the glass altogether. At night, birds can be attracted to lit structures, causing collisions, although it is thought that this phenomenon is more associated where isolated lighted structures occur in otherwise dark environments, or during conditions of poor visibility.
- 12.12.18 Not all windows are equally hazardous to birds, it is considered that those which reflect bird habitats, such as open sky or vegetation are the most dangerous. In the context of the likely direction of waterfowl flights through the neighbourhood (i.e. following the line of the River Mersey), north facing and south facing windows which reflect these features are likely to be most hazardous. To mitigate this, glazing to be installed upon the north and south façade along with west stand portal will have graphics applied in order to reduce

transparency/reflective potential of the glass (refer to 'Proposed Signage and Screens Plan' submitted with revised planning application). Other areas of glazing (e.g. the pavilions between the stadium façade and roof structure which are associated with the upper level hospitality areas) should also be of a specification to reduce transparency/reflective potential. This reduction in transparency/reflective potential is likely to significantly reduce the potential for bird strike within the operational application site. The specification of the glazing can be subject to appropriate planning condition(s).

Passage birds

- 12.12.19 Although the passage bird assemblage (and species associated with this assemblage) does not form qualifying features of the designated sites noted above, the additional mitigation measures discussed above (10.11.23 & 10.11.24) are considered likely to reduce the effects of the construction and operational phase.

12.13 Climate Change

- 12.13.1 All habitats are likely to be affected by the long-term effects of climate change. This can present itself in terms of the species likely to be present e.g. increases in survival of introduced non-native plants and animals in the UK, or by affecting the biogeography of species already here.
- 12.13.2 In the context of the application site, it is predicted that **the effects of climate change would be not be significant**. This is based on the low sensitivity of habitats and species present on site and the fact that (with the exception of some wintering birds) the species present are predominantly common, widespread and are not at the edge of their range.
- 12.13.3 It is considered that climate change may adversely affect habitats located within the relevant national and international designated sites and may result in an adverse effect upon wintering and passage bird populations and assemblages.
- 12.13.4 While climate change may result in a reduction in the availability of roosting habitat (via sea level rise) it is considered unlikely (when the above mitigation is taken into account such as floating islands and pontoons) that loss of such availability within the application site will contribute to such adverse effects.

12.14 Assessment Summary and Likely Significant Residual Effects

- 12.14.1 Implementation of the embedded mitigation (detailed in Section 12.7) and additional mitigation (detailed in Section 12.10) will act to prevent any likely significant adverse effects from the application site clearance and construction phase of the proposed development. In addition, implementation of additional mitigation measures during the operational phase are considered likely to prevent or significantly reduce the potential effects of the proposed development upon relevant ecological receptors.

Table 12.16 Assessment Summary and Residual Environmental Effects (Biodiversity)

Summary description of the identified effect	Sensitivity of Receptor	Significance and Nature of Effect	Additional Mitigation	Residual Significance and Nature of Effect
Construction				



Summary description of the identified effect	Sensitivity of Receptor	Significance and Nature of Effect	Additional Mitigation	Residual Significance and Nature of Effect
International Designated Sites (SPA/Ramsar) <i>Direct habitat loss</i>	International	Significant at the International level	Provision of two floating pontoons to replace resting habitat for qualifying features (cormorant, lesser black-backed gull, herring gull, great crested grebe and oystercatcher).	Not significant
Nationally Designated Sites (SSSI) <i>Direct habitat loss</i>	National	Significant at the National level	Provision of two floating pontoons to replace resting habitat for qualifying features (cormorant).	Not significant
Nationally Designated Sites (SSSI) <i>Degradation of habitats (via air and water pollution)</i> <i>Disturbance (visual and auditory)</i>	National	Not significant	N/A	N/A

Summary description of the identified effect	Sensitivity of Receptor	Significance and Nature of Effect	Additional Mitigation	Residual Significance and Nature of Effect
Non statutory designated site <i>Habitat degradation</i> <i>Visual and auditory disturbance</i> <i>Habitat degradation - air quality & dust deposition</i> <i>Habitat degradation - water quality impacts during dock infill</i> <i>Habitat degradation - water quality impacts as a result of pollution events</i>	County	Not significant	N/A	
Breeding birds <i>Permanent loss of foraging and potential nesting habitat used by breeding bird assemblage on site</i>	Local	Significant at the Local level	Removal of vegetation outside of bird breeding season. Provision of alternative nesting habitat such as two floating pontoons in surrounding dock network.	Not significant



Summary description of the identified effect	Sensitivity of Receptor	Significance and Nature of Effect	Additional Mitigation	Residual Significance and Nature of Effect
Breeding birds <i>Degradation of habitats used by breeding bird assemblage (air quality effects)</i> <i>Degradation of habitats (water quality effects during BMD infill)</i> <i>Degradation of habitats (water quality effects - pollution)</i> <i>Temporary disturbance of breeding bird assemblage within the application site and surrounding area (Visual and auditory disturbance).</i>	Local	Not significant	N/A	N/A
Passage birds <i>Permanent loss of foraging and resting habitat used by passage bird assemblage on site</i>	Local	Significant at the Local level	Provision of two floating pontoons to replace resting habitat for passage birds.	Not significant

Summary description of the identified effect	Sensitivity of Receptor	Significance and Nature of Effect	Additional Mitigation	Residual Significance and Nature of Effect
Passage birds <i>Degradation of habitats used by breeding bird assemblage (air quality effects)</i> <i>Degradation of habitats (water quality effects during BMD infill)</i> <i>Degradation of habitats (water quality effects - pollution)</i> <i>Temporary disturbance of breeding bird assemblage within the application site and surrounding area (Visual and auditory disturbance).</i>	Local	Not significant	N/A	N/A
Wintering birds	The effects of this project upon the wintering bird assemblage are discussed within the international designated site section.			



Summary description of the identified effect	Sensitivity of Receptor	Significance and Nature of Effect	Additional Mitigation	Residual Significance and Nature of Effect
<p>Bats</p> <p>Permanent loss of habitat</p>	Local	Significant at the Local level	<p>Provision of replacement roost site (one bat box).</p> <p>Supervision of works which affect roost space.</p> <p>Site registration under BMCL.</p> <p>Provision of two additional roosts (two bat boxes) as enhancement.</p> <p>Location of bat boxes to be agreed through appropriate planning condition.</p>	Not significant
<p>Bats</p> <p>Degradation of habitats used by bats (air quality effects)</p> <p>Degradation of habitats (water quality effects during BMD infill and pollution)</p> <p>Temporary disturbance of bats within the application site and surrounding area (Visual and auditory disturbance).</p>	Local	Not significant	N/A	N/A

Summary description of the identified effect	Sensitivity of Receptor	Significance and Nature of Effect	Additional Mitigation	Residual Significance and Nature of Effect
Operation				
<p>Statutory Designated Sites</p> <p>Bird strike affecting qualifying/notifiable feature</p>	International	Significant at the International Level	<p>Use of non-reflective glass or installation of patterning, fritting, UV glass or netting on exterior facade.</p> <p>Glazing specification (to reduce transparency / reflectiveness) to be agreed through appropriate planning condition.</p>	Not significant
<p><i>Designated Sites</i></p> <p>Habitat degradation as a result of increased visitor numbers</p> <p>Visual and auditory disturbance</p> <p>Visual disturbance (lighting)</p> <p>Habitat degradation - Air quality</p> <p>Habitat degradation from pollution via surface water runoff and foul water drainage</p>	International/National	Not significant	N/A	N/A

Appendix 12.1 Biodiversity



Summary description of the identified effect	Sensitivity of Receptor	Significance and Nature of Effect	Additional Mitigation	Residual Significance and Nature of Effect
<p>Non statutory designated sites</p> <p><i>Habitat degradation as a result of increased visitor numbers</i></p> <p><i>Visual and auditory disturbance</i></p> <p><i>Visual disturbance (lighting)</i></p> <p><i>Habitat degradation - Air quality</i></p> <p><i>Habitat degradation from pollution via surface water runoff and foul water drainage</i></p>	County	Not significant	N/A	N/A
<p>Breeding birds</p> <p><i>Disturbance during operation of site</i></p>	Local	Not significant	<p>N/A</p> <p>Note, use of measures to prevent nesting within/on the stadium structure are to be agreed through appropriate planning condition.</p>	N/A

Summary description of the identified effect	Sensitivity of Receptor	Significance and Nature of Effect	Additional Mitigation	Residual Significance and Nature of Effect
<p>Breeding birds</p> <p><i>Bird strike</i></p>	Local	Significant at the Local level	<p>Use of non-reflective glass or installation of patterning, fritting, UV glass or netting on exterior facade.</p> <p>Glazing specification (to reduce transparency / reflectiveness) to be agreed through appropriate planning condition.</p>	Not significant
<p>Passage bird assemblage</p> <p><i>Disturbance during operation of site</i></p>	Local	Not significant	N/A	N/A
<p>Passage bird assemblage</p> <p><i>Bird strike</i></p>	Local	Significant at the Local level	<p>Use of non-reflective glass or installation of patterning, fritting, UV glass or netting on exterior facade.</p> <p>Glazing specification (to reduce transparency / reflectiveness) to be agreed through appropriate planning condition.</p>	Not significant



Summary description of the identified effect	Sensitivity of Receptor	Significance and Nature of Effect	Additional Mitigation	Residual Significance and Nature of Effect
Bats <i>Auditory and visual disturbance</i>	Local	Not significant	N/A	N/A



12.15 References

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12.16 Glossary

Term	Definition
BCT	Bat Conservation Trust
ALSE	Assessment of Likely Significant Effects
BAP	Biodiversity Action Plan
BoCC	Birds of Conservation Concern
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CROW Act	Countryside and Rights of Way Act 2000
EcIA	Ecological Impact Assessment



Term	Definition
EPSL	European Protected Species Licence
ES	Environment Statement
HPI	Habitat of Principal Importance
HRA	Habitat Regulation Assessment
LCC	Liverpool City Council
LCR	Liverpool City Region
LPA	Local Planning Authority
LWS	Local Wildlife Site
MEAS	Merseyside Environmental Advisory Service
NERC	Natural Environment and Rural Communities
NPPF	National Planning Policy Framework
SAC	Special Area of Conservation
SEMP	Strategic Ecological Mitigation Plan
SINC	Site of Importance for Nature Conservation
SPA	Special Protection Area
SPI	Species of Principal Importance
SSSI	Site of Special Scientific Interest
WCA	The Wildlife and Countryside Act 1981 (as amended)



Technical Appendix 1 – WYG, (2019a), Bramley-Moore Dock: Ecological Appraisal, Report on behalf of Everton Stadium Development Limited, Project Number A100795.



Bramley-Moore Dock

Ecological Appraisal



**For Everton Stadium Development
Limited**

August 2020

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Document Control

Project: Bramley-Moore Dock
 Client: Everton Stadium Development Limited
 Job Number: A100795
 File Origin: Z:\Projects\Projects A100000 on\A100795 Bramley-Moore Dock,
 Liverpool\REPORTS\Update Phase 1

Version 1	August 2020	FINAL
Prepared by:		Jessica Yorke GradCIEEM Consultant Ecologist
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Version:	Date:	Updated by:	Verified by:	Description of changes:
2	13.3.2020	G Bishop	P Preston 	Development proposal amended
3	05.08.2020	J.Yorke	P Preston 	Development proposal amended

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Executive Summary

Contents	Summary
Site Location	The site is located within the Port of Liverpool, alongside the River Mersey, Liverpool and is centred at Ordnance Survey National Grid Reference SJ3345292491.
Proposals	<p>The development proposals comprise a full planning application for the development of a 52,888-seat capacity stadium with associated facilities and infrastructure at Bramley-Moore Dock, Liverpool. A detailed description is provided in the wider planning application submission (Planning Statement, Environmental Statement etc.). However, in summary, the application proposes:</p> <ul style="list-style-type: none"> • Demolition of non-listed structure; part demolition of listed structures (Regent Road wall); remediation; infill of BMD; engineering works; and alterations to the dock walls to accommodate the development of the stadium (Use Class D2) with vehicle parking (external at grade). • Creation of new (non-navigable) water channel, vehicular and pedestrian accesses, and hard / soft landscaping (including lighting, public art and boundary treatments). • Proposed change of use of the Grade II listed Hydraulic Tower structure to exhibition/cultural centre (Use Class D1) (works to the tower to be subject to a separate listed building consent submissions). <p>The stadium is proposed to be orientated north-south with public realm and circulatory space to the west beyond the new water channel and a large fan zone plaza to the east with some soft landscaping.</p>
Existing Site Information	<ul style="list-style-type: none"> • WYG (2009). Peel Land and Property (Ports) Ltd Liverpool Waters Breeding Bird Survey Report. • WYG (2010). Liverpool Waters Environmental Statement. • WYG (2011). Peel Land and Property (Ports) Ltd Liverpool Waters Wintering & Spring Passage Bird Survey. • WYG 2013-4 study of Non-breeding Birds, Liverpool Docks (collection of monthly reports). • TEP (2015). Assessment of Supporting Habitat (Docks) for use by Qualifying Features of Natura 2000 Sites in the Liverpool City Region. Ornithology Report. Report ref: 4157.005. August 2015. • WYG Wintering Bird survey, 2016-17. • WYG Breeding Bird Survey, 2017-18. • WYG Bird Report (2019a) including wintering bird survey 2018-2019, breeding bird survey 2019 and ferry bird survey 2019. • WYG Bat Survey Report (2019b)



Scope of this Survey(s)	Extended Phase 1 Habitat Survey (including external inspection of onsite buildings for bat and bird potential) and desk study to determine likelihood of protected sites, habitats and species being affected by the proposed works and to recommend further works as necessary.
Results	<p>There has been minimal change to habitats and site use on site since the 2017 Phase 1 survey.</p> <p>Designated Sites Mersey Narrows and North Wirral Foreshore Ramsar/SPA/ Marine SPA, Liverpool Bay (including extension) Marine SPA and Mersey Narrows SSSI within 2km of the site. Other Ramsar, SAC and SPA's within 20km of the site. Three LWS within 2km of the site.</p> <p>Habitats No protected or notable habitats were identified on the site.</p> <p>Protected and Notable Species Three buildings (B1, B2, B5) and the sea wall tunnels (T1, T2, T3) have low – moderate suitability to support roosting bats. The most recent bat survey results (2019) are presented and discussed in the Bat Survey Report (WYG, 2019b). The habitats on site have the potential to support fish populations; a series of aquatic surveys have been undertaken. The site has been recorded as supporting foraging, roosting and breeding birds, including species which are qualifying features of the nearby SPA. The most recent bird surveys are presented and discussed in the Bird Surveys Report 2018-2019 (WYG, 2019a). One invasive bird species, Canada goose, was recorded on site and breeding. No invasive plant species were recorded on site.</p>



Glossary

Annex 1	Species listed on Annex 1 of the EU Birds Directive.
BCT	Bat Conservation Trust
BoCC	Bird(s) of Conservation Concern
BoCC Amber	Bird(s) of Conservation Concern Amber list species
BoCC Red	Bird(s) of Conservation Concern Red list species
BTO	British Trust for Ornithology
CEcol	Chartered Ecologist
CIEEM	Chartered Institute of Ecology & Environmental Management
CRoW Act	Countryside and Rights of Way Act 2000
DEFRA	Department for the Environment, Food and Rural Affairs
EPSL	European Protected Species Licence
GCN	Great Crested Newt
Habitat Regulations	Conservation of Habitats and Species Regulations 2017 (as amended)
HAP	Habitat Action Plan
Hedgerow Regulations	Hedgerow Regulations 1997
HPI	Habitat(s) of Principal Importance
JNCC	Join Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
LWS	Local Wildlife Site
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
Natura 2000 site	A European site designated for its nature conservation value
NE	Natural England
NERC	Species of Principal Importance as listed under section 41 of the Natural Environment and Rural Communities Act (2006)
NERC Act	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NS	Nationally scarce species
RLGB.VU IUCN (2001)	Vulnerable under the International Union for Conservation of Nature
RSPB	Royal Society for the Protection of Birds
S41	Section 41 of the Natural Environment and Rural Communities Act 2006
SAC	Special Area of Conservation
SAP	Species Action Plan
SPA	Special Protection Area
SPA sp.	Special Protection Area qualifying species
SSSI	Site(s) of Special Scientific Interest
W&CA	Wildlife & Countryside Act 1981 (as amended)
W&CA Sch 1	Wildlife & Countryside Act 1981 (as amended) Schedule 1 listed species
W&CA8	Wildlife & Countryside Act 1981 (as amended) Schedule 8 listed species

1.0 Introduction

1.1 Background

WYG was commissioned by Everton Stadium Development Limited in May 2019 to undertake an Ecological Appraisal of the site known as Bramley-Moore Dock in Liverpool.

This report has been prepared by WYG Ecologist Jessica Yorke GradCIEEM BSc (Hons) MSc and the conditions pertinent to it are provided in Appendix A. Following a series of scheme design changes and consultation with Natural England, Merseyside Environmental Advisory Service in 2020 (summarised within Appendix 12.1 ES Volume II) the ES for this project has been updated. However, design scheme changes and consultation with statutory bodies is not relevant to this baseline report.

1.2 Site Location

The 'site' is located at Bramley-Moore Dock in the Port of Liverpool and is centred at Ordnance Survey National Grid Reference SJ33452 92491.

The site red line boundary is shown on Figure 1 and the site comprises a dock with hardstanding, various buildings and a waterbody being mostly enclosed by the dock walls with a narrow entrance into the adjacent docks to the north, leading to the River Mersey.

Bramley-Moore Dock is bounded by the Dock Boundary Wall and Regent Road to the east, Nelson Dock to the south, the eastern bank of the River Mersey to the west, the Sandon Half-Tide Dock to the north west and the United Utilities Liverpool Wastewater Treatment Works to the north east. The city centre of Liverpool is approximately 1.5km south

1.3 Development Proposals

The development proposals comprise a full planning application for the development of a 52,888-seat capacity stadium with associated facilities and infrastructure at Bramley-Moore Dock, Liverpool. A detailed description is provided in the wider planning application submission (Planning Statement, Environmental Statement etc.). However, in summary, the application proposes:

- Demolition of non-listed structure; part demolition of listed structures (Regent Road wall); remediation; infill of BMD; engineering works; and alterations to the dock walls to accommodate the development of the stadium (Use Class D2) with vehicle parking (external at grade).
- Creation of new (non-navigable) water channel, vehicular and pedestrian accesses, and hard / soft landscaping (including lighting, public art and boundary treatments).
- Proposed change of use of the Grade II listed Hydraulic Tower structure to exhibition/cultural centre (Use Class D1) (works to the tower to be subject to a separate listed building consent submissions).



The stadium is proposed to be orientated north-south with public realm and circulatory space to the west beyond the new water channel and a large fan zone plaza to the east with some soft landscaping.

1.4 Purpose of the Report

The purpose of this report is to complete:

- A desk study of existing information on statutory and non-statutory sites of nature conservation interest and relevant records of protected/notable species within the site and its zone of influence;
- An updated extended Phase 1 Habitat survey, involving a walkover of the site to record habitat types and dominant vegetation, including any invasive species, and a reconnaissance survey for evidence of protected fauna or habitats capable of supporting such species;
- An updated assessment of the potential ecological receptors present on site, identify any constraints they pose to future development and (if possible) any recommendations for any further surveys.

This report will be used to inform a planning decision.

Note that scientific names are provided at the first mention of each species and common names (where appropriate) are then used throughout the rest of the report for ease of reading.

A summary of the key legislation is also provided in Appendix B.



2.0 Methodology

2.1 Desk Study

2.1.1 Previous Reports

The following reports/studies are of relevance to the project and were therefore reviewed as part of the desk study:

- WYG Breeding Bird Survey of the Liverpool Docks 2009 (WYG, 2009).
- WYG Wintering and Spring Passage Bird Survey 2010-11 (WYG, 2011).
- WYG also undertook surveys of non-breeding birds using the area between Bramley-Moore Dock and Princess Dock between October 2013 and May 2014, to inform a development project for the area. These surveys were conducted monthly, including some night-time surveys. This study was not the subject of a separate report, but the data collected was used to inform this report.
- The Environment Partnership (TEP 2015) carried out a 12 month study of the use of the active and inactive dock systems in Liverpool and Birkenhead by non-breeding birds. The project was carried out to fill crucial gaps in knowledge regarding use of the dock systems as supporting habitat by birds that are qualifying features in their own right, and/or are part of the qualifying waterbird assemblage for nearby Natura 2000 sites, including Mersey Narrows and North Wirral Foreshore SPA and Ramsar Site, Mersey Estuary SPA and Ramsar Site and Dee Estuary SPA and Ramsar Site.
- WYG Ecological Appraisal of the site 2017 (WYG, 2017).
- WYG undertook a series of wintering bird surveys at the site during 2016-2017. A report on these surveys was not commissioned. WYG undertook a series of breeding and passage bird surveys in 2017-2018 and a Breeding Bird Survey report on those was produced in October 2018. This report also included some of the wintering bird survey data collected by WYG during 2016-2017.
- WYG Bird Surveys 2018-2019 (WYG, 2019a) includes breeding bird surveys, a kittiwake ferry survey and wintering bird surveys.
- WYG Bat Surveys (WYG, 2019b).

2.1.2 Local Ecological Records Centre

In 2017 information was requested from the local ecological record centres Merseyside BioBank and RECORD for information on non-statutory nature conservation designations and records of protected and notable bird species records within 2km of the site. The data gathered in 2017 has been used to



inform this report. No updated data request was issued to either ecological record centre as there have been no significant change to the site, its use or its surroundings since 2017.

The data search covered:

- Statutory designated sites for nature conservation, namely SACs, SPAs, Ramsar sites, SSSIs, NNRs and LNRs;
- Non-statutory designated sites for nature conservation, namely LWS;
- Legally protected species, such as great crested newts *Triturus cristatus*, badger *Meles meles* and bats;
- Notable habitats and species, such as those listed as Habitats or Species of Principal Importance (HPIs or SPIs); and,
- Priority habitats or species within the North Merseyside LBAP.

The data search did not cover:

- Tree Preservation Orders (TPOs); or
- Conservation Areas designated for their special architectural and historic interest.

2.1.3 Local Species Recorders

The following local species recorder groups were also contacted in 2017 for any relevant records that they held; as per the LERC, no updated consultation was undertaken:

- County Bird Recorded, Steve White (pers. comm.); and
- North Merseyside Amphibian and Reptile Group.

Note that relevant extracts from the desk study are provided in Appendix C, as appropriate.

2.1.4 Online Resources

A search for relevant information was also made on the following websites:

- MAGIC www.magic.gov.uk - DEFRA's interactive, web-based database for statutory designations and information on any EPSL applications that have been granted in the local area since 2015.

The NBN Atlas was not consulted as the data was included within the Merseyside BioBank records.

2.2 Field Surveys

The following methodologies have been used to identify the ecological receptors present on or near the site, which are relevant to the proposed development.

2.2.1 Habitats

An extended Phase 1 habitat survey was undertaken on the site on 14th May 2019 by WYG Consultant Ecologist Jessica Yorke BSc (Hons) MSc. The weather conditions were dry and sunny with an average temperature of 18°C.

The vegetation and broad habitat types within the site were noted during the survey in accordance with the categories specified in a Handbook for Phase 1 Habitat Survey (JNCC, 2010). Dominant plant species were recorded for each habitat present using nomenclature according to Stace (2019). The site was also appraised for its suitability to support notable flora, with regard to the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017).

2.2.2 Protected & Notable Species

The site was inspected for evidence of, and its potential to support, protected or notable species, especially those listed under the Schedule 2 of the Habitat Regulations, Schedule 5 of the W&CA, the CRoW Act, those given extra protection under the NERC Act, and species included in the North Merseyside LBAP.

Great Crested Newt

The site was appraised for its suitability to support great crested newt *Triturus cristatus*. The assessment was based on Guidance outlined in the *Herpetofauna Workers' Manual* (Gent & Gibson, 2003) and the *Great Crested Newt Conservation Handbook* (Langton, Becket & Foster, 2001).

Bats

Roosting Bats – Buildings / Structures / Trees

Any suitable buildings or structures on site were assessed from the ground for their suitability to support breeding, resting and hibernating bats using survey methods based on the BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016) – hereafter referred to as the 'BCT Guidelines'. The following system has therefore been used to categorise the bat roost suitability of any features found:

Table 1 Categories of Bat Roost Suitability (BCT Guidelines)

Suitability	Typical Roosting Features
Negligible	Negligible habitat feature on site likely to be used by roosting bats.

Suitability	Typical Roosting Features
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis & potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Foraging/commuting Bats

The BCT Guidelines use the following criteria to categorise the potential value of habitats and features for use by foraging and commuting bats and these have been used to characterise the value of this site:

Table 2 Categories of Habitat Suitability (BCT Guidelines)

Suitability	Typical Foraging & Commuting Features
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

Reptiles

The site was appraised for its suitability to support reptiles. The assessment was based on guidance outlined in the *Herpetofauna Workers' Manual* (Gent & Gibson, 2003).



Badgers

The site was surveyed for evidence of badger *Meles meles* setts or other badger activity such as paths, latrines or signs of foraging. Methodologies used and any setts recorded were classified according to published criteria (Harris, Cresswell & Jefferies, 1989).

Other Species

The site was also appraised for its suitability to support other protected or notable fauna including mammals, amphibians, birds and invertebrates with regard to the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017) and *BS42020:2013 Biodiversity – Code of Practice for Planning and Development* (BSI, 2013). Evidence of any current or historical presence of such species was recorded.

2.2.3 Invasive Species

The site was searched for evidence of invasive plant species, such as Japanese knotweed *Reynoutria japonica* (formerly *Fallopia japonica*), Indian (Himalayan) balsam *Impatiens glandulifera*, giant hogweed *Heracleum mantegazzianum*, wall cotoneaster *Cotoneaster horizontalis* and rhododendron *Rhododendron ponticum* × *Rhododendron maximum*. A full list of all invasive plant species is provided in Appendix B.

2.3 Limitations

The optimal period to undertake an extended Phase 1 habitat survey is April-September. The survey was completed in May which is inside the optimal survey window. As such this is not considered to be a limitation to the accurate assessment of the habitats as the dominant species of the respective vegetation types were visible and identifiable.

Some areas of the site were viewed using binoculars only, as access was not possible, such as the northern length of building B5. Visibility was good on the day of survey and it is considered that this use of binoculars does not constitute a limitation.

Access to all areas of the site was available for the survey, with the exception of the north side of the timber warehouse (building B5) which runs adjacent to the dock edge. This was viewed with the aid of binoculars from suitable vantage points adjacent to the building and on the opposite (north) side of the Dock. All areas of the site were consequently visible for the survey.

To determine presence or likely absence of protected species usually requires multiple visits at suitable times of the year. As a result, this survey focuses on assessing the potential of the site to support species of note, which are considered to be of principal importance for the conservation of biodiversity with reference to those given protection under UK or European wildlife legislation. This report cannot therefore be considered a comprehensive assessment of the ecological interest of the site. However, it



does provide an assessment of the ecological interest present on the day the site was visited and highlights areas where further survey work may be recommended.

The details of this report will remain valid for a period of **24 months** from the date of the survey where there are no changes to land use, habitats or surrounding areas, after which the validity of this assessment should be reviewed to determine whether further updates are necessary. If there are changes to the land use, habitats on site and surrounding areas, this report will remain valid for a period of **12 months**.

3.0 Baseline Conditions

3.1 Designated Sites

The following designated sites of ecological importance have been identified within 2km of the site; Figure 3 shows the location of the statutory designated sites in relation to the site.

Table 3 Designated Sites Within 2km

Designation	Site Name	Approximate distance (km) and direction from site	Summary of features
Statutory Designated Sites			
Marine SPA	Liverpool Bay (including extension)	Immediately adjacent to the western boundary of the site	Located between Fleetwood (Lancashire) to the north and the east coast of Anglesey (North Wales) to the south west, and recently extended to adjoin the Mersey Estuary SPA. First designated (or 'classified') in 2010 to protect red-throated diver <i>Gavia stellata</i> and common scoter <i>Melanitta nigra</i> and a significant waterbird assemblage in the non-breeding season. The recent extension is classified to protect the foraging areas of little gull <i>Hydrocoloeus minutus</i> and breeding little tern <i>Sternula albifrons</i> and common tern <i>Sterna hirundo</i> .
SPA/ Marine SPA	Mersey Narrows and North Wirral Foreshore	1.22 W	Large areas of intertidal sand and mudflats, providing an important feeding habitat for birds, especially wading birds including the qualifying species bar-tailed godwit <i>Limosa lapponica</i> , and knot <i>Calidris canutus</i> in winter. Other qualifying species are little gull and common tern on passage, the latter also as a breeding species. The site also supports nationally important numbers of cormorant <i>Phalacrocorax carbo</i> , grey plover <i>Pluvialis squatarola</i> , sanderling <i>Calidris alba</i> , dunlin <i>Calidris alpina</i> , redshank <i>Tringa totanus</i> and oystercatcher <i>Haematopus ostralegus</i> .
Ramsar Site	Mersey Narrows and North Wirral Foreshore	1.22 W	This site occupies the same area, and therefore comprises the same habitats and species, as the Mersey Narrows and North Wirral Foreshore SPA and Marine SPA.
SSSI	Mersey Narrows	1.22 W	Notified for its large areas of intertidal sand and mudflats, which support

Designation	Site Name	Approximate distance (km) and direction from site	Summary of features
			internationally important populations of turnstone, redshank and nationally important populations of cormorant. Located at the mouth of the Mersey Estuary and comprises Seaforth on the east bank and Egremont Foreshore on the west side. The two areas are considered to be an integral site on the basis of the constant interchange of bird populations. Egremont Foreshore is particularly important as a feeding site for birds at low tide, whilst Seaforth is particularly important as a high tide roost site. Seaforth is also important as a breeding site for common tern and ringed plover, both of regional importance, also little gull on passage.
Non-Statutory Sites			
LWS	Leeds-Liverpool Canal	0.37 SE	The canal connects with the River Mersey via the Stanley Dock to Pier Head Link and supports a variety of plant species, including nine locally rare species. Many waterbirds breed along the canal, including mute swan <i>Cygnus olor</i> , mallard <i>Anas platyrhynchos</i> , coot <i>Fulica atra</i> , moorhen <i>Gallinula chloropus</i> and grey wagtail <i>Motacilla cinerea</i> . The canal is also important for wintering birds, including kingfisher <i>Alcedo atthis</i> , great crested grebe and goldeneye <i>Bucephala clangula</i> . The site constitutes an important foraging area for peregrine falcon <i>Falco peregrinus</i> which breeds and roosts on the nearby Tobacco Warehouse.
LWS	Melrose Cutting	1.37 NE	No information available.
Potential LWS	Everton Park Nature Garden	1.63 SE	No information available.

In addition further Natura 2000 and Ramsar sites within 20km (and over 2km) of the site are presented in Table 4 below; Figure 3 also shows the location of these designations in relation to the site.

Table 4. Further Natura and Ramsar Sites between 2km and 20km from the site.



Designation	Site Name	Approximate distance (km) and direction from site	Summary of features
SAC	Dee Estuary	2.73 NW	Extends from the west bank of the Mersey Estuary, to the north coast of Wales and spans the border between England and Wales. It is designated for a range of habitats and species listed in the EU Habitats Directive, including mudflats and sandflats exposed at low tide, <i>Salicornia</i> and other annual plants colonizing mud and sand, also Atlantic salt meadows.
SPA/ Marine SPA	Ribble and Alt Estuaries	4.52 NW	<p>Extends from Lytham St Anne's in Lancashire to Seaforth on Merseyside and consists mostly of marine habitats. The extensive sand- and mud-flats provide a rich invertebrate food supply for wading birds, whilst the saltmarshes and coastal grazing marshes support high densities of grazing and seed-eating wildfowl. The SPA also contains important high-tide roosts for waders and wildfowl.</p> <p>SPA qualifying breeding bird species are common tern, lesser black-backed gull <i>Larus fuscus</i>, black-headed gull <i>Chroicocephalus ridibundus</i> and ruff <i>Calidris pugnax</i>.</p> <p>Important populations of waterbirds occur in winter, and SPA qualifying wintering species are Bewick's swan <i>Cygnus columbianus</i>, whooper swan <i>Cygnus cygnus</i>, pink-footed goose <i>Anser brachyrhynchus</i>, shelduck <i>Tadorna tadorna</i>, common scoter, scaup <i>Aythya marila</i>, teal <i>Anas crecca</i>, wigeon <i>Anas penelope</i>, pintail <i>Anas acuta</i>, cormorant, bar-tailed godwit, black-tailed godwit <i>Limosa limosa</i>, golden plover <i>Pluvialis apricaria</i>, grey plover, sanderling, dunlin, knot, oystercatcher, curlew <i>Numenius arquata</i>, redshank and lapwing <i>Vanellus vanellus</i>.</p> <p>This SPA is also of major importance during the spring and autumn migration periods, especially for wader populations moving along the west coast of Britain, with ringed plover <i>Charadrius hiaticula</i>, sanderling, whimbrel <i>Numenius phaeopus</i></p>



			and redshank being qualifying passage bird species.
Ramsar Site	Ribble and Alt Estuaries	4.52 NW	The site overlaps the majority of the Ribble and Alt Estuaries SPA/Marine SPA, but includes the Birkdale and Ainsdale sand dunes, north of Formby, which are excluded from the SPA. Particular qualifying features of this Ramsar site are the presence of 40% of the British population of natterjack toads <i>Epidalea calamita</i> and a waterfowl assemblage of international importance, also 2.7% of the British breeding population of lesser black-backed gull.
SAC	Sefton Coast	5.13 NW	The site extends along the coast from Southport to Crosby. The SAC is designated for a range of habitats and species listed under Annexes I and II respectively, of the EU Habitats Directive. The important habitats include embryonic shifting dunes, shifting dunes along the shoreline, fixed coastal dunes and humid dune slacks. Important species include sand lizard <i>Lacerta agilis</i> , natterjack toad, petalwort <i>Petalophyllum ralfsii</i> (a bryophyte) and other rare plant species.
SPA/ Marine SPA	Mersey Estuary	5.45 S	This SPA occupies an area from Runcorn Gap, to the east, to just south of the Tranmere Beach Oil Terminal. The intertidal sand-flats, mud-flats and saltmarshes provide feeding and roosting sites for large populations of waterbirds. Pintail, teal, shelduck, wigeon, great crested grebe, golden plover, grey plover, dunlin, redshank, black-tailed godwit, curlew and lapwing are all SPA qualifying species in winter. The SPA is also important during the spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain, including the SPA qualifying species redshank and ringed plover.
Ramsar Site	Mersey Estuary	5.45 S	This site occupies the same area, and therefore comprises the same habitats and species as the Mersey Estuary SPA/ Marine SPA.
SPA/ Marine SPA	The Dee Estuary	13.57 SW	This SPA includes extensive areas of intertidal sand-flats, mud-flats and saltmarsh. Where agricultural land-claim has not occurred, the saltmarshes grade into transitional brackish and swamp vegetation on the upper shore. The SPA

			<p>also includes the three sandstone islands of Hilbre. The two shorelines of the estuary show a marked contrast between the industrialised usage of the coastal belt in Wales and residential and recreational usage in England.</p> <p>This SPA is of major importance for waterbirds. During the winter, it provides feeding and roosting sites for large populations of ducks and waders, including the SPA qualifying species pintail, shelduck, teal, bar-tailed godwit, black-tailed godwit, curlew, dunlin, grey plover, knot and oystercatcher. Redshank and sandwich tern <i>Sterna sandvicensis</i> are passage SPA qualifying species.</p> <p>In summer, the area supports breeding populations of two species of terns which are SPA qualifying species, common tern and little tern.</p>
Ramsar Site	The Dee Estuary	13.57 SW	This site occupies the same area as The Dee Estuary SPA and Marine SPA and therefore comprises the same habitats and species as those sites.

The qualifying features of each designation are detailed in Appendix C.

3.2 Habitats

The Merseyside BioBank and RECORD search and online desk study MAGIC search provided the following records of NERC S41 Habitats of Principal Importance and LBAP Priority Habitats within 2km of the site (Table 5).

Table 5. Habitats of Principal Importance and LBAP Priority Habitats within 2km of the site

Designation	Habitat Type	Number of areas with 2km	Approximate distance (km) and direction from site of the nearest of each habitat type
NERC S41	Intertidal mudflats	5	0.2 SW
NERC S41, LBAP	Woodland	8	1.1 E
LBAP	Neutral grassland	1	1.6 NE
LBAP	Ponds	1	1.8 E

Figure 2 presents the habitats identified through our assessment, with detailed Target Notes included in Appendix D, as appropriate. There has been minimal change on site since the 2017 extended Phase 1 habitat survey.



3.2.1 Scattered Scrub

There were several small areas of scattered scrub recorded throughout the site. The extent of the areas had increased since the original 2017 Phase 1 survey; presumably as areas have been left unmanaged and scrub has been allowed to grow. Dominant scrub species present included; elder *Sambucus nigra*, bramble *Rubus fruticosus* agg. and buddleja *Buddleja davidii*. In addition the following grass and herbaceous species were recorded; common ragwort *Senecio jacobaea*, Yorkshire fog *Holcus lanatus*, cock's-foot grass *Dactylis glomerata*, spear thistle *Cirsium vulgare*, ribwort plantain *Plantago lanceolata*, ragged robin *Lychnis flos-cuculi*, common stork's-bill *Erodium cicutarium*, scarlet pimpernel *Anagallis arvensis* ssp. *arvensis*, Canadian fleabane *Conyza canadensis* and common nettle *Urtica dioica*.

3.2.2 Tall ruderal

Several small areas of tall ruderal vegetation were recorded throughout the site, as was also found during the original 2017 Phase 1 survey. Dominant species present were rosebay willowherb *Chamerion angustifolium*, broad-leaved dock *Rumex obtusifolius* and mugwort *Artemisia vulgaris*. In addition the following scrub, grasses and flowering plant species were present within the area of tall ruderals: snowberry *Symphoricarpos albus*, annual meadow-grass *Poa annua*, Spanish bluebell *Hyacinthoides hispanica* and red osier dogwood *Cornus sericea* were occasionally present.

3.2.3 Open Water

The centre of the site was comprised of a large deep waterbody which leads in to Sandon Half-Tide Dock from the north west corner and into Nelson Dock from the south west corner.

3.2.4 Ephemeral/Short Perennial

Several small areas and scattered patches of ephemeral/short perennial were identified across the site. Coverage of this habitat has increased since 2017, likely due to the site sitting largely unused allowing areas of vegetation to spread. Species recorded were; broad-leaved willowherb *Epilobium montanum*, common ragwort, Canadian fleabane, common birds-foot trefoil *Lotus corniculatus*, wavy bittercress *Cardamine flexuosa*, white clover *Trifolium repens*, ribwort plantain, colt's-foot *Tussilago farfara*, hemlock *Conium maculatum*, white stonecrop *Sedum album* and English stonecrop *Sedum anglicum*.

3.2.5 Introduced shrub

A small area adjacent to the eastern site wall and a small area within the timber yard within the south east corner of the site had been planted with non-native shrub species and cultivars including *forsythia*, cultivated rose *Rosa* sp., golden honeysuckle *Lonicera x heckrottii*, *Olearia*, *fuchsia*, rosemary *Rosmarinus officinalis* and lilac *Syringa vulgaris*. This habitat was recorded in the 2017 survey and is comprised of a similar species assemblage in 2019. It does however, have a slightly more unmanaged and overgrown appearance.



3.2.6 Bare Ground - Hardstanding

The majority of the site surrounding the open water was bare ground comprising of hardstanding. There was a sand mound along the northern length of the site, but the majority of the sand mounds recorded during the 2017 Phase 1 survey had gone when the site was visited in 2019.






3.2.7 Buildings and Structures

There were nine buildings, three tunnel structures and a large brick wall within the site.

Table 6 Buildings and Structures Description and Photographs

Structure name (and reference)	Description	Photograph
Building 1 (B1)	An old hydraulic engine house known as the 'Pump House' situated in the north east corner of the site. It is a grade II listed building which was originally used to provide hydraulic power to operate the dock gates. It is a brick building with tiled roofs at various levels. It is in poor condition with missing windows and multiple holes and cracks, some of which were a substantial size.	
Building 2 (B2)	A brick building with flat roofs at varying levels situated in the north west side of the site. Some sections are still in use as workshop space whereas some sections are derelict with broken windows, cracks and holes within the roofs and walls.	
Building 3 (B3)	A very small flat roofed brick building in the north west of the site. It is in a poor condition with a missing door and missing window panes.	

Building 4 (B4)	A very small flat roofed brick building in the north west of the site on the outer dock wall. The door is boarded up and there are a few cracks and small holes in the walls.	
Building 5 (B5)	A long brick building, used as a warehouse as well as for music events (involving strobe lighting and loud music). It has an overhanging canopy along the southern length. The roof is pitched and constructed of metal sheeting. It is generally in good condition except for a few cracks and holes along the southern length close to the canopy.	
Building 6 (B6)	A small brick building with flat roof situated in the south west corner of the site close to the outer dock wall. It is in poor condition with the door missing and from the prints in the sand on the floor evidence of heavy use by birds, possibly Canada geese or shelduck.	
Building 7 (B7)	Prefabricated cabin building used as an office space. In a worn but maintained condition.	

Building 8 (B8)	Prefabricated cabin building in a worn but maintained condition.	
Building 9 (B9)	Single-storey brick structure, worn but maintained condition.	
Tunnel 1 (T1)	An old small tunnel constructed within the sea wall, located at the north western edge of the site. It has fallen into a state of disrepair and is in a poor condition.	
Tunnel 2 (T2)	An old small tunnel constructed within the sea wall, located at the north western edge of the site. It has fallen into a state of disrepair and is in a poor condition.	
Tunnel 3 (T3)	An old small tunnel constructed within the sea wall, located at the north western edge of the site. It has fallen into a state of disrepair and is in a poor condition.	

<p>Brick Wall (TN01)</p>	<p>A large wall constructed of blocks of stones forms the eastern site boundary, parallel to Regent Road. It is largely in good condition except for a few shallow crevices and gaps which appeared to be superficial.</p>	
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3.3 Protected & Notable Species

3.3.1 Great Crested Newts

The desk study returned no records of great crested newts (GCN) within 2km of the site. A search on MAGIC found no records of Granted European Protected Species Applications for GCN within 2km of the site.

GCN require a cluster of fresh water ponds for breeding. There are no fresh water ponds present on site or within 500m of the site.

The terrestrial habitats present on site are predominantly hard standing, therefore are considered unsuitable to support foraging GCN. The site is separated from any suitable terrestrial habitat by busy roads and urbanised areas.

It is concluded that the site is not likely to support GCN and therefore they are **not considered to be a constraint to the proposed development** and are not considered further in this report.

3.3.2 Reptiles

The desk study produced no records of reptiles within 2km of the site. No reptiles were seen during the survey. The terrestrial habitats on site are considered to be unsuitable to support reptiles due to being predominantly hard standing and therefore lacking foraging, resting or hibernating suitability. In addition the site lacks ecological connectivity to suitable areas in the surrounding area.

It is concluded that the site is not likely to support reptiles and therefore they are **not considered to be a constraint to the proposed development** and are not considered further in this report.



3.3.3 Bats

The Merseyside BioBank and RECORD returned 32 records of bats within 2km of the site, of which 25 were records of roosts. The majority of the records were of common pipistrelle *Pipistrellus pipistrellus* and some of the records denote unspecified bat species. There was at least one other bat species recorded as roosting within 2km of the site; noctule *Nyctalus noctula*. A MAGIC search found the following bat EPSLs within the site or surrounding 2km:

- 2016-25865-EPS-MIT, located approximately 0.3km to the south east of the site, relating to the destruction of a common pipistrelle and noctule resting place between 21.10.16 and 20.10.2012.
- EPSM2012-5383, located 1.6km to the north east of the site, relating to the destruction of a common pipistrelle resting place between 25.09.2013 and 30.09.2015.
- 2015-14421-EPS-MIT, located 1.6km to the west of the site, relating to the destruction of a common pipistrelle resting place between 20.08.2015 and 17.08.2020.

The closest records to the site for bats and bat roosts are summarised in Table 7.

Table 7: Closest Records of Bats and Bat Roosts to Site

Bat species	Location	Approximate Distance (km) & Direction	Record details
Common pipistrelle	Tobacco Warehouse	0.2 SE	21 records of roosts, including at least three locations of day roosts, 2015 & 2016.
Noctule	Tobacco Warehouse	0.2 SE	1 day roost 2016

Roosting

There are no trees on site and therefore, no tree roosting opportunities. All nine buildings were assessed externally for their potential to support roosting bats. The conditions of the buildings had not changed significantly since the 2017 bat roost assessment. A summary of the features with bat roost assessment rating (based on survey completed in 2019) is presented within Table 8.

Table 8: External Building Assessment for Bat Roost Suitability



Building / Structure reference	Feature Description	BCT Rating
B1	<ul style="list-style-type: none"> • Broken windows and windows boarded up. • Roof battens broken creating access to internal spaces. • Weathered and broken brickwork. • Missing bricks. • High number of pigeons nesting – carcasses, eggs, droppings and feathers. • Metal gates that open on to dock. • Missing mortar. • Ceilings absent in toilet blocks – roosting pigeons. • Crevices above door lintels and within door frames. • Gap above archway – double brick missing. • Lifted slates at gable end. • Broken brickwork. • Missing doors • Beams of roof warped and broken. 	Moderate
B2	<ul style="list-style-type: none"> • Cavity wall with exposed cavity spaces. • Numerous holes in wall used for utility access. • Broken windows. • Missing doors. • Missing mortar. 	Low
B3	<ul style="list-style-type: none"> • Flat roofed no features present. 	Negligible
B4	<ul style="list-style-type: none"> • Flat roofed no features present. 	Negligible
B5	<ul style="list-style-type: none"> • Missing mortar - high bird droppings, roosting site for pigeons. • Wooden soffit weathered and damaged above roller shutter door. • Missing brick where roof canopy meets building walls – possible cavity wall. • Missing roof structure/cover. 	Low
B6	<ul style="list-style-type: none"> • Flat roofed no features present. 	Negligible
T1/T2/T3 (Sea Wall)	<ul style="list-style-type: none"> • Some missing mortar and potential cavities. All are brick built and look as if they have depth. 	Low
TN01 (Wall on to Regent Road)	<ul style="list-style-type: none"> • Some missing mortar and potential cavities however upon inspection these were very shallow and mostly filled with sand on the side facing the dock and just shallow on the side facing in to the road. 	Negligible
B7	<ul style="list-style-type: none"> • No features present 	Negligible
B8	<ul style="list-style-type: none"> • No features present 	Negligible
B9	<ul style="list-style-type: none"> • No features present 	Negligible



Bat emergence/re-entry surveys were undertaken of buildings/structures assessed as forming low – moderate bat roost potential in 2017. No roosting bats were identified and only low levels of common pipistrelle and *Myotis* species were recorded and/or observed during the surveys. **Detailed emergence/re-entry surveys were updated in 2019, the results of which are presented in a separate report; Bat Survey Report (WYG, 2019b).**

Foraging/Commuting

The site is considered to provide 'negligible' habitat for foraging and commuting bats due to a lack of habitat features which are likely to attract insects. This remains the same as the 2017 foraging/commuting assessment. **Foraging/commuting bats are therefore not considered to be a constraint to the proposed development** and further surveys were not considered necessary.

3.3.4 Badger

The desk study returned no records of badger within 2km of the site. The predominantly hard standing habitat offers no suitable opportunities on site for sett excavation or foraging by badgers.

It is concluded that the site is not likely to support badgers and therefore they are **not considered to be a constraint to the proposed development** and are not considered further in this report.

3.3.5 Otter & Water Vole

The desk study returned no records of otter *Lutra lutra* within 2km of the site. The steep, solid nature of the dock walls are not considered to offer any opportunities for otters to excavate holts or to forage. It is concluded that the site is not likely to support otter and therefore they are **not considered to be a constraint to the proposed development** and are not considered further in this report.

The desk study returned 4 records of water vole *Arvicola amphibius* within 2km of the site, the closest of which was approximately 500m east of the site, along the Leeds-Liverpool Canal LWS, in 2015. No water voles or signs of water voles were seen during the 2017 survey and the 2019 update survey. The site lacks suitable habitat for breeding or foraging by water voles due to the lack of vegetation and steep, solid dock walls are not considered to offer any opportunities for water vole to make burrows. The site is also separated from any potentially suitable habitat for water voles by busy roads and other urban development. It is concluded that the site is not likely to support water vole and therefore they are **not considered to be a constraint to the proposed development** and are not considered further in this report.

3.3.6 Marine Mammals

The desk study returned several records for two species of marine mammals within 2 km of the site; common porpoise *Phocoena phocoena* and grey seal *Halichoerus grypus*.



It was considered that due to the high sea walls the dock was not suitable for marine mammals to be able to haul out and use the site to rest or bask. In addition the dock is not permanently open to the sea, therefore not providing permanent access from dock to the wider marine environment.

A series of aquatic surveys were undertaken in 2017 by APEM, the full results of these can be found in the report Project Blue (APEM, 2017).

It is concluded that the site is not likely to support marine mammals and therefore they are **not considered to be a constraint to the proposed development** and are not considered further in this report.

3.3.7 Birds

The desk study returned multiple records of a range of bird species being present within 2km of the site. These included breeding, passage and wintering birds.

Nine species of birds listed under Schedule 1 of the W&CA (as amended) have been recorded within 2km of the site. These are black redstart *Phoenicurus ochruros*, common scoter, kingfisher *Alcedo atthis*, little gull, little ringed plover *Charadrius dubius*, Mediterranean gull *Larus melanocephalus*, peregrine falcon, purple sandpiper *Calidris martitima* and whooper swan. Schedule 1 listed species are a material consideration for planning. Of these, there have been recent breeding records of three species: peregrine falcon, little ringed plover and black redstart, all of which have been recorded during past WYG surveys within approximately 1km of the site. (WYG, 2010; WYG, 2018). Peregrine falcon has been recorded breeding regularly at the nearby Tobacco Warehouse (0.3km to the south east) since the 1980's. Black redstart was recorded breeding at the Tobacco Warehouse in 2016 by WYG during ecological surveys there, with a maximum of three nesting pairs.

Fourteen BoCC Red Listed species and twenty-three BoCC Amber List species have been recorded within 2km of the site. Eleven of the species recorded are listed as Species of Principal Importance under Section 41 of the NERC Act.

Nineteen species listed as qualifying or significant in the local SPA's have been recorded within 2km of the site

Protected, notable and SPA listed bird species recorded within 2km of the site through the desk study are summarised in Table 9. Where multiple records for one species exist, the nearest record to the site has been listed in the table. Those species which have been recorded on site have been highlighted within the table.

Table 9: Summary of Desk Study Records for Protected and Notable Bird Species Recorded within 2km of the Site

Common Name	Scientific Name	Status*	Approximate Distance (km) and Direction from Site Boundaries	Year of record
Bar-tailed Godwit	<i>Limosa lapponica</i>	BoCC Amber; SPA sp.	0.7 S	2014
Black Redstart	<i>Phoenicurus ochruros</i>	WCA Sch1; BoCC Red	0.3 SE	2014
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	BoCC Amber; SPA sp.	On site	2013
Bullfinch	<i>Pyrrhula pyrrhula</i>	BoCC Amber; NERC	1.6 NNE	1997
Common Gull	<i>Larus canus</i>	BoCC Amber	On site	2014
Common Scoter	<i>Melanitta nigra</i>	WCA Sch1; BoCC Red; NERC; SPA sp.	0.4 SW	2013
Common Tern	<i>Sterna hirundo</i>	BoCC Amber; SPA sp.	On site	2014
Cormorant	<i>Phalacrocorax carbo</i>	SPA sp.	On site	2014
Curlew	<i>Numenius arquata</i>	BoCC Red; NERC; SPA sp.	0.5 W	2013
Dunlin	<i>Calidris alpina</i>	BoCC Amber; SPA	2.0 WNW	2015
Dunnock	<i>Prunella modularis</i>	BoCC Amber; NERC	0.7 SE	1997
Golden Plover	<i>Pluvialis apricaria</i>	SPA sp.	0.3 SW	2013
Great Black-backed Gull	<i>Larus marinus</i>	BoCC Amber	On site	2013
Herring Gull	<i>Larus argentatus</i>	BoCC Red; NERC	On site	2014
House Sparrow	<i>Passer domesticus</i>	BoCC Red; NERC; LBAP	0.5 SE	2001
Kingfisher	<i>Alcedo atthis</i>	WCA Sch1; BoCC Amber	0.9 S	2014
Knot	<i>Calidris canutus</i>	BoCC Amber; SPA sp.	1.5 W	2014
Lapwing	<i>Vanellus vanellus</i>	BoCC Red; NERC; LBAP; SPA sp.	0.1 SW	2014
Lesser Black-backed Gull	<i>Larus fuscus</i>	BoCC Amber; SPA sp.	On site	2014
Linnet	<i>Linaria cannabina</i>	BoCC Red; NERC	On site	2014
Little Gull	<i>Hydrocoloeus minutus</i>	WCA Sch1; SPA sp.	0.4 NW	2013
Little Ringed Plover	<i>Charadrius dubius</i>	WCA Sch1	1.1 S	2014
Mallard	<i>Anas platyrhynchos</i>	BoCC Amber	On site	2013
Meadow Pipit	<i>Anthus pratensis</i>	BoCC Amber	0.2 S	2014

Common Name	Scientific Name	Status*	Approximate Distance (km) and Direction from Site Boundaries	Year of record
Mediterranean Gull	<i>Larus melanocephalus</i>	Annex 1, WCA Sch1, BoCC Amber	0.5 S	2011
Mute Swan	<i>Cygnus olor</i>	BoCC Amber	On site	2014
Oystercatcher	<i>Haematopus ostralegus</i>	BoCC Amber; SPA sp.	On site	2014
Peregrine	<i>Falco peregrinus</i>	WCA Sch1	On site	2014
Purple Sandpiper	<i>Calidris maritima</i>	WCA Sch1; BoCC Amber	1.8 WNW	2010
Redshank	<i>Tringa totanus</i>	BoCC Amber; SPA sp.	0.3 S	2013
Ringed Plover	<i>Charadrius hiaticula</i>	BoCC Red; SPA	0.2 S	2014
Sanderling	<i>Calidris alba</i>	BoCC Amber; SPA sp.	1.8 WNW	2014
Shag	<i>Phalacrocorax aristotelis</i>	BoCC Red	0.2 N	2013
Shelduck	<i>Tadorna tadorna</i>	BoCC Amber; SPA sp.	On site	2014
Skylark	<i>Alauda arvensis</i>	BoCC Red; NERC; LBAP	0.7 SE	1997
Song Thrush	<i>Turdus philomelos</i>	BoCC Red; NERC; LBAP	0.7 SE	1997
Starling	<i>Sturnus vulgaris</i>	BoCC Red; NERC; LBAP	On site	2013
Turnstone	<i>Arenaria interpres</i>	BoCC Amber; SPA sp.	1.8 W	2014
Twite	<i>Carduelis flavirostris</i>	BoCC Red	1.8 S	2013
Whooper Swan	<i>Cygnus cygnus</i>	WCA Sch1; BoCC Amber; SPA sp.	0.4 W	2013
Woodcock	<i>Scolopax rusticola</i>	BoCC Red	0.9 S	2014
Yellow-legged Gull	<i>Larus michahellis</i>	BoCC Amber	On site	2014

The WYG Breeding Bird Survey 2009 covered an area which included the Bramley-Moore Dock at the northern extremity and a stretch of Dockland for 2km to the south of the site. Several rare and notable bird species were recorded breeding in the Dockland area, especially in a grassland area approximately 1km south of the site, these being skylark, starling, linnet, mallard and ringed plover.

The TEP ornithology report (TEP 2015) identified thirteen species within the site and its immediate vicinity, of which twelve were recorded in the spring and summer breeding season, but no indication of actual breeding is given in the report. Six species were recorded which are qualifying or important assemblage species in the local SPA areas, these being black-headed gull, common tern, cormorant, lesser black-backed gull, oystercatcher and shelduck. Although common tern was only reported as a



fly-over at the site, it was reported to be foraging at the Sandon Half-Tide Dock, immediately adjacent to the north. TEP reported a breeding colony of common tern at Canada Dock North, approximately 1km to the north of the site.

The WYG monthly bird surveys between October 2013 and May 2014 (not covered by a single report) recorded a total of sixteen species within the site and its immediate vicinity, of which six were recorded in the breeding season, but no indication of actual breeding is given. Six species were recorded which are qualifying or important assemblage species in the local SPA areas, these being black-headed gull, common tern, cormorant, lesser black-backed gull, oystercatcher and shelduck.

The WYG wintering bird survey conducted in 2016-2017 and WYG passage / breeding bird surveys conducted 2017-2018 recorded two W&CA Schedule 1 species utilising the site for foraging, these being kingfisher and peregrine.

The WYG ornithology report (WYG 2018) covering 2017-2018 identified a total of six species which were confirmed or considered very likely to be breeding within, or immediately adjacent to the site. These included herring gull, common tern and oystercatcher which are qualifying or important assemblage species in the local SPA areas. A total of twenty-four bird species were recorded within the site during the passage bird surveys, and a further seven species were recorded in the immediate vicinity of the site, six of which are qualifying species or important constituent species of the bird assemblage in the local SPA sites; these being black-headed gull, lesser black-backed gull, cormorant, oystercatcher, ringed plover and shelduck.

During the 2019 extended Phase 1 habitat survey, eight species of bird were observed on site: Canada goose *Branta canadensis*, herring gull, lesser black-backed gull, carrion crow *Corvus corone*, feral pigeon *Columba livia*, magpie *Pica pica*, lapwing and shelduck. Canada goose was likely nesting along the sea wall area in the west of the site and feral pigeon were observed nesting in building B1. Lapwing were recorded off site and suspected to be nesting to the south of the site.

The old buildings present on site were considered to have the potential to support other breeding bird species, such as black redstart, house sparrow and starling. The areas of hard standing, bare ground and were considered to have the potential to support ground nesting species of bird, such as oystercatcher, little ringed plover and various species of gull.

The areas of tall ruderal vegetation and ephemeral/short perennial vegetation were considered to have the potential to support foraging bird species such as goldfinch, house sparrow and linnet, which would feed on the seed heads of the plants. The waterbody of the dock itself was considered to have the potential to support foraging bird species such as cormorant, coot and diving ducks.

WYG have undertaken wintering bird surveys (2018-2019), breeding bird surveys (2019) and a kittiwake ferry survey (2019). Five species which are qualifying or important features of the adjacent SPA and Ramsar sites were recorded utilising the site for foraging and roosting during the wintering bird surveys, these being black-headed gull, lesser black-backed gull, cormorant, oystercatcher, and shelduck. Generally small numbers of each were recorded. Three species which are qualifying and important features of the adjacent SPA and Ramsar sites were recorded utilising the site as a roosting and foraging area in small numbers during the breeding bird surveys; cormorant, shelduck and ringed plover. No kittiwakes were recorded during the ferry bird survey and additional walkover survey. Full details can be found in the 2018-2019 Bird Survey Report (WYG, 2019a).

3.3.8 Fish

The desk study returned numerous records of four species of bony fish from within 2km of the site. These are summarised in Table 10. Where multiple records of a species exist, the nearest record to the site has been listed in the Table 10.

Table 10: Rare and notable bony fish species recorded within 2km of the site

Common Name	Scientific Name	Status*	Approximate Distance (km) and Direction from Site Boundary
Atlantic cod	<i>Gadus morhua</i>	NERC	0.1 NNE
European eel	<i>Anguilla anguilla</i>	NERC	0.1 NNE
Plaice	<i>Pleuronectes platessa</i>	NERC	1.53 WSW
Whiting	<i>Merlangius merlangus</i>	NERC	0.1 NNE

A further three NERC species, Atlantic salmon *Salmo salar*, sea lamprey *Petromyzon marinus* and river lamprey *Lampetra fluviatilis* have been recorded passing up the River Mersey on migration (WYG, 2010).

A series of aquatic ecology surveys were undertaken by APEM in 2017, including fisheries surveys. The fisheries hydroacoustic survey showed there were a large number of fish living within the dock which should be removed. The most common species found was pouting *Trisopterus luscus* and the dock was not considered to be a fish nursery. The full results of all aquatic surveys are presented within the aquatic report Project blue (APEM, 2017).

3.3.9 Invertebrates

The desk study returned records of 10 species of protected and notable invertebrates within 2km of the site. These are summarised in Table 11. Where multiple records of a species exist, the nearest record to the site has been listed in the table.

Table 11: Rare and Notable Invertebrate Species Recorded within 2km of the Site

Common Name	Scientific Name	Status*	Approximate Distance (km) and Direction from Site Boundary
Adonis ladybird	<i>Hippodamia variegata</i>	NERC	1.7 SE
Banded demoiselle	<i>Calopteryx splendens</i>	LBAP	1.7 SSE
Blue tailed damselfly	<i>Ischnura elegans</i>	LBAP	0.7 SW
Brown hawk	<i>Aeshna grandis</i>	LBAP	1.0 SE
Common blue damselfly	<i>Enallagma cyathigerum</i>	LBAP	0.7 SW
Common darter	<i>Sympetrum striolatum</i>	LBAP	0.7 SW
Emperor dragonfly	<i>Anax imperator</i>	LBAP	1.0 SE
Marsh pond snail	<i>Lymnaea palustris</i>	NERC	0.7 SW
Southern hawk	<i>Aeshna grandis</i>	LBAP	0.7 SW
Wall (butterfly)	<i>Lasiommata megera</i>	NERC	0.7 SW

No rare or notable invertebrates were recorded during the extended Phase 1 habitat survey completed in 2017 or the updates Phase 1 habitat survey completed in 2019. It is considered that there is no suitable habitat within the site to support any of the notable invertebrates listed above.

It is concluded that the site is not likely to support notable invertebrates and therefore they are **not considered to be a constraint to the proposed development** and are not considered further in this report.

3.3.10 Notable Species

The desk study returned no records of other notable fauna within 2km of the site. None were observed during the 2017 extended Phase 1 habitat survey or the 2019 update extended Phase 1 habitat survey and the habitats on site are not considered suitable for notable species such as hedgehog *Erinaceus europaeus* and common toad *Bufo bufo*.

It is concluded that the site is not likely to support hedgehog or common toad and therefore they are **not considered to be a constraint to the proposed development** and are not considered further in this report.

3.3.11 Plants

The desk study returned multiple records of plants within 2km of the site. Records of rare and notable plants are listed in Table 12. Some records were considered to be inaccurate identifications, as they were of species only otherwise recorded a considerable distance away, and consequently are not included. Where multiple records of a species exist, the nearest record to the site has been listed in the table.

Table 12: Rare and Notable Plants Recorded within 2km of the Site



Common Name	Scientific Name	Status*	Approximate Distance (km) and Direction from Site Boundary
Bluebell	<i>Hyacinthoides non-scripta</i>	W&CA8; LBAP	1.6 NNE
Cat-mint	<i>Nepeta cataria</i>	RLGB.VU	1.5 NE
Dune fescue	<i>Vulpia fasciculata</i>	NS	2.0 NNE
Large flowered hemp-nettle	<i>Galeopsis speciosa</i>	RLGB.VU	1.5 NE
Rock stonecrop	<i>Sedum forsterianum</i>	NS	1.8 ESE

No rare or notable plants were recorded in either the 2017 survey or the updated 2019 survey.

It is concluded that the site is not likely to support rare or notable plants and therefore they are **not considered to be a constraint to the proposed development** and are not considered further in this report.

3.3.12 Invasive Species

The desk study returned multiple records of 12 invasive species of plants and animals, listed in Schedule 9 of the Wildlife & Countryside Act (amended 2010), for which it is a specific offence to introduce them into the wild, or encourage their spread. The invasive species recorded within 2km of the site were Canada goose, water fern *Azolla filiculoides*, Canadian pondweed *Elodea canadensis*, curly waterweed *Lagarosiphon major*, Himalayan (Indian) balsam, Japanese knotweed, Japanese rose *Rosa rugosa*, montbretia *Crocasmia x crocosmiiflora*, Nuttall's waterweed *Elodea nuttallii*, Rhododendron ponticum *Rhododendron ponticum*, black rat *Rattus rattus* and Eastern grey squirrel *Sciurus carolinensis*.

No invasive species of plants were recorded during this survey and the only invasive species recorded was Canada goose, which was breeding on site with six nests and a maximum count of 23 birds recorded on site. Canada geese, however, are still protected under the W&CA when breeding.

4.0 Summary

4.1 Designated Sites

Mersey Narrows and North Wirral Foreshore Ramsar/SPA/ Marine SPA, Liverpool Bay (including extension) Marine SPA and Mersey Narrows SSSI within 2km of the site. Other Ramsar, SAC and SPA's within 20km of the site. Three LWS within 2km of the site.

4.2 Habitats

No protected or notable habitats were identified on the site.

4.3 Protected & Notable Species

Three buildings (B1, B2, B5) and the sea wall tunnels (T1, T2, T3) have low – moderate suitability to support roosting bats. The most recent bat survey results (2019) are presented and discussed in the Bat Survey Report (WYG, 2019b)

The marine habitats on site have the potential to support fish populations; a series of aquatic surveys have been undertaken and are discussed in the Project Blue report (APEM, 2017).

The site has been recorded as supporting foraging, roosting and breeding birds, including species which are qualifying features of the nearby SPA. The most recent bird surveys are presented and discussed in the Bird Surveys Report 2018-2019 (WYG, 2019a).

One invasive bird species, Canada goose, was recorded on site and breeding.

No invasive plant species were recorded on site.



5.0 References

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Please note that the legislation which is relevant to this report is not included in the list above, but details are included in Appendix B below.

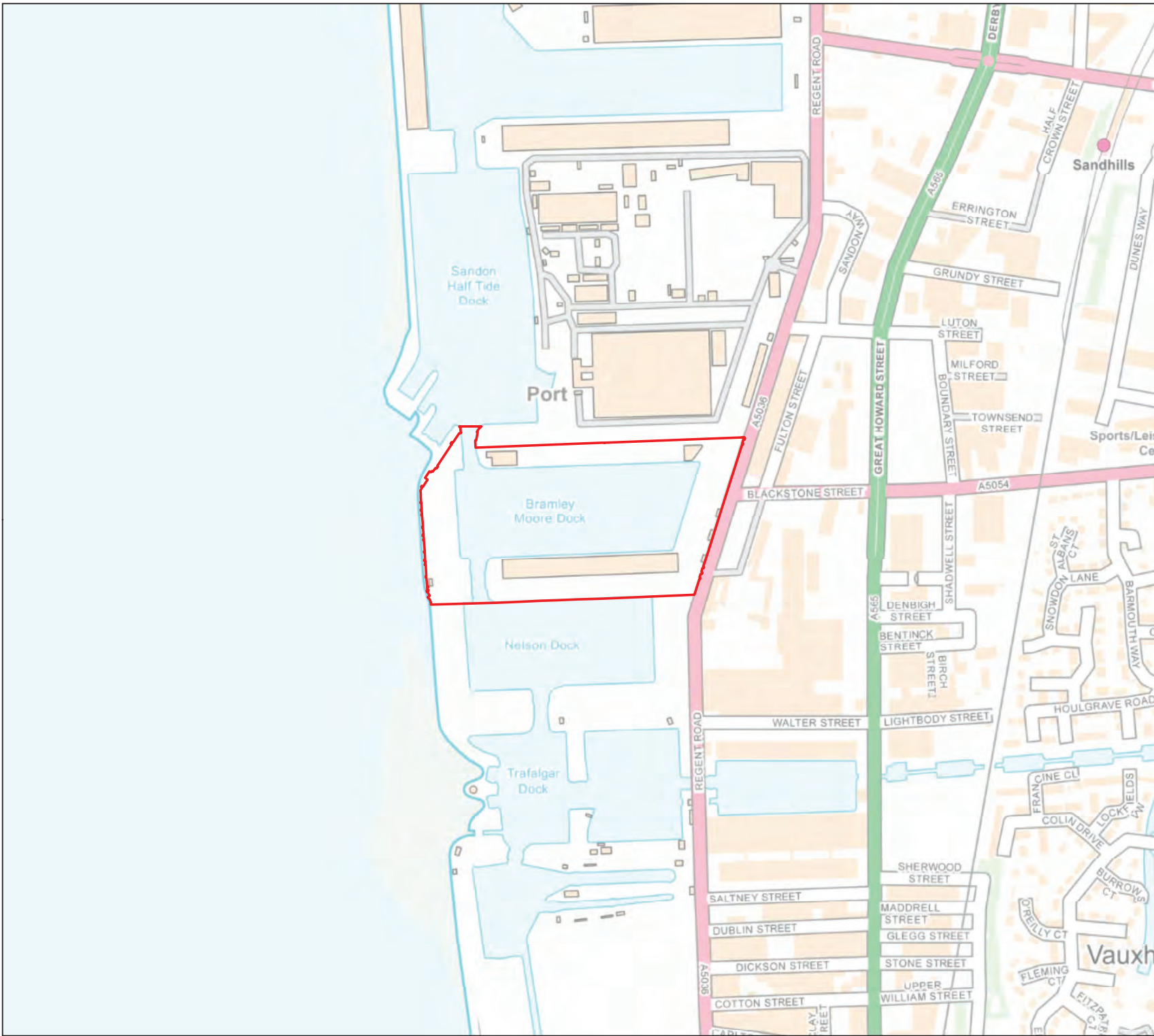


FIGURES

Figure 1 – Site Location Plan

Figure 2 – Phase 1 Habitat Plan

**Figure 3 – Designated Sites within
20km of the site**



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

 Site boundary

0 50 100 200 Metres

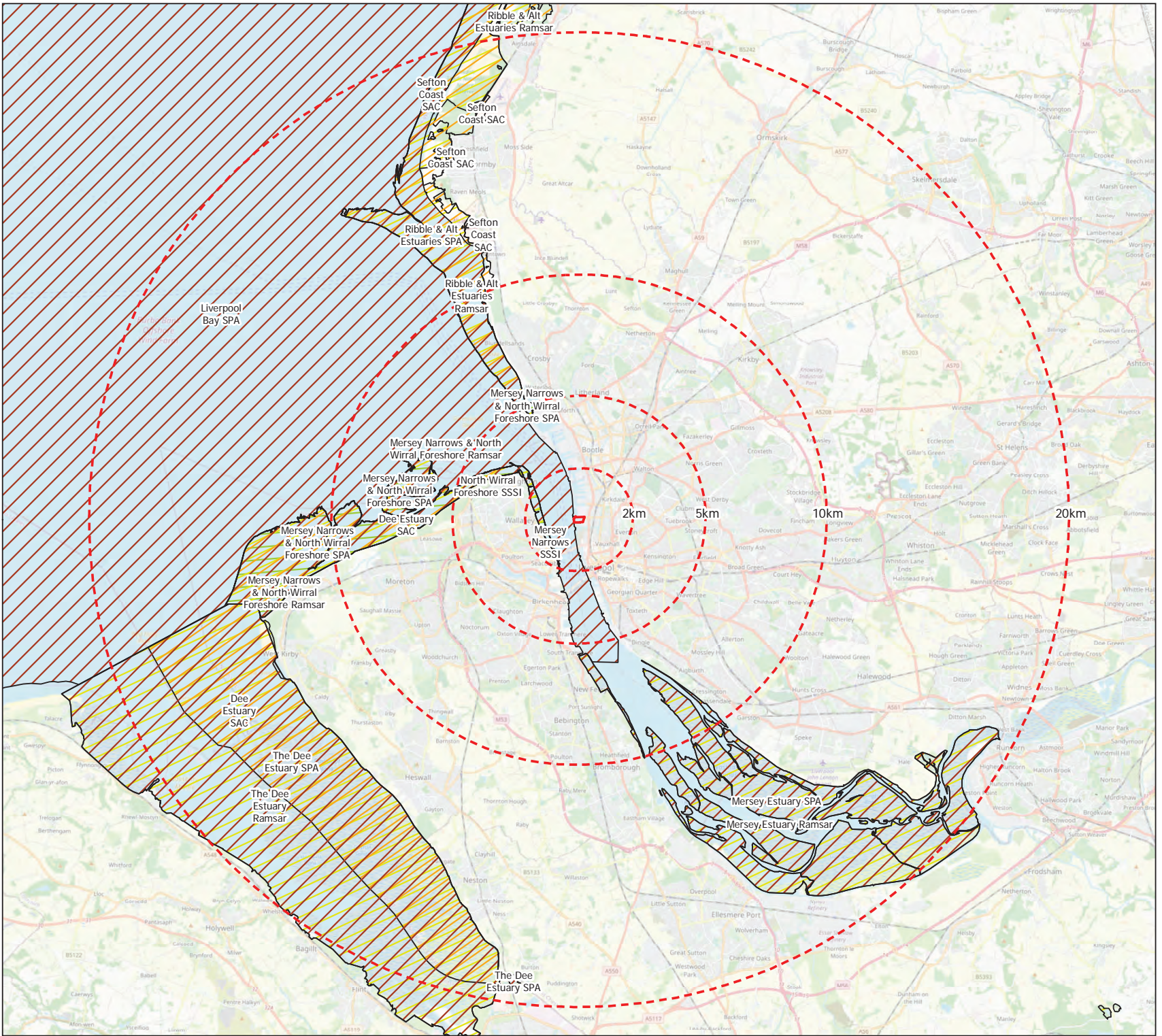


Site Location and Red Line Boundary

**Bramley-Moore Dock
Everton Stadium Development Limited**

Scale at A3: 1:5,000	Project No: A100795	Drawing No: Figure 1	Revision: A
Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba	

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Rev	Date	Notes
A	16/09/19	Initial map production
B	04/08/20	Updated redline boundary

Legend

- Site boundary
- Site boundary buffers (2km, 5km, 10km, 20km)
- Special Protection Areas
- Special Areas of Conservation
- Ramsar
- Sites of Special Scientific Interest

0 1,250 2,500 5,000 Metres



Designated Sites within 20km of the site

Bramley-Moore Dock Peel Holdings

Scale at A3: 1:150,000	Project No: A100795	Drawing No: Figure 3	Revision: B
Drawn by: Ben Blowers	Drawn date: 04/08/2020	Approved by: Philip Preston	

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Appendix A – Report Conditions

This Report has been prepared using reasonable skill and care for the sole benefit of Everton Stadium Development Limited (“the Client”) for the proposed uses stated in the report by WYG Environment Planning Transport Limited] (“WYG”). WYG exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder’s permission.

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The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The “shelf life” of the Report will be determined by a number of factors including; its original purpose, the Client’s instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.



Appendix B – Key Legislation

Bern Convention

The *Convention on the Conservation of European Wildlife and Natural Habitats* (the *Bern Convention*) was adopted in Bern, Switzerland in 1979, and was ratified in 1982. Its aims are to protect wild plants and animals and their habitats listed in Appendices 1 and 2 of the Convention, and regulate the exploitation of species listed in Appendix 3. The regulation imposes legal obligations on participating countries to protect over 500 plant species and more than 1000 animals.

To meet its obligations imposed by the Convention, the European Community adopted the *EC Birds Directive* (1979) and the *EC Habitats Directive* (1992 – see below). Since the Lisbon Treaty, in force since 1st December 2009, European legislation has been adopted by the European Union.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals or 'Bonn Convention' was adopted in Bonn, Germany in 1979 and came into force in 1985. Participating states agree to work together to preserve migratory species and their habitats by providing strict protection to species listed in Appendix I of the Convention. It also establishes agreements for the conservation and management of migratory species listed in Appendix II.

In the UK, the requirements of the convention are implemented via the Wildlife & Countryside Act 1981 (as amended), Wildlife (Northern Ireland) Order 1985 (as amended), Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and the Countryside and Rights of Way Act 2000 (CRoW).

Habitats Directive

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, or the 'Habitats Directive', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes.

In the UK, the Habitats Directive is transposed into national law via the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales, and via the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland.

Birds Directive

The EC Directive on the Conservation of Wild Birds (79/409/EEC) or 'Birds Directive' was introduced to achieve favourable conservation status of all wild bird species across their distribution range. In this context, the most important provision is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex 1 of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.

Conservation of Habitats and Species Regulations 2017 (as amended)

Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by the European Commission, are then designated as Special Protection Areas (SPAs) within six years. Public bodies must also help preserve, maintain and re-establish habitats for wild birds.

The 2018 amendments mainly related to the impact of the *People Over Wind* decision and some implications arising for neighbourhood plan development and a range of other planning tools including Local Development Orders and Permission in Principle – see here for full details:

<https://www.legislation.gov.uk/ukxi/2018/1307/note/made>

The Regulations make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5 - see below:

Schedule 2 – European Protected Species of Animals	Schedule 5 – European Protected Species of Plants
Horseshoe bats <i>Rhinolophidae</i> - all species	Shore dock <i>Rumex rupestris</i>
Common bats <i>Vespertilionidae</i> - all species	Killarney fern <i>Trichomanes speciosum</i>
Large Blue Butterfly <i>Maculinea arion</i>	Early gentian <i>Gentianella anglica</i>
Wild cat <i>Felis sylvestris</i>	Lady's-slipper <i>Cypripedium calceolus</i>
Dolphins, porpoises and whales <i>Cetacea</i> – all sp.	Creeping marsh-wort <i>Apium repens</i>
Dormouse <i>Muscardinus avellanarius</i>	Slender naiad <i>Najas flexilis</i>
Pool frog <i>Rana lessonae</i>	Fen orchid <i>Liparis loeselii</i>
Sand lizard <i>Lacerta agilis</i>	Floating-leaved water plantain <i>Luronium natans</i>
Fisher's estuarine moth <i>Gortyna borelii lunata</i>	Yellow marsh saxifrage <i>Saxifraga hirculus</i>
Great crested newt <i>Triturus cristatus</i>	
Otter <i>Lutra lutra</i>	
Lesser whirlpool ram's-horn snail <i>Anisus vorticulus</i>	
Smooth snake <i>Coronella austriaca</i>	
Sturgeon <i>Acipenser sturio</i>	
Natterjack toad <i>Epidalea calamita</i>	
Marine turtles <i>Caretta caretta</i> , <i>Chelonia mydas</i> , <i>Lepidochelys kempii</i> , <i>Eretmochelys imbricata</i> , <i>Dermochelys coriacea</i>	

Wildlife & Countryside Act 1981 (as amended)

This is the principal mechanism for the legislative protection of wildlife in the UK. This legislation is the chief means by which the 'Bern Convention' and the Birds Directive are implemented in the UK. Since it was first introduced, the Act has been amended several times.

The Act makes it an offence to (with exception to species listed in Schedule 2) intentionally:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use; or
- take or destroy an egg of any wild bird.

Or to intentionally do the following to a wild bird listed in Schedule 1:

- disturbs any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturbs dependent young of such a bird.

In addition, the Act makes it an offence (subject to exceptions) to:

- intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5;
- interfere with places used for shelter or protection, or intentionally disturbing animals occupying such places; and
- The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Finally, the Act also makes it an offence (subject to exceptions) to:

- intentionally pick, uproot or destroy any wild plant listed in Schedule 8, or any seed or spore attached to any such wild plant;
- unless an authorised person, intentionally uproot any wild plant not included in Schedule 8; or
- sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Following all amendments to the Act, Schedule 5 'Animals which are Protected' contains a total of 154 species of animal, including several mammals, reptiles, amphibians, fish and invertebrates. Schedule 8 'Plants which are Protected' of the Act, contains 185 species, including higher plants, bryophytes and fungi and lichens. A comprehensive and up-to-date list of these species can be obtained from the JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise cause to grow in the wild any plant which is listed in Part II of Schedule 9.

It is recommended that plant material of these species is disposed of as bio-hazardous waste, and these plants should not be used in planting schemes.

Schedule 1 - Birds which are protected by special penalties

Avocet	<i>Recurvirostra avosetta</i>	Osprey	<i>Pandion haliaetus</i>
Bee-eater	<i>Merops apiaster</i>	Owl, Barn	<i>Tyto alba</i>
Bittern	<i>Botaurus stellaris</i>	Owl, Snowy	<i>Nyctea scandiaca</i>
Bittern, Little	<i>Ixobrychus minutus</i>	Peregrine	<i>Falco peregrinus</i>
Bluethroat	<i>Luscinia svecica</i>	Petrel, Leach's	<i>Oceanodroma leucorhoa</i>
Brambling	<i>Fringilla montifringilla</i>	Phalarope, Red-necked	<i>Phalaropus lobatus</i>
Bunting, Cirl	<i>Emberiza cirlus</i>	Plover, Kentish	<i>Charadrius alexandrinus</i>
Bunting, Lapland	<i>Calcarius lapponicus</i>	Plover, Little Ringed	<i>Charadrius dubius</i>
Bunting, Snow	<i>Plectrophenax nivalis</i>	Quail, Common	<i>Coturnix coturnix</i>
Buzzard, Honey	<i>Pernis apivorus</i>	Redstart, Black	<i>Phoenicurus ochruros</i>
Capercaillie	<i>Tetrao urogallus</i>	Redwing	<i>Turdus iliacus</i>
Chough	<i>Pyrrhocorax pyrrhocorax</i>	Rosefinch, Scarlet	<i>Carpodacus erythrurus</i>
Corncrake	<i>Crex crex</i>	Ruff	<i>Philomachus pugnax</i>
Crake, Spotted	<i>Porzana porzana</i>	Sandpiper, Green	<i>Tringa ochropus</i>
Crossbills (all species)	<i>Loxia</i>	Sandpiper, Purple	<i>Calidris maritima</i>
Curlew, Stone	<i>Burhinus oedecnemus</i>	Sandpiper, Wood	<i>Tringa glareola</i>
Divers (all species)	<i>Gavia</i>	Scaup	<i>Aythya marila</i>
Dotterel	<i>Charadrius morinellus</i>	Scoter, Common	<i>Melanitta nigra</i>
Duck, Long-tailed	<i>Clangula hyemalis</i>	Scoter, Velvet	<i>Melanitta fusca</i>
Eagle, Golden	<i>Aquila chrysaetos</i>	Serim	<i>Serinus serinus</i>
Eagle, White-tailed	<i>Haliaetus albicilla</i>	Shorelark	<i>Eremophila alpestris</i>
Falcon, Gyr	<i>Falco rusticolus</i>	Shrike, Red-backed	<i>Lanius collurio</i>
Fieldfare	<i>Turdus pilaris</i>	Spoonbill	<i>Platalea leucorodia</i>
Firecrest	<i>Regulus ignicapillus</i>	Stilt, Black-winged	<i>Himantopus himantopus</i>
Garganey	<i>Anas querquedula</i>	Stint, Temminck's	<i>Calidris temminckii</i>

Godwit, Black-tailed	<i>Limosa limosa</i>	Swan, Bewick's	<i>Cygnus bewickii</i>
Goshawk	<i>Accipiter gentilis</i>	Swan, Whooper	<i>Cygnus cygnus</i>
Grebe, Black-necked	<i>Podiceps nigricollis</i>	Tern, Black	<i>Chlidonias niger</i>
Grebe, Slavonian	<i>Podiceps auritus</i>	Tern, Little	<i>Sterna albifrons</i>
Greenshank	<i>Tringa nebularia</i>	Tern, Roseate	<i>Sterna dougallii</i>
Gull, Little	<i>Larus minutus</i>	Tit, Bearded	<i>Panurus biarmicus</i>
Gull, Mediterranean	<i>Larus melanocephalus</i>	Tit, Crested	<i>Parus cristatus</i>
Harriers (all species)	<i>Circus</i>	Tree-creeper, Short-toed	<i>Certhia brachydactyla</i>
Heron, Purple	<i>Ardea purpurea</i>	Warbler, Cetti's	<i>Cettia cetti</i>
Hobby	<i>Falco subbuteo</i>	Warbler, Dartford	<i>Sylvia undata</i>
Hoopoe	<i>Upupa epops</i>	Warbler, Marsh	<i>Acrocephalus palustris</i>
Kingfisher	<i>Alcedo atthis</i>	Warbler, Savi's	<i>Locustella luscinioides</i>
Kite, Red	<i>Milvus milvus</i>	Whimbrel	<i>Numenius phaeopus</i>
Merlin	<i>Falco columbarius</i>	Woodlark	<i>Lullula arborea</i>
Oriole, Golden	<i>Oriolus oriolus</i>	Wryneck	<i>Jynx torquilla</i>
Animal (Vertebrate) Species Listed in Schedule 5 (full legal protection at all times)			
Horseshoe Bats (all species)	<i>Rhinolophidae</i>	Newt – Great Crested	<i>Triturus cristatus</i>
Typical Bats (all species)	<i>Vespertilionidae</i>	Snake – Smooth	<i>Coronella austriaca</i>
Dolphin – Bottle-nosed	<i>Tursiops truncatus (tursio)</i>	Toad, Natterjack	<i>Epidalea calamita</i>
Dolphin – Common	<i>Delphinus delphis</i>	Turtles – All Species	<i>Cheloniidae & Dermochelyidae</i>
Dormouse – Hazel	<i>Muscardinus avellanarius</i>	Basking Shark	<i>Cetorhinus maximus</i>
Pine Marten	<i>Martes martes</i>	Burbot	<i>Lota lota</i>
Porpoise – Harbour	<i>Phocaena phocaena</i>	Goby – Giant	<i>Gobius cobitis</i>
Otter – Eurasian	<i>Lutra lutra</i>	Goby – Couch's	<i>Gobius couchii</i>
Squirrel – Red	<i>Sciurus vulgaris</i>	Seahorse – Short-snouted ¹	<i>Hippocampus hippocampus</i>
Walrus	<i>Odobenus rosmarus</i>	Seahorse – Spiny	<i>Hippocampus guttulatus</i>
Water Vole	<i>Arvicola amphibius</i>	Sturgeon	<i>Acipenser sturio</i>
Whales – All Species	<i>Cetacea</i>	Vendace	<i>Coregonus albula</i>
Wildcat	<i>Felis sylvestris</i>	Whitefish	<i>Coregonus lavaretus</i>
Lizard – Sand	<i>Lacerta agilis</i>		
Animal (Vertebrate) Species Protected under Section 9 (1) part: Killing and Injuring & Section 9 (5) Sale			
Adder	<i>Vipera berus</i>	Slow-worm	<i>Anguis fragilis</i>
Lizard – Viviparous	<i>Zootoca vivipara</i>	Snake – Grass	<i>Natrix helvetica (natrix)</i>
Animals (Vertebrate) Species Protected under Section 9 (5) Sale only			
Frog – common	<i>Rana temporaria</i>	Newt – Smooth	<i>Lissotriton vulgaris</i>
Newt – Palmate	<i>Lissotriton helvetica</i>	Toad – Common	<i>Bufo bufo</i>
Animals (Vertebrate) Species Protected under Section 9 (1) (4)(a): Killing, Injuring & Taking and Damage / Destruction of place of shelter / protection only			
Allis Shad	<i>Alosa alosa</i>	Shark – Angel	<i>Squatina squatina</i>
Twaite Shad	<i>Alosa fallax</i>		
Butterflies & Moths – Full Protection under Schedule 5² at all times			
High brown fritillary	<i>Argynnis adippe</i>	Fisher's Estuarine Moth	<i>Gortyna borelii</i>
Large Blue	<i>Maculinea arion</i>	Barberry Carpet	<i>Pareulype berberata</i>

¹ Both sea horse species are protected in England only.

² Viper's Bugloss Moth *Hadena irregularis* was removed from Schedule 5 in 1996 as it is believed to be extinct.

Heath Fritillary	<i>Mellicta athalea</i>	Black-veined Moth	<i>Siona lineata</i>
Marsh Fritillary	<i>Eurodryas aurinia</i>	Sussex Emerald	<i>Thalera fimbrialis</i>
Swallowtail	<i>Papilio machaon britannicus</i>	Essex Emerald	<i>Thetidia smaragdalis</i>
Large Copper	<i>Lycaena dispar</i>	Fiery Clearwing	<i>Bembecia chrysidiformis</i>
Reddish-buff Moth	<i>Acosmetia caliginosa</i>	New-Forest Burnet	<i>Zygaena viciae</i>
Butterflies – Protected under Section 9 (5) Sale Only			
Purple Emperor	<i>Apatura iris</i>	Adonis Blue	<i>Lysandra bellargus</i>
Northern Brown Argus	<i>Aricia artaxerxes</i>	Chalkhill Blue	<i>Lysandra coridon</i>
Pearl-bordered Fritillary	<i>Boloria euphrosyne</i>	Glanville Fritillary	<i>Melitaea cinxia</i>
Chequered Skipper	<i>Carterocephalus palaemon</i>	Large Tortoiseshell	<i>Nymphalis polychloros</i>
Large Heath	<i>Coenonympha tullia</i>	Silver-studded Blue	<i>Plebejus argus</i>
Small Blue	<i>Cupido minimus</i>	Black Hairstreak	<i>Strymonidia pruni</i>
Mountain Ringlet	<i>Erebia epiphron</i>	White-letter Hairstreak	<i>Strymonidia w-album</i>
Duke of Burgundy	<i>Hamearis lucina</i>	Brown Hairstreak	<i>Thecla betulae</i>
Silver-spotted Skipper	<i>Hesperia comma</i>	Lulworth Skipper	<i>Thymelicus acteon</i>
Wood White	<i>Leptidea sinapis</i>		
Other Invertebrates – Full Protection under Schedule 5 at all times			
Rainbow Leaf-beetle	<i>Chrysolina cerealis</i>	Tadpole Shrimp	<i>Triops cancriformis</i>
Spangled Diving-beetle	<i>Graphopterus zonatus</i>	Trembling Sea-mat	<i>Victorella pavidia</i>
Lesser Silver Water-beetle	<i>Hydrochara caraboides</i>	De Folin's Lagoon Snail	<i>Caecum armoricum</i>
Moccas Beetle	<i>Hypebaeus flavipes</i>	Sandbowl Snail	<i>Catinella arenaria</i>
Violet Click-beetle	<i>Limoniscus violaceus</i>	Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>
Bembridge Beetle	<i>Parcymus aeneus</i>	Glutinous Snail	<i>Myxas glutinosa</i>
New Forest Cicada	<i>Cicadetta montana</i>	Lagoon Snail	<i>Paludinella littorina</i>
Wart-Biter	<i>Decticus verrucivorus</i>	Lagoon Sea Slug	<i>Tenellia adspersa</i>
Mole-Cricket	<i>Gryllotalpa gryllotalpa</i>	Northern Hatchet-shell	<i>Thyasira gouldi</i>
Field-Cricket	<i>Gryllus campestris</i>	Tentacled Lagoon-worm	<i>Alkmaria romijni</i>
Norfolk Hawker Dragonfly	<i>Aeshna isosceles</i>	Lagoon Sand-worm	<i>Armandia cirrhosa</i>
Southern Damselfly	<i>Coenagrion mercuriale</i>	Medicinal Leech	<i>Hirudo medicinalis</i>
Fen Raft Spider	<i>Dolomedes fimbriatus</i>	Marine Hydroid	<i>Clavopsella navis</i>
Ladybird Spider	<i>Eresus niger (cinaberinus)</i>	Ivell's Sea Anemone	<i>Edwardsia ivelli</i>
Fairy Shrimp	<i>Chirocephalus diaphanus</i>	Starlet Sea Anemone	<i>Nematosella vectensis</i>
Lagoon Sand Shrimp	<i>Gammarus insensibilis</i>	Atlantic Stream (White-clawed) Crayfish	<i>Austropotamobius pallipes</i>
Other Invertebrates Protected under Section 9 (1) Possession & 9 (2) (5) Sale only			
Stag Beetle	<i>Lucanus cervus</i>	Roman Snail ³	<i>Helix pomatia</i>
Fan Mussel	<i>Atrina fragilis</i>	Pink Sea-fan	<i>Eunicella verrucosa</i>
Other Invertebrates Protected under Section 9 (4) (a) Damage / Destruction of Place of Shelter / Protection only			
Mire Pill Beetle	<i>Curimopsis nigrita</i>		
Vascular Plant Species - Full Protection under Schedule 8 at all times (previous Scientific name in brackets)			
Adder's-tongue Least	<i>Ophioglossum lusitanicum</i>	Lily – Snowdon	<i>Gagea serotina (Lloydia serotina)</i>
Alison- Small	<i>Alyssum alyssoides</i>	Marsh-mallow – Rough	<i>Malva setigera (Althaea hirsuta)</i>

³ England only

Broomrape – Bedstraw	<i>Orobanche caryophyllacea</i>	Milk-parsley – Cambridge	<i>Selinum carvifolia</i>
Broomrape – Oxtongue	<i>Orobanche picridis</i>	Mudwort – Welsh	<i>Limosella aquatica</i>
Broomrape – Thistle	<i>Orobanche reticulata</i> ⁴	Naiad – Holly-leaved	<i>Najas marina</i>
Cabbage – Lundy	<i>Coineya wrightii</i> (<i>Rhynchosinapis wrightii</i>)	Orache – Stalked	<i>Atriplex pedunculata</i> (<i>Halimione pedunculata</i>)
Calamint – Wood	<i>Clinopodium menthifolium</i> (<i>Calamintha sylvatica</i>)	Orchid – Early Spider	<i>Ophrys sphegodes</i>
Catchfly – Alpine	<i>Silene suecica</i> (<i>Lychnis alpina</i>)	Orchid – Ghost	<i>Epipogium aphyllum</i>
Centaury – Slender	<i>Centaurium tenuiflorum</i>	Orchid – Lapland Marsh	<i>Dactylorhiza lapponica</i>
Cinquefoil – Rock	<i>Potentilla rupestris</i>	Orchid – Late Spider	<i>Ophrys fuciflora</i>
Clary – Meadow	<i>Salvia pratensis</i>	Orchid – Lizard	<i>Himantoglossum hircinum</i>
Club-rush – Triangular	<i>Schoenoplectus triquetar</i> (<i>Scirpus triquetar</i>)	Orchid – Military	<i>Orchis militaris</i>
Colt's-foot – Purple	<i>Homogyne alpina</i>	Orchid – Monkey	<i>Orchis simia</i>
Cotoneaster – Wild	<i>Cotoneaster cambricus</i> (<i>C. integerrimus</i>)	Pear – Plymouth	<i>Pyrus cordata</i>
Cotton-grass – Slender	<i>Eriophorum gracile</i>	Pennycress – Perfoliate	<i>Microthlaspi perfoliatum</i> (<i>Thlaspi perfoliatum</i>)
Cow-wheat – Field	<i>Melampyrum arvense</i>	Pennyroyal	<i>Mentha pulegium</i>
Crocus – Sand	<i>Romulus columnae</i>	Pigmyweed	<i>Crassula aquatica</i>
Cudweed – Broad-leaved	<i>Filago pyramidata</i>	Pine - Ground	<i>Ajuga chamaepitys</i>
Cudweed – Jersey	<i>Gnaphalium luteoalbum</i>	Pink – Cheddar	<i>Dianthus gratianopolitanus</i>
Cudweed – Red-tipped	<i>Filago lutescens</i>	Pink – Childing	<i>Petrorhagia nanteuillii</i>
Cut-grass	<i>Leersia oryzoides</i>	Ragwort – Fen	<i>Jacobaea paludosa</i> (<i>Senecio paludosa</i>)
Deptford Pink	<i>Dianthus armeria</i>	Ramping-fumitory – Martin's	<i>Fumaria reuteri</i> (<i>F. martinii</i>)
Diapensia	<i>Diapensia lapponica</i>	Rampion – Spiked	<i>Phyteuma spicata</i>
Eryngo – Field	<i>Eryngium campestre</i>	Restharrow – Small	<i>Ononis reclinata</i>
Fern – Dickie's-bladder	<i>Cystopteris dickieana</i>	Rock-cress – Alpine	<i>Arabis alpina</i>
Fleabane – Alpine	<i>Erigeron borealis</i>	Rock-cress – Bristol	<i>Arabis scabra</i>
Fleabane – Small	<i>Pulicaria vulgaris</i>	Sandwort – Norwegian	<i>Arenaria norvegica</i> ⁵
Galingale – Brown	<i>Cyperus fuscus</i>	Sandwort – Teesdale	<i>Minuartia stricta</i>
Gentian – Alpine	<i>Gentiana nivalis</i>	Saxifrage – Drooping	<i>Saxifraga cernua</i>
Gentian - Dune	<i>Gentianella amarella</i> subsp. <i>occidentalis</i> (<i>Gentianella uliginosa</i>)	Saxifrage – Tufted	<i>Saxifraga cespitosa</i>
Gentian – Fringed	<i>Gentianopsis ciliata</i> (<i>Gentianella ciliata</i>)	Solomon's-seal – Whorled	<i>Polygonatum verticillatum</i>
Gentian - Spring	<i>Gentiana verna</i>	Sow-thistle – Alpine	<i>Cicerbita alpina</i>
Germander – Cut-leaved	<i>Teucrium botrys</i>	Spearwort – Adder's-tongue	<i>Ranunculus ophioglossifolius</i>
Germander – Water	<i>Teucrium scordium</i>	Speedwell – Fingered	<i>Veronica triphyllos</i>
Gladiolus – Wild	<i>Gladiolus illyricus</i>	Speedwell – Spiked	<i>Veronica spicata</i> ⁶
Goosefoot – Stinking	<i>Chenopodium vulvaria</i>	Spike-rush – Dwarf	<i>Eleocharis parvula</i>

⁴ The Weeds Act 1959 does not apply to thistles *Cirsium* & *Carduus* species supporting this broomrape.

⁵ All subspecies occurring in the UK

⁶ Both subspecies: *spicata* & *hybrida*

Grass-poly	<i>Lythrum hyssopifolia</i>	South-stack Fleawort	<i>Tephrosia integrifolia</i> <i>ssp. maritima</i>
Hare's-ear – Sickie-leaved	<i>Bupleurum falcatum</i>	Star-of-Bethlehem – Early	<i>Gagea bohemica</i>
Hare's-ear – Small	<i>Bupleurum baldense</i>	Starfruit	<i>Damasonium alisma</i>
Hawk's-beard – Stinking	<i>Crepis foetida</i>	Strapwort	<i>Corrigiola littoralis</i>
Hawkweed – Northroe	<i>Hieracium northroense</i>	Violet – Fen	<i>Viola persicifolia</i>
Hawkweed – Shetland	<i>Hieracium zetlandicum</i>	Viper's-grass	<i>Scorzonera humilis</i>
Hawkweed – Weak-leaved	<i>Hieracium attenuatifolium</i>	Water-plantain – Ribbon-leaved	<i>Alisma gramineum</i>
Heath – Blue	<i>Phyllodoce caerulea</i>	Wood-sedge – Starved	<i>Carex depauperata</i>
Helleborine – Red	<i>Cephalanthera rubra</i>	Woodsia – Alpine	<i>Woodsia alpina</i>
Horsetail – Branched	<i>Equisetum ramosissimum</i>	Woodsia – Oblong	<i>Woodsia ilvensis</i>
Hound's-tongue – Green	<i>Cynoglossum germanicum</i>	Wormwood – Field	<i>Artemisia campestris</i>
Knawel – Perennial	<i>Scleranthus perennis</i> ⁷	Woundwort - Downy	<i>Stachys germanica</i>
Knot-grass – Sea	<i>Polygonum maritimum</i>	Woundwort – Limestone	<i>Stachys alpina</i>
Leek – Round-headed	<i>Allium sphaerocephalon</i>	Yellow-rattle – Greater	<i>Rhinanthus angustifolius</i>
Lettuce – Least	<i>Lactuca saligna</i>		
Vascular Plant Species – Partial Protection under Section 13 (2) Protection from commercial exploitation and sale			
Bluebell	<i>Hyacinthoides non-scripta</i>		
Bryophytes – Full Protection under Schedule 8 at all times			
Anamodon – Long-leaved	<i>Anomodon langifolius</i>	Flamingo Moss	<i>Desmatodon cernuus</i>
Blackwort	<i>Southbya nigrella</i>	Frostwort	<i>Gymnomitrium apiculatum</i>
Crystalwort – Lizard	<i>Riccia bifurca</i>	Glaucous Beard Moss	<i>Barbula glauca</i>
Earwort – Marsh	<i>Jamesoniella undulifolia</i>	Green Shield Moss	<i>Buxbaumia viridis</i>
Feathermoss – Polar	<i>Hygrohypnum polare</i>	Hair Silk Moss	<i>Plagiothecium piliferum</i>
Flapwort – Norfolk	<i>Leiocolea rutheana</i>	Knothole Moss	<i>Zygodon forsteri</i>
Grimmia – Blunt-leaved	<i>Grimmia unicolor</i>	Large Yellow Feather Moss	<i>Scorpidium turgescens</i>
Petalwort	<i>Petalophyllum ralfsii</i>	Millimetre Moss	<i>Micromitrium tenerum</i>
Lindenberg's Leafy-Liverwort	<i>Adelanthus lindenbergianus</i>	Multi-fruited River Moss	<i>Cryphaea lamyana</i>
Feather-moss Slender Green	<i>Drepanocladus vernicosus</i>	Nowell's Limestone Moss	<i>Zygodon gracilis</i>
Alpine Copper-Moss	<i>Melichhoferia melichoferia</i>	Rigid Apple Moss	<i>Bartramia stricta</i>
Baltic Bog-Moss	<i>Sphagnum balticum</i>	Round-leaved feather Moss	<i>Rhynchostegium rotundifolium</i>
Blue Dew-Moss	<i>Saelania glaucescens</i>	Schleicher's Thread Moss	<i>Bryum schleicheri</i>
Blunt-leaved bristle-Moss	<i>Orthotrichum obtusifolium</i>	Triangular Pygmy Moss	<i>Acaulon triquetrum</i>
Bright-Green Cave-Moss	<i>Cyclodictyon laetevirens</i>	Turpswort	<i>Geocalyx graveolens</i>
Cordate Beard Moss	<i>Barbula cordata</i>	Vaucher's Feather Moss	<i>Hypnum vaucheri</i>
Cornish Path Moss	<i>Ditrichum cornubicum</i>	Western Rustwort	<i>Marsupella profunda</i>
Derbyshire Feather Moss	<i>Thamnobryum angustifolium</i>		

⁷ Includes both subspecies: *perennis* & *prostratus*



Stoneworts – Full Protection under Schedule 8 at all times			
Bearded Stonewort	<i>Chara canescens</i>	Foxtail Stonewort	<i>Lamprothamnium papulosum</i>
Lichens – Full Protection under Schedule 8 at all times			
New Forest Beech Lichen	<i>Enterographa elaborata</i>	Forked Hair Lichen	<i>Bryoria furcellata</i>
Snow Caloplaca	<i>Caloplaca nivalis</i>	Golden Hair Lichen	<i>Teloschistes flavicans</i>
Tree Catapyrenium	<i>Catapyrenium psoromoides</i>	Orange-fruited Elm Lichen	<i>Caloplaca luteoalba</i>
Laurer's Catillaria	<i>Catillaria laurai</i>	River Jelly Lichen	<i>Collema dichotomum</i>
Convolute Cladonia	<i>Cladonia convoluta</i>	Starry Breck Lichen	<i>Buellia asterella</i>
Upright Mountain Cladonia	<i>Cladonia stricta</i>	Caledonia Pannaria	<i>Pannaria ignobilis</i>
Goblin Lights	<i>Catolechia wahlenbergii</i>	New Forest Parmelia	<i>Parmelia minarum</i>
Elm Gyalecta	<i>Gyalecta ulmi</i>	Oil Stain Parmentaria	<i>Parmentaria chilensis</i>
Tarn Lecanora	<i>Lecanora archariana</i>	Southern Grey Physcia	<i>Physcia tribacioides</i>
Copper Lecidea	<i>Lecidea inops</i>	Ragged Pseudo-cyphellaria	<i>Pseudocyphellaria lacerata</i>
Arctic Kidney Lichen	<i>Nephroma arcticum</i>	Rusty Alpine Psora	<i>Psora rubiformis</i>
Ciliate Strap Lichen	<i>Heterodermia leucomelos</i>	Rock Nail	<i>Calicium corynellum</i>
Coralloid Rosette Lichen	<i>Heterodermia propagulifera</i>	Serpentine Selanopsora	<i>Selanopsora liparina</i>
Ear-lobed Dog Lichen	<i>Peltigera lepidophora</i>	Sulphur Tresses	<i>Alectoria ochroleuca</i>
Lichens – Partial Protection under Section 13 (2) Commercial Exploitation and Sale Only			
Tree Lungwort	<i>Lobaria pulmonaria</i>		
Fungi – Full Protection under Schedule 8 at all times			
Royal Bolete	<i>Boletus regius</i>	Oak Polypore	<i>Buglossosporus pulvinus</i>
Hedgehog Fungus	<i>Hericium erinaceum</i>	Sandy Stilt Ball	<i>Battaria phalloides</i>
Invasive plant species listed in Schedule 9			
Australian swamp stonecrop or New Zealand pygmyweed	<i>Crassula helmsii</i>	Japanese rose	<i>Rosa rugosa</i>
Californian red seaweed	<i>Pilayella littoralis</i>	Japanese seaweed	<i>Sargassum muticum</i>
Curly waterweed	<i>Lagarosiphon major</i>	Laver seaweeds (except native species)	<i>Porphyra</i> spp
Duck potato	<i>Sagittaria latifolia</i>	Parrot's-feather	<i>Myriophyllum aquaticum</i>
Entire-leaved cotoneaster	<i>Cotoneaster integrifolius</i>	Perfoliate alexanders	<i>Smyrnium perfoliatum</i>
False Virginia creeper	<i>Parthenocissus inserta</i>	Pontic rhododendron	<i>Rhododendron ponticum</i>
Fanwort or Carolina water-shield	<i>Cabomba caroliniana</i>	Purple dewplant	<i>Disphyma crassifolium</i>
Few-flowered garlic	<i>Allium paradoxum</i>	Red algae	<i>Grateloupia luxurians</i>
Floating pennywort	<i>Hydrocotyle ranunculoides</i>	Rhododendron	<i>Rhododendron ponticum</i> × <i>Rhododendron maximum</i>
Floating water primrose	<i>Ludwigia peploides</i>	Small-leaved cotoneaster	<i>Cotoneaster microphyllus</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>	Three-cornered garlic	<i>Allium triquetrum</i>
Giant kelp	<i>Macrocystis</i> spp.	Variegated yellow archangel	<i>Lamiastrum galeobdolon</i> subsp. <i>argentatum</i>
Giant knotweed	<i>Fallopia sachalinensis</i>	Virginia creeper	<i>Parthenocissus quinquefolia</i>
Giant rhubarb	<i>Gunnera tinctoria</i>	Wakame	<i>Undaria pinnatifida</i>
Giant salvinia	<i>Salvinia molesta</i>	Wall cotoneaster	<i>Cotoneaster horizontalis</i>
Green seafringers	<i>Codium fragile</i>	Water fern	<i>Azolla filiculoides</i>



Himalayan cotoneaster	<i>Cotoneaster simonsii</i>	Water hyacinth	<i>Eichhornia crassipes</i>
Hollyberry cotoneaster	<i>Cotoneaster bullatus</i>	Water lettuce	<i>Pistia stratiotes</i>
Hooked asparagus seaweed	<i>Asparagopsis armata</i>	Water primrose	<i>Ludwigia grandiflora</i>
Hottentot fig	<i>Carpobrotus edulis</i>	Water primrose	<i>Ludwigia uruguayensis</i>
Hybrid knotweed	<i>Fallopia japonica</i> × <i>Fallopia sachalinensis</i>	Waterweeds	<i>Elodea</i> spp.
Indian (Himalayan) balsam	<i>Impatiens glandulifera</i>	Yellow azalea	<i>Rhododendron luteum</i>
Japanese knotweed	<i>Reynoutria japonica</i>		

Protection of Badgers Act 1992

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to: wilfully kill, injure, take or attempt to kill, injure or take a badger; dig for a badger; interfere with a badger sett by, damaging a sett or any part thereof, destroying a sett, obstructing access to a sett, causing a dog to enter a sett or disturbing a badger while occupying a sett.

The 1992 Act defines a badger sett as: “any structure or place which displays signs indicating current use by a badger”

Natural Environment and Rural Communities Act 2006

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of Habitats and Species which are of Principal Importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 Habitats of Principal Importance and 1,150 Species of Principal Importance.

Hedgerow Regulations 1997

The Hedgerow Regulations were made under Section 97 of the Environment Act 1995 and came into force in 1997. They introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.



Birds of Conservation Concern

This is a review of the status of all birds occurring regularly in the United Kingdom. It is regularly updated and is prepared by leading bird conservation organisations, including the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

The latest report was produced in 2015 (Eaton *et al*, 2015) and identified 67 red list species, 96 amber species, and 81 green species. The criteria are complex, but generally:

- **Red list** species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years.
- **Amber list** species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localised in 10 sites or fewer and those whose 20% of the European population is found in the UK.
- **Green list** species are all regularly occurring species that do not qualify under any of the red or amber criteria are green listed

Global IUCN Red List

The International Union for Conservation of Nature (IUCN) Threatened Species was devised to provide a list of those species that are most at risk of becoming extinct globally. It provides taxonomic, conservation status and distribution information about threatened taxa around the globe.

The system catalogues threatened species into groups of varying levels of threat, which are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CE), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), Not Evaluated (NE). Criteria for designation into each of the categories is complex, and consider several principles.

Local Biodiversity Action Plan (LBAP)

Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

Some LBAP's may also include Habitat Action Plans (HAP) and/or Species Action Plans (SAP), which are used to guide and inform the local decision making process.

Wild Mammals (Protection) Act 1996

This Act offers protects a form of protection to all wild species of mammals, irrespective of other legislation, and focussed on animal welfare, rather than conservation.

Unless covered by one of the exceptions, a person is guilty of an offence if he mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering.

It's application is typically restricted to preventing deliberate harm to wildlife (in general) during construction works etc.

Appendix C – Qualifying Features of each Designated Site

1. Natura 2000 and Ramsar Sites

Natura 2000 and Ramsar sites within 20km of the site are presented in Table 1. The designated features of each site are summarised below.

Table 1: Natura 2000 and Ramsar sites within 20km of the site

Designation	Site Name	Approximate distance (km) and direction from site	Area (ha)
Marine SPA	Liverpool Bay	Adjacent to the western boundary of the site	252,757.73
SPA/ Marine SPA	Mersey Narrows and North Wirral Foreshore	1.22 W	2,078.36
Ramsar Site	Mersey Narrows and North Wirral Foreshore	1.22 W	2,078.36
SAC	Dee Estuary	2.73 NW	8,282.47
SPA/ Marine SPA	Ribble and Alt Estuaries	4.52 NW	12,499.92
Ramsar Site	Ribble and Alt Estuaries	4.52 NW	13,491.36
SAC	Sefton Coast	5.13 NW	4,591.59
SPA/ Marine SPA	Mersey Estuary	5.45 S	5,023.35
Ramsar Site	Mersey Estuary	5.45 S	5,023.35
SPA/ Marine SPA	The Dee Estuary	13.57 SW	14,294.95
Ramsar Site	The Dee Estuary	13.57 SW	14,303.02

Liverpool Bay Marine SPA

Liverpool bay is a 100% marine site located between Fleetwood (Lancashire) to the north and the east coast of Anglesey (North Wales) to the south west, and covers an area of 252,757.73ha, including the recent approved extension.

Liverpool Bay / Bae Lerpwl Special Protection Area was first designated (or 'classified') in 2010 to protect red-throated diver *Gavia stellata* and common scoter *Melanitta nigra* and a significant waterbird assemblage in the non-breeding season. The recently approved extension to the SPA includes additional marine areas to the north, past Fleetwood, to the west, further into the Irish Sea and to the south east



into the Mersey Estuary, as far as the existing Mersey Estuary SPA. This extension is designed to protect and breeding areas for common tern *Sterna hirundo* (breeding in the Mersey Narrows and North Wirral Foreshore SPA and Dee Estuary SPA) and little tern *Sternula albifrons* (breeding in the Dee Estuary SPA), also foraging areas for the non-breeding population of little gull *Hydrocoloeus minutus*.

This site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting 1% or more of the British populations of the following species listed on Annex I of the Directive:

Non-breeding;

- Red-throated diver - 1,171 individuals, representing 6.89% of the GB population (6 year peak mean 2004/5 - 2010/11).
- Little gull – 319 individuals (6 year peak mean 2004/5 – 2010/11).

Breeding;

- Common tern – 360 individuals, representing 1.8% of the British population (5 year peak mean 2011 – 2015).
- Little tern – 260 individuals, representing 2.9% of the British population (5 year peak mean 2010 – 2014).

This site also qualifies under **Article 4.2** of the Directive (2009/147/EC) as it is used regularly by 1% or more of the biogeographical populations of the following migratory species:

Non-breeding;

Common scoter (Western Siberia/Western & Northern Europe/North-western Africa) 56,679 individuals representing 10.31% of the biogeographical population (7 year peak mean 2004/05 - 2010/11).

Assemblage qualification: A seabird assemblage of international importance

The area qualifies under SPA selection stage 1.3 by regularly supporting at least 20,000 waterbirds in any season:

In the non-breeding season, the site regularly supports at least 69,687 individual waterbirds (7 year peak mean 2004/05 – 2010/11), including red-breasted merganser *Mergus serrator* and great cormorant *Phalacrocorax carbo*.

Mersey Narrows and North Wirral Foreshore SPA/Marine SPA

Mersey Narrows and North Wirral Foreshore SPA/Marine SPA comprises extensive intertidal mud and sandflats, distinct areas of rocky shore and small areas of saltmarsh. The site is located between Seacombe, on the west bank of the River Mersey and Hoylake, to the west, where it adjoins The Dee Estuary SPA.

The site is listed as 98.2% marine habitat (JNCC 2016a); predominantly intertidal sandflats with extensive sea defences including breakwaters, groynes and hard embankments. There are areas of natural rocky shore at Red Rocks, on the Egremont foreshore and Perch Rock. Small areas of saltmarsh



are found at the southern edge of the site. Seaforth Nature Reserve is made up of a saltwater lagoon, saltmarsh, sand and mud flats and a large freshwater lagoon.

The large areas of intertidal sand and mudflats are submerged at high tide and exposed at low tide. They provide an important feeding habitat for birds. Seaforth Nature Reserve is primarily a high tide roost site, as well as a nesting site for terns and feeding site for little gull. Outside of the SPA boundary, birds may roost at the high tide mark near Hightown as well as on nearby fields.

This site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

Over winter;

- Bar-tailed godwit *Limosa lapponica* - 3,344 individuals comprising 6.6% of the GB population 5-year peak mean (2004/05 - 2008/09).

On passage;

- Little gull *Hydrocoloeus minutus* - 213 individuals (no national population estimate).
- Common tern - 1,475 individuals (no national population estimate).

During the breeding season;

- Common tern – 177 pairs comprising 1.8% of the GB population (2005-2009)

This site qualifies under **Article 4.2** of the Directive (2009/147/EC) by supporting populations of European importance of the following migratory species:

Over winter;

- Knot *Calidris canutus islandica* - 10,655 individuals comprising 2.4% of the W Europe/Waddensea/Britain/Ireland population 5 year peak mean (2004/05 - 2008/09).

This site also qualifies under **Article 4.2** of the Directive (2009/147/EC) by supporting an internationally important assemblage of birds. In the non-breeding season the area regularly supports 32,366 individual waterbirds including:

- bar-tailed godwit and knot as well as nationally important numbers of cormorant *Phalacrocorax carbo*, grey plover *Pluvialis squatarola*, sanderling *Calidris alba*, dunlin *Calidris alpina* and redshank *Tringa totanus* and over 2,000 oystercatcher *Haematopus ostralegus*.

Mersey Narrows and North Wirral Foreshore Ramsar Site

Mersey Narrows and North Wirral Foreshore Ramsar Site occupies the same area, and therefore comprises the same habitats as the Mersey Narrows and North Wirral Foreshore SPA and Marine SPA.

The site qualifies for selection under Ramsar Criteria 4, 5 and 6 (JNCC, 2013):

The site qualifies under **Criterion 4** because it 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.



The site qualifies under **Criterion 5** because it 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.

The site qualifies under **Criterion 6** because it regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season: During the winters 2004/05 - 2008/09, the Mersey Narrows and North Wirral Foreshore Ramsar site supported 2.4% of the *islandica* subspecies, W Europe/Waddensea/Britain/Ireland (non-breeding) population of knot and 2.8% of the *lapponica* subspecies W Europe/NW Africa (non-breeding) population of bar-tailed godwits.

Dee Estuary SAC

Dee Estuary SAC extends from Bootle, on west bank of the Mersey estuary, to Prestatyn, west of the Dee Estuary. The site therefore spans the border between England and Wales.

The site is designated for a range of habitats and species listed under Annexes I and II respectively, of the EU Habitats Directive.

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

- 1140 Mudflats and sandflats not covered by seawater at low tide.
- 1310 Salicornia and other annuals colonizing mud and sand.
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*).

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

- 1130 Estuaries.
- 1210 Annual vegetation of drift lines.
- 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts.
- 2110 Embryonic shifting dunes.
- 2120 Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes").
- 2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes").
- 2190 Humid dune slacks.

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

Not applicable.

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

- 1095 Sea lamprey *Petromyzon marinus*.
- 1099 River lamprey *Lampetra fluviatilis*.
- 1395 Petalwort *Petalophyllum ralfsii*.

Ribble and Alt Estuaries SPA/Marine SPA

The Ribble and Alt Estuaries SPA lies on the coast of Lancashire and Merseyside. The site extends from Lytham Saint Anne's in Lancashire to Seaforth on Merseyside and comprises 12,540.02ha.



The site is listed as 76.5% marine habitat (JNCC 2016b); comprising extensive sand- and mud-flats and, particularly in the Ribble Estuary, large areas of saltmarsh. There are also areas of coastal grazing marsh located behind the sea embankments. The intertidal flats are rich in invertebrates, on which waders and some of the wildfowl feed. The highest densities of feeding birds are on the muddier substrates of the Ribble, though sandy shores throughout are also used. The saltmarshes and coastal grazing marshes support high densities of grazing and seed-eating wildfowl and these, together with the intertidal sand- and mud-flats, are used as high-tide roosts.

Important populations of waterbirds occur in winter, including swans, geese, ducks and waders. There is considerable interchange in the movements of wintering birds between this site and Morecambe Bay, the Mersey Estuary, the Dee Estuary and Martin Mere. 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 larger expanses of saltmarsh and areas of coastal grazing marsh support breeding birds during the summer, including large concentrations of gulls and terns. These seabirds feed both offshore and inland, outside the SPA. Several species of waterbirds (notably Pink-footed Goose *Anser brachyrhynchus*) utilise feeding areas on agricultural land outside the SPA

This site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season;

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

Over winter;

- Bewick's Swan *Cygnus columbianus bewickii*, 276 individuals representing 3.9% of the wintering population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Whooper Swan *Cygnus cygnus*, 182 individuals representing 3.3% of the wintering population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Bar-tailed Godwit, 20,086 individuals representing 37.9% of the wintering population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Golden Plover *Pluvialis apricaria*, 3,598 individuals representing 1.4% of the wintering population in Great Britain (5 year peak mean 1993/94 - 1997/98).

This site also qualifies under **Article 4.2** of the Directive (2009/147/EC) by supporting populations of European importance of the following migratory species:

During the breeding season;

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



- Black-headed gull *Chroicocephalus ridibundus*, 11,900 pairs representing 7.1% of the population in Great Britain (Count as at 1996).

On passage;

- Ringed Plover *Charadrius hiaticula*, 1,657 individuals representing at least 3.3% of the Europe/Northern Africa - wintering population (5 year peak mean May 1993 - 1997).
- Sanderling *Calidris alba*, 6,535 individuals representing at least 6.5% of the Eastern Atlantic/Western & Southern Africa wintering population (5 year peak mean May 1993 - 1997).
- Whimbrel *Numenius phaeopus*, 2046 individuals, representing 13.9% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Redshank *Tringa tetanus*, 3,247 individuals, representing 2.2% of the Eastern Atlantic wintering population (5 year peak mean 1993 - 1997).

Over winter;

- Pintail *Anas acuta*, 2,731 individuals, representing 4.6% of the wintering Northwestern Europe population (5 year peak mean 1993/94 - 1997/98).
- Teal *Anas crecca*, 7,157 individuals representing 1.8% of the wintering North-western Europe population (5 year peak mean 1993/94 - 1997/98).
- Wigeon *Anas penelope*, 85,259 individuals representing 6.8% of the wintering Western Siberia/North-western/North-eastern Europe population (5 year peak mean 1993/94 - 1997/98).
- Pink-footed Goose, 11, 764 individuals representing 5.2% of the wintering Eastern Greenland/Iceland/UK population (5 year peak mean 1993/94 - 1997/98).
- Scaup *Aythya marila*, 114 individuals, representing 1.0% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Sanderling, 2,882 individuals representing 2.9% of the wintering Eastern Atlantic/Western & Southern Africa - wintering population (5 year peak mean 1993/94 - 1997/98).
- Dunlin, 39,376 individuals representing 2.8% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1993/94 - 1997/98).
- Knot, 68,922 individuals representing 19.7% of the wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population (5 year peak mean 1993/94 - 1997/98).
- Oystercatcher, 18,535 individuals representing 2.1% of the wintering Europe & Northern/Western Africa population (5 year peak mean 1993/94 - 1997/98).
- Black-tailed Godwit *Limosa limosa islandica*, 1,273 individuals representing 1.8% of the wintering Iceland - breeding population (5 year peak mean 1993/94 - 1997/98).



- Common scoter, 746 individuals representing 2.7% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Curlew, 2046 individuals representing 1.7% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Cormorant *Phalacrocorax carbo*, 311 individuals representing 2.4% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Grey Plover *Pluvialis squatarola*, 9,355 individuals representing at least 6.2% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1993/94 - 1997/98).
- Shelduck *Tadorna tadorna*, 4,925 individuals representing at least 1.6% of the wintering Northwestern Europe population (5 year peak mean 1993/94 - 1997/98).
- Redshank, 2,505 individuals representing at least 1.7% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1993/94 - 1997/98).
- Lapwing *Vanellus vanellus*, 16,496 individuals representing 0.8% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).

Assemblage qualification: A seabird assemblage 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 (5 year peak mean 1991/92-1995/96) including: Black-headed Gull *Larus ridibundus*, lesser black-backed Gull *Larus fuscus*, common tern .

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 323,861 individual waterfowl (5 year peak mean 1991/92-1995/96) including: grey plover, whooper swan, golden plover, bar-tailed godwit, pink-footed goose shelduck, wigeon, teal, bewick's swan, oystercatcher, curlew, knot, sanderling, dunlin, black-tailed godwit, redshank, cormorant, common scoter, lapwing and pintail.

Ribble and Alt Estuaries Ramsar Site

Ribble and Alt Estuaries Ramsar Site overlaps with the majority of the Ribble and Alt Estuaries SPA/Marine SPA, but includes the Birkdale and Ainsdale sand dunes, north of Formby, which are excluded from the SPA.

The site qualifies for selection under Ramsar Criteria 2, 5 and 6 (JNCC 2004a):

The site qualifies under **Criterion 2** because it supports up to 40% of the Great Britain population of natterjack toads *Epidalea calamita*.



The site qualifies under **Criterion 5** a waterfowl assemblage of international importance: 222,038 waterfowl (5 year peak mean 1998/99-2002/2003).

The site qualifies under **Criterion 6** because it regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season:

Species with peak counts during the breeding season:

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

Species with peak counts in spring/autumn:

- Black-tailed godwit, *Limosa limosa islandica*, Iceland/W Europe, 3,323 individuals, representing an average of 9.4% of the population (5 year peak mean 1998/9- 2002/3).
- Common redshank, 4,465 individuals, representing an average of 1.7% of the population (5 year peak mean 1998/9-2002/3).
- Dunlin, *Calidris alpina alpina*, W Siberia/W Europe, 38,196 individuals, representing an average of 2.8% of the population (5 year peak mean 1998/9-2002/3 - spring peak).
- Grey plover , E Atlantic/W Africa – wintering, 11,021 individuals, representing an average of 4.4% of the population (5 year peak mean 1998/9-2002/3 - spring peak).
- Red knot, *Calidris canutus islandica*, W & Southern Africa - wintering, 42,692 individuals, representing an average of 9.4% of the population (5 year peak mean 1998/9-2002/3).
- Ringed plover, Europe/Northwest Africa, 3,761 individuals, representing an average of 5.1% of the population (5 year peak mean 1998/9-2002/3 - spring peak).
- Sanderling Eastern Atlantic 7,401 individuals, representing an average of 6% of the population (5 year peak mean 1998/9- 2002/3 - spring peak).
- Lesser black-backed gull, 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:

- Bar-tailed godwit, *Limosa lapponica lapponica*, W Palearctic 13,935 individuals, representing an average of 11.6% of the population (5 year peak mean 1998/9-2002/3).
- Oystercatcher, *Haematopus ostralegus ostralegus*, Europe & NW Africa -wintering 18,926 individuals, representing an average of 1.8% of the population (5 year peak mean 1998/9-2002/3).
- Shelduck, NW Europe, 2,944 individuals, representing an average of 3.7% of the GB population (5 year peak mean 1998/9-2002/3).



- Teal , NW Europe 5,107 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9- 2002/3).
- Wigeon , NW Europe 69,841 individuals, representing an average of 4.6% of the population (5 year peak mean 1998/9-2002/3).
- Pintail , NW Europe 1,497 individuals, representing an average of 2.4% of the population (5 year peak mean 1998/9-2002/3)
- Pink-footed goose , Greenland, Iceland/UK, 6,552 individuals, representing an average of 2.7% of the population (5 year peak mean 1998/9-2002/3).
- Bewick's swan , NW Europe 230 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9- 2002/3).
- Whooper swan Iceland/UK/Ireland 211 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3).

Sefton Coast SAC

Sefton Coast SAC extends along the coast from Southport to Crosby and comprises 4591.59ha. The site is designated for a range of habitats and species listed under Annexes I and II respectively, of the EU Habitats Directive.

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

- 2110 Embryonic shifting dunes.
- 2120 Shifting dunes along the shoreline with marram grass *Ammophila arenaria* ("white dunes").
- 2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes").
- 2170 Dunes with creeping willow *Salix repens ssp. argentea* (Salicion arenariae).
- 2190 Humid dune slacks.

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

- 2150 Atlantic decalcified fixed dunes (Calluno-Ulicetea)

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

- 1395 Petalwort *Petalophyllum ralfsii*.

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

1166 Great crested newt *Triturus cristatus*.

Mersey Estuary SPA/Marine SPA

The Mersey Estuary SPA occupies an area from Runcorn Gap, to the east, to just south of the Tranmere Beach Oil Terminal. The site is listed as 83.4% marine habitat (JNCC 2016c) comprising 5,023.35ha of large areas of saltmarsh and extensive intertidal sand- and mud-flats, with limited areas of brackish marsh, rocky shoreline and boulder clay cliffs, within a rural and industrial environment. The intertidal



flats and saltmarshes provide feeding and roosting sites for large populations of waterbirds. During the winter, the site is of major importance for ducks and waders. The site is also important during the spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain.

This site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

Over winter;

- Golden Plover, 3,040 individuals representing 1.2% of the wintering population in Great Britain (5 year peak mean 1993/4 - 1997/8).

This site also qualifies under **Article 4.2** of the Directive (2009/147/EC) by supporting populations of European importance of the following migratory species:

On passage;

- Redshank, 4,513 individuals representing at least 3.8% of the Eastern Atlantic - wintering population (5 year peak mean, 1993 - 1997).
- Ringed Plover, 505 individuals representing at least 1.7% of the Europe/Northern Africa - wintering population in Great Britain (5-year peak mean 1993 - 1997).

Over winter;

- Pintail, 1,169 individuals representing 1.9% of the wintering North-western Europe population (5 year peak mean 1993/4 - 1997/8).
- Teal, 11,723 individuals representing 2.9% of the wintering North-western Europe population (5 year peak mean 1993/4 - 1997/8).
- Wigeon, 11,886 individuals representing 4.2% of the wintering Western Siberia/North-western/North-eastern Europe population in Great Britain (5 year peak mean 1993/4 - 1997/8).
- Dunlin, 48,789 individuals representing 3.6% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1993/4 - 1997/8).
- Black-tailed godwit, 976 individuals representing 1.6% of the Icelandic breeding population (5-year peak mean, 1993/94 - 1997/98).
- Curlew, 1,300 individuals, representing 1.1% of the wintering population in Great Britain (5 year peak mean 1993/4 - 1997/8).
- Grey plover 1,010 representing 2.3% of the population in Great Britain (5-year peak mean, 1993/94 - 1997/98).
- Great crested-grebe 136 individuals representing 1.4% of the population in Great Britain (5-year peak mean, 1993/94 - 1997/98).



- Shelduck, 6,746 individuals representing 2.2% of the wintering North-western Europe population (5 year peak mean 1993/4 - 1997/8).
- Redshank, 4,993 individuals representing at least 2.8% of the Eastern Atlantic - wintering population (5 year peak mean 1993/4 - 1997/8).
- Lapwing, 10,544 individuals representing 0.7% of the population in Great Britain (5-year peak mean, 1993/94 - 1997/98)

Assemblage qualification: A wetland of international importance.

The area qualifies under Article 4.2 of the Directive (2009/147/EC) by regularly supporting at least 20,000 waterfowl. At the time of classification, the site supported 104,599 individual waterbirds in the non-breeding season, (5 year peak mean 1993/94 - 1997/98). These include: great crested grebe, shelduck, wigeon, teal, pintail, ringed plover, golden plover, grey plover, lapwing, dunlin, black-tailed godwit, curlew and redshank.

Mersey Estuary Ramsar Site

Mersey Estuary Ramsar Site occupies the same area, and therefore comprises the same habitats, as Mersey Estuary SPA and Marine SPA.

The site qualifies for selection under Ramsar Criteria 5 and 6:

The site qualifies under **Criterion 5** because it regularly supports 20,000 or more waterbirds: During the winters 1998/99 - 2002/03, the Mersey Estuary Ramsar site supported an average peak of 89,576 individual waterbirds.

The site qualifies under **Criterion 6** because it regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season:

Species with peak counts in spring/autumn:

- Shelduck, (NW Europe), 12,676 individuals, representing an average of 4.2% of the population (5 year peak mean 1998/9-2002/3).
- Black-tailed godwit, (Iceland/W Europe), 2,011 individuals, representing an average of 5.7% of the population (5 year peak mean 1998/9-2002/3).
- Redshank, 6,651 individuals, representing an average of 2.6% of the population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

- Teal, (NW Europe), 10,613 individuals, representing an average of 2.6% of the population (5 year peak mean 1998/9-2002/3).
- Pintail, (NW Europe), 565 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9- 2002/3).



- Dunlin (W Siberia/W Europe), 48,364 individuals, representing an average of 3.6% of the population (5 year peak mean 1998/9-2002/3).

The Dee Estuary SPA/Marine SPA

The Dee Estuary SPA/Marine SPA occupies the whole of the Dee Estuary, from just north of Connah's Quay, to Prestatyn in Wales, to the north west and Hoylake, in England, to the north east. The site therefore spans the border between England and Wales and overlaps extensively with Dee Estuary SAC.

The site is listed as 80.9% marine habitat and comprises 14,294.95 ha of extensive areas of intertidal sand-flats, mud-flats and saltmarsh. Where agricultural land-claim has not occurred, the saltmarshes grade into transitional brackish and swamp vegetation on the upper shore. The site also includes the three sandstone islands of Hilbre with their important cliff vegetation and maritime heathland and grassland. The two shorelines of the estuary show a marked contrast between the industrialised usage of the coastal belt in Wales and residential and recreational usage in England. The site is of major importance for waterbirds. During the winter, the intertidal flats and saltmarshes provide feeding and roosting sites for large populations of ducks and waders. In summer, the site supports breeding populations of two species of terns at levels of European importance. The site is also important during migration periods, particularly for wader populations moving along the west coast of Britain.

This site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season;

- Little tern (Eastern Atlantic - breeding), 69 individuals, 2.9% of the GB breeding population (5 year peak mean 1995-1999).
- Common tern (Northern/Eastern Europe - breeding), 392 individuals, 3.2% of the population in Great Britain (5 year peak mean 1995-1999).

On passage;

- Sandwich tern *Sterna sandvicensis* (Western Europe/Western Africa), 957 individuals, 2.3% of the population in Great Britain (5 year peak mean 1995-1999).

Over winter;

- Bar-tailed godwit (Western Palearctic - wintering), 1,150 individuals, 2.2% of the GB population (5 year peak mean 1994/95-1998/99).

This site also qualifies under **Article 4.2** of the Directive (2009/147/EC) by supporting populations of European importance of the following migratory species:

On passage;

- Redshank (Eastern Atlantic - wintering), 8,795 individuals, 5.9% of the population (5 year peak mean 1994/95-1998/99).

Over winter;



- Pintail (North-western Europe), 5,407 individuals, 9.0% of the population (5 year peak mean 1994/95-1998/99).
- Teal (North-western Europe), 5,251 individuals, 1.3% of the population (5 year peak mean 1994/95-1998/99).
- Dunlin (Northern Siberia/Europe/Western Africa), 27,769 individuals, 2% of the population (5 year peak mean 1994/95-1998/99)
- Knot (North-eastern Canada/Greenland/Iceland/North-western Europe), 12,394 individuals, 3.5% of the population (5 year peak mean 1994/95-1998/99).
- Oystercatcher (Europe & Northern/Western Africa), 22,677 individuals, 2.5% of the population (5 year peak mean 1994/95-1998/99).
- Black-tailed godwit (Iceland - breeding), 1,747 individuals, 2.5% of the population (5 year peak mean 1994/95-1998/99).
- Curlew (Europe - breeding), 3,899 individuals, 1.1% of the population (5 year peak mean 1994/95-1998/99).
- Grey plover (Eastern Atlantic - wintering), 1,643 individuals, 1.1% of the population (5 year peak mean 1994/95-1998/99).
- Shelduck (North-western Europe), 7,725 individuals, 2.6% of the population (5 year peak mean 1994/95-1998/99). Redshank (Eastern Atlantic - wintering), 5,293 individuals, 3.5% of the population (5 year peak mean 1994/95-1998/99).

Assemblage qualification: A wetland of international importance.

The area qualifies under Article 4.2 of the Directive (2009/147/EC) by regularly supporting at least 20,000 waterfowl. Over winter the area regularly supports: 120,726 waterfowl (5 year peak mean 1991/92-1995/96) Including: shelduck, pintail, oystercatcher, knot, bar-tailed godwit and redshank.

The Dee Estuary Ramsar Site

The Dee Estuary Ramsar Site occupies the same area, as The Dee Estuary SPA and Marine SPA and therefore comprises the same habitats as those sites.

The site qualifies for selection under Ramsar Criteria 1, 2, 5 and 6:

The site qualifies under **Criterion 1** because it supports the following rare, or unique example of a natural or near-natural wetland types listed on Annex I of the Habitats Directive :

- H1130 Estuaries.
- H1140 Mudflats and sandflats not covered by seawater at low tide.
- H1210 Annual vegetation of drift lines.
- H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts.
- H1310 Salicornia and other annuals colonising mud and sand.
- H1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*).



- H2110 Embryonic shifting dunes H2120 Shifting dunes along the shoreline with early sand-grass ("white dunes").
- H2130 Fixed dunes with herbaceous vegetation ("grey dunes").
- H2190 Humid dune slacks.

The site qualifies under **Criterion 2** because it supports breeding colonies of natterjack toads.

The site qualifies under **Criterion 5** a waterfowl assemblage of international importance: 120,726 waterfowl in winter (5 year peak mean 1998/99-2002/2003).

The site qualifies under **Criterion 6** because it regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season:

Species with peak counts in spring/autumn:

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

Species with peak counts in winter:

- Teal (NW Europe), 5,251 individuals, representing an average of 1.3% of the population (5 year peak mean 1994/95 - 1998/99).
- Shelduck (NW Europe), 7,725 individuals, representing an average of 2.6% of the population (5 year peak mean 1994/95 - 1998/99).
- Oystercatcher (Europe & W Africa), 22,677 individuals, representing an average of 2.5% of the population (5 year peak mean 1994/95 - 1998/99).
- Curlew (Europe/NW Africa), 3,899 individuals, representing an average of 1.1% of the Europe population (5 year peak mean 1994/95 - 1998/99).
- Pintail (NW Europe), 5,407 individuals, representing an average of 9.0% of the population (5 year peak mean 1994/95 - 1998/99).
- Grey plover (E Atlantic) 1,643 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1994/95 - 1998/99).
- Knot (W Europe/ Canada) 12,394 individuals, representing an average of 3.5% of the GB population (5 year peak mean 1994/95 - 1998/99).
- Dunlin (Europe - breeding), 27,769 individuals, representing an average of 2.0% of the population (5 year peak mean 1994/95 - 1998/99).
- Black-tailed godwit (Iceland - breeding) 1,747 individuals, representing an average of 2.5% of the population (5 year peak mean 1994/95 - 1998/99).
- Bar-tailed godwit (W European - wintering) 1,150 individuals, representing an average of 1.2% of the Europe population (5 year peak mean 1994/95 - 1998/99).

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

2. Sites of Special Scientific Interest

SSSI sites within 20km of the site are presented in 2. The designated features of each site are summarised below.

Table 2: SSSIs within 20km of the Site

Site Name	Approximate distance (km) and direction from site	Area (ha)
Mersey Narrows SSSI	1.22 W	116.34
North Wirral Foreshore SSSI	2.63 NW	1962.29
Sefton Coast SSSI	4.52 NW	4634.05
New Ferry SSSI	5.44 S	73.43
Mersey Estuary SSSI	6.20 SE	6714.51
Meols Meadows SSSI	8.72 SW	7.78
Dibbinsdale SSSI	9.55 S	55.02
Thurstaston Common SSSI	10.6 SW	72.08
The Dungeon SSSI	12.19 SW	1.09
Heswall Dales SSSI	12.28 SW	29.65
Dee Cliffs SSSI	12.94 SW	15
Dee Estuary SSSI	13.17 SW	6320.18
Red Rocks SSSI	13.27 SW	11.44
Downholland Moss SSSI	15.11 N	21.56
Hallwood Farm Marl Pit SSSI	16.44 S	0.11
Inner Marsh Farm SSSI	18.85 SW	22.59
Stanley Bank Meadow SSSI	20.00 NE	15.18

Mersey Narrows SSSI

Mersey Narrows SSSI is notified for its large areas of intertidal sand and mudflats, which support internationally important populations of turnstone *Arenaria interpres*, redshank and nationally important populations of cormorant. The site underpins part of Mersey Narrows and North Wirral Foreshore SPA/Marine SPA and Ramsar Site.

Notified Features

- Aggregations of non-breeding birds – cormorant;
- Aggregations of non-breeding birds – redshank;
- Aggregations of non-breeding birds – turnstone;
- Isolated saline lagoons



- Moderately exposed sandy shores (with polychaetes and bivalves);
- Sheltered muddy shores (including estuarine muds); and
- SM9 – Annual sea-blite *Suaeda maritima* saltmarsh.

North Wirral Foreshore SSSI

North Wirral Foreshore is located between the outer Dee and Mersey Estuaries. This site is an area of intertidal sand and mudflats and embryonic saltmarsh which is of considerable importance as a feeding and roosting site for passage and wintering flocks of waders, wildfowl, terns and gulls. The site underpins part of Mersey Narrows and North Wirral Foreshore SPA/Marine SPA and Ramsar Site and also part of the Dee Estuary SAC.

Notified Features

- Aggregations of non-breeding birds - bar-tailed godwit;
- Aggregations of non-breeding birds – dunlin;
- Aggregations of non-breeding birds – knot;
- Aggregations of non-breeding birds – turnstone;
- Sheltered muddy shores (including estuarine muds);
- SM10 - Transitional low marsh vegetation with common saltmarsh grass *Puccinellia maritima*, annual glasswort *Salicornia* species and annual sea-blite;
- SM6 – Common cord grass *Spartina anglica* saltmarsh; and
- Wave exposed sandy shores (with burrowing crustaceans and polychaetes).

Sefton Coast SSSI

Sefton Coast SSSI extends for over 20km between Southport and Crosby. The site underpins all of the Sefton Coast SAC and part of the Ribble and Alt Estuaries SPA/Marine SPA and Ramsar Site. The site also includes Ainsdale Sand Dunes National Nature Reserve (NNR) and Cabin Hill NNR.

The site is of special interest for intertidal mud and sandflats, embryonic shifting dunes, mobile dunes, dunes with creeping willow *Salix arenaria*, humid dune slacks, fixed dunes, dune grasslands and dune heath. Small areas of saltmarsh are also present. Its assemblages of vascular and non-vascular plants, in particular the nationally rare grey hair grass *Corynephorus canescens*, nationally scarce liverwort *Petalophyllum ralfsii* and nationally rare moss *Bryum neodamense*, are also of special interest.

The site is of special interest for its populations of internationally important wintering waterfowl and its nationally and, in some cases, internationally important populations of individual waders. Its populations of sand lizard *Lacerta agilis*, natterjack toad and great crested newt are also of special interest, along with the populations of the Red Data Book species, sandhill rustic moth *Luperina nickerlii gueneei*.

The Sefton Coast is also of special interest for coastal geomorphology, in particular for the large, mobile dune system and the multiple sand bars that occur on the foreshore. Relatively stable bar features occur in the intertidal zone and many different bedforms are represented on the foreshore.

Notified Features

- Aggregations of non-breeding birds - bar-tailed godwit;
- Aggregations of non-breeding birds – dunlin;
- Aggregations of non-breeding birds - grey plover;
- Aggregations of non-breeding birds – knot;



- Aggregations of non-breeding birds – oystercatcher;
- Aggregations of non-breeding birds - ringed plover;
- Aggregations of non-breeding birds – sanderling;
- Great crested newt;
- H1 *Calluna vulgaris* – *Festuca ovina* heath;
- H11 - *Calluna vulgaris* - *Carex arenaria* heath;
- H9 - *Calluna vulgaris* - *Deschampsia flexuosa* heath;
- IA - Coastal geomorphology;
- Littoral sediment;
- Natterjack toad;
- Population of RDB moss - long-leaved thread-moss *Bryum neodamense*;
- Population of Schedule 8 liverwort - petalwort *Petalophyllum ralfsi*;
- Sand lizard;
- Sandhill rustic moth;
- SD10 - *Carex arenaria* dune community;
- SD11 - *Carex arenaria* - *Cornicularia aculeata* dune community;
- SD12 - *Carex arenaria* - *Festuca ovina* - *Agrostis capillaris* dune grassland;
- SD13 - *Salix repens* - *Bryum pseudotriquetrum* dune-slack community;
- SD14 - *Salix repens* - *Campylium stellatum* dune-slack community;
- SD15 - *Salix repens* - *Calliergon cuspidatum* dune-slack community;
- SD16 - *Salix repens* - *Holcus lanatus* dune slack community;
- SD17 - *Potentilla anserina* - *Carex nigra* dune-slack community;
- SD2 - *Honkenya peploides* - *Cakile maritima* strandline community;
- SD3 - *Matricaria maritima* - *Galium aparine* strandline community;
- SD5 - *Leymus arenarius* mobile dune community;
- SD6 - *Ammophila arenaria* mobile dune community;
- SD7 - *Ammophila arenaria* - *Festuca rubra* semi-fixed dune community;
- SD8 - *Festuca rubra* - *Galium verum* fixed dune grassland;
- SD9 - *Ammophila arenaria* - *arrhenatherum elatius* dune grassland;
- SM13a - *Puccinellia maritima* saltmarsh, *Puccinellia maritima* dominant sub-community;
- U1 b,c,d,f - *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland;
- U2 - *Deschampsia flexuosa* grassland;
- U4 - *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland;
- U5 - *Nardus stricta* - *Galium saxatile* grassland; and
- Vascular plant assemblage.

New Ferry SSSI

New Ferry SSSI is notified for its large areas of intertidal sand, mudflats and other habitats, which support two nationally important species of wintering waterfowl, pintail and black-tailed godwit. The site underpins part of Mersey Estuary SPA/Marine SPA and Ramsar Site.

Notified Features

- Aggregations of non-breeding birds - black-tailed godwit;
- Aggregations of non-breeding birds – pintail; and
- Littoral sediment.



Mersey Estuary SSSI

The Mersey Estuary is an internationally important site for wildfowl and consists of large areas of intertidal sand and mudflats. The site also includes an area of reclaimed marshland, salt-marshes, brackish marshes and boulder clay cliffs with freshwater seepages. The Manchester Ship Canal forms part of the southern boundary of the site and separates a series of pools from the main estuary. These pools together with Hale Marsh are important roosting sites for wildfowl and waders at high tide. Throughout the winter the estuary supports large numbers of wildfowl and waders. The birds feed on the rich invertebrate fauna of the intertidal sediments as well as plants and seeds from the salt-marsh and adjacent agricultural land. The estuary is also a valuable staging post for migrating birds in spring and autumn. The site underpins most of Mersey Estuary SPA/Marine SPA and Ramsar Site.

Notified Features

- Aggregations of non-breeding birds – curlew;
- Aggregations of non-breeding birds – dunlin;
- Aggregations of non-breeding birds – golden plover;
- Aggregations of non-breeding birds – pintail;
- Aggregations of non-breeding birds – redshank;
- Aggregations of non-breeding birds – shelduck;
- Aggregations of non-breeding birds – teal;
- Aggregations of non-breeding birds – wigeon;
- S4 - *Phragmites australis* swamp and reed-beds;
- Sheltered muddy shores (including estuarine muds);
- SM10 - Transitional low marsh vegetation with *Puccinellia maritima*, annual *Salicornia* species and *Suaeda maritima*;
- SM11 - *Aster tripolium* var. *discooides* – saltmarsh;
- SM13a - *Puccinellia maritima* saltmarsh, *Puccinellia maritima* dominant sub-community;
- SM6 - *Spartina anglica* saltmarsh;
- SM8 - Annual *Salicornia* saltmarsh; and
- SM9 - *Suaeda maritima* saltmarsh.

Meols Meadows SSSI

The main habitat present is damp unimproved neutral grassland, the level fields being separated by ditches containing tall fen vegetation. This site is the best example of the crested dog's-tail-common knapweed type of grassland known in Greater Manchester and Merseyside.

Notified Features

- MG5 - *Cynosurus cristatus* - *Centaurea nigra* grassland

Dibbinsdale SSSI

The main habitats included are semi-natural broad-leaved woodland, which covers most of the site, reed swamp, fen pasture and neutral grassland. This is the largest block of semi-natural woodland of its type in Merseyside and it contains typical examples of ash-wych elm and valley alder woodland, each of which supports a rich flora and fauna. Woodland in the valley of Dibbinsdale and Clatter Brook has been recorded since 1818 although it is likely that some parts of the wood are much older.



Notified Features

- Assemblages of breeding birds - Mixed: Lowland Fen, Woodland;
- W6 - *Alnus glutinosa* - *Urtica dioica* woodland; and
- W8 - *Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis* woodland.

Thurstaston Common SSSI

Thurstaston Common is the largest and best remaining example of a lowland heathland in Merseyside. It is similar in character to Heswall Dales, but its larger size and the fact that it contains better examples of wet and dry heath gives it pre-eminence over the Heswall site.

Notified Features

- H8 - *Calluna vulgaris* - *Ulex gallii* heath;
- M16 - *Erica tetralix* - *Sphagnum compactum* wet heath; and
- W16 - *Quercus spp.* - *Betula spp.* - *Deschampsia flexuosa* woodland.

The Dungeon SSSI

The Dungeon is a small wooded ravine a quarter of a mile to the north west of Heswall, which shows a natural stream section through the Tarporley Siltstone Formation of the Mercia Mudstone Group, of Triassic age.

Notified Features

- EW - Non Marine Permian Triassic (Red Beds)

Heswall Dales SSSI

Heswall Dales is regarded as the second best example of lowland heath in Merseyside. It is ranked second to Thurstaston Common which is larger and botanically more diverse.

Notified Features

- H16 - *Calluna vulgaris* - *Arctostaphylos uva-ursi* heath;
- H8 - *Calluna vulgaris* - *Ulex gallii* heath;
- H9 - *Calluna vulgaris* - *Deschampsia flexuosa* heath;
- M25 - *Molinia caerulea* - *Potentilla erecta* mire; and
- W16 - *Quercus spp.* - *Betula spp.* - *Deschampsia flexuosa* woodland.

Dee Cliffs SSSI

This site contains the best known example of clay cliff and bank habitat in Merseyside as well as some marl pits which have a rich flora and fauna and an area of herb-rich neutral grassland.

Notified Features

- EC - Quaternary of The Pennines and Adjacent Areas;
- MC12 - *Festuca rubra* - *Hyacinthoides non-scripta* maritime bluebell community;
- MG5 - *Cynosurus cristatus* - *Centaurea nigra* grassland; and
- Standing Waters.



Dee Estuary SSSI

The Dee Estuary/Aber Afon Dyfrdwy is of special interest for its total populations of internationally important wintering waterfowl; its populations of individual waterfowl and tern species whose numbers reach national and in some cases, internationally important levels; its intertidal mud and sandflats, saltmarsh and transitional habitats; the hard rocky sandstone cliffs of Hilbre Island and Middle Eye with their cliff vegetation and maritime heathland and grassland; its assemblage of nationally scarce plants; and its populations of sandhill rustic moth. The site, together with its Welsh counterpart underpins most of The Dee Estuary SPA/Marine SPA, The Dee Estuary Ramsar Site and Dee Estuary SAC.

Notified Features

- Aggregations of breeding birds - common tern;
- Aggregations of breeding birds – redshank;
- Aggregations of non-breeding birds - bar-tailed godwit;
- Aggregations of non-breeding birds - black-tailed godwit;
- Aggregations of non-breeding birds – cormorant;
- Aggregations of non-breeding birds – curlew;
- Aggregations of non-breeding birds – dunlin;
- Aggregations of non-breeding birds - great crested grebe;
- Aggregations of non-breeding birds - grey plover;
- Aggregations of non-breeding birds – knot;
- Aggregations of non-breeding birds – oystercatcher;
- Aggregations of non-breeding birds – pintail;
- Aggregations of non-breeding birds – redshank;
- Aggregations of non-breeding birds - ringed plover;
- Aggregations of non-breeding birds – shelduck;
- Aggregations of non-breeding birds – teal;
- Aggregations of non-breeding birds – wigeon;
- Estuaries;
- Sandhill rustic moth;
- MC1 - *Crithmum maritimum* - *Spergularia rupicola* maritime rock-crevice community;
- MC10 - *Festuca rubra* - *Plantago spp.* maritime grassland;
- MC8 - *Festuca rubra* - *Armeria maritima* maritime grassland;
- MC9 - *Festuca rubra* - *Holcus lanatus* maritime grassland;
- MG11 - *Festuca rubra* - *Agrostis stolonifera* - *Potentilla anserina* grassland;
- MG12 - *Festuca arundinacea* grassland;
- MG13 - *Agrostis stolonifera* - *Alopecurus geniculatus* grassland;
- S21 - *Scirpus maritimus* Swamp;
- S28 - *Phalaris arundinacea* tall-herb fen;
- S4 - *Phragmites australis* swamp and reed-beds;
- SD4 - *Elymus farctus ssp. Boreali-atlanticus* foredune community;
- SD5 - *Leymus arenarius* mobile dune community;
- SD6 - *Ammophila arenaria* mobile dune community;
- Sheltered muddy shores (including estuarine muds);
- SM10 - Transitional low marsh vegetation with *Puccinellia maritima*, annual *Salicornia* species and *Suaeda maritima*;
- SM11 - *Aster tripolium var. discoides* – saltmarsh;
- SM12 - Rayed *Aster tripolium* on saltmarsh;



- SM13a - *Puccinellia maritima* saltmarsh, *Puccinellia maritima* dominant sub-community;
- SM14 - *Atriplex portulacoides* saltmarsh;
- SM15 - *Juncus maritimus* - *Triglochin maritima* saltmarsh;
- SM16a - *Festuca rubra* saltmarsh *Puccinellia maritima* sub-community;
- SM18 - *Juncus maritimus* saltmarsh;
- SM19 - *Blysmus rufus* saltmarsh;
- SM24 - *Elytrigia atherica* saltmarsh;
- SM28 - *Elytrigia repens* saltmarsh;
- SM6 - *Spartina anglica* saltmarsh;
- SM8 - Annual *Salicornia* saltmarsh;
- SM9 - *Suaeda maritima* saltmarsh;
- Vascular plant assemblage; and
- Wave exposed sandy shores (with burrowing crustaceans and polychaetes).

Red Rocks SSSI

This site contains a typical example of a sand dune system and includes a brackish dune slack and reedbed. Although these dunes are much less extensive than those on the Sefton coast, the presence of an extensive brackish slack and reedbed, a habitat type not well developed in the Sefton coast dunes, and a highly diverse flora and fauna, which includes a number of local and national rarities, still makes this an important site for nature conservation in Merseyside. The site underpins part of Dee Estuary Ramsar Site.

Notified Features

- Natterjack toad;
- S4 - *Phragmites australis* swamp and reed-beds;
- SD5 - *Leymus arenarius* mobile dune community;
- SD6 - *Ammophila arenaria* mobile dune community;
- SD7 - *Ammophila arenaria* - *Festuca rubra* semi-fixed dune community;
- SD8 - *Festuca rubra* - *Galium verum* fixed dune grassland;
- SD9 - *Ammophila arenaria* - *Arrhenatherum elatius* dune grassland;

Downholland Moss SSSI

Downholland Moss consists of an arable field and a small birch woodland. It is a key reference site for establishing relative sea level changes in north west England during the period from about 8000–4000 yrs B.P.

Notified Features

- FB - Quaternary of The Pennines and Adjacent Areas.

Hallwood Farm Marl Pit SSSI

Hallwood Farm Marl Pit has been selected because it contains black poplar *Populus nigra* which is an uncommon and declining British native tree.

Notified Features

- Uncommon and declining tree - *Populus nigra*, black poplar.

Inner Marsh Farm SSSI

The site is notified for the ornithological interest it supports, particularly its wintering and summering bird populations. It lies on former estuarine flats which were reclaimed from the Dee Estuary in the late nineteenth century by the construction of the Bidston to Wrexham railway. Freshwater marsh developed and subsequently provided safe grazing and a commercial duck shoot. Eventually, this gave way to arable farming, but in recent times this has been abandoned as the land has, once again, reverted to marshland. The site underpins part of The Dee Estuary SPA/Marine SPA and The Dee Estuary Ramsar Site.

Notified Features

- Aggregations of non-breeding birds - black-tailed godwit;
- Aggregations of non-breeding birds – pintail; and
- Aggregations of non-breeding birds – teal.

Stanley Bank Meadow SSSI

The site contains an extensive area of damp unimproved neutral grassland, a rare habitat in Merseyside, which is dissected by more acidic south-west–north-east orientated valleys. There is a general scattering of trees and shrubs and some larger blocks of scrub within the meadow and the site includes semi-natural alder woodland, oak woodland and willow scrub on the valley slopes bounding the eastern and southern edges of the meadow.

Notified Features

- M23 - *Juncus effusus/acutiflorus* - *Galium palustre* rush pasture;
- U1 b,c,d,f - *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland;
- W10 - *Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus* woodland;
- W16 - *Quercus spp.* - *Betula spp.* - *Deschampsia flexuosa* woodland; and
- W6 - *Alnus glutinosa* - *Urtica dioica* woodland.

3. Local Nature Reserves

LNRs within 20km of the site are presented in Table 3. A summary of the features of each site is provided below.

Table 3: LNRs within 20km of the Site

Site Name	Approximate distance (km) and direction from site	Area (ha)
Brook Vale	4.59 N	9.7
Bidston Moss	4.71 W	7.11
Croxteth	7.28 NE	86.45
Childwall Woods and Fields	8.13 SE	27.44
Brotherton Park and Dibbinsdale	9.28 S	33.69
Allerton (Eric Hardy)	10.23 SE	19.34
Thurstaston Common	10.62 SW	68.87



Site Name	Approximate distance (km) and direction from site	Area (ha)
Acornfield Plantation	11.07 NE	12.26
Heswall Dales	12.30 SW	21.1
Ravenmeols Hills	13.40 NW	47.4
Hilbre Islands	14.40 SW	53.51
Millwood and Alderwood	14.53 SE	22.84
Rivacre Valley	15.00 SE	41.58
Mill Brow	15.17 NE	1.81
Siding Lane Woodland	15.41 NE	7.87
Clincton Wood	15.94 SE	11.77
Hale Road Woodland	16.04 SE	11.88
Thatto Heath Meadows	17.00 E	3.81
Pickerings Pasture	17.47 SE	15.63
Burton Mill Wood	17.65 SW	2.56
Whitby Park	17.82 SE	20.33
Clinkham Wood	18.42 NE	9.62
Runcorn Hill	18.87 SE	16.73
Ainsdale and Birkdale Hills	18.90 N	296.04
Parr Hall and Millenium Green	18.91 NE	3.8
Stanney Wood	18.99 SE	22.49
Stanley Bank	20.44 NE	29.08

Brook Vale

Wetland including reed beds, which support reed and sedge warblers.

Bidston Moss

A variety of birds including grey heron and kestrel.

Croxteth

The LNR was created from the former Mull Wood plus other woodland areas such as Cocked Hat Wood, Dam Wood , The Wilderness and Ice House Woods together with some agricultural land in the park. The reserve has woodland, rough grassland and pasture, several ponds and is bounded by the River Alt. A variety of birds breed in the woodland and the ponds are good for plants such as water dropwort and dragonflies.



Childwall Woods and Fields

Habitats include neutral grassland, broadleaved woodland. Native bluebell, linnet, siskin and a wide range of butterflies are present. The grassland has spectacular show of common spotted and southern marsh orchid in early June.

Within Childwall Woods the old carriage drive is designated as a Regionally Important Geological Site for its exposed sandstone faces.

Brotherton Park and Dibbinsdale

Ancient woodland, meadows, reed swamp, parkland and amenity grassland.

Allerton (Eric Hardy)

Nature trail dedicated to Eric Hardy who was a well known and respected naturalist on Merseyside and in the North West of England, who contributed much to the understanding and knowledge of the natural history of the region.

Thurstaston Common

The main habitat is heathland. There are three types of heather - ling or common, bell heather and cross-leaved heath on site. Locally rare plants include marsh gentian, oblong-leaved sundew and round-leaved sundew. Animals include common lizard and birds such as yellowhammer and meadow pipit feed and nest in the heather.

Acornfield Plantation

Predominantly mature broadleaved woodland of birch, oak and sycamore. The centre of the site has a lowland basin mire dominated by sphagnum moss and soft rush. Other habitats include a pond, stream, drainage channels, acidic and neutral grasslands, bracken and rhododendron thickets.

Heswall Dales

Gorse provides excellent cover for birds such as Wrens, Yellowhammers and Chaffinches. The dominant plant of the heathland is Heather. The mosaic of Birch scrub and European Gorse is an important habitat for breeding birds.

Ravenmeols Hills

Wide sandy beach, high dunes, furrowed grassland that were once asparagus fields, scrubby areas of deciduous trees and a belt of pinewoods. Important site for natterjack toads which inhabit the dunes.

Hilbre Islands

The islands and other relatively high ground are used as roost sites by birds when the tide covers the thousands of acres of flats within the Dee Estuary which are exposed at low water.

Millwood and Alderwood

Habitats include broadleaved woodland, neutral grassland and ponds. Native bluebell and a range of notable butterflies.

Rivacre Valley

Woodland flowers and kingfisher along Rivacre Brook



Mill Brow

Bluebells, greater spotted woodpecker, water vole, nuthatch and bats.

Siding Lane Woodland

The site supports a variety of birds, mammals and plants. There is a pond in the reserve which supports frogs and fish.

Clincton Wood

Habitats include woodland, grassland and four ponds.

Hale Road Woodland

Community Woodland with grassland and reedbeds.

Thatto Heath Meadows

The stream valley retains much of its pre-industrial landform and traces of field patterns dating back to 1843. The site was originally part of Four Lane Ends Farm and was used as small holdings from the 1970s. The main habitats are stream, acid and neutral grassland, dense scrub and hedgerows.

Pickerings Pasture

Wildflower meadows with woodland and wetland including saltmarsh. Part of the site is in the Mersey Estuary SSSI.

Burton Mill Wood

Broadleaved and mixed woodland, heathland and grassland. All year round all three woodpeckers occur, wood warblers are often present in mid-May and, in irruption years, crossbill is also present.

Whitby Park

The main pond is located in front of Whitby Hall. Behind the bowling greens is a grassland habitat area with interpretation panels. On the far side of the park on Park Drive there is a small woodland copse. All of these areas have relaxed maintenance regimes to encourage the establishment of various insects, mammals and birds.

Clinkham Wood

Four large adjoining amenity grassland areas, and woodland containing a meadow, informal paths, seating, spring-fed stream, glade areas and large drifts of Bluebells in flower each Spring.

Runcorn Hill

The main habitats are dry heath/acid grassland, woodland, scrub and two ponds.

Ainsdale and Birkdale Hills

Ainsdale & Birkdale Sandhills LNR is one of the largest areas of wild dunes left in Britain. It has high dune ridges and dune valleys containing slacks, some with pools which provide breeding habitat for Natterjack toads. The reserve is rich in plant life. In winter part of the site is grazed by Hebridean sheep.

The damp dune slacks are carpeted with flowers in summer including early marsh orchid, marsh helleborine orchids and grass of Parnassus. The drier slacks have round leaved wintergreen and the nationally rare dune helleborine orchid.

Parr Hall and Millenium Green

The site contains water vole habitats along the stretch of the St Helens Canal. This area contains many regionally important species of plants including the yellow-wort, field pepperwort and common comfrey.

Stanney Wood

Ancient woodland of oak and silver birch, with some hazel and holly.

Stanley Bank

The LNR is made up of two areas of Ancient Semi Natural Woodland and damp neutral grassland. The site also supports a variety of birds, dragonflies, pondlife and flowers and other plants.



4. Non-statutory Sites

Non-statutory sites are presented in **Table 4**. In the Merseyside and Cheshire areas, these are termed Local Wildlife Sites (LWS) and Local Geological Sites (LGS). Seven non-statutory sites are present in the Merseyside search area, no non-statutory sites are present in the Cheshire search area.

Table 4: Non-statutory Sites within 2km of the Site

Designation	Site Name	Approximate distance (km) and direction from site
Liverpool Local Wildlife Site (current)	Leeds-Liverpool Canal	0.37 SE
Liverpool Local Wildlife Site (proposed)	Leeds-Liverpool Canal	0.75 NE
Liverpool Local Wildlife Site (current)	Melrose Cutting	1.37 NE
Liverpool Local Wildlife Site (proposed)	Melrose Cutting	1.37 NE
Liverpool Local Wildlife Site (potential)	Everton Park Nature Garden	1.63 SE
Liverpool Local Geological Site	Everton Quarry, Mark Street	0.98 NE
Liverpool Local Geological Site	Netherfield Road North, Everton	1.60 NE

Appendix D – Target Notes

Target Note	Description	Photograph
1	A large wall constructed of blocks of stones forms the eastern site boundary, parallel to Regent Road. It is largely in good condition except for a few shallow crevices and gaps which appeared to superficial and not lead very far in.	
2	Hemlock present in an area of scattered scrub within the south west of the site. Hemlock is poisonous and if ingested can cause death.	
3	A suspected Canada goose nest, being very protected by the parents, located alongside the sea wall in the north west of the site.	Unable to take photograph.

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Technical Appendix 2 – WYG, (2019b), Bramley-Moore Dock: Bird Surveys Report, Report on behalf of Everton Stadium Development Limited, Project Number A100795.



Bramley-Moore Dock

Bird Surveys Report



For Everton Stadium Development Limited

August 2020




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Document Control

Project: Bramley-Moore Dock
 Client: Everton Football Club Company Limited
 Job Number: A100795
 File Origin: N:\Projects\Projects A100000 on\A100795 Bramley-Moore Dock,
 Liverpool\REPORTS\Birds\2019 Bird Report

Issue 1	ISSUE October 19	ISSUE 1
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Rev:	Date:	Updated by:	Verified by:	Description of changes:
1	13.3.2020	G Bishop	P Preston 	Development proposal amended
2	10.8.2020	G Bishop	P Preston 	Development proposal amended

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Executive Summary

Contents	Summary
Site Location	The site is located within the Port of Liverpool, alongside the River Mersey (central OS Grid Reference SJ3345292491) and is approximately 4ha in area.
Proposals	<p>The development proposals comprise a full planning application for the development of a 52,888-seat capacity stadium with associated facilities and infrastructure at Bramley-Moore Dock, Liverpool. However, in summary, the application proposes:</p> <ul style="list-style-type: none"> • Demolition of non-listed structures; part-demolition of listed structures (Regent Road wall); remediation; infill of BMD; engineering works; and alterations to the dock walls to accommodate the development of the stadium (Use Class D2) with vehicle parking (external at grade). • Creation of a new (non-navigable) water channel, vehicular and pedestrian accesses, and hard / soft landscaping (including lighting, public art and boundary treatments). • Proposed change of use of the Grade II listed Hydraulic Tower structure to an exhibition/cultural centre (Use Class D1); works to the tower to be subject to separate listed building consent submissions. <p>The stadium is proposed to be orientated north-south with public realm and circulatory space to the west beyond the new water channel and a large fan zone plaza to the east with some soft landscaping.</p> <p>A full planning application was submitted to Liverpool City Council ('LCC') in December 2019 (application reference 20F/0001) and has been subject to statutory consultation. Following receipt of the consultation feedback, the applicant has progressed design-led changes to the submitted application scheme which requires the original submission to be updated.</p> <p>This report remains as per the December 2019 submission but the overarching ECIA and the ES Chapter address the impact of the scheme changes and the statutory consultation responses received.</p>
Existing Site Information	<ul style="list-style-type: none"> • WYG (2009). Peel Land and Property (Ports) Ltd Liverpool Waters Breeding Bird Survey Report. • WYG (2010). Liverpool Waters Environmental Statement. • WYG (2011). Peel Land and Property (Ports) Ltd Liverpool Waters Wintering and Spring Passage Bird Survey. • WYG 2013-4 Study of Non-breeding Birds, Liverpool Docks (collection of monthly reports). • TEP (2015). Assessment of Supporting Habitat (Docks) for use by Qualifying Features of Natura 2000 Sites in the Liverpool City Region. Ornithology Report. Report Ref: 4157.005. August 2015.



<p>Scope of these Surveys</p>	<p>Desk study, breeding bird survey, ferry bird survey, wintering bird survey and passage bird surveys, in order to determine presence of protected and notable bird species at the site.</p> <p>This report is a factual report only.</p>
<p>Results</p>	<p>Desk Study:</p> <ul style="list-style-type: none"> • Eleven Natura 2000 sites are located within 20km of the site, including the Liverpool Bay SPA, the Mersey Narrows and North Wirral Foreshore SPA, the Ribble and Alt Estuaries SPA, the Mersey Estuary SPA and the Dee Estuary SPA. All of these SPA's are designated because of their important bird species. • The Mersey Narrows SSSI lies within 2km of the site. • Nine W&CA Schedule 1 birds recorded within 2km of the site. • Fourteen BoCC Red List species and twenty-three BoCC Amber List species recorded within 2km of the site. • Eleven NERC Species of Principal Importance have been recorded within 2km of the site. • Nineteen bird species which are qualifying or important species of the adjacent SPA and RAMSAR sites have been recorded within 2km of the site. <p>Breeding Birds (2017 and 2019):</p> <ul style="list-style-type: none"> • No W&CA Schedule 1 species were recorded breeding on site during 2017 and 2019 surveys. • One BoCC Red List species, herring gull, were recorded breeding on site or within 200m of the site during 2017 surveys. • Two BoCC Red List species, linnet and lapwing, were recorded breeding on site or within 200m of the site during 2019 surveys; lapwing is also a SPA qualifying species. • Three BoCC Amber List and SPA qualifying species, common tern, lesser black-backed gull and oystercatcher were recorded breeding (or likely breeding) on site or within 200m of the site during 2017 and 2019 surveys. • Two species which are qualifying and important features of the adjacent SPA and Ramsar sites, cormorant and shelduck and, were recorded utilising the site as a roosting and foraging area in small numbers during the 2017 breeding bird surveys. • Three species which are qualifying and important features of the adjacent SPA and Ramsar sites, cormorant, shelduck and ringed plover, were recorded utilising the site as a roosting and foraging area in small numbers during the 2019 breeding bird surveys. <p>Ferry Bird Survey (2017 and 2019):</p> <ul style="list-style-type: none"> • No kittiwakes were recorded during the ferry bird surveys conducted in 2017 and 2019 and additional walkover survey <p>Wintering Birds (2016/2017 and 2018/2019):</p>



	<ul style="list-style-type: none"> • Two W&CA Schedule 1 species, kingfisher and peregrine, were recorded on site or within 400m from site during the wintering bird surveys conducted during winter 2016/2017 and winter 2018/2019. • Three BoCC Red List species, herring gull, linnet, and starling, were recorded utilising the site for foraging and roosting during winter 2016/2017 and winter 2018/2019. • Eleven BoCC Amber List species were recorded utilising the site for foraging and roosting during 2016/2017 survey season. • Eight BoCC Amber List species were recorded utilising the site for foraging and roosting during 2018/2019 survey season. • Six species which are qualifying or important features of the adjacent SPA and Ramsar sites were recorded utilising the site for foraging and roosting during the 2016/2017 wintering bird surveys, these being black-headed gull, lesser black-backed gull, cormorant, oystercatcher, shelduck and turnstone. • Five species which are qualifying or important features of the adjacent SPA and Ramsar sites were recorded utilising the site for foraging and roosting during the 2018/2019 wintering bird surveys, these being black-headed gull, lesser black-backed gull, cormorant, oystercatcher, and shelduck. <p>Passage Birds:</p> <ul style="list-style-type: none"> • One W&CA Schedule 1 species, kingfisher, was recorded on site during the passage bird surveys conducted during autumn 2017, spring 2018 and autumn 2019. • Four BoCC Red List species, herring gull, linnet, ringed plover and starling, were recorded utilising the site for foraging and roosting during 2017/2018 and 2019 passage bird surveys. • Seven BoCC Amber List species were recorded utilising the site for foraging and roosting during 2017/2018 passage bird surveys. Six BoCC Amber List were recorded on site during 2019 passage bird surveys. • Six species which are qualifying or important features of the adjacent SPA and Ramsar sites were recorded utilising the site for foraging and roosting during the 2017/2018 passage bird surveys, these being black-headed gull, lesser black-backed gull, cormorant, oystercatcher, ringed plover and shelduck. Generally small numbers of each were recorded. • Four bird species were recorded during the 2019 passage bird surveys which are qualifying species or important constituent species of the bird assemblage in the local SPA sites, these being black-headed gull, lesser black-backed gull, cormorant and oystercatcher.
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Glossary

BoCC	Bird(s) of Conservation Concern
BTO	British Trust for Ornithology
Habitat Regulations	Conservation of Habitats and Species Regulations 2010 (as amended)
HPI	Habitat of Principal Importance
HRA	Habitats Regulations Assessment
JNCC	Joint Nature Conservancy Council
LERC	Local Ecological Record Centre
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
LPA	Local Planning Authority
LWS	Local Wildlife Site
MEAS	The Merseyside Environmental Advisory Service
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
Natura 2000 site	A European site designated for its nature conservation value
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
PEA	Preliminary Ecological Appraisal
RECORD	Biological record centre for Cheshire, Halton, Warrington and Wirral
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SPA	Special Protection Area
SPI	Species of Principal Importance
SSSI	Site(s) of Special Scientific Interest
W&CA	Wildlife & Countryside Act 1981



1.0 Introduction

1.1 Background

WYG was commissioned by Everton Football Club Company Limited to undertake breeding, passage and wintering surveys at the site known as Bramley-Moore Dock, in Liverpool. A full planning application was submitted to Liverpool City Council ('LCC') in December 2019 (application reference 20F/0001) and has been subject to statutory consultation.

This report presents results of the breeding, wintering and passage bird survey work conducted at Bramley-Moore Dock site between 2016 and 2019.

Following a series of scheme design changes and consultation with Natural England, Merseyside Environmental Advisory Service in 2020 (summarised within Appendix 12.1 ES Volume II) the ES for the project has been updated. However design scheme changes and consultation with statutory bodies is not relevant to this baseline report. This report therefore remains as per the December 2019 submission but the overarching ECIA and the ES Chapter address the impact of the scheme changes and the statutory consultation responses received.

This report has been prepared by WYG Senior Ecologist Patryk Gruba; the survey work has been completed by WYG Assistant Ecologist Mike Brown.

1.2 Site Location

The Bramley-Moore Dock is located within the Port of Liverpool, alongside the River Mersey and about 1.5km north of the city centre. Approximately four hectares in area, the Bramley-Moore Dock is part of a group of docks, including the adjacent Nelson Dock to the south and Sandon Half-Tide Dock to the north-west. The United Utilities Liverpool Wastewater Treatment Works is situated to the north-east. Bramley-Moore Dock is bounded by the Dock Boundary Wall and Regent Road to the east.

The survey area, hereafter referred to as the 'site', is centred at Ordnance Survey National Grid Reference SJ 3345292491.

The site location and red line boundary is shown on Figure 1 and the site comprises a dock, the water body being mostly enclosed by the dock walls, with a narrow entrance into the adjacent docks to the north, leading to the River Mersey. The Bramley-Moore Dock was still in regular use by a number of tug-boats and occasional other vessels at the time of the surveys. The water bodies of Bramley-Moore Dock and the adjacent docks are predominantly surrounded by hard standing and various buildings.

1.3 Development Proposals

The development proposals comprise a full planning application for the development of a 52,888-seat capacity stadium with associated facilities and infrastructure at Bramley-Moore Dock, Liverpool. However, in summary, the application proposes:

- Demolition of non-listed structures; part-demolition of listed structures (Regent Road wall); remediation; infill of BMD; engineering works; and alterations to the dock walls to



accommodate the development of the stadium (Use Class D2) with vehicle parking (external at grade).

- Creation of a new (non-navigable) water channel, vehicular and pedestrian accesses, and hard / soft landscaping (including lighting, public art and boundary treatments).
- Proposed change of use of the Grade II listed Hydraulic Tower structure to an exhibition/cultural centre (Use Class D1) with ancillary cafe (works to the tower to be subject to separate listed building consent submissions).

The stadium is proposed to be orientated north-south with public realm and circulatory space to the west beyond the new water channel and a large fan zone plaza to the east with some soft landscaping.

1.4 Purpose of the Report

The objectives of this report are to support the planning application for the site by:

- Providing details of the existing information on statutory and non-statutory sites of ornithological interest and relevant records of protected/notable bird species within 2km of the site; and
- Presenting the results of the breeding, ferry, passage and wintering bird surveys undertaken at the site between 2016 and 2019.



2.0 Methodology

2.1 Desk Study

2.1.1 Previous Relevant Reports

The following reports/studies are of relevance to the project and were therefore reviewed as part of the desk study:

- WYG Breeding Bird survey of the Liverpool Docks 2009 (WYG, 2009).
- WYG Wintering and Spring Passage Bird survey 2010-11 (WYG, 2011).
- WYG also undertook surveys of non-breeding birds using the area between Bramley-Moore Dock and Princess Dock between October 2013 and May 2014, to inform a development project for the area. These surveys were conducted monthly, including some night-time surveys. This study was not the subject of a separate report, but the data collected was used to inform this report.
- The Environment Partnership (TEP 2015) carried out a 12 month study of the use of the active and inactive dock systems in Liverpool and Birkenhead by non-breeding birds. The project was carried out to fill crucial gaps in knowledge regarding use of the dock systems as supporting habitat by birds that are qualifying features in their own right, and/or are part of the qualifying waterbird assemblage for nearby Natura 2000 sites, including Mersey Narrows and North Wirral Foreshore SPA and Ramsar Site, Mersey Estuary SPA and Ramsar Site and Dee Estuary SPA and Ramsar Site.
- WYG were commissioned to undertake an Extended Phase 1 Habitat Survey of the site in 2017 which was updated in 2019, the Phase 1 habitat map is provided in Figure 2.

2.1.2 Local Ecological Records Centre

Information was requested from the local ecological record centres Merseyside BioBank and RECORD for information on non-statutory nature conservation designations and records of protected and notable bird species records within 2km of the site. Information was requested from both record centres because Merseyside BioBank's records did not cover the full 2km radius from the site on the west (Wirral) side. The Wirral lies within RECORD's area and consequently information was also requested from RECORD, in order to provide full coverage of records within 2km of the site.

This data search covered:

- Non-statutory designated sites for nature conservation, namely LWS;
- Legally protected and notable species of bird, including those listed as Species of Principal Importance and included as priority species within the North Merseyside LBAP.

The data search did not cover:

- Tree Preservation Orders (TPOs); or



- Conservation Areas designated for their special architectural and historic interest.

2.1.3 Local Species Recorders

The following local species recorder group was contacted for any relevant records:

- County Bird Recorder, Steve White (pers. comm.).

2.1.4 Online Resources

A search for relevant information was also made on the following websites:

MAGIC www.magic.gov.uk - DEFRA's interactive, web-based database for nearby statutory designated sites with designated ornithological features, namely SPAs, SACs, Ramsar sites, SSSI's, NNR's and LNR'S. For Natura 2000 (SPA and SAC) and Ramsar and SSSI sites, the search area was extended to **20km**, to ensure adequate coverage of these European sites.

The NBN Atlas was not consulted because that data was already included in the Merseyside BioBank records.

2.2 Field Surveys

2.2.1 Breeding Bird Surveys

The breeding bird surveys were undertaken over two survey seasons, in 2017 and 2019. During each survey season, four breeding bird surveys were carried out at approximately monthly intervals between March and June.

All survey visits were undertaken in the early part of the morning, to coincide with the maximum period of bird activity. The surveys were carried out by Mike Brown, WYG Assistant Ecologist, an experienced ornithologist, with thirty years' experience of undertaking bird surveys.

Survey methodology involved standard territory (registration) mapping techniques as detailed in Bibby et al. (2007). This method is based on the observation that many species during the breeding season are territorial. This is found particularly amongst passerines (song birds), where territories are often marked by conspicuous song, display, and periodic disputes with neighbouring individuals.

The survey area included all of the site together with the surrounding area up to 200m beyond the site boundary to include all birds utilising the site and immediately surrounding docklands. The surveys consisted of a combination of observations from fixed vantage points and a walked transect route around the dock and surrounds, which ensured full coverage of the survey area. The registrations of birds, using standard British Trust for Ornithology (BTO) two letter species codes and activity codes (Gilbert et al., 2002), were placed onto an appropriate field map. Specific symbols were used for singing, calling and movements of the same bird between different areas, flying, carrying food, nest building, aggressive encounters and other notable behaviour (Gilbert *et al.*, 2002). The expected outcome of this technique was that mapped registrations fell into clusters, approximately coinciding with territories.



The likelihood of breeding was determined using the BTO breeding status codes table (see link in References), using observations of activities such as singing, food carrying, aggressive encounters and actual nest building.

Details of the breeding bird survey dates and weather conditions are provided in Table 1 for 2017 and in Table 2 for 2019.

Table 1: Breeding Bird Survey Visit Dates and Weather Conditions - 2017.

Visit No.	Date	Start & Finish Times	Weather Conditions
1	27/04/2017	08:15 - 10:30	Temperature 7°C; wind Beaufort 3; 95% cloud cover; intermittent light rain
2	11/05/2017	09:00 – 11:15	Temperature 12°C; wind Beaufort 2; 0% cloud cover; no precipitation
3	09/06/2017	08:00 – 10:00	Temperature 18°C; wind Beaufort 4; 10% cloud cover; no precipitation
4	23/06/2017	08:45 – 11:00	Temperature 17°C; wind Beaufort 4; 90% cloud cover; intermittent light rain

Table 2: Breeding Bird Survey Visit Dates and Weather Conditions - 2019.

Visit No.	Date	Start & Finish Times	Weather Conditions
1	26/03/2019	09:10 – 12:45	Temperature 9°C - 10°C; wind Beaufort 4; 80% - 20% cloud cover; no precipitation
2	15/04/2019	09:00 – 11:15	Temperature 9°C - 12°C; wind Beaufort 5; 95% - 60% cloud cover; no precipitation
3	20/05/2019	08:00 – 10:00	Temperature 12°C - 15°C; wind Beaufort 4; 50% - 20% cloud cover; no precipitation
4	26/06/2019	08:15 – 11:10	Temperature 14-16°C; wind Beaufort 2; 95% cloud cover; no precipitation

2.2.2 Kittiwake Ferry Bird Surveys

MEAS requested a bird survey to be undertaken from one of the ferries which regularly pass along the stretch of river adjacent to the Bramley-Moore Dock and its surrounding docks. The purpose of this survey was to view the docks from the river, covering areas not easily viewed from the land, and particularly to check for the presence of kittiwake *Rissa tridactyla* at, within 200m of, the Bramley-Moore Dock. Kittiwakes are a BoCC Red List species and have previously been recorded as breeding

along the seawall at the Langton Dock, approximately two kilometres to the north of the Bramley-Moore Dock (S. White, County Bird Recorder, pers. comm.).

The surveys comprised a single visit in 2017 and 2018 and were conducted from a Mersey Ferry River Explorer Cruise vessel on 31st July, 2017 and 22nd May, 2019. Video footage was also captured from the vessel of any birds observed at, or in proximity to, the site. A summary of the weather conditions is given in Table 2 below.

Table 3: Ferry Bird Survey Visit Date and Weather Conditions.

Date	Start & Finish Times	Weather Conditions
31/07/2017	11:00 - 12:00	Temperature 18°C; wind Beaufort 4; 50% cloud cover; occasional light showers
22/05/2019	13:00 – 13:50	Temperature 16°C; wind Beaufort 2; 50% cloud cover; no precipitation

In addition to the surveys, a walkovers of the area along the outer dock wall to the north of the site were conducted on 26th July 2017 (between 15:00 and 16:30) 31st May 2019 (between 11:15 and 12:45) in order to provide a further check for the possible presence of kittiwakes, or any other protected and notable bird species, within 200m of the site.

2.2.3 Wintering Bird Surveys

The wintering bird surveys were undertaken over two survey seasons, in 2016/2017 and 2018/2019. During each survey season, eight wintering bird surveys were carried out between November and February (two survey per each month), each survey covering a four hour period surrounding high and low tides, with one survey per month timed to cover the period around high tide and one survey per month timed to cover the period around low tide. The high tide surveys were carried out from three hours prior to high tide to one hour after high tide. The low tide surveys were carried out from one hour prior to low tide to three hours after low tide.

The survey methodology involved standard mapping techniques as detailed in Bibby *et al.* (2007), similarly to the breeding bird surveys. Registrations of birds, using standard BTO two letter species codes and activity codes (Gilbert *et al.*, 2002), were placed onto an appropriate field map. The survey area covered included all of the site. Additionally, areas within 400m adjacent to the site were surveyed, where access was possible, in order to include all birds utilising the site and surrounding docklands. The surveys consisted of a combination of observations from fixed vantage points and walked transect routes around the dock and surrounds, which ensured full coverage of the survey area. The vantage points and transect routes were visited at approximately hourly intervals during each survey. See Figure 3 for the location of vantage points and transect route.

All wintering bird surveys were carried out by Mike Brown, WYG Assistant Ecologist.



Details of survey dates and weather conditions are provided in Table 5 for 2016/2017 and Table 6 for 2018/2019.

Table 4: Wintering Bird Survey Visit Dates and Weather Conditions – 2016/2017.

Visit No.	Date and tide (HT-High Tide, LT-Low Tide)	Start & Finish Times	Weather Conditions
1	23/11/2016, LT	11:15 – 15:15	Temperature 8°C; wind Beaufort 1; 25% cloud cover; no precipitation
2	30/11/2016, HT	08:15 – 16:00	Temperature 1°C - 8°C; wind Beaufort 2; 100% - 75% cloud cover: no precipitation
3	08/12/2016, LT	09:40 – 13:40	Temperature 11°C; wind Beaufort 4; 100% - 50% cloud cover; intermittent drizzle and light rain at first, dry later
4	16/12/2016, HT	08:30 – 16:00	Temperature 9°C; wind Beaufort 4; 50% cloud cover; no precipitation
5	20/01/2017, LT	09:00 – 13:00	Temperature 5°C; wind Beaufort 2; 0% cloud cover; no precipitation
6	30/01/2017, HT	08:30 – 16:00	Temperature 7°C; wind Beaufort 6; 100% cloud cover; no precipitation
7	20/02/2017, LT	10:00 – 14:00	Temperature 10°C; wind Beaufort 6; 100% cloud cover; dry at first, slight drizzle later
8	27/02/2017, HT	08:00 – 16:00	Temperature 5°C; wind Beaufort 4; 80% cloud cover; intermittent light rain

Table 5: Wintering Bird Survey Visit Dates and Weather Conditions – 2018/2019.

Visit No.	Date and tide (HT-High Tide, LT-Low Tide)	Start & Finish Times	Weather Conditions
1	12/11/2018, HT	9:30 - 13:30	Temperature 10°C - 11°C; wind Beaufort 4; 10% - 80% cloud cover; rain showers later
2	29/11/2018, LT	08:45 – 12:45	Temperature 13°C - 10°C; wind Beaufort 4; 90% - 50% cloud cover: rain showers, dry later
3	12/12/2018, HT	10:00 – 14:00	Temperature 6°C - 8°C; wind Beaufort 5; 40% - 80% cloud cover; no precipitation
4	17/12/2018, LT	11:00 – 15:00	Temperature 7°C - 8°C.; wind Beaufort 2 – 4; 10% - 90 % cloud cover; no precipitation

Visit No.	Date and tide (HT-High Tide, LT-Low Tide)	Start & Finish Times	Weather Conditions
5	09/01/2019, HT	09:15 – 13:15	Temperature 3°C - 6°C; wind Beaufort 1; 0% cloud cover; no precipitation
6	16/01/2019, LT	11:40 – 15:40	Temperature 6°C; wind Beaufort 4; 100% - 30% cloud cover; light rain at first, dry later
7	11/02/2019, HT	10:50 – 14:50	Temperature 7°C; wind Beaufort 2; 10% cloud cover; no precipitation
8	13/02/2019, LT	09:30 – 13:30	Temperature 10°C; wind Beaufort 2; 95% cloud cover; no precipitation

2.2.4 Passage Bird Surveys

Eight passage bird surveys were carried out during the 2017/2018 survey season; these included two surveys per month in September - October 2017 and March - April 2018. Additional four passage bird surveys were conducted in October 2019 during autumn passage season.

Each survey visit covered a four hour period surrounding high and low tides, with one survey per month timed to cover the period around high tide and one survey per month timed to cover the period around low tide. The high tide surveys were carried out from three hours prior to high tide to one hour after high tide. The low tide surveys were carried out from one hour prior to low tide to three hours after low tide.

The survey methodology involved standard mapping techniques as detailed in Bibby *et al.* (2007), similarly to the breeding bird surveys. Registrations of birds, using standard BTO two letter species codes and activity codes (Gilbert *et al.*, 2002), were placed onto an appropriate field map. The survey area covered included all of the site. Additionally, areas within 400m adjacent to the site were surveyed, where access was possible, in order to include all birds utilising the site and surrounding docklands. The surveys consisted of a combination of observations from fixed vantage points and walked transect routes around the dock and surrounds, which ensured full coverage of the survey area. The vantage points and transect routes were visited at approximately hourly intervals during each survey. See Figure 3 for the location of vantage points and transect route.

Eleven surveys were carried out by Mike Brown, WYG Assistant Ecologist, and one survey was carried out by Matthew Wiggins, WYG Consultant Ecologist, with ten years' experience of conducting bird surveys.

Details of survey dates and weather conditions are provided in Table 6 below.



Table 6: Passage Bird Survey Visit Dates and Weather Conditions.

Visit No.	Date and tide (HT-High Tide, LT-Low Tide)	Start & Finish Times	Weather Conditions
1	22/09/2017, HT	10:15 - 14:15	Temperature 15°C; wind Beaufort 6; 5%-95% cloud cover; no precipitation
2	28/09/2017, LT	09:20 – 13:20	Temperature 18°C; wind Beaufort 0; 5%-60% cloud cover; no precipitation
3	18/10/2017, HT	08:10 – 12:10	Temperature 9°C; wind Beaufort 1; 5% cloud cover; no precipitation
4	27/10/2017, LT	09:00 – 13:00	Temperature 8°C; wind Beaufort 0; 10% cloud cover; no precipitation
5	09/03/2018, LT	09:30 – 13:30	Temperature 4°-8°C; wind Beaufort 1; 0%-50% cloud cover; no precipitation
6	20/03/2018, HT	10:15 - 14:15	Temperature 7°-9°C; wind Beaufort 4; 0%-40% cloud cover; no precipitation
7	19/04/2018, HT	11:00 – 15:00	Temperature 20°C; wind Beaufort 4; 5% cloud cover; no precipitation
8	23/04/2018, LT	11:15 - 15:15	Temperature 13°C; wind Beaufort 4; 80% cloud cover; no precipitation
9	01/10/2019, HT	10:30 – 14:30	Temperature 13°C; wind Beaufort 4-5; 80% cloud cover; no precipitation
10	03/10/2019, LT	08:45 – 12:45	Temperature 8°-10°C; wind Beaufort 1; 80% cloud cover; no precipitation
11	22/10/2019, LT	11:00 – 15:00	Temperature 10°C; wind Beaufort 1; 80% cloud cover; no precipitation
12	29/10/2019, HT	09:00 – 13:00	Temperature 3 - 11°C; wind Beaufort 1; 20% cloud cover; no precipitation

2.3 Limitations

The breeding bird surveys, passage bird surveys and wintering bird surveys were all carried out within the optimal time periods for each survey type. Consequently, timing is not considered to be a limitation to the accurate assessment of the species and populations of breeding, wintering and passage birds utilising the survey area.

Most of the area within 200m of the site was accessible, or possible to view with telescope and binoculars during the breeding bird surveys. It was not possible to access the water treatment works



to the north-east of the Bramley-Moore Dock, but the Sandon Half Tide Dock and hardstanding areas to the north were visible with binoculars and telescope from the northern side of the site itself. Similarly, the timber yard area to the south-east of Bramley-Moore Dock was not directly accessible, but all of Nelson dock to the south and the adjacent hardstanding to the south-east were visible with binoculars and telescope.

Most of the area within 400m of the site was possible to view with telescope and binoculars during the wintering and passage bird surveys.

It was not possible to view certain areas of dock wall, sea wall and adjacent water directly from above, for health and safety reasons and access restrictions, but these areas were visible from nearby vantage points. Consequently, these restrictions are not considered to affect the accuracy of results gained during any of the above surveys.

No recording of disturbance events was conducted during the wintering bird surveys conducted during 2016/2017 survey season and passage bird surveys conducted during 2017/2018 survey season.

The following disturbance events were recorded within the survey area during the wintering and passage bird surveys conducted during 2018/2019 survey season:

- 29/11/2018 - Preparation & construction of a music festival in the long timber warehouse throughout; several tug boats moved out of the Bramley-Moore Dock at 11:30.
- 12/12/2018 - Two tug boats crossed the west end of the Bramley-Moore Dock at 11:00. Another tug boat crossed the west end of the dock at 12:20.
- 09/01/2019 - A tug boat entered the Bramley-Moore Dock at 12:25.
- 16/01/2019 - A tug boat moved out of the Bramley-Moore Dock at 14:38.
- 13/02/2019 - Two tug boats left the Bramley-Moore Dock at 12:30.
- 01/10/2019 – Tug boat moved out of the Bramley-Moore Dock at 10:55. Another three tug boats entered Bramley-Moore Dock at 14:00.
- 03/10/2019 - Tug boat moved out of the Bramley-Moore Dock at 09:37. Excavator type machine operating near the old pump house in the NE corner of BMD from 11:00, causing gulls to move from area of sand piles/dock wall mainly to the roof of the old timber warehouse. The excavator later moved to the vicinity of the flat rooved building. Work started on the canopy of the roof of the old timber warehouse (south side of warehouse) at 11:10 .
- 22/10/2019 - Two tug boats moved out of the Bramley-Moore Dock at 12:33.
- 29/10/2019 - Site visitors walked along eastern and northern side of Bramley-Moore Dock 09:20 to 10:00. Three tug boats moved in to Bramley-Moore Dock at 12:20 to 12:25.

Any disturbance to birds caused by the construction of the music festival in the timber warehouse is not considered to have a major impact on the results of the survey on 29/11/2018, as the timber warehouse was in regular use until 2018.

All of the disturbance events due to tug boats moving through the Bramley-Moore Dock were short lasting and no significant bird displacement was observed as a result of these events. The tug boats are also part of the regular working use of the dock. Therefore, these events are not considered to be a limitation to the results collated during the wintering bird surveys.



The details of this report will remain valid for a period of **two years** from the date of the last survey (i.e. October 2021), after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the results within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals which this report was based on.

Report conditions are detailed in Appendix A.



3.0 Baseline Conditions

Note that scientific names are provided at the first mention of each species and common names are then used throughout the rest of the report for ease of reading.

3.1 Statutory Designated Sites

3.1.1 Natura 2000 and Ramsar Sites

There are a number of statutorily designated sites for nature conservation which are situated in proximity to the site. These include some sites which are part of the European-wide Natura 2000 network, such as the Mersey Estuary Special Protection Area (SPA), the Liverpool Bay SPA and the Mersey Narrows & North Wirral Foreshore SPA, as well as sites which are wetlands of international importance, designated under the Ramsar Convention. Therefore, any potential impacts on these sites or the qualifying features of these sites will need to be considered.

Natura 2000 and Ramsar sites within 20km of the site are presented in Table 7. The designated features of each site are summarised below and detailed in Appendix B.

Figure 4 shows the location of the Liverpool Bay SPA, immediately adjacent to the site, to the west, also the Mersey Narrows and North Wirral Foreshore SPA.

Relevant Wildlife Legislations have been included in Appendix C.



Table 7: Summary of Natura 2000 and Ramsar sites within 20km of the site

Designation	Site Name	Features	Distance & Direction	Area (ha)
Marine SPA	Liverpool Bay	<p>Located between Fleetwood (Lancashire) to the north and the east coast of Anglesey (North Wales) to the south-west, and recently extended to adjoin the Mersey Estuary SPA.</p> <p>First designated (or 'classified') in 2010 to protect red-throated diver <i>Gavia stellata</i> and common scoter <i>Melanitta nigra</i> and a significant waterbird assemblage in the non-breeding season. The recent extension is classified to protect the foraging areas of little gull <i>Hydrocoloeus minutus</i> and breeding little tern <i>Sternula albifrons</i> and common tern <i>Sterna hirundo</i>.</p>	Adjacent to the western boundary of the site	252,757.73
SPA/Marine SPA	Mersey Narrows and North Wirral Foreshore	Large areas of intertidal sand and mudflats, providing an important feeding habitat for birds, especially wading birds including the qualifying species bar-tailed godwit <i>Limosa lapponica</i> , and knot <i>Calidris canutus</i> in winter. Other qualifying species are little gull and common tern on passage, the latter also as a breeding species. The site also supports nationally important numbers of cormorant <i>Phalacrocorax carbo</i> , grey plover <i>Pluvialis squatarola</i> , sanderling <i>Calidris alba</i> , dunlin <i>Calidris alpina</i> , redshank <i>Tringa totanus</i> and oystercatcher <i>Haematopus ostralegus</i> .	1.22km W	2,078.36
Ramsar Site	Mersey Narrows and North Wirral Foreshore	This site occupies the same area, and therefore comprises the same habitats and species, as the Mersey Narrows and North Wirral Foreshore SPA and Marine SPA.	1.22km W	2,078.36
SAC	Dee Estuary	Extends from the west bank of the Mersey estuary, to the north coast of Wales and spans the border between England and Wales. It is designated for a range of habitats and species listed in the EU Habitats Directive, including mudflats and sandflats exposed at low tide, <i>Salicornia</i> (glass-worts) and other annual plants colonizing mud and sand, also Atlantic salt meadows.	2.73km NW	8,282.47



Designation	Site Name	Features	Distance & Direction	Area (ha)
SPA/Marine SPA	Ribble and Alt Estuaries	<p>Extends from Lytham St Anne's in Lancashire to Seaforth on Merseyside and consists mostly of marine habitats. The extensive sand- and mud-flats provide a rich invertebrate food supply for wading birds, whilst the saltmarshes and coastal grazing marshes support high densities of grazing and seed-eating wildfowl. The SPA also contains important high-tide roosts for waders and wildfowl.</p> <p>SPA qualifying breeding bird species are common tern, lesser black-backed gull <i>Larus fuscus</i>, black-headed gull <i>Chroicocephalus ridibundus</i> and ruff <i>Calidris pugnax</i>.</p> <p>Important populations of water birds occur in winter, and SPA qualifying wintering species are Bewick's swan <i>Cygnus columbianus</i>, whooper swan <i>Cygnus cygnus</i>, pink-footed goose <i>Anser brachyrhynchus</i>, shelduck <i>Tadorna tadorna</i>, common scoter, scaup <i>Aythya marila</i>, teal <i>Anas crecca</i>, wigeon <i>Anas penelope</i>, pintail <i>Anas acuta</i>, cormorant, bar-tailed godwit, black-tailed godwit <i>Limosa limosa</i>, golden plover <i>Pluvialis apricaria</i>, grey plover, sanderling, dunlin, knot, oystercatcher, curlew <i>Numenius arquata</i>, redshank and lapwing <i>Vanellus vanellus</i>.</p> <p>This SPA is also of major importance during the spring and autumn migration periods, especially for wader populations moving along the west coast of Britain, with ringed plover <i>Charadrius hiaticula</i>, sanderling, whimbrel <i>Numenius phaeopus</i> and redshank being qualifying passage bird species.</p>	4.52km NW	12,499.92
Ramsar Site	Ribble and Alt Estuaries	The site overlaps the majority of the Ribble and Alt Estuaries SPA/Marine SPA, but includes the Birkdale and Ainsdale sand dunes, north of Formby, which are excluded from the SPA. Particular qualifying features of this Ramsar site are the presence of 40% of the British population of natterjack toads <i>Epidalea calamita</i> and a waterfowl	4.52km NW	13,491.36



Designation	Site Name	Features	Distance & Direction	Area (ha)
		assemblage of international importance, also 2.7% of the British breeding population of lesser black-backed gull.		
SAC	Sefton Coast	The site extends along the coast from Southport to Crosby. The SAC is designated for a range of habitats and species listed under Annexes I and II respectively, of the EU Habitats Directive. The important habitats include embryonic shifting dunes, shifting dunes along the shoreline, fixed coastal dunes and humid dune slacks. Important species include sand lizard <i>Lacerta agilis</i> , natterjack toad, petalwort <i>Petalophyllum ralfsii</i> (a bryophyte) and other rare plant species.	5.13km NW	4,591.59
SPA/Marine SPA	Mersey Estuary	<p>This SPA occupies an area from Runcorn Gap, to the east, to just south of the Tranmere Beach Oil Terminal. The intertidal sand-flats, mud-flats and saltmarshes provide feeding and roosting sites for large populations of waterbirds.</p> <p>Pintail, teal, shelduck, wigeon, great crested grebe, golden plover, grey plover, dunlin, redshank, black-tailed godwit, curlew and lapwing are all SPA qualifying species in winter.</p> <p>The SPA is also important during the spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain, including the SPA qualifying species redshank and ringed plover.</p>	5.45km S	5,023.35
Ramsar Site	Mersey Estuary	This site occupies the same area, and therefore comprises the same habitats and species as the Mersey Estuary SPA/ Marine SPA.	5.45km S	5,023.35
SPA/Marine SPA	The Dee Estuary	This SPA includes extensive areas of intertidal sand-flats, mud-flats and saltmarsh. Where agricultural land-claim has not occurred, the saltmarshes grade into transitional brackish and swamp vegetation on the upper shore. The SPA also includes the three sandstone islands of Hilbre. The two shorelines of the estuary show a marked contrast	13.57km SW	14,294.95



Designation	Site Name	Features	Distance & Direction	Area (ha)
		<p>between the industrialised usage of the coastal belt in Wales and residential and recreational usage in England.</p> <p>This SPA is of major importance for waterbirds. During the winter, it provides feeding and roosting sites for large populations of ducks and waders, including the SPA qualifying species: pintail, shelduck, teal, bar-tailed godwit, black-tailed godwit, curlew, dunlin, grey plover, knot and oystercatcher. Redshank and sandwich tern <i>Sterna sandvicensis</i> are passage SPA qualifying species.</p> <p>In summer, the area supports breeding populations of two species of terns which are SPA qualifying species: common tern and little tern.</p>		
Ramsar Site	The Dee Estuary	This site occupies the same area as The Dee Estuary SPA and Marine SPA and therefore comprises the same habitats and species as those sites.	13.57km SW	14,303.02



3.1.1 Sites of Special Scientific Interest

The only SSSI within 2km of the site is Mersey Narrows SSSI, which underpins part of Mersey Narrows and North Wirral Foreshore SPA/Marine SPA and Ramsar site. The designated features of the site are summarised in Table 8 below.

Table 8: Summary of SSSI within 2km of the site

Site Name	Features	Distance & Direction	Area (ha)
Mersey Narrows SSSI	<p>Notified for its large areas of intertidal sand and mudflats, which support internationally important populations of turnstone, redshank and nationally important populations of cormorant. Located at the mouth of the Mersey estuary and comprises Seaforth on the east bank and Egremont Foreshore on the west side. The two areas are considered to be an integral site on the basis of the constant interchange of bird populations.</p> <p>Egremont Foreshore is particularly important as a feeding site for birds at low tide, whilst Seaforth is particularly important as a high tide roost site. Seaforth is also important as a breeding site for common tern and ringed plover, both of regional importance, also little gull on passage.</p>	1.22km W	116.34

A full list of SSSI sites within 20km is provided in Appendix B. Many of these sites underpin parts of the SPA and Ramsar sites detailed above and are therefore not considered separately.

3.1.2 National and Local Nature Reserves

No National Nature Reserves or Local Nature Reserves are located within 2 km of the site.

3.2 Non-Statutory Designated Sites

Two non-statutory designated sites of nature conservation importance have been identified within 2km of the site. In the Merseyside area, these are termed Local Wildlife Sites (LWS).

The features of each are presented in Table 9.

Table 9: Non-statutory Local Wildlife Sites within 2km of the site

Site Name	Features	Distance & Direction
Leeds-Liverpool Canal	<p>The canal connects with the River Mersey via the Stanley Dock to Pier Head Link and supports a variety of plant species, including nine locally rare species.</p> <p>Many waterbirds breed along the canal, including mute swan <i>Cygnus olor</i>, mallard <i>Anas platyrhynchos</i>, coot <i>Fulica atra</i>, moorhen <i>Gallinula chloropus</i> and grey wagtail <i>Motacilla cinerea</i>. The canal is also important for wintering birds, including kingfisher <i>Alcedo atthis</i>, great crested grebe and goldeneye <i>Bucephala clangula</i>. The site constitutes an important foraging area for peregrine falcon <i>Falco peregrinus</i> which breeds and roosts on the nearby Tobacco Warehouse.</p>	0.37km SE
Melrose Cutting	A habitat mosaic, containing locally rare plant species, but with no qualifying bird interest.	1.37km NE
Everton Park Nature Garden (potential LWS)	Everton Park Nature Garden	1.63km SE

3.3 Desk study –Schedule 1, SPA and Notable Birds

The desk study returned multiple records of a range of bird species being present within 2km of the site. These included breeding, passage and wintering birds.

Data from Merseyside Biobank and RECORD included nine species of birds listed under Schedule 1 of the W&CA (as amended) which have been recorded within 2km of the site. These are black redstart, common scoter, kingfisher, little gull, little ringed plover, Mediterranean gull, peregrine falcon, purple sandpiper and whooper swan. Schedule 1 listed species are a material consideration for planning. Of these, there have been breeding records of three species: peregrine falcon, little ringed plover and black redstart, all of which have been recorded during past WYG surveys within approximately 1km of the site (WYG, 2010; WYG, 2018). None of those three species have been recorded breeding within the site, however.

Peregrine falcon has been recorded breeding regularly at the nearby Tobacco Warehouse (0.3km to the south-east) since the 1980's. Black redstart was recorded breeding at the Tobacco Warehouse in 2016 by WYG during ecological surveys there, with a maximum of three nesting pairs. However, no breeding black redstarts were recorded during breeding bird surveys conducted in 2017 and 2019.

Merseyside Biobank and RECORD supplied records of fourteen BoCC Red Listed species and twenty-three BoCC Amber List species from within 2km of the site. Eleven of the species recorded are listed as Species of Principal Importance under Section 41 of the NERC Act.



The LERC's supplied records of nineteen species listed as qualifying or significant in the local SPA's from within 2 km of the site.

Protected, notable and SPA listed bird species records supplied by the LERC's from within 2km of the site through the desk study are summarised in Table 10. Where multiple records for one species exist, the nearest record to the site has been listed in the table.

Table 10: Summary of desk study records for protected and notable bird species recorded within 2km of the site

Common Name	Scientific Name	Status*	Approximate Distance (km) and Direction from Site Boundaries	Year of record
Bar-tailed Godwit	<i>Limosa lapponica</i>	BoCC Amber; SPA	0.7 S	2014
Black Redstart	<i>Phoenicurus ochruros</i>	WCA Sch1; BoCC Red	0.3 SE	2014
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	BoCC Amber; SPA	On site	2013
Bullfinch	<i>Pyrrhula pyrrhula</i>	BoCC Amber; NERC	1.6 NNE	1997
Common Gull	<i>Larus canus</i>	BoCC Amber	On site	2014
Common Scoter	<i>Melanitta nigra</i>	WCA Sch1; BoCC Red; NERC; SPA	0.4 SW	2013
Common Tern	<i>Sterna hirundo</i>	BoCC Amber; SPA	On site	2014
Cormorant	<i>Phalacrocorax carbo</i>	SPA	On site	2014
Curlew	<i>Numenius arquata</i>	BoCC Red; NERC; SPA	0.5 W	2013
Dunlin	<i>Calidris alpina</i>	BoCC Amber; SPA	2.0 WNW	2015
Dunnock	<i>Prunella modularis</i>	BoCC Amber; NERC	0.7 SE	1997
Golden Plover	<i>Pluvialis apricaria</i>	SPA	0.3 SW	2013
Great Black-backed Gull	<i>Larus marinus</i>	BoCC Amber	On site	2013
Herring Gull	<i>Larus argentatus</i>	BoCC Red; NERC	On site	2014
House Sparrow	<i>Passer domesticus</i>	BoCC Red; NERC; LBAP	0.5 SE	2001



Common Name	Scientific Name	Status*	Approximate Distance (km) and Direction from Site Boundaries	Year of record
Kingfisher	<i>Alcedo atthis</i>	WCA Sch1; BoCC Amber	0.9 S	2014
Knot	<i>Calidris canutus</i>	BoCC Amber; SPA	1.5 W	2014
Lapwing	<i>Vanellus vanellus</i>	BoCC Red; NERC; LBAP; SPA	0.1 SW	2014
Lesser Black-backed Gull	<i>Larus fuscus</i>	BoCC Amber; SPA	On site	2014
Linnet	<i>Linaria cannabina</i>	BoCC Red; NERC	On site	2014
Little Gull	<i>Hydrocoloeus minutus</i>	WCA Sch1; SPA	0.4 NW	2013
Little Ringed Plover	<i>Charadrius dubius</i>	WCA Sch1	1.1 S	2014
Mallard	<i>Anas platyrhynchos</i>	BoCC Amber	On site	2013
Meadow Pipit	<i>Anthus pratensis</i>	BoCC Amber	0.2 S	2014
Mediterranean Gull	<i>Larus melanocephalus</i>	Annex 1, WCA Sch1, BoCC Amber	0.5 S	2011
Mute Swan	<i>Cygnus olor</i>	BoCC Amber	On site	2014
Oystercatcher	<i>Haematopus ostralegus</i>	BoCC Amber; SPA	On site	2014
Peregrine	<i>Falco peregrinus</i>	WCA Sch1	On site	2014
Purple Sandpiper	<i>Calidris maritima</i>	WCA Sch1; BoCC Amber	1.8 WNW	2010
Redshank	<i>Tringa totanus</i>	BoCC Amber; SPA	0.3 S	2013
Ringed Plover	<i>Charadrius hiaticula</i>	BoCC Red; SPA	0.2 S	2014
Sanderling	<i>Calidris alba</i>	BoCC Amber; SPA	1.8 WNW	2014
Shag	<i>Phalacrocorax aristotelis</i>	BoCC Red	0.2 N	2013
Shelduck	<i>Tadorna tadorna</i>	BoCC Amber; SPA	On site	2014
Skylark	<i>Alauda arvensis</i>	BoCC Red; NERC; LBAP	0.7 SE	1997
Song Thrush	<i>Turdus philomelos</i>	BoCC Red; NERC; LBAP	0.7 SE	1997



Common Name	Scientific Name	Status*	Approximate Distance (km) and Direction from Site Boundaries	Year of record
Starling	<i>Sturnus vulgaris</i>	BoCC Red; NERC; LBAP	On site	2013
Turnstone	<i>Arenaria interpres</i>	BoCC Amber; SPA	1.8 W	2014
Twite	<i>Carduelis flavirostris</i>	BoCC Red	1.8 S	2013
Whooper Swan	<i>Cygnus cygnus</i>	WCA Sch1; BoCC Amber; SPA	0.4 W	2013
Woodcock	<i>Scolopax rusticola</i>	BoCC Red	0.9 S	2014
Yellow-legged Gull	<i>Larus michahellis</i>	BoCC Amber	On site	2014

*Key:

- Annex 1: Species listed on Annex 1 of the EU Birds Directive.
- WCA Sch1: Species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- NERC: Species of Principal Importance as listed under Section 41 of the Natural Environment and Rural Communities Act (2006).
- BoCC: British Trust for Ornithology (BTO) Birds of Conservation Concern – Red, Amber Lists.
- LBAP: Included as a Priority Species under the North Merseyside LBAP.
- SPA: Qualifying species in adjacent SPA's.

The WYG Breeding Bird Survey 2009 covered an area which included the Bramley-Moore Dock at the northern extremity and a stretch of Dockland for 2km to the south of the site. Several rare and notable bird species were recorded breeding in the Dockland area, especially in a grassland area approximately 1km south of the site, these being skylark, starling, linnet, mallard and ringed plover.

The TEP ornithology report (TEP 2015) is summarised in table 5 of Appendix B. Thirteen species were recorded within the site and within 500m of which twelve were recorded in the spring and summer breeding season, but no indication of actual breeding is given in the report. Six species were recorded which are qualifying or important assemblage species in the local SPA areas, these being black-headed gull, common tern, cormorant, lesser black-backed gull, oystercatcher and shelduck. Although common tern was only reported as a fly-over at the site, it was reported to be foraging at the Sandon Half-Tide Dock, immediately adjacent to the north. TEP reported a breeding colony at Canada Dock North, approximately 1km to the north of the site¹.

The WYG monthly bird surveys between October 2013 and May 2014 (not covered by a single report) recorded a total of sixteen species within the site and within 200m buffer around the site, of which six were recorded in the breeding season, but no indication of actual breeding is given. Six species were

¹ It is not unusual for tern species to shift breeding locations between seasons.

recorded which are qualifying or important assemblage species in the local SPA areas, these being black-headed gull, common tern, cormorant, lesser black-backed gull, oystercatcher and shelduck.

3.4 Field Survey Results

3.4.1 Breeding Bird Survey - 2017

A total of six species were confirmed or considered very likely to be breeding within, or immediately adjacent to the site (within 200m radius) during 2017 breeding bird surveys; these being common tern, herring gull, lesser black-backed gull *Larus fuscus*, oystercatcher *Haematopus ostralegus*, Canada goose *Branta canadensis* and feral pigeon *Columba livia*. The locations of all bird species recorded breeding are shown in Figure 5. All Schedule 1, SPA and notable species recorded during the breeding bird surveys are mapped in Figures 6, 7, 8 and 9.

Details of all Schedule 1, SPA and notable bird species recorded breeding are provided in Table 11 and details of all bird species recorded breeding at the site are discussed in more detail below.

Table 11: Schedule 1, SPA and notable bird species recorded breeding within the survey area during 2017

Common Name (BTO code)	Scientific Name	Status*	No of Breeding Pairs Recorded	Peak Count
Common Tern (CN)	<i>Sterna hirundo</i>	BoCC Amber; SPA	1	3
Herring Gull (HG)	<i>Larus argentatus</i>	BoCC Red; NERC	2	37
Lesser Black-backed Gull (LB)	<i>Larus fuscus</i>	BoCC Amber; SPA	1	24
Oystercatcher (OC)	<i>Haematopus ostralegus</i>	BoCC Amber; SPA	1	3

*Key:

- BoCC: Birds of Conservation Concern – Red List and Amber List
- NERC: Species of Principal Importance as listed under section 41 of the Natural Environment and Rural Communities Act (2006).
- SPA: Qualifying species in adjacent SPA's.

W&CA Schedule 1 Species

No W&CA Schedule 1 species were recorded from within the site boundaries during the breeding bird surveys conducted in 2017. Black redstarts were apparently last recorded breeding in 2016 (WYG 2017).

BoCC Red List Species

One BoCC Red List species, herring gull, which is also listed under Section 41 of the NERC Act 2006, was recorded breeding within the site (Table 11). Two breeding pairs were found, with eggs and young observed. One nest was situated on the hardstanding adjacent to a wooden pallet, at the west side of the site (Photograph 1). The other nest was situated on the roof of the long timber warehouse on the south side of the site.

Photo 1: Herring gull nest with eggs on hard standing at west end of site.



A large number of herring gulls were observed roosting on site, with a peak count of 37, including many juveniles, on 23rd June 2017

Herring gull is also a Species of Principal Importance under Section 41 of the NERC Act.

BoCC Amber List Species and SPA Qualifying Species

Three BoCC Amber List species (Table 11) were observed breeding, or considered very likely to be breeding at the site and immediately adjacent area (200m radius) during the four breeding bird surveys. These were lesser black-backed gull, common tern and oystercatcher. All three species are also qualifying species of the adjacent SPA's.

A pair of lesser black-backed gulls were observed with chicks on the roof of the long warehouse on the south side of the site, adjacent to the herring gull nest. Lesser black-backed gull is a qualifying breeding bird species in the adjacent Ribble and Alt Estuaries SPA.

At least one pair of common terns is considered very likely to have nested along the dock walls on the north-west edge of the site, as evidenced by at least two adults seen bringing food (small fish) into this area during Visit 4 and the walkover survey of the adjacent area. The fact that the terns persistently mobbed the surveyor during Visits 3 and 4 also indicated nesting in the area. The exact

location of the nest(s) could not be determined however due to the difficulty of viewing parts of the dock walls. Photograph 2 shows the presence of one common tern in the area.

Common tern is a qualifying breeding species of the adjacent Liverpool Bay Marine SPA, the Mersey Narrows and North Wirral Foreshore SPA, the Ribble and Alt Estuary SPA and the Dee Estuary SPA.

Photo 2: Common tern near suspected breeding site.



One pair of oystercatchers was recorded breeding on site. Although the exact nest site was not located, the characteristic alarm calls and distracting behaviour of the adults suggested that it was in a rubbly area close to the west end of the long warehouse. Oystercatcher is a qualifying wintering bird species of the adjacent SPA's, but not a qualifying breeding species.

LBAP Species

No bird species listed as North Merseyside BAP species were recorded during the breeding bird surveys in 2017.

Other Breeding Bird Species

Two other bird species were recorded to be breeding within the site during 2017 surveys, these being feral pigeon and Canada goose. Feral pigeon is not classified under the Birds of Conservation Concern lists and Canada goose is classified as an Invasive Species under Schedule 9 of the Wildlife & Countryside Act, making it an offence to release the species into the wild or encourage its spread.

Six nests of each species were recorded during the surveys. Feral pigeon was recorded nesting under the eaves of the long warehouse building (B5 on Figure 2) and in the old pump house building (B1 on Figure 2). Canada goose was recorded nesting in a number of old tunnel entrances and open sheds on site.



Non-breeding Species

An additional twelve bird species were recorded on, or in the vicinity of the site (within 200m radius) during the 2017 breeding bird surveys, but breeding was not confirmed for these species, and these species were likely to be using the site for roosting and foraging only. The five protected and notable non-breeding species recorded in 2017 are summarised in Table 12 and details of all non-breeding species recorded are provided in Appendix D.

Table 12: Schedule 1, SPA and notable bird species recorded on site and within 200m radius as non-breeding during the 2017 breeding bird surveys.

Common Name (BTO code)	Scientific Name	Status*	Peak Count
Cormorant (CA)	<i>Phalacrocorax carbo</i>	SPA	1
Linnet (LI)	<i>Linaria cannabina</i>	BoCC Red; NERC	4
Mallard (MA)	<i>Anas platyrhynchos</i>	BoCC Amber	2
Shelduck (SU)	<i>Tadorna tadorna</i>	BoCC Amber; SPA	13

*Key:

- WCA Sch1: Species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- BoCC: Birds of Conservation Concern – Red List and Amber List
- NERC: Species of Principal Importance as listed under Section 41 of the Natural Environment and Rural Communities Act (2006).
- SPA: Qualifying species in adjacent SPA's.

The W&CA Schedule 1 species peregrine falcon was observed during the first survey visit perched on the old clock tower to the south of the site, adjacent to the Salisbury Dock – this was outside of the survey area. This is considered likely to be one of the pair of peregrines which regularly breed on the nearby Tobacco Warehouse, 300m to the south-east of the site.

Linnet *Linaria cannabina* is a BoCC Red List and NERC species which was observed briefly on several occasions and was suspected to be using the site for foraging only.

A number of shelduck were recorded on the hard standing between the dock and the river on each survey visit. Although not recorded as breeding on site, the site nonetheless appears to offer a roosting place for non-breeding shelduck, a qualifying wintering bird species of the nearby Ribble and Alt Estuaries SPA, Mersey Estuary SPA and Dee Estuary SPA.

Cormorants were observed foraging (fishing) in the dock on several occasions during the Breeding Bird Surveys. Cormorant is a qualifying wintering species in the nearby Ribble and Alt Estuaries SPA.

Mallards were observed in the vicinity of the site on two occasions, with no suggestion of breeding.

Eight bird species, which are not classed as notable, Schedule 1 or SPA qualifying species, which were recorded as non-breeding during the 2017 breeding bird surveys were tufted duck *Aythya fuligula*, great crested grebe, magpie *Pica pica*, pied wagtail *Motacilla alba*, goldfinch *Carduelis carduelis*, wheatear *Oenanthe Oenanthe* and blackbird *Turdus merula*.

3.4.2 Breeding Bird Survey - 2019

A total of seven species were confirmed or considered very likely to be breeding within, or immediately adjacent to the site (within 200m radius) during 2019 breeding bird surveys, these being, Canada goose, common tern, common linnet, feral pigeon, lapwing *Vanellus vanellus*, lesser black-backed gull and oystercatcher. The locations of all bird species recorded breeding are shown in Figure 10. All Schedule 1, SPA and notable species recorded during the breeding bird surveys are mapped in Figures 11, 12, 13 and 14.

Details of all Schedule 1, SPA and notable bird species recorded breeding are provided in Table 13 and details of all bird species recorded breeding at the site are discussed in more detail below.

Table 13: Schedule 1, SPA and notable bird species recorded breeding within the survey area during 2019

Common Name (BTO code)	Scientific Name	Status*	No of Breeding Pairs Recorded	Peak Count
Common Tern (CN)	<i>Sterna hirundo</i>	BoCC Amber; SPA	1	2
Common Linnet (LI)	<i>Linaria cannabina</i>	BoCC Red; NERC	1	6
Lapwing (L.)	<i>Vanellus vanellus</i>	BoCC Red; NERC; LBAP; SPA	1	1
Lesser Black-backed Gull (LB)	<i>Larus fuscus</i>	SPA, BoCC Amber	1	2
Oystercatcher (OC)	<i>Haematopus ostralegus</i>	SPA, BoCC Amber	1	7

*Key:

- BoCC: Birds of Conservation Concern – Red List and Amber List
- NERC: Species of Principal Importance as listed under section 41 of the Natural Environment and Rural Communities Act (2006).
- SPA: Qualifying species in adjacent SPA's.

W&CA Schedule 1 Species

No W&CA Schedule 1 species were recorded from within the site boundaries during the breeding bird surveys conducted in 2019.



BoCC Red List Species

One BoCC Red List species, common linnet, which is also listed under Section 41 of the NERC Act 2006, was recorded breeding within the site (Table 13). Two birds (likely breeding pair) were observed carrying nesting material in the east of the site.

Another BoCC Red List species, lapwing, which is also listed under Section 41 of the NERC Act 2006, was recorded as likely breeding approximately 150 metres south of the site, although the exact nesting location was not determined to avoid causing undue disturbance and to protect the nest from predation. A bird was observed in flight, giving alarm calls, on 26th June, which is an indication that eggs or young were present.

BoCC Amber List Species and SPA Qualifying Species

Three BoCC Amber List species were observed breeding, or considered very likely to be breeding at the site, or immediately adjacent to the site (within 200m radius), during the four breeding bird surveys. These were common tern, lesser black-backed gull and oystercatcher, which are also qualifying species of the adjacent SPA's.

At least one pair of common terns is considered very likely to have nested along the dock walls on the north-west edge of the site. Two adults were seen circling the area and giving alarm calls on the 25th May 2019, one adult was observed giving alarm calls in the same area during the additional survey on the 31st May 2019 and a pair were observed flying over giving alarm calls again on the 26th June. The exact location of the nest(s) could not be determined however due to the difficulty of viewing parts of the dock walls. Their behaviour was considered an indication that a nesting attempt had been made in 2019.

A pair of lesser black-backed gull with chicks was observed on the top of the southern warehouse during the survey on the 26th June 2019.

A pair of oystercatchers were observed alarm calling in the dock section adjacent southwest to the site during the survey on the 26th June 2019. Therefore, it is considered that this species has been breeding in the vicinity of the site, although, the exact nesting locations was not determined.

Common tern, lapwing, lesser black-backed gull and oystercatcher are qualifying breeding species of the adjacent Liverpool Bay Marine SPA, the Mersey Narrows and North Wirral Foreshore SPA, the Ribble and Alt Estuary SPA and the Dee Estuary SPA.

LBAP Species

Lapwing, which is North Merseyside BAP species, was recorded during the survey on the 26th June 2019.

Other Breeding Bird Species

Two other bird species were recorded to be breeding within the site and immediately adjacent area (200m radius) during 2019 surveys, these feral pigeon and Canada goose.

At least fourteen nests of feral pigeon were recorded under the eaves of and inside the buildings on site. Five nests of Canada goose were recorded in a number of old tunnel entrances and open sheds on site (see Figure 10).

Non-breeding Species

An additional nine bird species were recorded on, or in the vicinity of the site during the breeding bird surveys (within 200m radius) during the 2019 breeding bird surveys, but breeding was not confirmed for these species, and these species were likely to be using the site for roosting and foraging only. The five protected and notable non-breeding species recorded are summarised in Table 14 and details of all non-breeding species recorded are provided in Appendix E.

Table 14: Protected and notable bird species recorded as non-breeding during the 2019 breeding bird surveys.

Common Name (BTO code)	Scientific Name	Status *	Peak Count (within site boundary)
Cormorant (CA)	<i>Phalacrocorax carbo</i>	SPA	None on site (2 within 200m of site)
Herring Gull (HG)	<i>Larus argentatus</i>	BoCC Red, NERC	48
Mallard (MA)	<i>Anas platyrhynchos</i>	BoCC Amber	None on site (3 within 200m of site)
Ringed Plover (RP)	<i>Charadrius hiaticula</i>	BoCC Red, SPA	None on site (1 within 200m of site)
Shelduck (SU)	<i>Tadorna tadorna</i>	BoCC Amber; SPA	23

*Key:

- WCA Sch1: Species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- BoCC: Birds of Conservation Concern – Red List and Amber List
- NERC: Species of Principal Importance as listed under Section 41 of the Natural Environment and Rural Communities Act (2006).
- SPA: Qualifying species in adjacent SPA's.

A number of shelduck were recorded on the hard standing between the dock and the river during April, May and June visits. This species is known to nest in sandy holes under buildings / structures; however, no sandy holes that would be suitable for breeding were observed under the dock outbuildings during the breeding bird surveys. Although not recorded as breeding on site, the site nonetheless appears to offer a roosting place for non-breeding shelduck, a qualifying wintering bird species of the nearby Ribble and Alt Estuaries SPA, Mersey Estuary SPA and Dee Estuary SPA.



A large number of herring gulls were observed roosting on site, with a peak count of 47, including many juveniles (i.e. hatched during 2018), on 15th April 2019. A peak count of 24 lesser black-backed gull was recorded on the 26th of June 2019.

Cormorants were observed foraging (fishing) in the surrounding docks within 200m of the site on several occasions during the breeding bird surveys; however no obvious breeding activity was observed on site and within 200m site buffer. Cormorant is a qualifying wintering species in the nearby Ribble and Alt Estuaries SPA.

An individual ringed plover was observed foraging approx. 150m south of the site on 15th April 2019. Ringed plover is a qualifying species of the Mersey Estuary SPA.

Mallards were observed within 200m of the site on one occasion, with no suggestion of breeding.

Four bird species, which are not classed as notable or SPA qualifying species, were recorded as non-breeding during the 2019 breeding bird surveys were moorhen *Gallinula chloropus*, carrion crow *Corvus corone*, pied wagtail and goldfinch

3.4.3 Ferry Bird Survey - 2017

During 2017 ferry survey, no kittiwakes (a BoCC Red List species) were observed either at, or within 200m of the site.

The bird species recorded at, or in close proximity to, the Bramley-Moore Dock from the ferry included seventeen herring gulls, a BoCC Red List and NERC Section 41 species. Eleven lesser black-backed gulls and twenty-two black-headed gulls, both BoCC Amber List and SPA qualifying species, were also recorded in the Bramley-Moore Dock area during the ferry survey. No evidence of breeding was noted during this survey for any of those species.

During the walkover of the area along the outer dock wall to the north of the site, conducted on 26th July, 2017, no kittiwakes were observed. Two common terns, a BoCC Amber List and SPA qualifying species, were observed carrying food, however, and this provided further evidence of suspected breeding in the site area.

3.4.4 Ferry Bird Survey - 2019

During 2019 ferry survey, No kittiwakes (a BoCC Red List species) were observed either at, or within 200m of the site.

No kittiwakes were recorded during the walkover of the area along the outer dock wall to the north of the site, which was conducted on the 31st May 2019. Had any breeding birds been present, they would have been visible and audible at this time of year).

A common tern (a BoCC Amber List and SPA qualifying species) was observed alarm calling and this provided further evidence of suspected breeding in the site area (see Figure 10). The breeding location was similar to the one recorded during 2017 Breeding Bird Surveys and could feasibly have involved the same individual birds.

The ferry boat survey was conducted at an optimum time for breeding shelduck to have fledging chicks, but no signs of breeding shelduck were observed.



3.4.5 Wintering Bird Survey – 2016/ 2017

A total of twenty seven bird species were recorded within the site or within 400m of the site during the 2016 / 2017 wintering bird surveys. A summary of the peak counts for each species recorded on site during each survey visit is provided in Table 15, together with an indication of their status. A summary of peak counts for each species recorded in the vicinity of the site (approximately 400m) during each survey visit is provided in Appendix F.



Table 15: Bird Species recorded on site during the wintering bird surveys, 2016-17.

Common Name (BTO code)	Status*	23/11/16 Low Tide Peak Count	30/11/16 High Tide Peak count	08/12/16 Low Tide Peak Count	16/12/19 High Tide Peak Count	20/01/19 Low Tide Peak Count	30/01/19 High Tide Peak Count	20/02/19 Low Tide Peak Count	27/02/19 High Tide Peak Count
Black-headed Gull (BH)	BoCC Amber; SPA	44	11	6	6	(2)	41	2	12
Canada Goose (CG)	Invasive species				(41)	17	7	12	20
Carrion Crow (C.)	BoCC Green	1	3	2	1			1	1
Common Gull (CM)	BoCC Amber	1		1					1
Cormorant (CA)	SPA ; BoCC Green	5	2	3	5	3	3	3	2
Feral Pigeon (FP)	Not classified	206	106	110	150	173	85	95	86
Goldfinch (GO)	BoCC Green			2	4				
Great Crested Grebe (GG)	BoCC Green								1
Great Black-backed Gull (GB)	BoCC Amber	(1)	1			2	(1)		
Grey Heron (H)	BoCC Green		1		1	1			
Herring Gull (HG)	BoCC Red; NERC	16	29	59	27	16	74	25	24
Kingfisher (KF)	WCA Sch1; BoCC Amber		1		(1)				
Lesser Black-backed Gull (LB)	BoCC Amber; SPA	(1)	1	2	4	2	5		1
Linnet (LI)	BoCC Red; NERC		24		20	30	(8)		2
Magpie (MG)	BoCC Green	2	2	2	1	1	2		1
Mallard (MA)	BoCC Amber							2	

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Common Name (BTO code)	Status*	23/11/16 Low Tide Peak Count	30/11/16 High Tide Peak count	08/12/16 Low Tide Peak Count	16/12/19 High Tide Peak Count	20/01/19 Low Tide Peak Count	30/01/19 High Tide Peak Count	20/02/19 Low Tide Peak Count	27/02/19 High Tide Peak Count
Meadow Pipit (MP_)	BoCC Amber		2		1				
Moorhen (MH)	BoCC Green								1
Mute Swan (MS)	BoCC Amber		4				(1)		
Oystercatcher (OC)	BoCC Amber: SPA			(1)	1		1		7
Peregrine (PE)	WCA Sch1; BoCC Green	(1)							
Pied Wagtail (PW)	BoCC Green		2	1	1	1	1		
Robin (R.)	BoCC Green		3		1		1		
Rock Pipit (RC)	BoCC Green					1			
Shelduck (SU)	BoCC Amber; SPA				2		2		2
Starling (SG)	BoCC Red; NERC; LBAP						300		2
Turnstone (TT)	BoCC Amber; SPA	2							
(in brackets) = flying over only									

*Key

- WCA Sch1: Species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- NERC: Species of Principal Importance as listed under section 41 of the Natural Environment and Rural Communities Act (2006).
- BoCC: British Trust for Ornithology (BTO) Birds of Conservation Concern – Red, Amber and Green Lists.
- LBAP: Included as a Priority Species under the North Merseyside LBAP.
- SPA: Qualifying species in adjacent SPA's.



The protected and notable species recorded during the wintering bird surveys are mapped in Figures 15 – 22.

WCA Schedule 1 Species

Two W&CA Schedule 1 species – kingfisher and peregrine - were recorded from within the site boundaries during the 2016 / 2017 wintering bird surveys. Kingfisher was recorded only on one occasion on 30th November 2016; the observation included a single bird foraging in the northwest corner of the site.

Peregrine falcon was recorded on two occasions: commuting northeast over the site on 23rd November 2016 and commuting northwest approximately 400m west of the site on 16th December 2016.

At least one pair of peregrines are resident in the area and breeding has been recorded annually on the Tobacco Warehouse, 300 metres to the south-east, by WYG between 2014 and 2019.

BoCC Red List Species

Three BoCC Red List species were recorded within the site during the wintering bird surveys conducted during 2016/2017 survey season, these being herring gull, linnet and starling.

Herring gulls were observed roosting on the hardstanding, bare ground and the rooves of buildings within the site or overflying the site, with a peak count of 59 observed on site on 8th December 2016. There appeared to be little difference in numbers between high and low tides. Some herring gulls were also observed foraging within the site, both on land and on and over the water body of the dock itself.

Linnets were observed on site during four visits, with a peak count of 30 on 20th January 2017. The linnets were generally observed foraging in small mobile flocks, often mixed with other passerines and moving around the site and surrounding area.

Starlings were observed on two occasions within the site. Flock of approximately 300 starlings was observed feeding / roosting in the north of the site on 30th of January 2017.

BoCC Amber List Species

Eleven BoCC Amber List species were observed within the site during the eight wintering bird survey visits conducted in 2016 and 2017. These were black-headed gull, common gull, great black-backed gull, kingfisher (included in Schedule 1 species above), lesser black-backed gull, mallard, meadow pipit, mute swan, oystercatcher, shelduck and turnstone.

Black-headed gulls were recorded during all of the survey visits roosting and foraging on site with the peak count of 44 observed on 23rd November 2016.

A single common gull was recorded on site on two occasions – on 23rd November 2016 and on 8th December 2016.



Lesser black-backed gulls were observed roosting or overflying the site during each of the survey visits except of 20th February 2017; the peak count of five birds was recorded on 30th January 2017. Great black-backed gulls were observed during four surveys either overflying the site, sitting on water or dock edge. The observations included individual birds apart from 20th January 2017 when two birds were observed.

Meadow pipits were observed on site on two occasion – on 30th November 2016 (two birds) and on 16th December 2016 (one bird).

Mallards (two birds) were observed only on one occasion on 20th February 2017. Four mute swans were observed on 30th November 2016; a juvenile mute swan was observed on another occasion on 30th January 2017. Shelducks were recorded within the site during three survey visits – on 16th December 2016, 30th January 2017 and 20th February 2017; each observation included two birds.

Oystercatchers were observed within the site during four survey visits with a peak count of 7 birds observed on site on 27th February 2017. Turnstones were recorded only one occasion – on 23rd November 2016; the observation included two birds.

Birds Listed as Local SPA and Ramsar Qualifying and Important Species

Six bird species were recorded during the 2016 / 2017 wintering bird surveys which are qualifying species or important constituent species of the bird assemblage in the local SPA sites, these being black-headed gull, lesser black-backed gull, cormorant, oystercatcher, shelduck and turnstone.

Cormorants were observed during each of the eight surveys conducted in winter 2016 / 2017; bird activity included foraging (fishing) in the dock roosting on the dock walls and lamp posts. A peak count of 5 birds was recorded on 23rd November 2016 and 16th December 2016. Cormorant is a qualifying wintering species in the adjacent Mersey Narrows and North Wirral foreshore SPA, which supports nationally important numbers of this bird, also a qualifying wintering species of the Ribble and Alt Estuaries SPA.

Oystercatcher is a qualifying wintering species of the adjacent Ribble and Alt Estuary SPA and Dee Estuary SPA. Turnstone is a qualifying wintering species of the adjacent Mersey Narrows and North Wirral foreshore SPA.

Shelduck is a qualifying Wintering species of the adjacent Mersey Estuary SPA, Ribble and Alt Estuary SPA and Dee Estuary SPA.

NERC Act 2006 Section 41 Species

Three bird species which are listed under Section 41 of the NERC Act 2006, herring gull, linnet and starling, were recorded within the site during the wintering bird surveys. All three species are additionally listed as BoCC Red List species and are detailed above.

LBAP Species

One bird species recorded on site which is listed as a North Merseyside BAP species was starling, with observations detailed under BOCC Red List species above.



Common and Widespread Species (BoCC Green List)

Ten common and widespread bird species were recorded during the 2016 / 2017 wintering bird surveys, these being goldfinch, great crested grebe *Podiceps cristatus*, grey heron *Ardea cinerea*, moorhen, magpie, carrion crow, pied wagtail, robin *Erithacus rubecula* rock pipit *Anthus petrosus* and cormorant (although cormorant is a qualifying SPA species). None of these species, except for cormorant, were seen in numbers greater than 3 per visit.

Other Bird Species

Two other bird species were recorded on site during the wintering bird surveys, feral pigeon and Canada goose. A peak number of 150 feral pigeons was recorded and a peak number of 41 Canada geese were recorded. Feral pigeon is not classified under the Birds of Conservation Concern lists and Canada goose is classified as an Invasive Species under Schedule 9 of the Wildlife & Countryside Act, making it an offence to release the species into the wild or encourage its spread. Neither of these two species are of any conservation significance.



3.4.6 Wintering Bird Survey – 2018 / 2019

A total of twenty one bird species were recorded within the site during the 2018 / 2019 wintering bird surveys, and a further five species were recorded within 400m of the site. A summary of the peak counts for each species recorded on site during each survey visit is provided in Table 16, together with an indication of their status. A summary of peak counts for each species recorded in the vicinity of the site (approximately 400m) during each survey visit is provided in Appendix F.



Table 16: Bird Species recorded on site during the wintering bird surveys, 2018-19.

Common Name (BTO code)	Status*	12/11/18 High Tide Peak Count	29/11/18 Low Tide Peak count	12/12/18 Hight Tide Peak Count	17/12/19 Low Tide Peak Count	09/01/19 Low Tide Peak Count	16/01/19 High Tide Peak Count	11/02/19 High Tide Peak Count	13/02/19 Low Tide Peak Count
Black-headed Gull (BH)	BoCC Amber; SPA	7 (4)	3 (9)	18 (1)	5	21	5	104	29
Canada Goose (CG)	Invasive species				(2)		6 (2)	2 (3)	18
Carrion Crow (C.)	BoCC Green		2						1
Coot (CO)	BoCC Green	1							
Cormorant (CA)	SPA ; BoCC Green		2 (1)	1 (1)	1 (1)	(2)		9	11
Dunnock (D.)	BoCC Amber								1
Feral Pigeon (FP)	Not classified	61	55	102	159	63	82	75	34
Great Black-backed Gull (GB)	BoCC Amber	(1)	(1)		(2)	1		1	
Grey Heron (H)	BoCC Green			1	1			1	1
Herring Gull (HG)	BoCC Red; NERC	66 (10)	22 (78)	88 (45)	68 (2)	62 (1)	39	115	90
Kingfisher (KF)	WCA Sch1; BoCC Amber				1	1			
Lesser Black-backed Gull (LB)	BoCC Amber; SPA	1		3 (1)	(2)	2	1	6	7

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Common Name (BTO code)	Status*	12/11/18 High Tide Peak Count	29/11/18 Low Tide Peak count	12/12/18 Hight Tide Peak Count	17/12/19 Low Tide Peak Count	09/01/19 Low Tide Peak Count	16/01/19 High Tide Peak Count	11/02/19 High Tide Peak Count	13/02/19 Low Tide Peak Count
Linnet (LI)	BoCC Red; NERC	19		5	3	20		12 (2)	4
Magpie (MG)	BoCC Green	2	1	3	3	1			2
Moorhen (MH)	BoCC Green							1	
Mute Swan (MS)	BoCC Amber	1	2						
Oystercatcher (OC)	BoCC Amber: SPA	1 (4)	1	15 (1)	(1)				(1)
Pied Wagtail (PW)	BoCC Green		1	1	3			1	
Rock Pipit (RC)	BoCC Green				1				
Shelduck (SU)	BoCC Amber; SPA						2	11	17
Starling (SG)	BoCC Red; NERC; LBAP	(100)	(123)	(480)	(562)	156 (30)		(6)	(13)
(in brackets) = flying over only									

*Key

- WCA Sch1: Species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- NERC: Species of Principal Importance as listed under section 41 of the Natural Environment and Rural Communities Act (2006).
- BoCC: British Trust for Ornithology (BTO) Birds of Conservation Concern – Red, Amber and Green Lists.
- LBAP: Included as a Priority Species under the North Merseyside LBAP.
- SPA: Qualifying species in adjacent SPA's.



The five additional species recorded within 400 metres of the site were common gull, robin, meadow pipit, goldfinch and peregrine falcon.

The protected and notable species recorded during the wintering bird surveys are mapped in Figures 23 – 30.

WCA Schedule 1 Species

One W&CA Schedule 1 species, kingfisher, was recorded from within the site boundaries, on two occasions - during the wintering bird surveys (17th December 2018 and 9th January 2019). The kingfisher was observed flying across the south-west and north-west edge of the dock and was suspected to be foraging out of view along the inner dock wall. The site is not typical kingfisher habitat and these records are considered likely to involve the same individual forced out of more suitable habitat either through intense competition, bad weather or flood conditions (or a combination of any of these).

Another W&CA Schedule 1 species, peregrine falcon, was recorded within 400m of the site during the survey visit on 12th November 2018 (Figure 23). The peregrines are known from previous observations by WYG to include the dock complex as part of their hunting range.

BoCC Red List Species

Three BoCC Red List species were recorded within the site during the 2018 / 2019 wintering bird surveys, these being herring gull, linnet and starling.

Herring gulls were observed roosting on the hardstanding, bare ground and the rooves of buildings within the site and its vicinity during each site visit, with a peak count of 115 observed on site on 12th February 2019. There appeared to be little difference in numbers between high and low tides. Some herring gulls were also observed foraging at the site, both on land and on and over the water body of the dock itself.

Linnets were observed on site during five six visits, with a peak count of 20 on 9th January 2019. The linnets were generally observed foraging in small mobile flocks, often mixed with other passerines and moving around the site and surrounding area.

Starlings were observed on seven occasions within the site; most of the observations included overlying flocks of birds. Flock of approximately 150 starlings was observed feeding / perching on ground and buildings within the site on 9th of January 2019.

BoCC Amber List Species

Eight BoCC Amber List species were observed within the site during the eight wintering bird survey visits conducted during 2018 / 2019 survey season. These were black-headed gull, dunnoek, great black-backed gull, kingfisher (included in Schedule 1 species above), lesser black-backed gull, mute swan, oystercatcher and shelduck.

Black-headed gulls were recorded during all of the survey visits roosting and foraging on site with the peak count of 104 observed on 11th February 2019.



Lesser black-backed gulls were observed roosting on site during each of the survey visits except of 29th November 2019; the peak count of seven birds was recorded on 12th February 2019. Great black-backed gulls were observed during five survey either overflying the site, sitting on water or dock edge. The observations included individual birds apart from 17th December 2018 when two birds were observed overflying the site.

Oystercatchers were observed within the site during five survey visits with a peak count of 15 birds observed roosting in the north west part of the site on 12th December 2018. Shelducks were recorded within the site during three survey visits with a peak count of 18 birds observed roosting on the hardstanding and on the water on 13th February 2019.

Birds Listed as Local SPA and Ramsar Qualifying and Important Species

Five bird species were recorded during the 2018 / 2019 wintering bird surveys which are qualifying species or important constituent species of the bird assemblage in the local SPA sites, these being black-headed gull, lesser black-backed gull, cormorant, oystercatcher and shelduck.

Cormorants were observed on six occasions; bird activity included foraging (fishing) in the dock roosting on the dock walls and lamp posts. A peak count of 11 birds was recorded on 13th February 2019. Cormorant is a qualifying wintering species in the adjacent Mersey Narrows and North Wirral foreshore SPA, which supports nationally important numbers of this bird, also a qualifying wintering species of the Ribble and Alt Estuaries SPA.

Oystercatcher is a qualifying wintering species of the adjacent Ribble and Alt Estuary SPA and Dee Estuary SPA.

Shelduck is a qualifying Wintering species of the adjacent Mersey Estuary SPA, Ribble and Alt Estuary SPA and Dee Estuary SPA.

NERC Act 2006 Section 41 Species

Three bird species which are listed under Section 41 of the NERC Act 2006, herring gull, linnet and starling, were recorded within the site during the 2018 / 2019 wintering bird surveys. All three species are additionally listed as BoCC Red List species and are detailed above.

LBAP Species

One bird species recorded on site which is listed as a North Merseyside BAP species was starling, with observations detailed under BOCC Red List species above.

Common and Widespread Species (BoCC Green List)

Seven common and widespread bird species were recorded during the 2018 / 2019 wintering bird surveys, these being grey heron, moorhen, magpie, carrion crow, pied wagtail, rock pipit and cormorant (although cormorant is a qualifying SPA species). None of these species, except for cormorant, were seen in numbers greater than 3 per visit.



Other Bird Species

Two other bird species were recorded on site during the 2018 /2019 wintering bird surveys, feral pigeon and Canada goose. A peak number of 159 feral pigeons was recorded and a peak number of 18 Canada geese were recorded. Feral pigeon is not classified under the Birds of Conservation Concern lists and Canada goose is classified as an Invasive Species under Schedule 9 of the Wildlife & Countryside Act, making it an offence to release the species into the wild or encourage its spread. Neither of these two species are of any conservation significance.

3.4.7 Passage Bird Survey 2017 / 2018

A total of twenty-four bird species were recorded within the site during the passage bird surveys conducted in 2017 / 2018 survey season; and a further seven species were recorded in the immediate vicinity of the site (approximately 400m radius). A summary of the peak counts for each species recorded on site during each survey visit is provided in Table 17, together with an indication of their status. A summary of peak counts for each species recorded in the vicinity of the site (approximately 400m) during each survey visit is provided in Appendix H.



Table 17: Bird Species recorded on site during the passage bird surveys, 2017-18.

Common Name (BTO code)	Status*	22/09/17 High Tide Peak Count	28/09/17 Low Tide Peak count	18/10/17 Hight Tide Peak Count	27/10/17 Low Tide Peak Count	09/03/18 Low Tide Peak Count	20/03/18 High Tide Peak Count	19/04/18 High Tide Peak Count	23/04/18 Low Tide Peak Count
Black-headed Gull (BH)	BoCC Amber; SPA	43	29	11	20	10	12		
Canada Goose (CG)	Invasive species			4	4	13	30	18	24
Carrion Crow (C.)	BoCC Green	3	1		1		1		
Cormorant (CA)	SPA; BoCC Green		3	2	3	2	2		
Dunnock (D.)	BoCC Amber			1	1				
Feral Pigeon (FP)	Not classified	11	55	32	74	55	98	50	59
Goldfinch (GO)	BoCC Green		20		15				
Grey Heron (H)	BoCC Green				1				
Herring Gull (HG)	BoCC Red; NERC	20	32	27	48	31	56	53	12
Kingfisher (KF)	WCA Sch1; BoCC Amber		1						
Lesser Black-backed Gull (LB)	BoCC Amber; SPA	24	1	4	3	6	11	2	3
Linnet (LI)	BoCC Red; NERC		24		10	10	14		1
Magpie (MG)	BoCC Green		2	5	3	5	2	1	2
Meadow Pipit (MP)	BoCC Amber				6				
Moorhen (MH)	BoCC Green					1			

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Common Name (BTO code)	Status*	22/09/17 High Tide Peak Count	28/09/17 Low Tide Peak count	18/10/17 Hight Tide Peak Count	27/10/17 Low Tide Peak Count	09/03/18 Low Tide Peak Count	20/03/18 High Tide Peak Count	19/04/18 High Tide Peak Count	23/04/18 Low Tide Peak Count
Oystercatcher (OC)	BoCC Amber: SPA			2					
Pied Wagtail (PW)	BoCC Green		9	2	2	2	1		
Raven (RN)	BoCC Green						1		
Ringed Plover (RP)	BoCC Red; SPA							1	
Robin (R.)	BoCC Green		1		1				
Shelduck (SU)	BoCC Amber; SPA					5	13	10	7
Sparrowhawk (SH)	BoCC Green				1				
Starling (SG)	BoCC Red; NERC; LBAP		3				52		
Wheatear	BoCC Green		1						

*Key

- WCA Sch1: Species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- NERC: Species of Principal Importance as listed under section 41 of the Natural Environment and Rural Communities Act (2006).
- BoCC: British Trust for Ornithology (BTO) Birds of Conservation Concern – Red, Amber and Green Lists.
- LBAP: Included as a Priority Species under the North Merseyside LBAP.
- SPA: Qualifying species in adjacent SPA's.



The seven additional species recorded in the immediate vicinity of the site were common gull, great black-backed gull, great crested grebe, great tit *Parus major*, lapwing, mute swan and peregrine falcon.

The protected and notable species recorded during the passage bird surveys are mapped in Figures 31 - 38.

WCA Schedule 1 Species

One W&CA Schedule 1 species, kingfisher, was recorded from within the site boundaries, on one occasion, 28th September 2017, during the 2017 / 2018 passage bird surveys. The kingfisher was observed flying across the south-west edge of the dock and was suspected to be foraging out of view along the inner dock wall.

Another W&CA Schedule 1 species, peregrine falcon, was recorded within the vicinity of the site during the survey visit on 28th September 2017, when two individual peregrines were seen perched on the sea wall about 100 metres south of the site, feeding on the remains of a prey item. A peregrine was also observed flying over the vicinity of the site on 9th March, 2018.

BoCC Red List Species

Four BoCC Red List species were recorded within the site during the 2017 / 2018 passage bird surveys, these being herring gull, linnet, ringed plover and starling.

Herring gulls were observed roosting on the hardstanding, bare ground and rooves within the site and its vicinity during each site visit, with a peak count of 56 roosting on site on 20th March 2018 and a peak count of 180 roosting in the vicinity of the site on the same date. A significant proportion of the herring gulls observed were juvenile birds. There appeared to be little difference in numbers between high and low tides. Some herring gulls were also observed foraging at the site, both on land and on and over the water body of the dock itself.

Linnets were observed on site during five survey visits, with a peak count of 24 on 28th September 2017. The linnets were generally observed foraging in small mobile flocks, often mixed with other passerines and moving around the site and surrounding area. A flock of 40 linnets was recorded to the south of the site on 27th October 2017.

Ringed plover was observed on one occasion only, on 19th April 2018. This was a solitary bird, seen foraging on the edge of the dock. Ringed plover is also a qualifying species of the Mersey Estuary SPA.

Starlings were observed on two occasions within the site, with a flock of 52 birds observed foraging on 20th March 2018. This flock flew off after a short period of time however.

One additional BoCC Red List species, lapwing, was recorded on 23rd April 2018, flying over the river in the vicinity of the site.



BoCC Amber List Species

Seven BoCC Amber List species were observed within the site during the eight passage bird survey visits conducted during 2017 / 2018 survey season. These were black-headed gull, dunnoek, kingfisher, lesser black-backed gull, meadow pipit, oystercatcher and shelduck.

Black-headed gulls were recorded during all of the survey visits except the two April ones. Forty birds were observed roosting on the roof of the timber warehouse during the survey visit on September 22nd 2017 and smaller numbers roosting and foraging on site during subsequent visits. A large flock of 75 black-headed gulls were observed resting and foraging on and over the River Mersey adjacent to the site at low tide on 27th October, with 40 common gulls, another BoCC Amber List species, mixed with them. Black-headed gull is also a qualifying breeding species in the adjacent Ribble and Alt Estuaries SPA.

Lesser black-backed gulls were observed roosting on site during each of the survey visits, as well as in the adjacent dockland areas, often intermingled with the similarly sized herring gulls, but in much smaller numbers than the latter. A significant proportion were juvenile birds. Lesser black-backed gull is also a qualifying breeding species in the adjacent Ribble and Alt Estuaries SPA and Ramsar sites.

Two oystercatchers were observed roosting in that area on 18th October 2017. Nineteen oystercatchers were observed roosting on the sea wall to the south of the site over the high tide on the 19th April 2018. Shelducks were observed roosting on the hardstanding between the dock and the sea wall during the four spring site visits, with a peak count of thirteen individuals. Both oystercatcher and shelduck are also qualifying species of the adjacent SPA and Ramsar sites.

Bird Listed as Local SPA and Ramsar Qualifying and Important Species

Six bird species were recorded during the 2017 / 2018 passage bird surveys which are qualifying species or important constituent species of the bird assemblage in the local SPA sites, these being black-headed gull, lesser black-backed gull, cormorant, oystercatcher, ringed plover and shelduck.

Small numbers of black-headed gulls and lesser black-backed gulls were regularly observed roosting on site, and a large number (40) of black-headed gulls were recorded on the roof of the large timber warehouse on September 22nd. Black-headed gull is a qualifying breeding species in the adjacent Ribble and Alt Estuaries SPA. Lesser black-backed gull is also a qualifying breeding species in the adjacent Ribble and Alt Estuaries SPA.

Small numbers of cormorants were observed foraging (fishing) in the dock on five occasions and also roosting on the dock walls and lamp posts. Cormorant is a qualifying wintering species in the adjacent Mersey Narrows and North Wirral foreshore SPA, which supports nationally important numbers of this bird, also a qualifying wintering species of the Ribble and Alt Estuaries SPA.

Small numbers of oystercatcher were observed roosting at the site during one survey visit, as described above. Oystercatcher is a qualifying wintering species of the adjacent Ribble and Alt Estuary SPA and Dee Estuary SPA.



Ringed plover was observed on one occasion only, on 19th April 2018. This was a solitary bird, seen foraging on the edge of the dock. Ringed plover is a qualifying passage bird species of the adjacent Mersey Estuary SPA.

Shelduck were observed roosting at the site during a number of survey visits, as described above. Oystercatcher is a qualifying Wintering species of the adjacent Ribble and Alt Estuary SPA and Dee Estuary SPA. Shelduck is a qualifying Wintering species of the adjacent Mersey Estuary SPA, Ribble and Alt Estuary SPA and Dee Estuary SPA.

NERC Act 2006 Section 41 Species

Three bird species which are listed under Section 41 of the NERC Act 2006, herring gull, linnet and starling, were recorded within the site during the 2017 / 2018 passage bird surveys. All three species are additionally listed as BoCC Red List species and are detailed above.

One additional NERC Section 41 Species, lapwing, was recorded flying over the river in the vicinity of the site on one occasion. This is also a BoCC Red List species, detailed above.

LBAP Species

Two bird species listed as North Merseyside BAP species were recorded during the passage bird surveys, lapwing and starling, although only the latter was recorded on site.

Common and Widespread Species (BoCC Green List)

Eleven common and widespread bird species were recorded during the passage bird surveys, these being grey heron, moorhen, magpie, carrion crow, raven *Corvus corax*, robin, pied wagtail, goldfinch, wheatear, sparrowhawk *Accipiter nisus* and cormorant. None of these species were seen in large numbers, but cormorant is significant as an SPA qualifying species.

Other Bird Species

Two other bird species were recorded on site during the passage bird surveys, feral pigeon and Canada goose. A peak number of 98 feral pigeons was recorded and a peak number of 30 Canada geese were recorded. Feral pigeon is not classified under the Birds of Conservation Concern lists and Canada goose is classified as an Invasive Species under Schedule 9 of the Wildlife & Countryside Act, making it an offence to release the species into the wild or encourage its spread.

3.4.8 Passage Bird Survey 2019

A total of 17 bird species were recorded within the site during the four passage bird surveys conducted in 2019 autumn passage / migration season; and a further two species (meadow pipit and wheatear) was recorded in the immediate vicinity of the site (approximately 400m radius). A summary of the peak counts for each species recorded on site during each survey visit is provided in Table 18, together with an indication of their status. A summary of peak counts for each species recorded in the vicinity of the site (approximately 400m) during each survey visit is provided in Appendix I.

Table 18: Bird Species recorded on site during the passage bird surveys, 2019.

Common Name (BTO code)	Status*	01/10/19 High Tide Peak Count	03/10/19 Low Tide Peak count	22/10/19L ow Tide Peak Count	29/10/19 Hight Tide Peak Count
Black-headed Gull (BH)	BoCC Amber; SPA	26		(1)	25
Canada Goose (CG)	Invasive species		2		
Carrion Crow (C.)	BoCC Green	3			1
Cormorant (CA)	SPA; BoCC Green	6	1	5	5(2)
Feral Pigeon (FP)	Not classified	76	90	214	127
Kingfisher (KF)	WCA Sch1; BoCC Amber		2	2	
Goldfinch (GO)	BoCC Green	3			
Herring Gull (HG)	BoCC Red; NERC	100 (5)	56	52	140
Lesser Black-backed Gull (LB)	BoCC Amber; SPA			1	1
Linnet (LI)	BoCC Red; NERC	1	2		2
Magpie (MG)	BoCC Green			18	1
Moorhen (MH)	BoCC Green		4	1	
Mute Swan (MS)	BoCC Amber	4			2
Oystercatcher (OC)	BoCC Amber: SPA	3	2		1
Pied Wagtail (PW)	BoCC Green		1		
Robin (R.)	BoCC Green			1	
Starling (SG)	BoCC Red; NERC; LBAP			14	
(in brackets) = flying over only					

***Key**

- WCA Sch1: Species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- NERC: Species of Principal Importance as listed under section 41 of the Natural Environment and Rural Communities Act (2006).
- BoCC: British Trust for Ornithology (BTO) Birds of Conservation Concern – Red, Amber and Green Lists.
- LBAP: Included as a Priority Species under the North Merseyside LBAP.
- SPA: Qualifying species in adjacent SPA's.



The protected and notable species recorded during the passage bird surveys are mapped in Figures 39 - 42.

WCA Schedule 1 Species

One W&CA Schedule 1 species, kingfisher, was recorded from within the site boundaries on one occasion, 22nd October 2019, during the 2019 passage bird surveys

The kingfisher was observed flying across the south-west of the dock and then perching on the side of the dock.

BoCC Red List Species

Three BoCC Red List species were recorded within the site during the 2019 passage bird surveys, these being herring gull, linnet and starling.

Herring gulls were observed roosting on the hardstanding, bare ground and rooves or on the water within the site during each site visit, with a peak count of 140 recorded on 29th October 2019. Some herring gulls were also observed foraging at the site, both on land and on and over the water body of the dock itself.

Linnets were observed on site during two survey visits, with a peak count of 18 on 22nd October 2019.

Starlings were observed on one occasion within the site, with a flock of 14 birds observed foraging on 22nd October 2019.

BoCC Amber List Species

Six BoCC Amber List species were observed within the site during four passage bird survey visits conducted during autumn 2019. These were black-headed gull, great black-backed gull, kingfisher, lesser black-backed gull, mute swan and oystercatcher. Another BoCC Amber species – meadow pipit – was observed within the site vicinity (400m radius)

Black-headed gulls were recorded during all of the survey visits with the peak count of 48 birds observed on site on the 1st October 2019. Black-headed gull is also a qualifying breeding species in the adjacent Ribble and Alt Estuaries SPA.

Three great black-backed gulls were observed on site on the 1st October 2019. There was no other sightings of this species during 2019 passage bird surveys.

Small numbers of lesser black-backed gulls were observed during three passage bird survey visits, with the peak count of two birds observed on 3rd October 2019. Lesser black-backed gull is also a qualifying breeding species in the adjacent Ribble and Alt Estuaries SPA and Ramsar sites.

Mute swans were observed on site one two occasions: on the 1st October 2019 (four individuals on water within the dock) and the 29th October 2019 (two birds roosting on the edge of the dock).



Oystercatchers were observed roosting on site during three passage bird surveys with the peak count of three birds observed on 3rd October 2019. Oystercatcher is also qualifying species of the adjacent SPA and Ramsar sites.

Five meadow pipits were observed foraging within the dock area approximately 170m south of the site on the 29th October 2019.

Bird Listed as Local SPA and Ramsar Qualifying and Important Species

Four bird species were recorded during the 2019 passage bird surveys which are qualifying species or important constituent species of the bird assemblage in the local SPA sites, these being black-headed gull, lesser black-backed gull, cormorant and oystercatcher.

Small numbers of cormorants were observed foraging (fishing) in the dock on five occasions and also roosting on the dock walls and lamp posts. Cormorant is a qualifying wintering species in the adjacent Mersey Narrows and North Wirral foreshore SPA, which supports nationally important numbers of this bird, also a qualifying wintering species of the Ribble and Alt Estuaries SPA.

Black-headed gull is a qualifying breeding species in the adjacent Ribble and Alt Estuaries SPA. Lesser black-backed gull is also a qualifying breeding species in the adjacent Ribble and Alt Estuaries SPA. Oystercatcher is a qualifying Wintering species of the adjacent Ribble and Alt Estuary SPA and Dee Estuary SPA. Shelduck is a qualifying Wintering species of the adjacent Mersey Estuary SPA, Ribble and Alt Estuary SPA and Dee Estuary SPA.

NERC Act 2006 Section 41 Species

Three bird species which are listed under Section 41 of the NERC Act 2006, herring gull, linnet and starling, were recorded within the site during the 2019 passage bird surveys. All three species are additionally listed as BoCC Red List species and are detailed above.

LBAP Species

One bird species recorded on site which is listed as a North Merseyside BAP species was starling, with observations detailed under BOCC Red List species above.

Common and Widespread Species (BoCC Green List)

Five common and widespread bird species were recorded on site during the 2019 passage bird surveys, these being moorhen, magpie, carrion crow, robin, pied wagtail, goldfinch, wheatear and cormorant. None of these species were seen in large numbers, but cormorant is significant as an SPA qualifying species.

Other Bird Species

Two other bird species were recorded on site during the passage bird surveys, feral pigeon and Canada goose. A peak number of 214 feral pigeons was recorded and a peak number of 2 Canada geese was recorded. Feral pigeon is not classified under the Birds of Conservation Concern lists and Canada goose is classified as an Invasive Species under Schedule 9 of the Wildlife & Countryside Act, making it an offence to release the species into the wild or encourage its spread.



4.0 Relevant Planning Policy & Legislation

4.1 Revised National Planning Policy Framework

A revised NPPF was issued on 19th February 2019 (Ministry of Housing Communities and Local Government, 2019) and currently supplements government Circular 06/2005, *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System* (Office of the Deputy Prime Minister, 2005).

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. Paragraph 170 of the NPPF also states that:

'Planning policies and decisions should contribute to and enhance the natural environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)*
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland*
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate*
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*

The conservation and enhancement of wildlife is also specifically reference re: development within the National Parks or the Broads.

Paragraph 174 then goes on to confirmed that:

When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the*



features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*

Regarding EclA's and HRA's – any sites identified, or required, as compensatory measures for adverse effects on any Natura 2000/habitats site should also be given the same level as protection as the pSPA's and cSAC's themselves. In addition, when an application is being determined, Paragraph 177 clarifies that:

"The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site."

Paragraph 180 is also relevant as;

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:...

- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

4.2 Biodiversity 2020: A strategy for England's wildlife & ecosystem services

Biodiversity 2020 replaces the previous UK Biodiversity Action Plan and sets national targets to be achieved. The intent of Biodiversity 2020, however, is much broader than the protection and enhancement of less common species, and is meant to embrace the wider countryside as a whole.

The priority species and habitats considered under Biodiversity 2020 are the SPI & HPI detailed under the NERC Act (see Appendix C for further details).

4.3 Local Plan

The Liverpool Local Plan (2018) had not been finalised at the time of writing but the Pre-Submission Draft was available to view online. Chapter 12 of this draft local plan focuses on 'Green Infrastructure.' This is defined in NPPF as '*a network of multifunctional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits*'. This 'network' includes land in both public and private ownership, comprising the city's 'green wedges',



parks, local wildlife sites, allotments, street trees, hedges, cemeteries, private gardens, water spaces (including the River Mersey, Leeds-Liverpool Canal), park lakes and water courses.

Policy GI1 states that *'the recreational function, visual amenity, historic and structural quality and value of the city's green infrastructure resource will be protected and enhanced.'* Specifically, protection will be afforded to:

- a. The Green Belt, and the Mersey Estuary SSSI/SPA/Ramsar Site;
- b. The Green Wedge;
- c. The City's network of Parks and Gardens;
- d. Biodiversity assets, including Local Wildlife Sites (LWS) and Local Nature Reserves (LNR)
- e. Regionally Important Geological/Geomorphological Sites (RIGS);
- f. Locally important open spaces including amenity spaces and allotments;
- g. Water spaces, including the Leeds Liverpool canal, park lakes and water courses.
- h. Playing fields and pitches; and
- i. Green Corridors, Recreational routes and the Public Rights of Way network.

Item 2 of Policy GI 5 states that *'Development which may cause direct or indirect significant harm to other designated sites of nature or geological conservation importance, Priority Habitats, legally protected species and / or Priority Species will only be permitted on:*

- *National sites (Mersey Estuary Ramsar site/Mersey Estuary Site of Special Scientific Interest (SSSI)): where there are no alternatives and where the reasons for and the benefits of development clearly outweigh the impact on the nature conservation value of the site and its broader contribution to the national network;*
- *Local Sites (Local Nature Reserves (LNRs), Local Wildlife Site (LWS) and Regionally Important Geological/Geomorphological Sites (RIGS): where the reasons for and the benefits of development clearly outweigh the impact on the nature conservation value of the site and its broader contribution to the Liverpool City Region (LCR) Ecological Network;*
- *Sites including Priority Habitats/ Irreplaceable habitats (including ancient woodlands and aged or veteran trees) unless the need for and the benefits of, the development on balance clearly outweigh the impact on the nature conservation value of the habitat and its broader contribution to the LCR Ecological Network.*

Item 5 of Policy GI 5 states that *'development proposals which affect sites of nature conservation importance, priority habitats, legally protected species or priority species must be supported by an Ecological Appraisal and include details of avoidance, mitigation and /or compensation where appropriate.'*

4.4 Legislation

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy the nest (whilst being built or in use) or its eggs. Bird species listed in Schedule 1 of the 1981 Act (as amended) receive further protection which makes it an offence to intentionally or recklessly disturb these species while building a nest or in, on or near a nest containing eggs or young; or to disturb dependent young of such a bird (HMSO 1981 & 2000).



Forty-nine bird species are listed as 'Species of Principal Importance for the conservation of biological diversity in England' under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of this act places a duty (the Statutory Biodiversity Duty) on public bodies (including local planning authorities) when undertaking their duties (including the making of planning decisions) "to take such measures as they consider expedient for the purposes of conserving biodiversity". The conservation of species listed on Section 41 of the NERC Act 2006, including the restoration or enhancement of a population or habitat, is therefore legally required to be considered in planning decisions. *ODPM Circular 06/2005* further clarifies that they are capable of being a material consideration for planning decisions, along with Local Biodiversity Action Plan priority species, as referred to below.

In addition, Annex 1 of the EU 'Birds' Directive (1979) lists 194 species that are subject to special conservation measures concerning their habitat in order to ensure their survival and reproduction. Member States are required to designate Special Protection Areas (SPAs) for the Annex 1 and all migratory species. SPAs are scientifically identified areas critical to the survival of the targeted species. The SPAs form part of the Natura 2000 EU network of protected nature sites. The designation of an area as an SPA gives it a high level of protection from potentially damaging developments (European Commission (EC) 2004).

4.5 Other Conservation Lists and Guidance

4.5.1 Local Biodiversity Action Plan

Local Biodiversity Action Plans (LBAPs) identify habitat and species conservation priorities at a local level (typically County by County) and are usually drawn up by a consortium of local Government organisations and conservation charities. Although they are no-longer managed at a national level many are still reviewed and updated at a local level.

The North Merseyside LBAP is the relevant document for this site and it contains the following relevant bird Species Action Plans:

Species Action Plans (SAP)

- Corn bunting
- Grey partridge
- Lapwing
- Skylark
- Song thrush
- Urban birds (including house sparrows, starlings, house martins and swifts)

It should be noted that the existence of a SAP does not always infer an elevated level of importance for those features. These plans may be designed to encourage an increase in these species, rather than to protect a county-scarce feature (for example).

4.5.1 Birds of Conservation Concern (BoCC)

The conservation status of all regularly occurring British birds has been analysed in co-operation with the leading governmental and non-governmental conservation organisations, including the Royal Society for the Protection of Birds (RSPB), British Trust for Ornithology (BTO) and Birdlife International Birds of Conservation Concern 4 (Eaton *et al.*, 2015). The basis of species ongoing



population trends are assigned to one of three lists of Conservation Concern. These are the UK Red, Amber and Green list.

The criteria for birds being include in the lists is as follows.

Red List

- Globally threatened
- Historical population decline in UK during 1800–1995
- Severe (at least 50%) decline in UK breeding population over last 25 years, or longer-term period (the entire period used for assessments since the first BoCC review, starting in 1969). Severe (at least 50%) contraction of UK breeding range over last 25 years, or the longer-term period

Amber List

- Species with unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern)
- Historical population decline during 1800–1995, but recovering; population size has more than doubled over last 25 years
- Moderate (25-49%) decline in UK breeding population over last 25 years, or the longer-term period
- Rare breeder; 1–300 breeding pairs in UK
- Rare non-breeders; less than 900 individuals
- Localised; at least 50% of UK breeding or non-breeding population in 10 or fewer sites, but not applied to rare breeders or non-breeders
- Internationally important; at least 20% of European breeding or non-breeding population in UK (NW European and East Atlantic Flyway populations used for non-breeding wildfowl and waders respectively)

Green List

- Species that occur regularly in the UK but do not qualify under any or the above criteria

Although the lists confer no legal status in themselves, they are useful in evaluating the conservation significance of bird assemblages, and for assessing the potential significance of impacts and informing appropriate levels of mitigation with respect to bird populations.



5.0 Summary

Breeding Birds – 2017

A total of six species were confirmed or considered very likely to be breeding within, or immediately adjacent to, the site, these being Canada goose, common tern, herring gull, feral pigeon, lesser black-backed gull and oystercatcher.

No W&CA Schedule 1 species were recorded breeding within the site area.

One BoCC Red List species, herring gull, was recorded breeding on site, with two breeding pairs observed.

Three BoCC Amber List and SPA qualifying species, common tern, lesser black-backed gull and oystercatcher were recorded as breeding or likely breeding on site, with one breeding pair of each.

Two species which are qualifying and important features of the adjacent SPA and Ramsar sites were recorded utilising the site as a roosting and foraging area during the breeding bird surveys, these being cormorant and shelduck.

Breeding Birds - 2019

A total of seven species were confirmed or considered very likely to be breeding within, or immediately adjacent to, the site, these being, Canada goose, common tern, common linnet, feral pigeon, lapwing, lesser black-backed gull and oystercatcher.

No W&CA Schedule 1 species were recorded breeding within the survey area, although a pair of peregrine falcons are known to breed annually on the Tobacco Warehouse, approximately 300 metres south-east of the site.

One BoCC Red List species - linnet, was recorded likely breeding on site, with another BoCC Red List species SPA qualifying species – lapwing, recorded likely to be breeding in the vicinity of the site.

Three BoCC Amber List and SPA qualifying species, common tern, lesser black-backed gull and oystercatcher were recorded as breeding or likely breeding on site or in close proximity to the site, with one breeding pair of each.

Three species which are qualifying and important features of the adjacent SPA and Ramsar sites were recorded utilising the site and surrounding as a roosting and foraging area during the breeding bird surveys, these being shelduck, cormorant and ringed plover.

Ferry Survey - 2017

The ferry bird survey and additional walkover survey recorded no kittiwakes within the site or surrounding area.

Ferry Survey - 2019



The ferry bird survey and additional walkover survey recorded no kittiwakes within the site or surrounding area.

Wintering Birds – 2016 / 2017

Two W&CA Schedule 1 species – kingfisher and peregrine - were recorded foraging or commuting within the site boundaries during the 2016 / 2017 wintering bird surveys

Three BoCC Red List species, herring gull, linnet and starling, were recorded utilising the site for foraging and roosting during the wintering bird surveys.

Eleven BoCC Amber List species were recorded utilising the site for foraging and roosting during the wintering bird surveys. These were black-headed gull, common gull, great black-backed gull, kingfisher, lesser black-backed gull, mallard, meadow pipit, mute swan, oystercatcher, shelduck and turnstone

Six species which are qualifying or important features of the adjacent SPA and Ramsar sites were recorded utilising the site for foraging and roosting during the wintering bird surveys, these being **black-headed gull, lesser black-backed gull, cormorant, oystercatcher and shelduck and turnstone.**

Wintering Birds – 2018 / 2019

One W&CA Schedule 1 species, kingfisher, was recorded on site during the wintering bird surveys, suspected to be foraging along the edge of the dock. Another W&CA Schedule 1 species, peregrine falcon, was observed foraging adjacent to the site and this is resident within the docks complex.

Three BoCC Red List species, herring gull, linnet and starling, were recorded utilising the site for foraging and roosting during the wintering bird surveys.

Eight BoCC Amber List species were recorded utilising the site for foraging and roosting during the wintering bird surveys. These were black-headed gull, dunnoek, great black-backed gull, kingfisher, lesser black-backed gull, mute swan, oystercatcher, shelduck.

Five species which are qualifying or important features of the adjacent SPA and Ramsar sites were recorded utilising the site for foraging and roosting during the wintering bird surveys, these being **black-headed gull, lesser black-backed gull, cormorant, oystercatcher and shelduck.**

Passage Birds – 2017 / 2018

One W&CA Schedule 1 species, kingfisher, was recorded on site during the passage bird surveys.

Three BoCC Red List species, herring gull, linnet and starling, were recorded utilising the site for foraging and roosting during the passage bird surveys. A maximum of 140 herring gulls and 14 starlings were observed within the site.

Seven BoCC Amber List species were recorded utilising the site for foraging and roosting during the passage bird surveys. These were black-headed and lesser black-backed gulls, dunnoek, kingfisher, meadow pipit, oystercatcher and shelduck.



Six species which are qualifying or important features of the adjacent SPA and Ramsar sites were recorded utilising the site for foraging and roosting during the passage bird surveys, these being black-headed and lesser black-backed gulls, cormorant, oystercatcher, ringed plover and shelduck

Passage Birds – Autumn 2019

One W&CA Schedule 1 species, kingfisher, was recorded on site during the passage bird surveys, suspected to be foraging along the edge of the dock. Another W&CA Schedule 1 species, peregrine falcon, was observed foraging adjacent to the site, with two birds feeding on a prey item.

Four BoCC Red List species, herring gull, linnet, ringed plover and starling, were recorded utilising the site for foraging and roosting during the passage bird surveys. A maximum of 56 herring gulls and 52 starlings were observed within the site.

Six BoCC Amber List species were recorded utilising the site for foraging and roosting during the passage bird surveys. These were black-headed, great black-backed and lesser black-backed gulls, kingfisher, mute swan, oystercatcher. Another BoCC Amber species – meadow pipit – was observed within the site vicinity (400m radius)

Four bird species were recorded during the 2019 passage bird surveys which are qualifying species or important constituent species of the bird assemblage in the local SPA sites, these being black-headed gull, lesser black-backed gull, cormorant and oystercatcher.



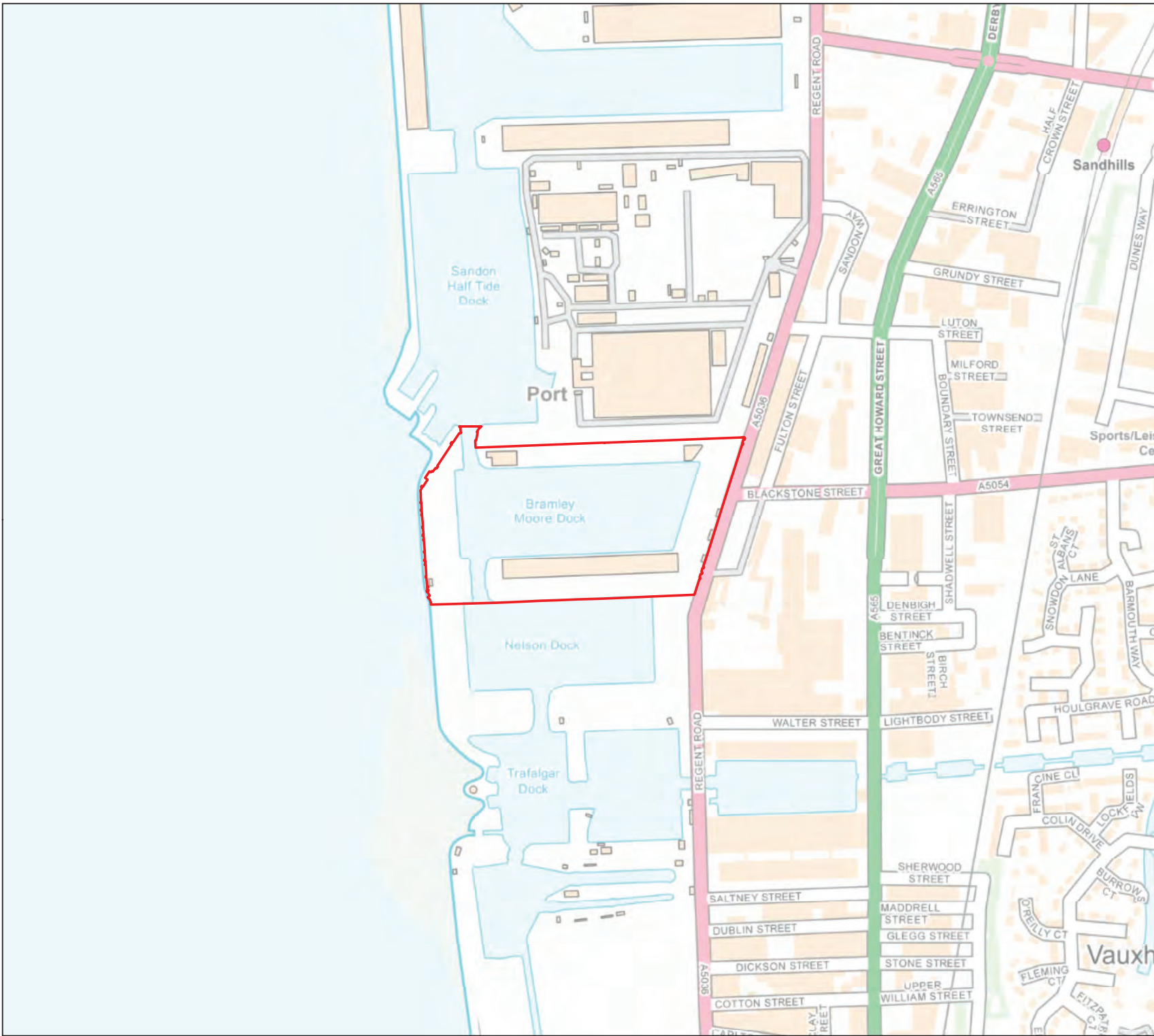
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FIGURES

Figure 1 – Site Location and Red Line Boundary



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

Site boundary

0 50 100 200 Metres



Site Location and Red Line Boundary

**Bramley-Moore Dock
Everton Stadium Development Limited**

Scale at A3: 1:5,000	Project No: A100795	Drawing No: Figure 1	Revision: A
Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba	

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Figure 2 – Phase 1 Habitat Plan

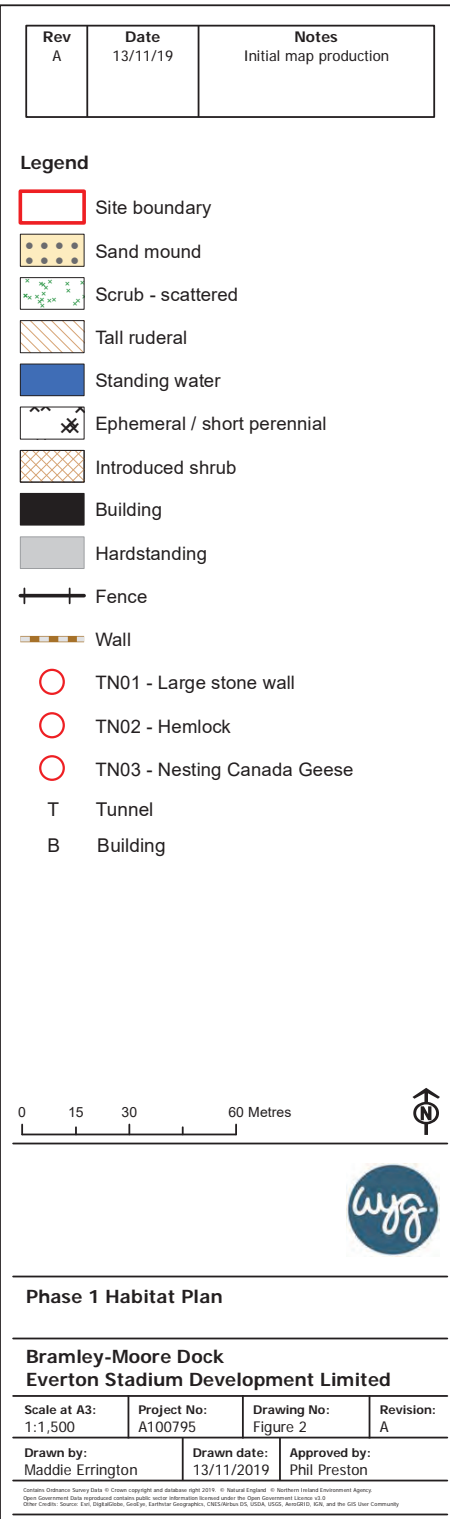
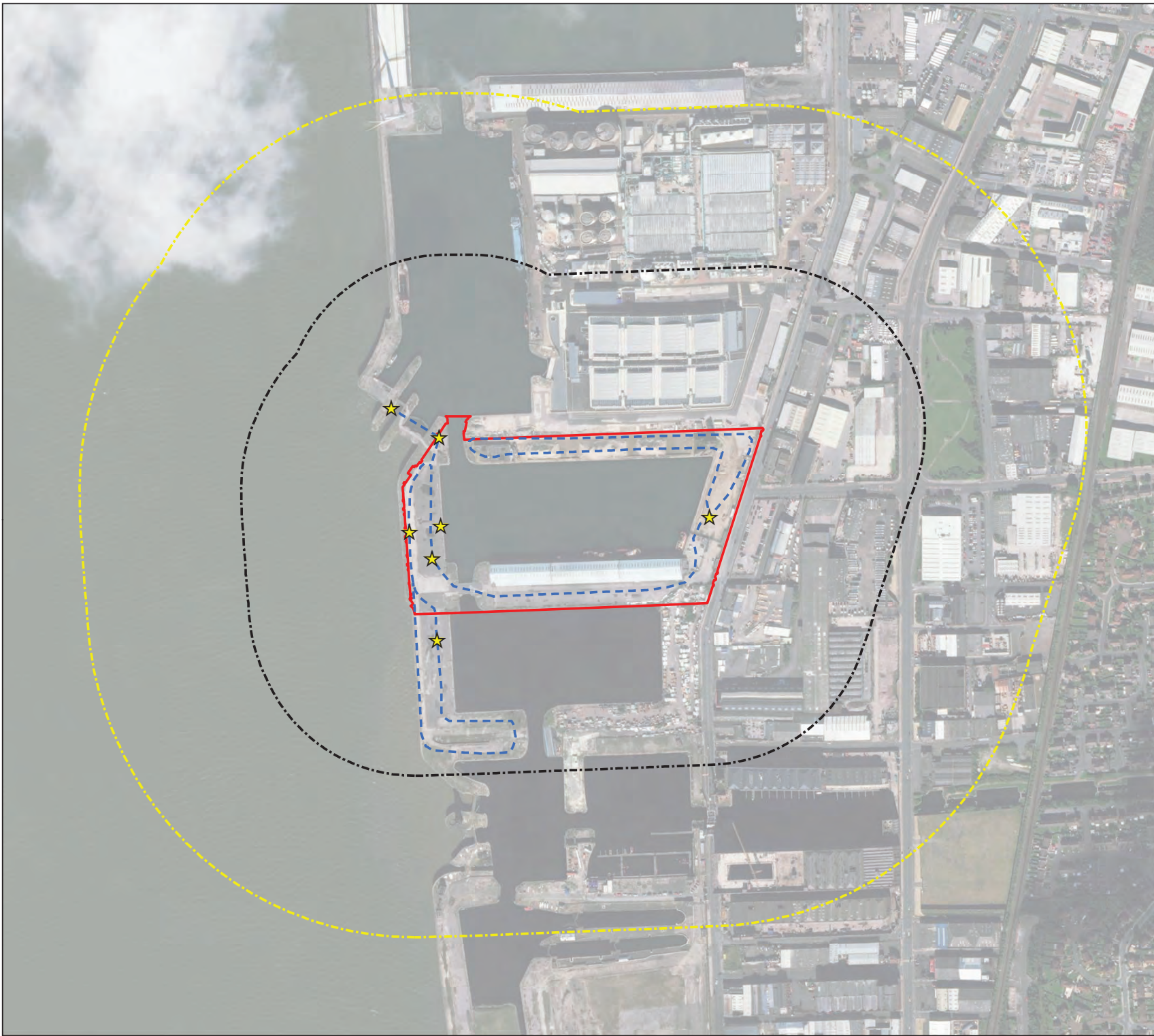









Figure 3 – Locations of the Vantage Points and Transect Route



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

-  Site boundary
-  Site boundary 200m buffer
-  Site boundary 400m buffer
-  Transect route
-  Vantage point

0 37.5 75 150 Metres



Locations of the vantage points and transect route

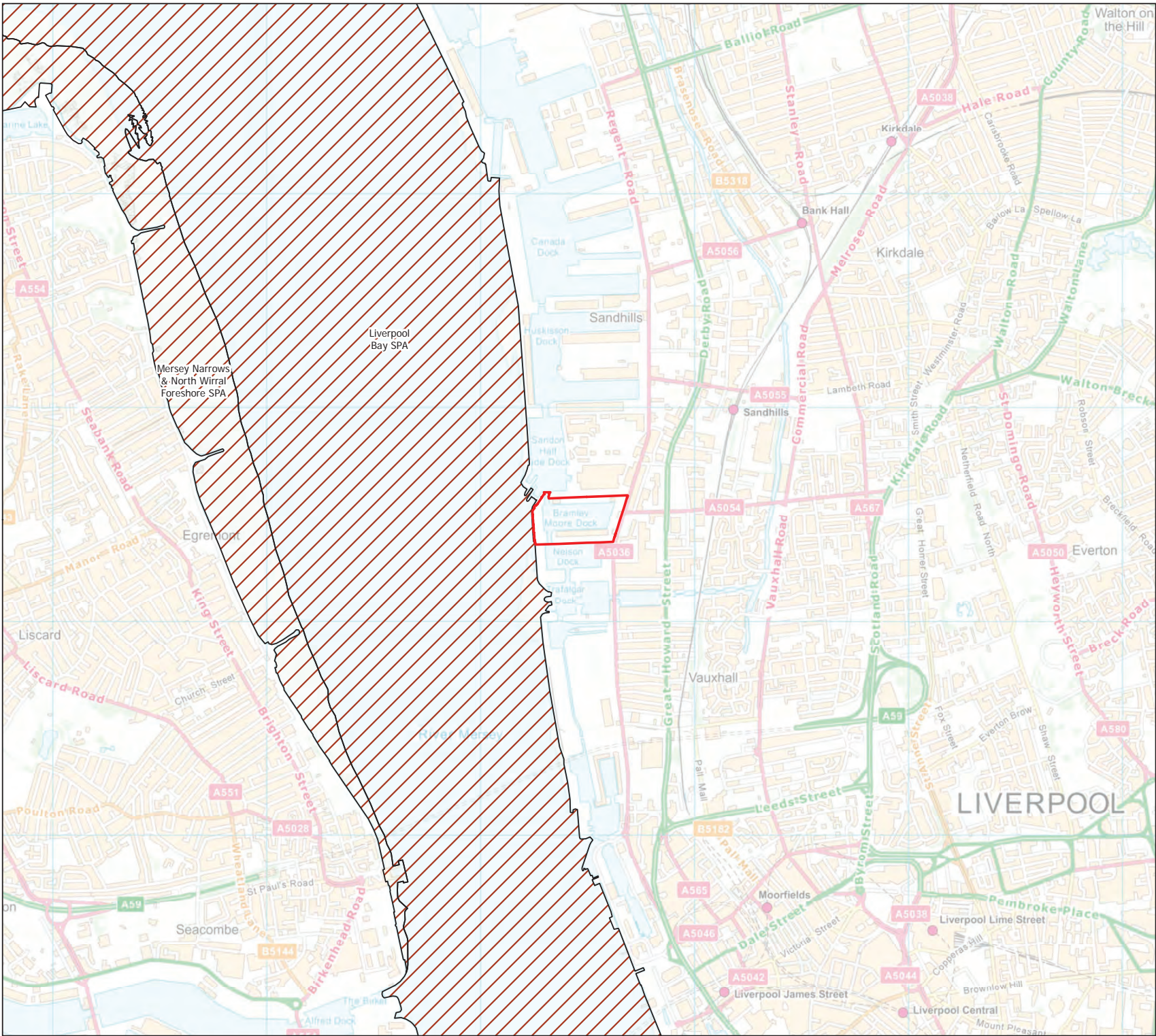
Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 3	Revision: A
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Figure 4 – Site Location in the Context of the Adjacent SPA's



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

Site boundary

Special Protection Area (SPA)



Site Location in the Context of the Adjacent SPA's

**Bramley-Moore Dock
Everton Stadium Development Limited**

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Figure 5 – Map Showing Location of Birds Recorded Breeding, Breeding Bird Surveys, 2017



Figure 6 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Breeding Bird Survey, 27 April 2017



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 200m buffer

BoCC Red Listed species

- HG - Herring Gull

BoCC Amber listed species

- LB - Lesser Black-backed Gull
- MA - Mallard
- OC - Oystercatcher

0 25 50 100 Metres



Map Showing Schedule 1, SPA and Notable
Birds Recorded During Breeding Bird Survey,
27 April 2017

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:3,000	Project No: A100795	Drawing No: Figure 6	Revision: A
Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba	

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Figure 7 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Breeding Bird Survey, 11 May 2017



Figure 8 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Breeding Bird Survey, 09 June 2017



Figure 9 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Breeding Bird Survey, 23 June 2017



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 200m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull

BoCC Amber Listed species

- LB - Lesser Black-backed Gull
- OC - Oystercatcher
- SU - Shelduck
- CN - Common Tern

- Flight line

0 25 50 100 Metres



Map Showing Schedule 1, SPA and Notable
Birds Recorded During Breeding Bird Survey,
23 June 2017

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:3,000	Project No: A100795	Drawing No: Figure 9	Revision: A
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Figure 10 – Map Showing Location of Birds Recorded Breeding, Breeding Bird Surveys, 2019



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 200m buffer

BoCC Red Listed species

- L - Lapwing
- LI - Linnet

BoCC Amber Listed species

- CN - Common Tern
- LB - Lesser Black-backed Gull
- OC - Oystercatcher

Non-native species

- CG - Canada Goose
- FP - Feral Pigeon

0 25 50 100 Metres



Map Showing Location of Birds Recorded
Breeding, Breeding Bird Surveys, 2019

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:3,000	Project No: A100795	Drawing No: Figure 10	Revision: A
Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba	

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Figure 11 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Breeding Bird Survey, 26 March 2019

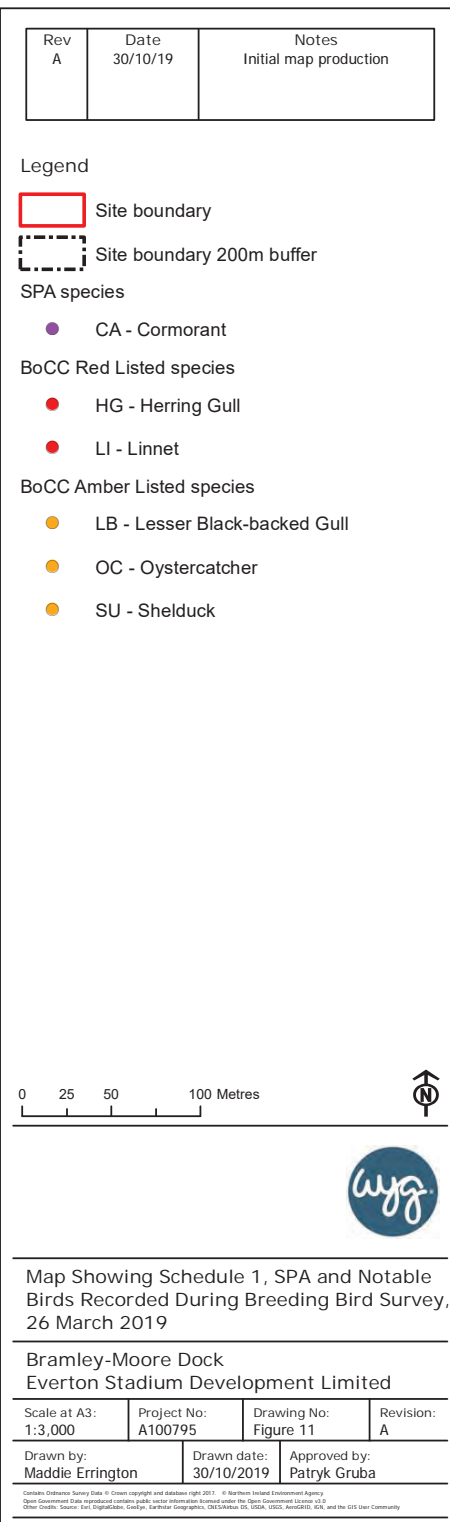




Figure 12 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Breeding Bird Survey, 15 April 2019



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 200m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- RP - Ringed Plover

BoCC Amber Listed species

- LB - Lesser Black-backed Gull
- OC - Oystercatcher
- SU - Shelduck

0 25 50 100 Metres



Map Showing Schedule 1, SPA and Notable
Birds Recorded During Breeding Bird Survey,
15 April 2019

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:3,000	Project No: A100795	Drawing No: Figure 12	Revision: A
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Figure 13 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Breeding Bird Survey, 20 May 2019

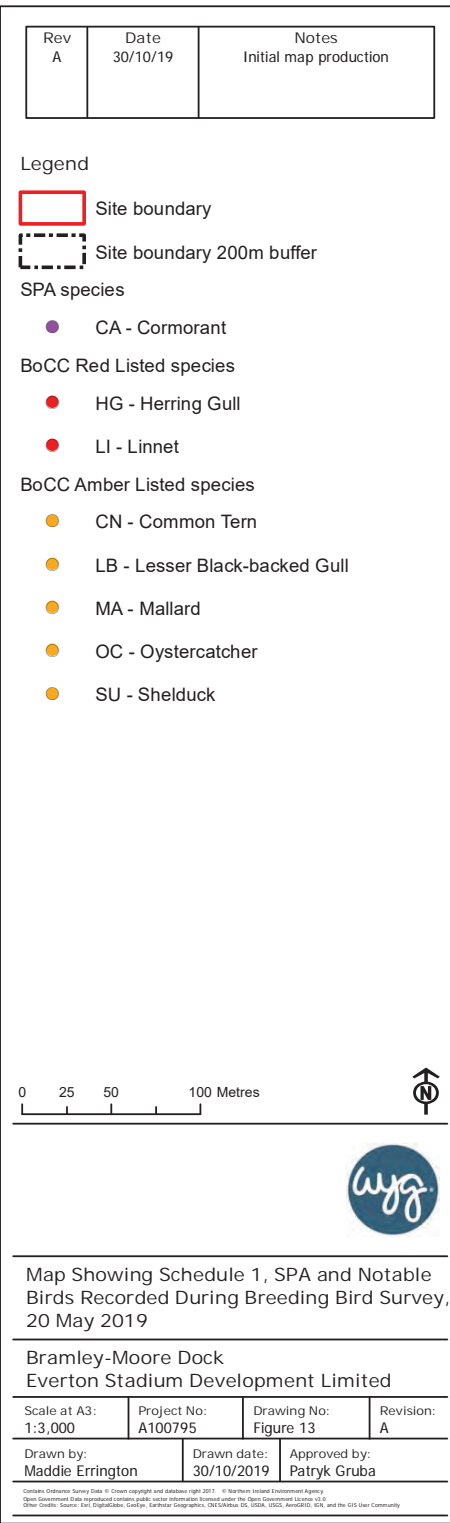




Figure 14 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Breeding Bird Survey, 26 June 2019



Figure 15 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – Low Tide Survey, 23 November 2016



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

W&CA Schedule 1 species

- PE - Peregrine

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet

BoCC Amber Listed species

- BH - Black-headed Gull
- CM - Common Gull
- GB - Great Black-backed Gull
- LB - Lesser Black-backed Gull
- TT - Turnstone

Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable
Birds Recorded During Wintering Bird Survey
– Low Tide Survey, 23 November 2016

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 15	Revision: A
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Figure 16 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 30 November 2016



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

W&CA Schedule 1 species

- KF - Kingfisher

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet

BoCC Amber Listed species

- BH - Black-headed Gull
- CM - Common Gull
- GB - Great Black-backed Gull
- LB - Lesser Black-backed Gull
- MS - Mute Swan

- Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable
Birds Recorded During Wintering Bird Survey
– High Tide Survey, 30 November 2016

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 16	Revision: A
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Figure 17 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – Low Tide Survey, 8 December 2016



Figure 18 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 16 December 2016



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

W&CA Schedule 1 species

- KF - Kingfisher
- PE - Peregrine

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet

BoCC Amber Listed species

- BH - Black-headed Gull
- LB - Lesser Black-backed Gull
- OC - Oystercatcher
- SU - Shelduck

Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 16 December 2016

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 18	Revision: A
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Figure 19 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – Low Tide Survey, 20 January 2017



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet

BoCC Amber Listed species

- BH - Black-headed Gull
- CM - Common Gull
- GB - Great Black-backed Gull
- LB - Lesser Black-backed Gull

Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – Low Tide Survey, 20 January 2017

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 19	Revision: A
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Figure 20 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 30 January 2017

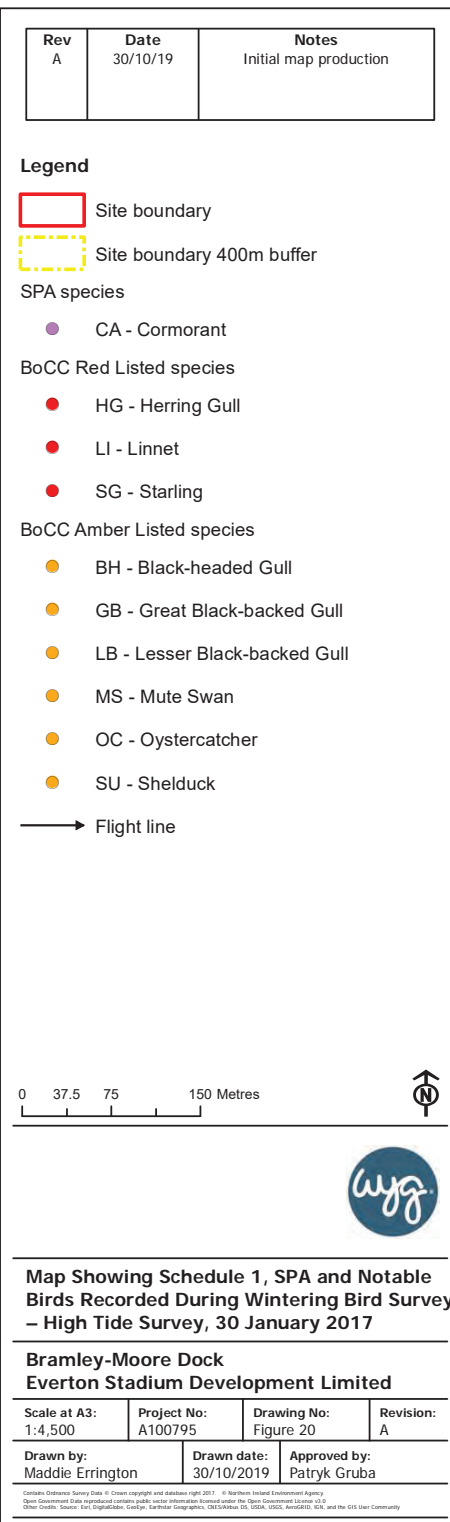




Figure 21 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – Low Tide Survey, 20 February 2017



Figure 22 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 27 February 2017



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet
- SG - Starling

BoCC Amber Listed species

- BH - Black-headed Gull
- CM - Common Gull
- GB - Great Black-backed Gull
- LB - Lesser Black-backed Gull
- MS - Mute Swan
- OC - Oystercatcher
- SU - Shelduck

Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 27 February 2017

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 22	Revision: A
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Figure 23 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 12 November 2018



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

W&CA Schedule 1 species

- PE - Peregrine

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet
- SG - Starling

BoCC Amber Listed species

- BH - Black-headed Gull
- GB - Great Black-backed Gull
- LB - Lesser Black-backed Gull
- MS - Mute Swan
- OC - Oystercatcher

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable
Birds Recorded During Wintering Bird Survey
– High Tide Survey, 12 November 2018

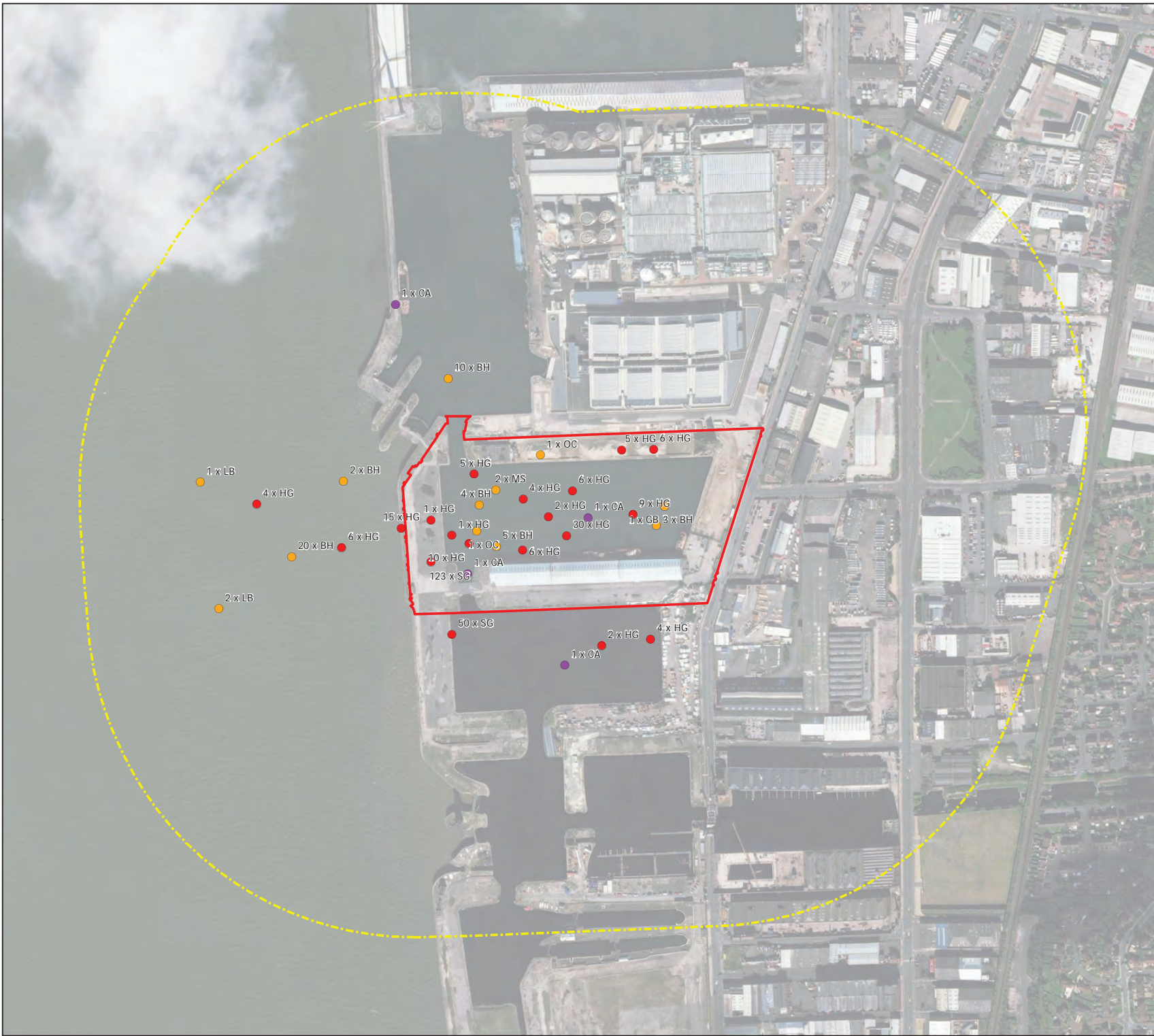
Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 23	Revision: A
Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba	

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Figure 24 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – Low Tide Survey, 29 November 2018



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- SG - Starling

BoCC Amber Listed species

- BH - Black-headed Gull
- GB - Great Black-backed Gull
- LB - Lesser Black-backed Gull
- MS - Mute Swan
- OC - Oystercatcher

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable
Birds Recorded During Wintering Bird Survey
– Low Tide Survey, 29 November 2018

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 24	Revision: A
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Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba
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Figure 25 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 12 December 2018



Figure 26 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – Low Tide Survey, 17 December 2018



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

W&CA Schedule 1 species

- KF - Kingfisher

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet
- SG - Starling

BoCC Amber Listed species

- BH - Black-headed Gull
- GB - Great Black-backed Gull
- LB - Lesser Black-backed Gull
- MP - Meadow Pipit
- OC - Oystercatcher

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – Low Tide Survey, 17 December 2018

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 26	Revision: A
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Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba
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Figure 27 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – Low Tide Survey, 9 January 2019



Figure 28 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 16 January 2019



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull

BoCC Amber Listed species

- BH - Black-headed Gull
- CM - Common Gull
- LB - Lesser Black-backed Gull
- SU - Shelduck

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 16 January 2019

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 28	Revision: A
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Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba
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Figure 29 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – High Tide Survey, 11 February 2019



Figure 30 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Wintering Bird Survey – Low Tide Survey, 13 February 2019



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet
- SG - Starling

BoCC Amber Listed species

- BH - Black-headed Gull
- D. - Dunnock
- LB - Lesser Black-backed Gull
- OC - Oystercatcher
- SU - Shelduck

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable
Birds Recorded During Wintering Bird Survey
– Low Tide Survey, 13 February 2019

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 30	Revision: A
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Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba
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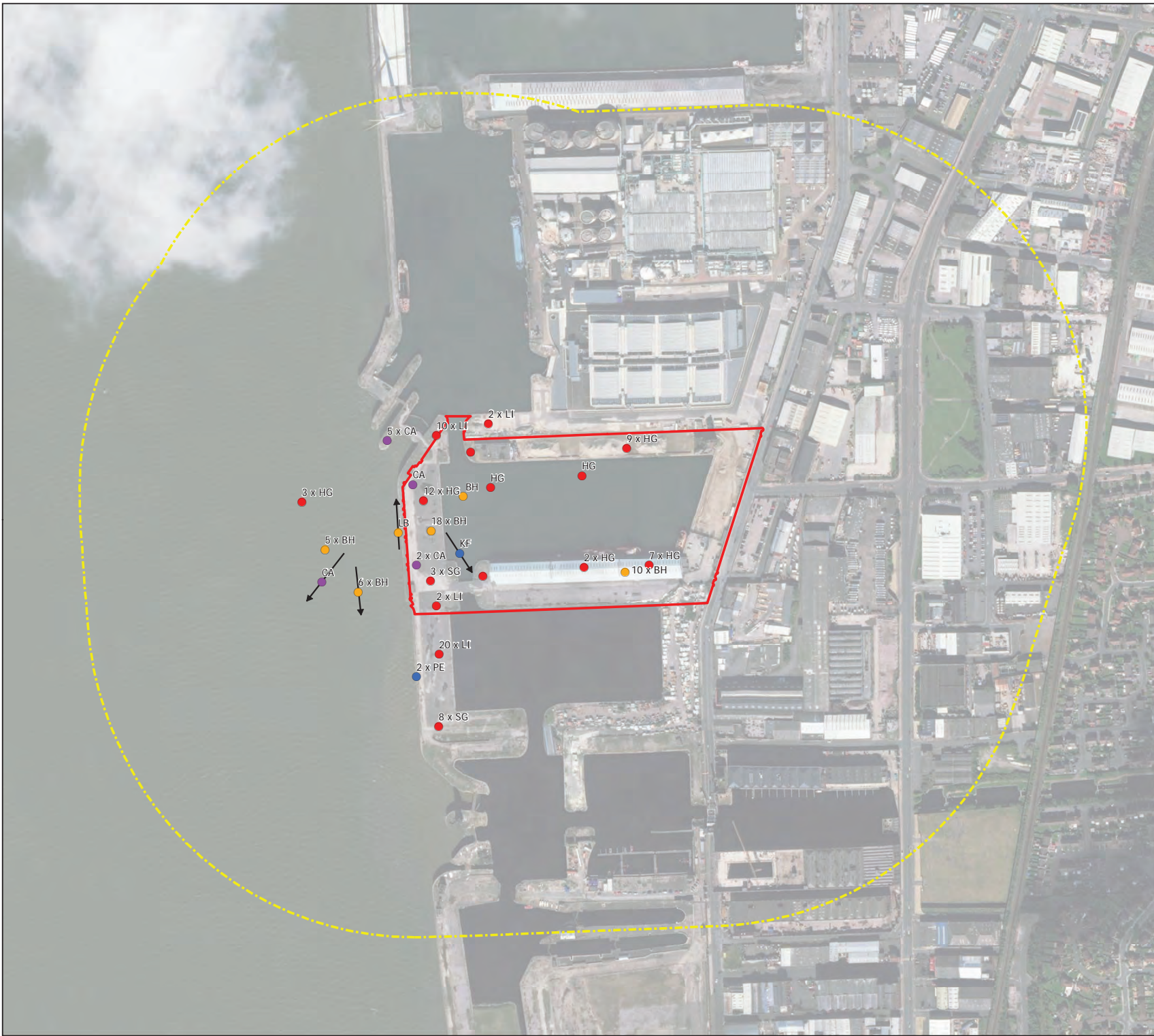
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Figure 31 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – High Tide Survey, 22 September 2017



Figure 32 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – Low Tide Survey, 28 September 2017



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

W&CA Schedule 1 species

- KF - Kingfisher
- PE - Peregrine

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet
- SG - Starling

BoCC Amber Listed species

- BH - Black-headed Gull
- LB - Lesser-black Backed Gull

Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – Low Tide Survey, 28 September 2017

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 32	Revision: A
Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba	

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Figure 33 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – High Tide Survey, 18 October 2017



Figure 34 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – Low Tide Survey, 27 October 2017



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- LI - Linnet
- HG - Herring Gull

BoCC Amber Listed species

- BH - Black-headed Gull
- CM - Common Gull
- D. - Dunnock
- LB - Lesser-black Backed Gull
- MP - Meadow Pipit

Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – Low Tide Survey, 27 October 2017

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 34	Revision: A
Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba	

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Figure 35 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – Low Tide Survey, 9 March 2018



Figure 36 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – High Tide Survey, 20 March 2018



Figure 37 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – High Tide Survey, 19 April 2018



Figure 38 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – Low Tide Survey, 23 April 2018



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- L - Lapwing
- LI - Linnet

BoCC Amber Listed Species

- LB - Lesser Black-backed Gull
- OC - Oystercatcher
- SU - Shelduck

- Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – Low Tide Survey, 23 April 2018

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 38	Revision: A
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Figure 39 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – High Tide Survey, 1 October 2019



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet

BoCC Amber Listed species

- BH - Black-headed Gull
- GB - Great Black-backed Gull
- LB - Lesser Black-backed Gull
- MS - Mute Swan
- OC - Oystercatcher

- Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable
Birds Recorded During Passage Bird Survey
– High Tide Survey, 1 October 2019

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3:	Project No:	Drawing No:	Revision:
1:4,500	A100795	Figure 39	A

Drawn by:	Drawn date:	Approved by:
Maddie Errington	30/10/2019	Patryk Gruba

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Figure 40 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – Low Tide Survey, 3 October 2019



Figure 41 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – Low Tide Survey, 22 October 2019



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer
- W&CA Schedule 1 species
 - KF - Kingfisher
- SPA species
 - CA - Cormorant
- BoCC Red Listed species
 - HG - Herring Gull
 - LI - Linnet
 - SG - Starling
- BoCC Amber Listed species
 - BH - Black-headed Gull
 - K. - Kestrel
 - OC - Oystercatcher
- Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – Low Tide Survey, 22 October 2019

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 41	Revision: A
Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba	

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Figure 42 – Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – High Tide Survey, 29 October 2019



Rev	Date	Notes
A	30/10/19	Initial map production

Legend

- Site boundary
- Site boundary 400m buffer

SPA species

- CA - Cormorant

BoCC Red Listed species

- HG - Herring Gull
- LI - Linnet

BoCC Amber Listed species

- BH - Black-headed Gull
- LB - Lesser Black-backed Gull
- MS - Mute Swan
- MP - Meadow Pipit
- OC - Oystercatcher

- Flight line

0 37.5 75 150 Metres



Map Showing Schedule 1, SPA and Notable Birds Recorded During Passage Bird Survey – High Tide Survey, 29 October 2019

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:4,500	Project No: A100795	Drawing No: Figure 42	Revision: A
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Drawn by: Maddie Errington	Drawn date: 30/10/2019	Approved by: Patrik Gruba
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APPENDICES

Appendix A – Report Conditions



REPORT CONDITIONS

This Report has been prepared using reasonable skill and care for the sole benefit of Everton Football Club Company Limited ("the Client") for the proposed uses stated in the report by WYG Environment Planning Transport Limited ("WYG"). WYG exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

No liability is accepted or warranty given for; unconfirmed data, third party documents and information supplied to WYG or for the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report. WYG does not purport to provide specialist legal, tax or accounting advice.

The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.



Appendix B – Desk Study Data

1. Natura 2000 and Ramsar Sites

Natura 2000 and Ramsar sites within 20 km of the site are presented in **Error! Reference source not found.**. The designated features of each site are summarised below.

Table 19: Natura 2000 and Ramsar sites within 20km of the site

Designation	Site Name	Distance & Direction	Area (ha)
Marine SPA	Liverpool Bay	Adjacent to the western boundary of the site	252,757.73
SPA/ Marine SPA	Mersey Narrows and North Wirral Foreshore	1.22km W	2,078.36
Ramsar Site	Mersey Narrows and North Wirral Foreshore	1.22km W	2,078.36
SAC	Dee Estuary	2.73km NW	8,282.47
SPA/ Marine SPA	Ribble and Alt Estuaries	4.52km NW	12,499.92
Ramsar Site	Ribble and Alt Estuaries	4.52km NW	13,491.36
SAC	Sefton Coast	5.13km NW	4,591.59
SPA/ Marine SPA	Mersey Estuary	5.45km S	5,023.35
Ramsar Site	Mersey Estuary	5.45km S	5,023.35
SPA/ Marine SPA	The Dee Estuary	13.57km SW	14,294.95
Ramsar Site	The Dee Estuary	13.57km SW	14,303.02

Liverpool Bay Marine SPA

Liverpool bay is a 100% marine site located between Fleetwood (Lancashire) to the north and the east coast of Anglesey (North Wales) to the south-west, and covers an area of 252,757.73ha, including the recent approved extension.

Liverpool Bay / Bae Lerpwl Special Protection Area was first designated (or 'classified') in 2010 to protect red-throated diver *Gavia stellata* and common scoter *Melanitta nigra* and a significant waterbird assemblage in the non-breeding season. The recently approved extension to the SPA includes additional marine areas to the north, past Fleetwood, to the west, further into the Irish Sea and to the south-east into the Mersey Estuary, as far as the existing Mersey Estuary SPA. This extension is designed to protect and breeding areas for common tern *Sterna hirundo* (breeding in the Mersey Narrows and North Wirral Foreshore SPA and Dee Estuary SPA) and little tern *Sternula albifrons* (breeding in the Dee Estuary SPA), also foraging areas for the non-breeding population of little gull *Hydrocoloeus minutus*.



This site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting 1% or more of the British populations of the following species listed on Annex I of the Directive:

Non-breeding;

- Red-throated diver - 1,171 individuals, representing 6.89% of the GB population (6 year peak mean 2004/5 - 2010/11).
- Little gull – 319 individuals (6 year peak mean 2004/5 – 2010/11).

Breeding;

- Common tern – 360 individuals, representing 1.8% of the British population (5 year peak mean 2011 – 2015).
- Little tern – 260 individuals, representing 2.9% of the British population (5 year peak mean 2010 – 2014).

This site also qualifies under **Article 4.2** of the Directive (2009/147/EC) as it is used regularly by 1% or more of the biogeographical populations of the following migratory species:

Non-breeding;

Common scoter (Western Siberia/Western & Northern Europe/North-western Africa) 56,679 individuals representing 10.31% of the biogeographical population (7 year peak mean 2004/05 - 2010/11).

Assemblage qualification: A seabird assemblage of international importance

The area qualifies under SPA selection stage 1.3 by regularly supporting at least 20,000 waterbirds in any season:

In the non-breeding season, the site regularly supports at least 69,687 individual waterbirds (7 year peak mean 2004/05 – 2010/11), including red-breasted merganser *Mergus serrator* and great cormorant *Phalacrocorax carbo*.

Mersey Narrows and North Wirral Foreshore SPA/Marine SPA

Mersey Narrows and North Wirral Foreshore SPA/Marine SPA comprises extensive intertidal mud and sandflats, distinct areas of rocky shore and small areas of saltmarsh. The site is located between Seacombe, on the west bank of the River Mersey and Hoylake, to the west, where it adjoins The Dee Estuary SPA.

The site is listed as 98.2% marine habitat (JNCC 2016a); predominantly intertidal sandflats with extensive sea defences including breakwaters, groynes and hard embankments. There are areas of natural rocky shore at Red Rocks, on the Egremont foreshore and Perch Rock. Small areas of saltmarsh are found at the southern edge of the site. Seaforth Nature Reserve is made up of a saltwater lagoon, saltmarsh, sand and mud flats and a large freshwater lagoon.



The large areas of intertidal sand and mudflats are submerged at high tide and exposed at low tide. They provide an important feeding habitat for birds. Seaforth Nature Reserve is primarily a high tide roost site, as well as a nesting site for terns and feeding site for little gull. Outside of the SPA boundary, birds may roost at the high tide mark near Hightown as well as on nearby fields.

This site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

Over winter;

- Bar-tailed godwit *Limosa lapponica* - 3,344 individuals comprising 6.6% of the GB population 5-year peak mean (2004/05 - 2008/09).

On passage;

- Little gull *Hydrocoloeus minutus* - 213 individuals (no national population estimate).
- Common tern - 1,475 individuals (no national population estimate).

During the breeding season;

- Common tern – 177 pairs comprising 1.8% of the GB population (2005-2009)

This site qualifies under **Article 4.2** of the Directive (2009/147/EC) by supporting populations of European importance of the following migratory species:

Over winter;

- Knot *Calidris canutus islandica* - 10,655 individuals comprising 2.4% of the W Europe/ Waddensee /Britain/Ireland population 5 year peak mean (2004/05 - 2008/09).

This site also qualifies under **Article 4.2** of the Directive (2009/147/EC) by supporting an internationally important assemblage of birds. In the non-breeding season the area regularly supports 32,366 individual waterbirds including:

- bar-tailed godwit and knot as well as nationally important numbers of cormorant *Phalacrocorax carbo*, grey plover *Pluvialis squatarola*, sanderling *Calidris alba*, dunlin *Calidris alpina* and redshank *Tringa totanus* and over 2,000 oystercatcher *Haematopus ostralegus*.

Mersey Narrows and North Wirral Foreshore Ramsar Site

Mersey Narrows and North Wirral Foreshore Ramsar Site occupies the same area, and therefore comprises the same habitats as the Mersey Narrows and North Wirral Foreshore SPA and Marine SPA.

The site qualifies for selection under Ramsar Criteria 4, 5 and 6 (JNCC, 2013):

The site qualifies under **Criterion 4** because it 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.



The site qualifies under **Criterion 5** because it 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.

The site qualifies under **Criterion 6** because it regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season: During the winters 2004/05 - 2008/09, the Mersey Narrows and North Wirral Foreshore Ramsar site supported 2.4% of the islandica subspecies, W Europe/Waddensea/Britain/Ireland (non-breeding) population of knot and 2.8% of the lapponica subspecies W Europe/NW Africa (non-breeding) population of bar-tailed godwits.

Dee Estuary SAC

Dee Estuary SAC extends from Bootle, on west bank of the Mersey estuary, to Prestatyn, west of the Dee Estuary. The site therefore spans the border between England and Wales.

The site is designated for a range of habitats and species listed under Annexes I and II respectively, of the EU Habitats Directive.

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

- 1140 Mudflats and sandflats not covered by seawater at low tide.
- 1310 Salicornia and other annuals colonizing mud and sand.
- 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae).

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

- 1130 Estuaries.
- 1210 Annual vegetation of drift lines.
- 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts.
- 2110 Embryonic shifting dunes.
- 2120 Shifting dunes along the shoreline with Ammophila arenaria ("white dunes").
- 2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes").
- 2190 Humid dune slacks.

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

Not applicable.

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

- 1095 Sea lamprey *Petromyzon marinus*.
- 1099 River lamprey *Lampetra fluviatilis*.
- 1395 Petalwort *Petalophyllum ralfsii*.



Ribble and Alt Estuaries SPA/Marine SPA

The Ribble and Alt Estuaries SPA lies on the coast of Lancashire and Merseyside. The site extends from Lytham Saint Anne's in Lancashire to Seaforth on Merseyside and comprises 12,540.02ha.

The site is listed as 76.5% marine habitat (JNCC 2016b); comprising extensive sand- and mud-flats and, particularly in the Ribble Estuary, large areas of saltmarsh. There are also areas of coastal grazing marsh located behind the sea embankments. The intertidal flats are rich in invertebrates, on which waders and some of the wildfowl feed. The highest densities of feeding birds are on the muddier substrates of the Ribble, though sandy shores throughout are also used. The saltmarshes and coastal grazing marshes support high densities of grazing and seed-eating wildfowl and these, together with the intertidal sand- and mud-flats, are used as high-tide roosts.

Important populations of waterbirds occur in winter, including swans, geese, ducks and waders. There is considerable interchange in the movements of wintering birds between this site and Morecambe Bay, the Mersey Estuary, the Dee Estuary and Martin Mere. 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 larger expanses of saltmarsh and areas of coastal grazing marsh support breeding birds during the summer, including large concentrations of gulls and terns. These seabirds feed both offshore and inland, outside the SPA. Several species of waterbirds (notably Pink-footed Goose *Anser brachyrhynchus*) utilise feeding areas on agricultural land outside the SPA

This site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season;

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

Over winter;

- Bewick's Swan *Cygnus columbianus bewickii*, 276 individuals representing 3.9% of the wintering population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Whooper Swan *Cygnus cygnus*, 182 individuals representing 3.3% of the wintering population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Bar-tailed Godwit, 20,086 individuals representing 37.9% of the wintering population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Golden Plover *Pluvialis apricaria*, 3,598 individuals representing 1.4% of the wintering population in Great Britain (5 year peak mean 1993/94 - 1997/98).

This site also qualifies under **Article 4.2** of the Directive (2009/147/EC) by supporting populations of European importance of the following migratory species:



During the breeding season;

- Lesser Black-backed Gull *Larus fuscus*, 1,800 pairs representing 1.5% of the breeding Western Europe/Mediterranean/Western Africa population (Count, as at 1993).
- Black-headed gull *Chroicocephalus ridibundus*, 11,900 pairs representing 7.1% of the population in Great Britain (Count as at 1996).

On passage;

- Ringed Plover *Charadrius hiaticula*, 1,657 individuals representing at least 3.3% of the Europe/Northern Africa - wintering population (5 year peak mean May 1993 - 1997).
- Sanderling *Calidris alba*, 6,535 individuals representing at least 6.5% of the Eastern Atlantic/Western & Southern Africa wintering population (5 year peak mean May 1993 - 1997).
- Whimbrel *Numenius phaeopus*, 2046 individuals, representing 13.9% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Redshank *Tringa tetanus*, 3,247 individuals, representing 2.2% of the Eastern Atlantic wintering population (5 year peak mean 1993 - 1997).

Over winter;

- Pintail *Anas acuta*, 2,731 individuals, representing 4.6% of the wintering North-Western Europe population (5 year peak mean 1993/94 - 1997/98).
- Teal *Anas crecca*, 7,157 individuals representing 1.8% of the wintering North-western Europe population (5 year peak mean 1993/94 - 1997/98).
- Wigeon *Anas penelope*, 85,259 individuals representing 6.8% of the wintering Western Siberia/North-western/North-eastern Europe population (5 year peak mean 1993/94 - 1997/98).
- Pink-footed Goose, 11,764 individuals representing 5.2% of the wintering Eastern Greenland/Iceland/UK population (5 year peak mean 1993/94 - 1997/98).
- Scaup *Aythya marila*, 114 individuals, representing 1.0% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Sanderling, 2,882 individuals representing 2.9% of the wintering Eastern Atlantic/Western & Southern Africa - wintering population (5 year peak mean 1993/94 - 1997/98).
- Dunlin, 39,376 individuals representing 2.8% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1993/94 - 1997/98).
- Knot, 68,922 individuals representing 19.7% of the wintering North-Eastern Canada/Greenland/Iceland/North-Western Europe population (5 year peak mean 1993/94 - 1997/98).



- Oystercatcher, 18,535 individuals representing 2.1% of the wintering Europe & Northern/Western Africa population (5 year peak mean 1993/94 - 1997/98).
- Black-tailed Godwit *Limosa limosa islandica*, 1,273 individuals representing 1.8% of the wintering Iceland - breeding population (5 year peak mean 1993/94 - 1997/98).
- Common scoter, 746 individuals representing 2.7% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Curlew, 2046 individuals representing 1.7% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Cormorant *Phalacrocorax carbo*, 311 individuals representing 2.4% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).
- Grey Plover *Pluvialis squatarola*, 9,355 individuals representing at least 6.2% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1993/94 - 1997/98).
- Shelduck *Tadorna tadorna*, 4,925 individuals representing at least 1.6% of the wintering North-Western Europe population (5 year peak mean 1993/94 - 1997/98).
- Redshank, 2,505 individuals representing at least 1.7% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1993/94 - 1997/98).
- Lapwing *Vanellus vanellus*, 16,496 individuals representing 0.8% of the population in Great Britain (5 year peak mean 1993/94 - 1997/98).

Assemblage qualification: A seabird assemblage 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 (5 year peak mean 1991/92-1995/96) including: Black-headed Gull *Larus ridibundus*, lesser black-backed Gull *Larus fuscus*, common tern .

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 323,861 individual waterfowl (5 year peak mean 1991/92-1995/96) including: grey plover, whooper swan, golden plover, bar-tailed godwit, pink-footed goose shelduck, wigeon, teal, Bewick's swan, oystercatcher, curlew, knot, sanderling, dunlin, black-tailed godwit, redshank, cormorant, common scoter, lapwing and pintail.



Ribble and Alt Estuaries Ramsar Site

Ribble and Alt Estuaries Ramsar Site overlaps with the majority of the Ribble and Alt Estuaries SPA/Marine SPA, but includes the Birkdale and Ainsdale sand dunes, north of Formby, which are excluded from the SPA.

The site qualifies for selection under Ramsar Criteria 2, 5 and 6 (JNCC 2004a):

The site qualifies under **Criterion 2** because it supports up to 40% of the Great Britain population of natterjack toads *Epidalea calamita*.

The site qualifies under **Criterion 5** a waterfowl assemblage of international importance: 222,038 waterfowl (5 year peak mean 1998/99-2002/2003).

The site qualifies under **Criterion 6** because it regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season:

Species with peak counts during the breeding season:

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

Species with peak counts in spring/autumn:

- Black-tailed godwit, *Limosa limosa islandica*, Iceland/W Europe, 3,323 individuals, representing an average of 9.4% of the population (5 year peak mean 1998/9- 2002/3).
- Common redshank, 4,465 individuals, representing an average of 1.7% of the population (5 year peak mean 1998/9-2002/3).
- Dunlin, *Calidris alpina alpina*, W Siberia/W Europe, 38,196 individuals, representing an average of 2.8% of the population (5 year peak mean 1998/9-2002/3 - spring peak).
- Grey plover, E Atlantic/W Africa – wintering, 11,021 individuals, representing an average of 4.4% of the population (5 year peak mean 1998/9-2002/3 - spring peak).
- Red knot, *Calidris canutus islandica*, W & Southern Africa - wintering, 42,692 individuals, representing an average of 9.4% of the population (5 year peak mean 1998/9-2002/3).
- Ringed plover, Europe/Northwest Africa, 3,761 individuals, representing an average of 5.1% of the population (5 year peak mean 1998/9-2002/3 - spring peak).
- Sanderling Eastern Atlantic 7,401 individuals, representing an average of 6% of the population (5 year peak mean 1998/9- 2002/3 - spring peak).
- Lesser black-backed gull, 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:



- Bar-tailed godwit, *Limosa lapponica lapponica*, W Palearctic 13,935 individuals, representing an average of 11.6% of the population (5 year peak mean 1998/9-2002/3).
- Oystercatcher, *Haematopus ostralegus ostralegus*, Europe & NW Africa -wintering 18,926 individuals, representing an average of 1.8% of the population (5 year peak mean 1998/9-2002/3).
- Shelduck, NW Europe, 2,944 individuals, representing an average of 3.7% of the GB population (5 year peak mean 1998/9-2002/3).
- Teal , NW Europe 5,107 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9- 2002/3).
- Wigeon , NW Europe 69,841 individuals, representing an average of 4.6% of the population (5 year peak mean 1998/9-2002/3).
- Pintail , NW Europe 1,497 individuals, representing an average of 2.4% of the population (5 year peak mean 1998/9-2002/3)
- Pink-footed goose , Greenland, Iceland/UK, 6,552 individuals, representing an average of 2.7% of the population (5 year peak mean 1998/9-2002/3).
- Bewick's swan , NW Europe 230 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9- 2002/3).
- Whooper swan Iceland/UK/Ireland 211 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3).

Sefton Coast SAC

Sefton Coast SAC extends along the coast from Southport to Crosby and comprises 4591.59ha. The site is designated for a range of habitats and species listed under Annexes I and II respectively, of the EU Habitats Directive.

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

- 2110 Embryonic shifting dunes.
- 2120 Shifting dunes along the shoreline with marram grass *Ammophila arenaria* ("white dunes").
- 2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes").
- 2170 Dunes with creeping willow *Salix repens ssp. argentea* (Salicion arenariae).
- 2190 Humid dune slacks.

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

- 2150 Atlantic decalcified fixed dunes (Calluno-Ulicetea)

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

- 1395 Petalwort *Petalophyllum ralfsii*.



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

1166 Great crested newt *Triturus cristatus*.

Mersey Estuary SPA/Marine SPA

The Mersey Estuary SPA occupies an area from Runcorn Gap, to the east, to just south of the Tranmere Beach Oil Terminal. The site is listed as 83.4% marine habitat (JNCC 2016c) comprising 5,023.35ha of large areas of saltmarsh and extensive intertidal sand- and mud-flats, with limited areas of brackish marsh, rocky shoreline and boulder clay cliffs, within a rural and industrial environment. The intertidal flats and saltmarshes provide feeding and roosting sites for large populations of waterbirds. During the winter, the site is of major importance for ducks and waders. The site is also important during the spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain.

This site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

Over winter;

- Golden Plover, 3,040 individuals representing 1.2% of the wintering population in Great Britain (5 year peak mean 1993/4 - 1997/8).

This site also qualifies under **Article 4.2** of the Directive (2009/147/EC) by supporting populations of European importance of the following migratory species:

On passage;

- Redshank, 4,513 individuals representing at least 3.8% of the Eastern Atlantic - wintering population (5 year peak mean, 1993 - 1997).
- Ringed Plover, 505 individuals representing at least 1.7% of the Europe/Northern Africa - wintering population in Great Britain (5-year peak mean 1993 - 1997).

Over winter;

- Pintail, 1,169 individuals representing 1.9% of the wintering North-western Europe population (5 year peak mean 1993/4 - 1997/8).
- Teal, 11,723 individuals representing 2.9% of the wintering North-western Europe population (5 year peak mean 1993/4 - 1997/8).
- Wigeon, 11,886 individuals representing 4.2% of the wintering Western Siberia/North-western/North-eastern Europe population in Great Britain (5 year peak mean 1993/4 - 1997/8).
- Dunlin, 48,789 individuals representing 3.6% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1993/4 - 1997/8).



- Black-tailed godwit, 976 individuals representing 1.6% of the Icelandic breeding population (5-year peak mean, 1993/94 - 1997/98).
- Curlew, 1,300 individuals, representing 1.1% of the wintering population in Great Britain (5 year peak mean 1993/4 - 1997/8).
- Grey plover 1,010 representing 2.3% of the population in Great Britain (5-year peak mean, 1993/94 - 1997/98).
- Great crested-grebe 136 individuals representing 1.4% of the population in Great Britain (5-year peak mean, 1993/94 - 1997/98).
- Shelduck, 6,746 individuals representing 2.2% of the wintering North-western Europe population (5 year peak mean 1993/4 - 1997/8).
- Redshank, 4,993 individuals representing at least 2.8% of the Eastern Atlantic - wintering population (5 year peak mean 1993/4 - 1997/8).
- Lapwing, 10,544 individuals representing 0.7% of the population in Great Britain (5-year peak mean, 1993/94 - 1997/98)

Assemblage qualification: A wetland of international importance.

The area qualifies under Article 4.2 of the Directive (2009/147/EC) by regularly supporting at least 20,000 waterfowl. At the time of classification, the site supported 104,599 individual waterbirds in the non-breeding season, (5 year peak mean 1993/94 - 1997/98). These include: great crested grebe, shelduck, wigeon, teal, pintail, ringed plover, golden plover, grey plover, lapwing, dunlin, black-tailed godwit, curlew and redshank.

Mersey Estuary Ramsar Site

Mersey Estuary Ramsar Site occupies the same area, and therefore comprises the same habitats, as Mersey Estuary SPA and Marine SPA.

The site qualifies for selection under Ramsar Criteria 5 and 6:

The site qualifies under **Criterion 5** because it regularly supports 20,000 or more waterbirds: During the winters 1998/99 - 2002/03, the Mersey Estuary Ramsar site supported an average peak of 89,576 individual waterbirds.

The site qualifies under **Criterion 6** because it regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season:

Species with peak counts in spring/autumn:

- Shelduck, (NW Europe), 12,676 individuals, representing an average of 4.2% of the population (5 year peak mean 1998/9-2002/3).
- Black-tailed godwit, (Iceland/W Europe), 2,011 individuals, representing an average of 5.7% of the population (5 year peak mean 1998/9-2002/3).



- Redshank , 6,651 individuals, representing an average of 2.6% of the population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

- Teal, (NW Europe), 10,613 individuals, representing an average of 2.6% of the population (5 year peak mean 1998/9-2002/3).
- Pintail, (NW Europe), 565 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9- 2002/3).
- Dunlin (W Siberia/W Europe), 48,364 individuals, representing an average of 3.6% of the population (5 year peak mean 1998/9-2002/3).

The Dee Estuary SPA/Marine SPA

The Dee Estuary SPA/Marine SPA occupies the whole of the Dee Estuary, from just north of Connah's Quay, to Prestatyn in Wales, to the north-west and Hoylake, in England, to the north-east. The site therefore spans the border between England and Wales and overlaps extensively with Dee Estuary SAC.

The site is listed as 80.9% marine habitat and comprises 14,294.95 ha of extensive areas of intertidal sand-flats, mud-flats and saltmarsh. Where agricultural land-claim has not occurred, the saltmarshes grade into transitional brackish and swamp vegetation on the upper shore. The site also includes the three sandstone islands of Hilbre with their important cliff vegetation and maritime heathland and grassland. The two shorelines of the estuary show a marked contrast between the industrialised usage of the coastal belt in Wales and residential and recreational usage in England. The site is of major importance for waterbirds. During the winter, the intertidal flats and saltmarshes provide feeding and roosting sites for large populations of ducks and waders. In summer, the site supports breeding populations of two species of terns at levels of European importance. The site is also important during migration periods, particularly for wader populations moving along the west coast of Britain.

This site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season;

- Little tern (Eastern Atlantic - breeding), 69 individuals, 2.9% of the GB breeding population (5 year peak mean 1995-1999).
- Common tern (Northern/Eastern Europe - breeding), 392 individuals, 3.2% of the population in Great Britain (5 year peak mean 1995-1999).

On passage;

- Sandwich tern *Sterna sandvicensis* (Western Europe/Western Africa), 957 individuals, 2.3% of the population in Great Britain (5 year peak mean 1995-1999).

Over winter;



- Bar-tailed godwit (Western Palearctic - wintering), 1,150 individuals, 2.2% of the GB population (5 year peak mean 1994/95-1998/99).

This site also qualifies under **Article 4.2** of the Directive (2009/147/EC) by supporting populations of European importance of the following migratory species:

On passage;

- Redshank (Eastern Atlantic - wintering), 8,795 individuals, 5.9% of the population (5 year peak mean 1994/95-1998/99).

Over winter;

- Pintail (North-western Europe), 5,407 individuals, 9.0% of the population (5 year peak mean 1994/95-1998/99).
- Teal (North-western Europe), 5,251 individuals, 1.3% of the population (5 year peak mean 1994/95-1998/99).
- Dunlin (Northern Siberia/Europe/Western Africa), 27,769 individuals, 2% of the population (5 year peak mean 1994/95-1998/99)
- Knot (North-eastern Canada/Greenland/Iceland/North-western Europe), 12,394 individuals, 3.5% of the population (5 year peak mean 1994/95-1998/99).
- Oystercatcher (Europe & Northern/Western Africa), 22,677 individuals, 2.5% of the population (5 year peak mean 1994/95-1998/99).
- Black-tailed godwit (Iceland - breeding), 1,747 individuals, 2.5% of the population (5 year peak mean 1994/95-1998/99).
- Curlew (Europe - breeding), 3,899 individuals, 1.1% of the population (5 year peak mean 1994/95-1998/99).
- Grey plover (Eastern Atlantic - wintering), 1,643 individuals, 1.1% of the population (5 year peak mean 1994/95-1998/99).
- Shelduck (North-western Europe), 7,725 individuals, 2.6% of the population (5 year peak mean 1994/95-1998/99). Redshank (Eastern Atlantic - wintering), 5,293 individuals, 3.5% of the population (5 year peak mean 1994/95-1998/99).

Assemblage qualification: A wetland of international importance.

The area qualifies under Article 4.2 of the Directive (2009/147/EC) by regularly supporting at least 20,000 waterfowl. Over winter the area regularly supports: 120,726 waterfowl (5 year peak mean 1991/92-1995/96) Including: shelduck, pintail, oystercatcher, knot, bar-tailed godwit and redshank.

The Dee Estuary Ramsar Site

The Dee Estuary Ramsar Site occupies the same area, as The Dee Estuary SPA and Marine SPA and therefore comprises the same habitats as those sites.



The site qualifies for selection under Ramsar Criteria 1, 2, 5 and 6:

The site qualifies under **Criterion 1** because it supports the following rare, or unique example of a natural or near-natural wetland types listed on Annex I of the Habitats Directive :

- H1130 Estuaries.
- H1140 Mudflats and sandflats not covered by seawater at low tide.
- H1210 Annual vegetation of drift lines.
- H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts.
- H1310 Salicornia and other annuals colonising mud and sand.
- H1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*).
- H2110 Embryonic shifting dunes H2120 Shifting dunes along the shoreline with early sand-grass ("white dunes").
- H2130 Fixed dunes with herbaceous vegetation ("grey dunes").
- H2190 Humid dune slacks.

The site qualifies under **Criterion 2** because it supports breeding colonies of natterjack toads.

The site qualifies under **Criterion 5** a waterfowl assemblage of international importance: 120,726 waterfowl in winter (5 year peak mean 1998/99-2002/2003).

The site qualifies under **Criterion 6** because it regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season:

Species with peak counts in spring/autumn:

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

Species with peak counts in winter:

- Teal (NW Europe), 5,251 individuals, representing an average of 1.3% of the population (5 year peak mean 1994/95 - 1998/99).
- Shelduck (NW Europe), 7,725 individuals, representing an average of 2.6% of the population (5 year peak mean 1994/95 - 1998/99).
- Oystercatcher (Europe & W Africa), 22,677 individuals, representing an average of 2.5% of the population (5 year peak mean 1994/95 - 1998/99).
- Curlew (Europe/NW Africa), 3,899 individuals, representing an average of 1.1% of the Europe population (5 year peak mean 1994/95 - 1998/99).
- Pintail (NW Europe), 5,407 individuals, representing an average of 9.0% of the population (5 year peak mean 1994/95 - 1998/99).
- Grey plover (E Atlantic) 1,643 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1994/95 - 1998/99).
- Knot (W Europe/ Canada) 12,394 individuals, representing an average of 3.5% of the GB population (5 year peak mean 1994/95 - 1998/99).

- Dunlin (Europe - breeding), 27,769 individuals, representing an average of 2.0% of the population (5 year peak mean 1994/95 - 1998/99).
- Black-tailed godwit (Iceland - breeding) 1,747 individuals, representing an average of 2.5% of the population (5 year peak mean 1994/95 - 1998/99).
- Bar-tailed godwit (W European - wintering) 1,150 individuals, representing an average of 1.2% of the Europe population (5 year peak mean 1994/95 - 1998/99).
- Redshank (Eastern Atlantic) 5,293 individuals representing an average of 3.5% Eastern Atlantic population (5 year peak mean 1994/95 - 1998/99).

2. Sites of Special Scientific Interest

SSSI sites within 20km of the site are presented in **Table 20**. The designated features of each site are summarised below.

Table 20: SSSIs within 20km of the Site

Site Name	Distance & Direction	Area (ha)
Mersey Narrows SSSI	1.22km W	116.34
North Wirral Foreshore SSSI	2.63km NW	1962.29
Sefton Coast SSSI	4.52km NW	4634.05
New Ferry SSSI	5.44km S	73.43
Mersey Estuary SSSI	6.20km SE	6714.51
Meols Meadows SSSI	8.72km SW	7.78
Dibbinsdale SSSI	9.55km S	55.02
Thurstaston Common SSSI	10.6km SW	72.08
The Dungeon SSSI	12.19km SW	1.09
Heswall Dales SSSI	12.28km SW	29.65
Dee Cliffs SSSI	12.94km SW	15
Dee Estuary SSSI	13.17km SW	6320.18
Red Rocks SSSI	13.27km SW	11.44
Downholland Moss SSSI	15.11km N	21.56
Hallwood Farm Marl Pit SSSI	16.44km S	0.11
Inner Marsh Farm SSSI	18.85km SW	22.59
Stanley Bank Meadow SSSI	20.00km NE	15.18

Mersey Narrows SSSI

Mersey Narrows SSSI is notified for its large areas of intertidal sand and mudflats, which support internationally important populations of turnstone *Arenaria interpres*, redshank and nationally



important populations of cormorant. The site underpins part of Mersey Narrows and North Wirral Foreshore SPA/Marine SPA and Ramsar Site.

Notified Features

- Aggregations of non-breeding birds – cormorant;
- Aggregations of non-breeding birds – redshank;
- Aggregations of non-breeding birds – turnstone;
- Isolated saline lagoons
- Moderately exposed sandy shores (with polychaetes and bivalves);
- Sheltered muddy shores (including estuarine muds); and
- SM9 – Annual sea-blite *Suaeda maritima* saltmarsh.

North Wirral Foreshore SSSI

North Wirral Foreshore is located between the outer Dee and Mersey Estuaries. This site is an area of intertidal sand and mudflats and embryonic saltmarsh which is of considerable importance as a feeding and roosting site for passage and wintering flocks of waders, wildfowl, terns and gulls. The site underpins part of Mersey Narrows and North Wirral Foreshore SPA/Marine SPA and Ramsar Site and also part of the Dee Estuary SAC.

Notified Features

- Aggregations of non-breeding birds - bar-tailed godwit;
- Aggregations of non-breeding birds – dunlin;
- Aggregations of non-breeding birds – knot;
- Aggregations of non-breeding birds – turnstone;
- Sheltered muddy shores (including estuarine muds);
- SM10 - Transitional low marsh vegetation with common saltmarsh grass *Puccinellia maritima*, annual glasswort *Salicornia* species and annual sea-blite;
- SM6 – Common cord grass *Spartina anglica* saltmarsh; and
- Wave exposed sandy shores (with burrowing crustaceans and polychaetes).

Sefton Coast SSSI

Sefton Coast SSSI extends for over 20km between Southport and Crosby. The site underpins all of the Sefton Coast SAC and part of the Ribble and Alt Estuaries SPA/Marine SPA and Ramsar Site. The site also includes Ainsdale Sand Dunes National Nature Reserve (NNR) and Cabin Hill NNR.

The site is of special interest for intertidal mud and sandflats, embryonic shifting dunes, mobile dunes, dunes with creeping willow *Salix arenaria*, humid dune slacks, fixed dunes, dune grasslands and dune heath. Small areas of saltmarsh are also present. Its assemblages of vascular and non-vascular plants, in particular the nationally rare grey hair grass *Corynephorus canescens*, nationally scarce liverwort *Petalophyllum ralfsii* and nationally rare moss *Bryum neodamense*, are also of special interest.

The site is of special interest for its populations of internationally important wintering waterfowl and its nationally and, in some cases, internationally important populations of individual waders. Its populations of sand lizard *Lacerta agilis*, natterjack toad and great crested newt are also of special interest, along with the populations of the Red Data Book species, sandhill rustic moth *Luperina nickerlii gueneei*.



The Sefton Coast is also of special interest for coastal geomorphology, in particular for the large, mobile dune system and the multiple sand bars that occur on the foreshore. Relatively stable bar features occur in the intertidal zone and many different bedforms are represented on the foreshore.

Notified Features

- Aggregations of non-breeding birds - bar-tailed godwit;
- Aggregations of non-breeding birds – dunlin;
- Aggregations of non-breeding birds - grey plover;
- Aggregations of non-breeding birds – knot;
- Aggregations of non-breeding birds – oystercatcher;
- Aggregations of non-breeding birds - ringed plover;
- Aggregations of non-breeding birds – sanderling;
- Great crested newt;
- H1 *Calluna vulgaris* – *Festuca ovina* heath;
- H11 - *Calluna vulgaris* - *Carex arenaria* heath;
- H9 - *Calluna vulgaris* - *Deschampsia flexuosa* heath;
- IA - Coastal geomorphology;
- Littoral sediment;
- Natterjack toad;
- Population of RDB moss - long-leaved thread-moss *Bryum neodamense*;
- Population of Schedule 8 liverwort - petalwort *Petalophyllum ralfsii*;
- Sand lizard;
- Sandhill rustic moth;
- SD10 - *Carex arenaria* dune community;
- SD11 - *Carex arenaria* - *Cornicularia aculeata* dune community;
- SD12 - *Carex arenaria* - *Festuca ovina* - *Agrostis capillaris* dune grassland;
- SD13 - *Salix repens* - *Bryum pseudotriquetrum* dune-slack community;
- SD14 - *Salix repens* - *Campylum stellatum* dune-slack community;
- SD15 - *Salix repens* - *Calliergon cuspidatum* dune-slack community;
- SD16 - *Salix repens* - *Holcus lanatus* dune slack community;
- SD17 - *Potentilla anserina* - *Carex nigra* dune-slack community;
- SD2 - *Honkenya peploides* - *Cakile maritima* strandline community;
- SD3 - *Matricaria maritima* - *Galium aparine* strandline community;
- SD5 - *Leymus arenarius* mobile dune community;
- SD6 - *Ammophila arenaria* mobile dune community;
- SD7 - *Ammophila arenaria* - *Festuca rubra* semi-fixed dune community;
- SD8 - *Festuca rubra* - *Galium verum* fixed dune grassland;
- SD9 - *Ammophila arenaria* - *arrhenatherum elatius* dune grassland;
- SM13a - *Puccinellia maritima* saltmarsh, *Puccinellia maritima* dominant sub-community;
- U1 b,c,d,f - *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland;
- U2 - *Deschampsia flexuosa* grassland;
- U4 - *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland;
- U5 - *Nardus stricta* - *Galium saxatile* grassland; and
- Vascular plant assemblage.



New Ferry SSSI

New Ferry SSSI is notified for its large areas of intertidal sand, mudflats and other habitats, which support two nationally important species of wintering waterfowl, pintail and black-tailed godwit. The site underpins part of Mersey Estuary SPA/Marine SPA and Ramsar Site.

Notified Features

- Aggregations of non-breeding birds - black-tailed godwit;
- Aggregations of non-breeding birds – pintail; and
- Littoral sediment.

Mersey Estuary SSSI

The Mersey Estuary is an internationally important site for wildfowl and consists of large areas of intertidal sand and mudflats. The site also includes an area of reclaimed marshland, salt-marshes, brackish marshes and boulder clay cliffs with freshwater seepages. The Manchester Ship Canal forms part of the southern boundary of the site and separates a series of pools from the main estuary. These pools together with Hale Marsh are important roosting sites for wildfowl and waders at high tide. Throughout the winter the estuary supports large numbers of wildfowl and waders. The birds feed on the rich invertebrate fauna of the intertidal sediments as well as plants and seeds from the salt-marsh and adjacent agricultural land. The estuary is also a valuable staging post for migrating birds in spring and autumn. The site underpins most of Mersey Estuary SPA/Marine SPA and Ramsar Site.

Notified Features

- Aggregations of non-breeding birds – curlew;
- Aggregations of non-breeding birds – dunlin;
- Aggregations of non-breeding birds - golden plover;
- Aggregations of non-breeding birds – pintail;
- Aggregations of non-breeding birds – redshank;
- Aggregations of non-breeding birds – shelduck;
- Aggregations of non-breeding birds – teal;
- Aggregations of non-breeding birds – wigeon;
- S4 - *Phragmites australis* swamp and reed-beds;
- Sheltered muddy shores (including estuarine muds);
- SM10 - Transitional low marsh vegetation with *Puccinellia maritima*, annual *Salicornia* species and *Suaeda maritima*;
- SM11 - *Aster tripolium* var. *discoidea* – saltmarsh;
- SM13a - *Puccinellia maritima* saltmarsh, *Puccinellia maritima* dominant sub-community;
- SM6 - *Spartina anglica* saltmarsh;
- SM8 - Annual *Salicornia* saltmarsh; and
- SM9 - *Suaeda maritima* saltmarsh.

Meols Meadows SSSI

The main habitat present is damp unimproved neutral grassland, the level fields being separated by ditches containing tall fen vegetation. This site is the best example of the crested dog's-tail–common knapweed type of grassland known in Greater Manchester and Merseyside.



Notified Features

- MG5 - *Cynosurus cristatus* - *Centaurea nigra* grassland

Dibbinsdale SSSI

The main habitats included are semi-natural broad-leaved woodland, which covers most of the site, reed swamp, fen pasture and neutral grassland. This is the largest block of semi-natural woodland of its type in Merseyside and it contains typical examples of ash-wych elm and valley alder woodland, each of which supports a rich flora and fauna. Woodland in the valley of Dibbinsdale and Clatter Brook has been recorded since 1818 although it is likely that some parts of the wood are much older.

Notified Features

- Assemblages of breeding birds - Mixed: Lowland Fen, Woodland;
- W6 - *Alnus glutinosa* - *Urtica dioica* woodland; and
- W8 - *Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis* woodland.

Thurstaston Common SSSI

Thurstaston Common is the largest and best remaining example of a lowland heathland in Merseyside. It is similar in character to Heswall Dales, but its larger size and the fact that it contains better examples of wet and dry heath gives it pre-eminence over the Heswall site.

Notified Features

- H8 - *Calluna vulgaris* - *Ulex gallii* heath;
- M16 - *Erica tetralix* - *Sphagnum compactum* wet heath; and
- W16 - *Quercus spp.* - *Betula spp.* - *Deschampsia flexuosa* woodland.

The Dungeon SSSI

The Dungeon is a small wooded ravine a quarter of a mile to the north-west of Heswall, which shows a natural stream section through the Tarporley Siltstone Formation of the Mercia Mudstone Group, of Triassic age.

Notified Features

- EW - Non Marine Permian Triassic (Red Beds)

Heswall Dales SSSI

Heswall Dales is regarded as the second best example of lowland heath in Merseyside. It is ranked second to Thurstaston Common which is larger and botanically more diverse.

Notified Features

- H16 - *Calluna vulgaris* - *Arctostaphylos uva-ursi* heath;
- H8 - *Calluna vulgaris* - *Ulex gallii* heath;
- H9 - *Calluna vulgaris* - *Deschampsia flexuosa* heath;
- M25 - *Molinia caerulea* - *Potentilla erecta* mire; and
- W16 - *Quercus spp.* - *Betula spp.* - *Deschampsia flexuosa* woodland.



Dee Cliffs SSSI

This site contains the best known example of clay cliff and bank habitat in Merseyside as well as some marl pits which have a rich flora and fauna and an area of herb-rich neutral grassland.

Notified Features

- EC - Quaternary of The Pennines and Adjacent Areas;
- MC12 - *Festuca rubra* - *Hyacinthoides non-scripta* maritime bluebell community;
- MG5 - *Cynosurus cristatus* - *Centaurea nigra* grassland; and
- Standing Waters.

Dee Estuary SSSI

The Dee Estuary/Aber Afon Dyfrdwy is of special interest for its total populations of internationally important wintering waterfowl; its populations of individual waterfowl and tern species whose numbers reach national and in some cases, internationally important levels; its intertidal mud and sandflats, saltmarsh and transitional habitats; the hard rocky sandstone cliffs of Hilbre Island and Middle Eye with their cliff vegetation and maritime heathland and grassland; its assemblage of nationally scarce plants; and its populations of sandhill rustic moth. The site, together with its Welsh counterpart underpins most of The Dee Estuary SPA/Marine SPA, The Dee Estuary Ramsar Site and Dee Estuary SAC.

Notified Features

- Aggregations of breeding birds - common tern;
- Aggregations of breeding birds – redshank;
- Aggregations of non-breeding birds - bar-tailed godwit;
- Aggregations of non-breeding birds - black-tailed godwit;
- Aggregations of non-breeding birds – cormorant;
- Aggregations of non-breeding birds – curlew;
- Aggregations of non-breeding birds – dunlin;
- Aggregations of non-breeding birds - great crested grebe;
- Aggregations of non-breeding birds - grey plover;
- Aggregations of non-breeding birds – knot;
- Aggregations of non-breeding birds – oystercatcher;
- Aggregations of non-breeding birds – pintail;
- Aggregations of non-breeding birds – redshank;
- Aggregations of non-breeding birds - ringed plover;
- Aggregations of non-breeding birds – shelduck;
- Aggregations of non-breeding birds – teal;
- Aggregations of non-breeding birds – wigeon;
- Estuaries;
- Sandhill rustic moth;
- MC1 - *Crithmum maritimum* - *Spergularia rupicola* maritime rock-crevice community;
- MC10 - *Festuca rubra* - *Plantago spp.* maritime grassland;
- MC8 - *Festuca rubra* - *Armeria maritima* maritime grassland;
- MC9 - *Festuca rubra* - *Holcus lanatus* maritime grassland;
- MG11 - *Festuca rubra* - *Agrostis stolonifera* - *Potentilla anserina* grassland;
- MG12 - *Festuca arundinacea* grassland;



- MG13 - *Agrostis stolonifera* - *Alopecurus geniculatus* grassland;
- S21 - *Scirpus maritimus* Swamp;
- S28 - *Phalaris arundinacea* tall-herb fen;
- S4 - *Phragmites australis* swamp and reed-beds;
- SD4 - *Elymus farctus* ssp. *Boreali-atlanticus* foredune community;
- SD5 - *Leymus arenarius* mobile dune community;
- SD6 - *Ammophila arenaria* mobile dune community;
- Sheltered muddy shores (including estuarine muds);
- SM10 - Transitional low marsh vegetation with *Puccinellia maritima*, annual *Salicornia* species and *Suaeda maritima*;
- SM11 - *Aster tripolium* var. *discoidea* – saltmarsh;
- SM12 - Rayed *Aster tripolium* on saltmarsh;
- SM13a - *Puccinellia maritima* saltmarsh, *Puccinellia maritima* dominant sub-community;
- SM14 - *Atriplex portulacoides* saltmarsh;
- SM15 - *Juncus maritimus* - *Triglochin maritima* saltmarsh;
- SM16a - *Festuca rubra* saltmarsh *Puccinellia maritima* sub-community;
- SM18 - *Juncus maritimus* saltmarsh;
- SM19 - *Blysmus rufus* saltmarsh;
- SM24 - *Elytrigia atherica* saltmarsh;
- SM28 - *Elytrigia repens* saltmarsh;
- SM6 - *Spartina anglica* saltmarsh;
- SM8 - Annual *Salicornia* saltmarsh;
- SM9 - *Suaeda maritima* saltmarsh;
- Vascular plant assemblage; and
- Wave exposed sandy shores (with burrowing crustaceans and polychaetes).

Red Rocks SSSI

This site contains a typical example of a sand dune system and includes a brackish dune slack and reedbed. Although these dunes are much less extensive than those on the Sefton coast, the presence of an extensive brackish slack and reedbed, a habitat type not well developed in the Sefton coast dunes, and a highly diverse flora and fauna, which includes a number of local and national rarities, still makes this an important site for nature conservation in Merseyside. The site underpins part of Dee Estuary Ramsar Site.

Notified Features

- Natterjack toad;
- S4 - *Phragmites australis* swamp and reed-beds;
- SD5 - *Leymus arenarius* mobile dune community;
- SD6 - *Ammophila arenaria* mobile dune community;
- SD7 - *Ammophila arenaria* - *Festuca rubra* semi-fixed dune community;
- SD8 - *Festuca rubra* - *Galium verum* fixed dune grassland;
- SD9 - *Ammophila arenaria* - *Arrhenatherum elatius* dune grassland;

Downholland Moss SSSI

Downholland Moss consists of an arable field and a small birch woodland. It is a key reference site for establishing relative sea level changes in north-west England during the period from about 8000–4000 years B.P.



Notified Features

FB - Quaternary of The Pennines and Adjacent Areas.

Hallwood Farm Marl Pit SSSI

Hallwood Farm Marl Pit has been selected because it contains black poplar *Populus nigra betulifolia* which is an uncommon and declining British native tree.

Notified Features

- Uncommon and declining tree - *Populus nigra*, black poplar.

Inner Marsh Farm SSSI

The site is notified for the ornithological interest it supports, particularly its wintering and summering bird populations. It lies on former estuarine flats which were reclaimed from the Dee Estuary in the late nineteenth century by the construction of the Bidston to Wrexham railway. Freshwater marsh developed and subsequently provided safe grazing and a commercial duck shoot. Eventually, this gave way to arable farming, but in recent times this has been abandoned as the land has, once again, reverted to marshland. The site underpins part of The Dee Estuary SPA/Marine SPA and The Dee Estuary Ramsar Site.

Notified Features

- Aggregations of non-breeding birds - black-tailed godwit;
- Aggregations of non-breeding birds – pintail; and
- Aggregations of non-breeding birds – teal.

Stanley Bank Meadow SSSI

The site contains an extensive area of damp unimproved neutral grassland, a rare habitat in Merseyside, which is dissected by more acidic south-west–north-east orientated valleys. There is a general scattering of trees and shrubs and some larger blocks of scrub within the meadow and the site includes semi-natural alder woodland, oak woodland and willow scrub on the valley slopes bounding the eastern and southern edges of the meadow.

Notified Features

- M23 - *Juncus effusus/acutiflorus* - *Galium palustre* rush pasture;
- U1 b,c,d,f - *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland;
- W10 - *Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus* woodland;
- W16 - *Quercus spp.* - *Betula spp.* - *Deschampsia flexuosa* woodland; and
- W6 - *Alnus glutinosa* - *Urtica dioica* woodland.

3. Local Nature Reserves

LNRs within 20km of the site are presented in **Table 21**. A summary of the features of each site is provided below.



Table 21: LNRs within 20km of the Site

Site Name	Distance & Direction	Area (ha)
Brook Vale	4.59km N	9.7
Bidston Moss	4.71km W	7.11
Croxteth	7.28km NE	86.45
Childwall Woods and Fields	8.13km SE	27.44
Brotherton Park and Dibbinsdale	9.28km S	33.69
Allerton (Eric Hardy)	10.23km SE	19.34
Thurstaston Common	10.62km SW	68.87
Acornfield Plantation	11.07km NE	12.26
Heswall Dales	12.30km SW	21.1
Ravenmeols Hills	13.40km NW	47.4
Hilbre Islands	14.40km SW	53.51
Millwood and Alderwood	14.53km SE	22.84
Rivacre Valley	15.00km SE	41.58
Mill Brow	15.17km NE	1.81
Siding Lane Woodland	15.41km NE	7.87
Clincton Wood	15.94km SE	11.77
Hale Road Woodland	16.04km SE	11.88
Thatto Heath Meadows	17.00km E	3.81
Pickerings Pasture	17.47km SE	15.63
Burton Mill Wood	17.65km SW	2.56
Whitby Park	17.82km SE	20.33
Clinkham Wood	18.42km NE	9.62
Runcorn Hill	18.87km SE	16.73
Ainsdale and Birkdale Hills	18.90km N	296.04
Parr Hall and Millenium Green	18.91km NE	3.8
Stanney Wood	18.99km SE	22.49
Stanley Bank	20.44km NE	29.08

Brook Vale

Wetland including reed beds, which support reed and sedge warblers.

Bidston Moss

A variety of birds including grey heron and kestrel.



Croxteth

The LNR was created from the former Mull Wood plus other woodland areas such as Cocked Hat Wood, Dam Wood, The Wilderness and Ice House Woods together with some agricultural land in the park. The reserve has woodland, rough grassland and pasture, several ponds and is bounded by the River Alt. A variety of birds breed in the woodland and the ponds are good for plants such as water dropwort and dragonflies.

Childwall Woods and Fields

Habitats include neutral grassland, broadleaved woodland. Native bluebell, linnet, siskin and a wide range of butterflies are present. The grassland has spectacular show of common spotted and southern marsh orchid in early June.

Within Childwall Woods the old carriage drive is designated as a Regionally Important Geological Site for its exposed sandstone faces.

Brotherton Park and Dibbinsdale

Ancient woodland, meadows, reed swamp, parkland and amenity grassland.

Allerton (Eric Hardy)

Nature trail dedicated to Eric Hardy who was a well-known and respected naturalist on Merseyside and in the North West of England, who contributed much to the understanding and knowledge of the natural history of the region.

Thurstaston Common

The main habitat is heathland. There are three types of heather - ling or common, bell heather and cross-leaved heath on site. Locally rare plants include marsh gentian, oblong-leaved sundew and round-leaved sundew. Animals include common lizard and birds such as yellowhammer and meadow pipit feed and nest in the heather.

Acornfield Plantation

Predominantly mature broadleaved woodland of birch, oak and sycamore. The centre of the site has a lowland basin mire dominated by sphagnum moss and soft rush. Other habitats include a pond, stream, drainage channels, acidic and neutral grasslands, bracken and rhododendron thickets.

Heswall Dales

Gorse provides excellent cover for birds such as Wrens, Yellowhammers and Chaffinches. The dominant plant of the heathland is Heather. The mosaic of Birch scrub and European Gorse is an important habitat for breeding birds.

Ravenmeols Hills

Wide sandy beach, high dunes, furrowed grassland that were once asparagus fields, scrubby areas of deciduous trees and a belt of pinewoods. Important site for natterjack toads which inhabit the dunes.

Hilbre Islands

The islands and other relatively high ground are used as roost sites by birds when the tide covers the thousands of acres of flats within the Dee Estuary which are exposed at low water.



Millwood and Alderwood

Habitats include broadleaved woodland, neutral grassland and ponds. Native bluebell and a range of notable butterflies.

Rivacre Valley

Woodland flowers and kingfisher along Rivacre Brook

Mill Brow

Bluebells, greater spotted woodpecker, water vole, nuthatch and bats.

Siding Lane Woodland

The site supports a variety of birds, mammals and plants. There is a pond in the reserve which supports frogs and fish.

Clincton Wood

Habitats include woodland, grassland and four ponds.

Hale Road Woodland

Community Woodland with grassland and reedbeds.

Thatto Heath Meadows

The stream valley retains much of its pre-industrial landform and traces of field patterns dating back to 1843. The site was originally part of Four Lane Ends Farm and was used as small holdings from the 1970s. The main habitats are stream, acid and neutral grassland, dense scrub and hedgerows.

Pickerings Pasture

Wildflower meadows with woodland and wetland including saltmarsh. Part of the site is in the Mersey Estuary SSSI.

Burton Mill Wood

Broadleaved and mixed woodland, heathland and grassland. All year round all three woodpeckers occur, wood warblers are often present in mid-May and, in irruption years, crossbill is also present.

Whitby Park

The main pond is located in front of Whitby Hall. Behind the bowling greens is a grassland habitat area with interpretation panels. On the far side of the park on Park Drive there is a small woodland copse. All of these areas have relaxed maintenance regimes to encourage the establishment of various insects, mammals and birds.

Clinkham Wood

Four large adjoining amenity grassland areas, and woodland containing a meadow, informal paths, seating, spring-fed stream, glade areas and large drifts of Bluebells in flower each Spring.

Runcorn Hill

The main habitats are dry heath/acid grassland, woodland, scrub and two ponds.



Ainsdale and Birkdale Hills

Ainsdale & Birkdale Sandhills LNR is one of the largest areas of wild dunes left in Britain. It has high dune ridges and dune valleys containing slacks, some with pools which provide breeding habitat for Natterjack toads. The reserve is rich in plant life. In winter part of the site is grazed by Hebridean sheep.

The damp dune slacks are carpeted with flowers in summer including early marsh orchid, marsh helleborine orchids and grass of Parnassus. The drier slacks have round leaved wintergreen and the nationally rare dune helleborine orchid.

Parr Hall and Millenium Green

The site contains water vole habitats along the stretch of the St Helens Canal. This area contains many regionally important species of plants including the yellow-wort, field pepperwort and common comfrey.

Stanney Wood

Ancient woodland of oak and silver birch, with some hazel and holly.

Stanley Bank

The LNR is made up of two areas of Ancient Semi Natural Woodland and damp neutral grassland. The site also supports a variety of birds, dragonflies, pondlife and flowers and other plants.

4. Non-statutory Sites

Non-statutory sites are presented in **Table 22**. In the Merseyside and Cheshire areas, these are termed Local Wildlife Sites (LWS) and Local Geological Sites (LGS). Seven non-statutory sites are present in the Merseyside search area, no non-statutory sites are present in the Cheshire search area.

Table 22: Non-statutory Sites within 2km of the Site

Designation	Site Name	Distance & Direction
Liverpool Local Wildlife Site (current)	Leeds-Liverpool Canal	0.37km SE
Liverpool Local Wildlife Site (proposed)	Leeds-Liverpool Canal	0.75km NE
Liverpool Local Wildlife Site (current)	Melrose Cutting	1.37km NE
Liverpool Local Wildlife Site (proposed)	Melrose Cutting	1.37km NE
Liverpool Local Wildlife Site (potential)	Everton Park Nature Garden	1.63km SE
Liverpool Local Geological Site	Everton Quarry, Mark Street	0.98km NE
Liverpool Local Geological Site	Netherfield Road North, Everton	1.60km NE



5. Protected and Notable Bird Species

Previous Reports and Studies

TEP 2015 study

The survey method for the TEP study was adapted from the WeBS core count methodology and entailed monthly visits between November 2013 and October 2014. The entire Merseyside dock system was covered concurrently during each survey visit using a team of ornithologists.

A combination of transect routes and point counts were used to count all birds on the docks and flying over the docks. A count of all docks was undertaken at both high and low tide each month. Six one hour long vantage point surveys were also undertaken at both high tide and low tide to record any bird movements.

The survey results showed that the docks are used by some birds associated with the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, the Dee Estuary SPA and Ramsar and the Mersey Estuary SPA and Ramsar, including shelduck, redshank, black-tailed godwit and little gull. However, only low numbers and occasional usage of the docks by these species was recorded during the winter period. Increased usage of the docks by shelduck was observed during the spring period, particularly during April. The peak count of shelduck using the entire dock system was 41 individuals, equivalent to just below 1% of the Mersey Estuary SPA population. The most important areas for shelduck were the Peel Ports South Docks, which includes Bramley Moore Dock, where single shelduck were recorded in spring and autumn, and the Birkenhead Docks, on the west bank of the Mersey. Of the wintering bird assemblage species for the SPA and Ramsar sites, curlew, lapwing, oystercatcher, redshank, turnstone, shelduck, great crested grebe, cormorant and little gull were recorded using the docks during the winter period.

Cormorant were regularly recorded fishing in most of the docks, with the largest numbers recorded on the West Float and East Float in Birkenhead (peak count: 35 individuals). The number supported by Birkenhead Docks is equal to 4.7% of the Mersey Narrows and North Wirral Foreshore SPA population. It is considered likely that the Birkenhead Docks, on the western side of the Mersey, provide supporting habitat for cormorant associated with the Mersey Narrows and North Wirral Foreshore SPA.

Great crested grebe were regularly observed to congregate at the eastern end of the East Float within the Birkenhead Docks, with a peak count of 12 individuals. This is equivalent to 60% of the Mersey Estuary SPA population. It is possible that the docks are functionally linked with the Mersey Estuary SPA in terms of their great crested grebe population.

Moderate usage of the Garston Docks, located at Garston to the south of the Mersey Tunnel, by oystercatcher was recorded, with occasional large groups of this species roosting directly adjacent to the dock. A peak count of 210 oystercatcher was observed at Old Dock, equivalent to 7.7% of the Mersey Narrows and North Wirral Foreshore SPA population. It is considered that the Old Dock within Garston Docks provides supporting habitat for the Mersey Narrows and North Wirral Foreshore SPA oystercatcher population and potentially that of the Ribble and Alt Estuaries SPA.

Overall, it was considered that the Liverpool Docks including Garston Docks, Brunswick Docks (3.93km SE of Bramley Moore Dock), Albert Docks (2.66km SE of Bramley Moore Dock) and Princes



Docks (1.30km S of Bramley Moore Dock) provide supporting habitat for the turnstone population that forms part of the winter bird assemblage for the Mersey Narrows and North Wirral Foreshore SPA.

Birds records (not including fly-overs) at the dock locations within 500m of Bramley Moore Dock (i.e. survey areas 39 - 48) are presented in Table 5.

Table 5: Birds Recorded within 500m of Bramley-Moore Dock by TEP (2015)

Species	Winter	Spring	Summer	Autumn	SPA/Ramsar Species?	Notes
Black-headed gull	Y	Y		Y	Qualifying species: Ribble and Alt Estuaries SPA Assemblage species: Ribble and Alt Estuaries SPA	Recorded at Bramley Moore Dock
Canada Goose	Y	Y	Y	Y	N	
Common gull	Y	Y			N	
Common tern			Y	Y	Qualifying species: Mersey Narrows and North Wirral Foreshore SPA; the Ribble and Alt Estuaries SPA; Dee Estuary SPA	Fly-over only at Bramley Moore Dock, but foraging at adjacent Sandon Half Tide Dock. Breeding colony identified at Canada Dock North
Cormorant	Y	Y	Y	Y	Assemblage species: Mersey Narrows and North Ribble Foreshore SPA; Dee Estuary SPA; Ribble and Alt Estuaries SPA	



Species	Winter	Spring	Summer	Autumn	SPA/Ramsar Species?	Notes
Great black-backed gull	Y	Y			N	
Herring gull	Y	Y	Y	Y	N	Recorded at Bramley Moore Dock
Lesser black-backed gull	Y	Y	Y	Y	Qualifying species: Ribble and Alt Estuaries SPA; Ribble and Alt Estuaries Ramsar Assemblage species: Ribble and Alt Estuaries SPA	Recorded at Bramley Moore Dock
Mallard		Y			N	
Mute swan	Y	Y			N	
Oystercatcher		Y	Y	Y	Qualifying species: Ribble and Alt Estuaries SPA; Ribble and Alt Estuaries Ramsar; Dee Estuary SPA; Dee Estuary Ramsar. Assemblage species: Ribble and Alt Estuaries SPA; Dee Estuary SPA; Mersey Narrows and North Wirral Foreshore SPA.	
Shelduck		Y	Y	Y	Qualifying species: Mersey Estuary SPA; Mersey Estuary Ramsar; Dee Estuary SPA; Dee Estuary Ramsar; Ribble and Alt Estuaries SPA. Assemblage species: Mersey Estuary SPA	Recorded at Bramley Moore Dock in spring and autumn during vantage point surveys



Appendix C – Wildlife Legislation



Bern Convention

The *Convention on the Conservation of European Wildlife and Natural Habitats* (the *Bern Convention*) was adopted in Bern, Switzerland in 1979, and was ratified in 1982. Its aims are to protect wild plants and animals and their habitats listed in Appendices 1 and 2 of the Convention, and regulate the exploitation of species listed in Appendix 3. The regulation imposes legal obligations on participating countries to protect over 500 plant species and more than 1000 animals.

To meet its obligations imposed by the Convention, the European Community adopted the *EC Birds Directive* (1979) and the *EC Habitats Directive* (1992 – see below). Since the Lisbon Treaty, in force since 1st December 2009, European legislation has been adopted by the European Union.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals or 'Bonn Convention' was adopted in Bonn, Germany in 1979 and came into force in 1985. Participating states agree to work together to preserve migratory species and their habitats by providing strict protection to species listed in Appendix I of the Convention. It also establishes agreements for the conservation and management of migratory species listed in Appendix II.

In the UK, the requirements of the convention are implemented via the Wildlife & Countryside Act 1981 (as amended), Wildlife (Northern Ireland) Order 1985 (as amended), Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and the Countryside and Rights of Way Act 2000 (CROW).

Habitats Directive

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, or the 'Habitats Directive', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes.

In the UK, the Habitats Directive is transposed into national law via the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales, and via the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland.

Birds Directive

The EC Directive on the Conservation of Wild Birds (79/409/EEC) or 'Birds Directive' was introduced to achieve favourable conservation status of all wild bird species across their distribution range. In this context, the most important provision is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex 1 of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.

Conservation of Habitats and Species Regulations 2010 (as amended)

Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by the European Commission, are then designated as Special Protection Areas (SPAs) within six years. Amendments made in 2012 stipulated that public bodies help preserve, maintain and re-establish habitats for wild birds.

The Regulations also make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5 - see below:

Schedule 2 – European Protected Species of Animals	Schedule 5 – European Protected Species of Plants
Horseshoe bats <i>Rhinolophidae</i> - all species	Shore dock <i>Rumex rupestris</i>
Common bats <i>Vespertilionidae</i> - all species	Killarney fern <i>Trichomanes speciosum</i>
Wild cat <i>Felis sylvestris</i>	Early gentian <i>Gentianella anglica</i>
Dolphins, porpoises and whales <i>Cetacea</i> – all sp.	Lady's-slipper <i>Cypripedium calceolus</i>
Dormouse <i>Muscardinus avellanarius</i>	Creeping marshwort <i>Apium repens</i>
Pool frog <i>Rana lessonae</i>	Slender naiad <i>Najas flexilis</i>
Sand lizard <i>Lacerta agilis</i>	Fen orchid <i>Liparis loeselii</i>
Fisher's estuarine moth <i>Gortyna borellii lunata</i>	Floating-leaved water plantain <i>Luronium natans</i>
Great crested newt <i>Triturus cristatus</i>	Yellow marsh saxifrage <i>Saxifraga hirculus</i>
Otter <i>Lutra lutra</i>	
Lesser whirlpool ram's-horn snail <i>Anisus vorticulus</i>	
Smooth snake <i>Coronella austriaca</i>	
Sturgeon <i>Acipenser sturio</i>	
Natterjack toad <i>Epidalea calamita</i>	
Marine turtles <i>Caretta caretta</i> , <i>Chelonia mydas</i> , <i>Lepidochelys kempii</i> , <i>Eretmochelys imbricata</i> , <i>Dermochelys coriacea</i>	

Wildlife & Countryside Act 1981 (as amended)

This is the principal mechanism for the legislative protection of wildlife in the UK. This legislation is the chief means by which the 'Bern Convention' and the Birds Directive are implemented in the UK. Since it was first introduced, the Act has been amended several times.

The Act makes it an offence to (with exception to species listed in Schedule 2) intentionally:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use; or
- take or destroy an egg of any wild bird.

Or to intentionally do the following to a wild bird listed in Schedule 1:

- disturbs any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturbs dependent young of such a bird.

In addition, the Act makes it an offence (subject to exceptions) to:

- intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5;
- interfere with places used for shelter or protection, or intentionally disturbing animals occupying such places; and
- The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Finally, the Act also makes it an offence (subject to exceptions) to:

- intentionally pick, uproot or destroy any wild plant listed in Schedule 8, or any seed or spore attached to any such wild plant;
- unless an authorised person, intentionally uproot any wild plant not included in Schedule 8; or
- sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Following all amendments to the Act, Schedule 5 'Animals which are Protected' contains a total of 154 species of animal, including several mammals, reptiles, amphibians, fish and invertebrates. Schedule 8 'Plants which are Protected' of the Act, contains 185 species, including higher plants, bryophytes and fungi and lichens. A comprehensive and up-to-date list of these species can be obtained from the JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise cause to grow in the wild any plant which is listed in Part II of Schedule 9.

It is recommended that plant material of these species is disposed of as bio-hazardous waste, and these plants should not be used in planting schemes.

Schedule 1 - Birds which are protected by special penalties			
Avocet	<i>Recurvirostra avosetta</i>	Osprey	<i>Pandion haliaetus</i>
Bee-eater	<i>Merops apiaster</i>	Owl, Barn	<i>Tyto alba</i>
Bittern	<i>Botaurus stellaris</i>	Owl, Snowy	<i>Nyctea scandiaca</i>
Bittern, Little	<i>Ixobrychus minutus</i>	Peregrine	<i>Falco peregrinus</i>
Bluethroat	<i>Luscinia svecica</i>	Petrel, Leach's	<i>Oceanodroma leucorhoa</i>
Brambling	<i>Fringilla montifringilla</i>	Phalarope, Red-necked	<i>Phalaropus lobatus</i>
Bunting, Cirl	<i>Emberiza cirlus</i>	Plover, Kentish	<i>Charadrius alexandrinus</i>
Bunting, Lapland	<i>Calcarius lapponicus</i>	Plover, Little Ringed	<i>Charadrius dubius</i>
Bunting, Snow	<i>Plectrophenax nivalis</i>	Quail, Common	<i>Coturnix coturnix</i>
Buzzard, Honey	<i>Pernis apivorus</i>	Redstart, Black	<i>Phoenicurus ochruros</i>
Capercaillie	<i>Tetrao urogallus</i>	Redwing	<i>Turdus iliacus</i>
Chough	<i>Pyrrhocorax pyrrhocorax</i>	Rosefinch, Scarlet	<i>Carpodacus erythrinus</i>
Corncrake	<i>Crex crex</i>	Ruff	<i>Philomachus pugnax</i>
Crake, Spotted	<i>Porzana porzana</i>	Sandpiper, Green	<i>Tringa ochropus</i>
Crossbills (all species)	<i>Loxia</i>	Sandpiper, Purple	<i>Calidris maritima</i>
Curlew, Stone	<i>Burhinus oedicnemus</i>	Sandpiper, Wood	<i>Tringa glareola</i>
Divers (all species)	<i>Gavia</i>	Scaup	<i>Aythya marila</i>
Dotterel	<i>Charadrius morinellus</i>	Scoter, Common	<i>Melanitta nigra</i>
Duck, Long-tailed	<i>Clangula hyemalis</i>	Scoter, Velvet	<i>Melanitta fusca</i>
Eagle, Golden	<i>Aquila chrysaetos</i>	Serin	<i>Serinus serinus</i>
Eagle, White-tailed	<i>Haliaetus albicilla</i>	Shorelark	<i>Eremophila alpestris</i>
Falcon, Gyr	<i>Falco rusticolus</i>	Shrike, Red-backed	<i>Lanius collurio</i>
Fieldfare	<i>Turdus pilaris</i>	Spoonbill	<i>Platalea leucorodia</i>
Firecrest	<i>Regulus ignicapillus</i>	Stilt, Black-winged	<i>Himantopus himantopus</i>



Garganey	<i>Anas querquedula</i>	Stint, Temminck's	<i>Calidris temminckii</i>
Godwit, Black-tailed	<i>Limosa limosa</i>	Swan, Bewick's	<i>Cygnus bewickii</i>
Goshawk	<i>Accipiter gentilis</i>	Swan, Whooper	<i>Cygnus cygnus</i>
Grebe, Black-necked	<i>Podiceps nigricollis</i>	Tern, Black	<i>Chlidonias niger</i>
Grebe, Slavonian	<i>Podiceps auritus</i>	Tern, Little	<i>Sterna albifrons</i>
Greenshank	<i>Tringa nebularia</i>	Tern, Roseate	<i>Sterna dougallii</i>
Gull, Little	<i>Larus minutus</i>	Tit, Bearded	<i>Panurus biarmicus</i>
Gull, Mediterranean	<i>Larus melanocephalus</i>	Tit, Crested	<i>Parus cristatus</i>
Harriers (all species)	<i>Circus</i>	Tree-creeper, Short-toed	<i>Certhia brachydactyla</i>
Heron, Purple	<i>Ardea purpurea</i>	Warbler, Cetti's	<i>Cettia cetti</i>
Hobby	<i>Falco subbuteo</i>	Warbler, Dartford	<i>Sylvia undata</i>
Hoopoe	<i>Upupa epops</i>	Warbler, Marsh	<i>Acrocephalus palustris</i>
Kingfisher	<i>Alcedo atthis</i>	Warbler, Savi's	<i>Locustella luscinioides</i>
Kite, Red	<i>Milvus milvus</i>	Whimbrel	<i>Numenius phaeopus</i>
Merlin	<i>Falco columbarius</i>	Woodlark	<i>Lullula arborea</i>
Oriole, Golden	<i>Oriolus oriolus</i>	Wryneck	<i>Jynx torquilla</i>
Invasive plant species listed in Schedule 9			
Australian swamp stonecrop or New Zealand pygmyweed	<i>Crassula helmsii</i>	Japanese rose	<i>Rosa rugosa</i>
Californian red seaweed	<i>Pilea californica</i>	Japanese seaweed	<i>Sargassum muticum</i>
Curly waterweed	<i>Lagarosiphon major</i>	Laver seaweeds (except native species)	<i>Porphyra</i> spp
Duck potato	<i>Sagittaria latifolia</i>	Parrot's-feather	<i>Myriophyllum aquaticum</i>
Entire-leaved cotoneaster	<i>Cotoneaster integrifolius</i>	Perfoliate alexanders	<i>Smyrniium perfoliatum</i>
False Virginia creeper	<i>Parthenocissus inserta</i>	Pontic rhododendron	<i>Rhododendron ponticum</i>
Fanwort or Carolina water-shield	<i>Cabomba caroliniana</i>	Purple dewplant	<i>Disphyma crassifolium</i>
Few-flowered garlic	<i>Allium paradoxum</i>	Red algae	<i>Grateloupia luxurians</i>
Floating pennywort	<i>Hydrocotyle ranunculoides</i>	Rhododendron	<i>Rhododendron ponticum</i> × <i>Rhododendron maximum</i>
Floating water primrose	<i>Ludwigia peploides</i>	Small-leaved cotoneaster	<i>Cotoneaster microphyllus</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>	Three-cornered garlic	<i>Allium triquetrum</i>
Giant kelp	<i>Macrocystis</i> spp.	Variegated yellow archangel	<i>Lamiastrum galeobdolon</i> subsp. <i>argentatum</i>
Giant knotweed	<i>Fallopia sachalinensis</i>	Virginia creeper	<i>Parthenocissus quinquefolia</i>
Giant rhubarb	<i>Gunnera tinctoria</i>	Wakame	<i>Undaria pinnatifida</i>
Giant salvinia	<i>Salvinia molesta</i>	Wall cotoneaster	<i>Cotoneaster horizontalis</i>
Green seafingers	<i>Codium fragile</i>	Water fern	<i>Azolla filiculoides</i>
Himalayan cotoneaster	<i>Cotoneaster simonsii</i>	Water hyacinth	<i>Eichhornia crassipes</i>
Hollyberry cotoneaster	<i>Cotoneaster bullatus</i>	Water lettuce	<i>Pistia stratiotes</i>
Hooked asparagus seaweed	<i>Asparagopsis armata</i>	Water primrose	<i>Ludwigia grandiflora</i>
Hottentot fig	<i>Carpobrotus edulis</i>	Water primrose	<i>Ludwigia uruguayensis</i>
Hybrid knotweed	<i>Fallopia japonica</i> × <i>Fallopia sachalinensis</i>	Waterweeds	<i>Elodea</i> spp.
Indian (Himalayan) balsam	<i>Impatiens glandulifera</i>	Yellow azalea	<i>Rhododendron luteum</i>



Japanese knotweed	<i>Fallopia japonica</i>		
Protection of Badgers Act 1992			
<p>The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to: wilfully kill, injure, take or attempt to kill, injure or take a badger; dig for a badger; interfere with a badger sett by, damaging a sett or any part thereof, destroying a sett, obstructing access to a sett, causing a dog to enter a sett or disturbing a badger while occupying a sett.</p> <p>The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger"</p>			
Natural Environment and Rural Communities Act 2006			
<p>Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of Habitats and Species which are of Principal Importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 Habitats of Principal Importance and 1,150 Species of Principal Importance.</p>			
Hedgerow Regulations 1997			
<p>The Hedgerow Regulations were made under Section 97 of the Environment Act 1995 and came into force in 1997. They introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.</p>			
Birds of Conservation Concern			
<p>This is a review of the status of all birds occurring regularly in the United Kingdom. It is regularly updated and is prepared by leading bird conservation organisations, including the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).</p> <p>The latest report was produced in 2015 (Eaton <i>et al</i>, 2015) and identified 67 red list species, 96 amber species, and 81 green species. The criteria are complex, but generally:</p> <ul style="list-style-type: none"> • Red list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years. • Amber list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localised in 10 sites or fewer and those whose 20% of the European population is found in the UK. • Green list species are all regularly occurring species that do not qualify under any of the red or amber criteria are green listed 			



Global IUCN Red List

The International Union for Conservation of Nature (IUCN) Threatened Species was devised to provide a list of those species that are most at risk of becoming extinct globally. It provides taxonomic, conservation status and distribution information about threatened taxa around the globe.

The system catalogues threatened species into groups of varying levels of threat, which are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CE), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), Not Evaluated (NE). Criteria for designation into each of the categories is complex, and consider several principles.

Local Biodiversity Action Plan (LBAP)

Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

Some LBAP's may also include Habitat Action Plans (HAP) and/or Species Action Plans (SAP), which are used to guide and inform the local decision making process.

Wild Mammals (Protection) Act 1996

This Act offers protects a form of protection to all wild species of mammals, irrespective of other legislation, and focussed on animal welfare, rather than conservation.

Unless covered by one of the exceptions, a person is guilty of an offence if he mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering.

It's application is typically restricted to preventing deliberate harm to wildlife (in general) during construction works etc.



Appendix D – All Bird Species Recorded, WYG Breeding Bird Survey 2017

Common Name	27/04/2017	27/04/2017	11/05/2017	11/05/2017	09/06/2017	09/06/2017	23/06/2017	23/06/2017
	B-M Dock	Surrounding	B-M Dock	Surrounding	B-M Dock	Surrounding	B-M Dock	Surrounding
		Area		Area		Area		Area
Canada Goose	6 nests, 23	3 nests, 13	3 nests, 11	3 nests, 16	11	1 nest, 13		4
Shelduck	2	2	13	4	7	9		3
Mallard		2		1				
Tufted Duck				1				
Cormorant			1		1		1	1
Great Crested Grebe					1			
Oystercatcher	2	2		3	2	1	1 nest, 3	1
Lesser Black-backed Gull	1	4	7	24	1 nest, 6	1 nest, 17	1 nest, 20	1
Herring Gull	4		12	79	2 nests, 36	1 nest, 41	1 nest, 37	
Common Tern					1		3	1 nest, 2
Feral Pigeon	93	3	64	18	6+ nests, 61		30	
Peregrine		1						
Magpie	2	2	2	1	3	1	1	
Pied Wagtail					1			
Linnet			3		4	1		
Goldfinch					2			
Wheatear		2	2					
Blackbird	1							



Appendix E – All Bird Species Recorded, WYG Breeding Bird Survey 2019

[illegible]



Appendix F – Bird Species Recorded in the Vicinity (Approximately 400 metres) of the Site, Wintering Bird Surveys 2016-2017

Common Name	Status	23/11/16	30/11/16	08/12/16	16/12/16	20/01/17	30/01/17	20/02/17	27/02/17
		low tide	high tide	low tide	high tide	low tide	high tide	low tide	high tide
Mute Swan	BoCC Amber		4				5 (juvs)		2
Canada Goose	Non-native							2	16
Shelduck	SPA, BoCC Amber						1		
Cormorant	SPA, BoCC Green	1	3	2	1	3	5	6	3
Grey Heron	BoCC Green					3			
Oystercatcher	SPA, BoCC Amber								6
Black-headed Gull	SPA, BoCC Amber	45	7	20	11	103	4	19	30
Common Gull	BoCC Amber	100	1	150		150		50	16
Lesser Black-backed Gull	SPA, BoCC Amber	4	1	10	2	4	10	2	4
Herring Gull	BoCC Red, NERC	7	13	40	6	106	51	130	52
Great Black-backed Gull	BoCC Amber	2	3	4			10		1
Feral Pigeon	Feral, not assessed	30			50		30	6	1
Kingfisher	WCA Sch 1, BoCC Amber		1						
Peregrine	WCA Sch 1, BoCC Green				1 (f)				
Carrion Crow	BoCC Green				1				
Starling	BoCC Red, NERC								1
Pied Wagtail	BoCC Green	3			1				
Linnet	BoCC Red, NERC	6							



Appendix G – Bird Species Recorded in the Vicinity (Approximately 400 metres) of the Site, Wintering Bird Surveys 2018-2019



Appendix H – Bird Species Recorded in the Vicinity (Approximately 400 metres) of the Site, Passage Bird Surveys 2017-18

	22/09/2017	28/09/2017	18/10/2017	27/10/2017	09/03/2018	20/03/2018	19/04/2018	23/04/2018
	High Tide	Low Tide	High Tide	Low Tide	Low Tide	High Tide	High Tide	Low Tide
	10:15 - 14:15	09:20 - 13:20	08:10 - 12:10	09:00 - 13:00	09:30 - 13:30	10:15 - 14:15	11:00 - 15:00	11:15 - 15:15
Common Name	Peak Count	Peak Count	Peak Count	Peak Count	Peak Count	Peak Count	Peak Count	Peak Count
Mute Swan			2					
Canada Goose			4	8	19	16	16	18
Shelduck						3	2	4
Cormorant	10	5	5	3	2	5	1	1
Grey Heron								
Great Crested Grebe					2			
Moorhen					1	1		
Oystercatcher			1				19	2
Lapwing								1
Black-headed Gull	1	6	11	77	1			
Common Gull				40				
Lesser Black-backed Gull	6		9		32	4	20	16
Herring Gull	6			5	23	180	94	56
Great Black-backed Gull			3					
Feral Pigeon			12	6		4	16	2
Peregrine		2			(1)			
Carrion Crow				1	1			
Starling	30							
Pied Wagtail	2	3	5	2		2		
Meadow Pipit			6	5				
Linnet	2	32	8	40		6		
Goldfinch	20	40	30	20				
Duncock			2					
Great Tit			2					

(in brackets) = flying over only



Appendix I – Bird Species Recorded in the Vicinity (Approximately 400 metres) of the Site, Passage Bird Surveys 2019

	01/10/2019	03/10/2019	22/10/2019	29/10/2019
	High Tide	Low Tide	Low Tide	Hight Tide
	10:30 – 14:30	08:45 – 12:45	11:00 – 15:00	09:00 – 13:00
Common Name	Peak Count	Peak Count	Peak Count	Peak Count
Black-headed Gull	43 (5)	6 (7)	32 (1)	2
Canada Goose	2	2	82	
Cormorant	3	5 (1)	2 (2)	2 (1)
Feral Pigeon	10	36	59	
Goldfinch	1			6
Herring Gull	(9)	5 (5)	(8)	25 (4)
Lesser Black-backed Gull	(2)			2
Linnet	3		9	24
Magpie			1	
Meadow Pipit				5
Moorhen	1			1
Mute Swan		1		
Oystercatcher	2	1	2	
Pied Wagtail		2	1	
Starling			11	
Wheatear	1			
(in brackets) = flying over only				



Technical Appendix 3 – WYG, (2019c), Bramley-Moore Dock: Bat Survey Report, Report on behalf of Everton Stadium Development Limited, Project Number A100795.



Bramley-Moore Dock

Bat Survey Report



**For Everton Stadium Development
Limited**

August 2020

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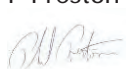
Email: ecology@wyg.com



Document Control

Project: Bramley-Moore Dock
 Client: Everton Stadium Development Limited
 Job Number: A100795
 File Origin: [\\lds-dc-vm-002\Group Ecology\Projects\Projects A100000 on\A100795 Bramley-Moore Dock, Liverpool\REPORTS\Update Bats](#)

Issue 2	August 2020	Final
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Rev:	Date:	Updated by:	Verified by:	Description of changes:
1	13.03.2020	G Bishop	P Preston 	Development proposal amended
2	07.08.2020	T McClellan-West	P Preston 	Development proposal amended as per latest design freeze. Figures also updated to new red line boundary.
3	20.08.2020	L Holmes	P Preston 	Amended following CBRE review comments.

WYG Environment Planning Transport Ltd. accept no responsibility or liability for the use which is made of this document other than by the Client for the purpose for which it was originally commissioned and prepared.



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Figure 3 – Surveyor Location and Building Suitability Plan

Figure 4 – Bat Survey Results 14/05/2019 - Dusk

Figure 5 – Bat Survey Results 20/05/2019 - Dusk

Figure 6 – Bat Survey Results 26/06/2019 - Dawn

Figure 7 – Bat Survey Results 01/08/2019 - Dusk

APPENDICES

Appendix A – Report Conditions

Executive Summary

Contents	Summary
Site Location	The site is located within the Port of Liverpool, alongside the River Mersey, Liverpool (post code L3 0AP) and is centred at Ordnance Survey National Grid Reference SJ 33452 92491.
Proposals	<p>The development proposals comprise a full planning application for the development of a 52,888-seat capacity stadium with associated facilities and infrastructure at Bramley-Moore Dock, Liverpool. A detailed description is provided in the wider planning application submission (Planning Statement, Environmental Statement etc.). However, in summary, the application proposes:</p> <ul style="list-style-type: none"> • Demolition of non-listed structure; part demolition of listed structures (Regent Road wall); remediation; infill of BMD; engineering works; and alterations to the dock walls to accommodate the development of the stadium (Use Class D2) with vehicle parking (external at grade). • Creation of new (non-navigable) water channel, vehicular and pedestrian accesses, and hard / soft landscaping (including lighting, public art and boundary treatments). • Proposed change of use of the Grade II listed Hydraulic Tower structure to exhibition/cultural centre (Use Class D1) (works to the tower to be subject to a separate listed building consent submissions). <p>The stadium is proposed to be orientated north-south with public realm and circulatory space to the west beyond the new water channel and a large fan zone plaza to the east with some soft landscaping.</p>
Existing Site Information	<p>Three buildings (B1, B2, B5) and a built structure (Sea Wall) were found to offer potential roosting habitat for bats WYG, 2017a and WYG, 2019 as follows:</p> <ul style="list-style-type: none"> • Building B1 – Moderate potential; and • Building B2, B5 and Sea Wall – Low Potential. <p>Previous nocturnal surveys recorded no bats emerging or re-entering the buildings (WYG, 2017b). Only low levels of foraging and commuting common pipistrelle and a single commuting <i>Myotis</i> species were recorded during surveys.</p>
Scope of this Survey(s)	<p>Dusk emergence and/or dawn re-entry surveys of buildings and built structures with bat roosting potential to update the 2017 survey result and identify the presence/likely absence of roosting bats, determine roost type (should one be found) and number and species of bat present.</p> <p>This is a factual report only.</p>



Results	<ul style="list-style-type: none">• Common pipistrelle day roost located within building B1 and therefore an EPSL will be required to allow any works which could disturb or destroy this roost such as structural repairs and/or refurbishment.• No evidence of roosting bats identified during surveys of buildings B2, B5 and the Sea Wall.• Common pipistrelle and noctule bats were recorded during the surveys, in low numbers only. Common pipistrelle were recorded both foraging and commuting, whilst noctule were commuting over site only.
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Glossary

ACIEEM	Associate Member of Chartered Institute of Ecology & Environmental Management
BCT	Bat Conservation Trust
BCT Guidelines	Bat Conservation Trust Bat <i>Surveys for Professional Ecologists: Good Practice Guidelines</i> 3 rd edition (Collins, 2016)
CIEEM	Chartered Institute of Ecology & Environmental Management
DEFRA	Department for Environment, Food & Rural Affairs
EPS	European Protected Species
EPSL	European Protected Species Licence
Grad CIEEM	Graduate Member of Chartered Institute of Ecology & Environmental Management
HPI	Habitat(s) of Principal Importance
LBAP	Local Biodiversity Action Plan
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
NERC Act	Natural Environment and Rural Communities Act 2006
NPPF	National Planning Policy Framework
PRF	Potential Roosting Feature
SAP	Species Action Plan
SPI	Species of Principal Importance
WCA	The Wildlife and Countryside Act 1981 (as amended)



1.0 Introduction

1.1 Background

WYG was commissioned by Everton Stadium Development Limited in May 2019 to complete bat emergence and re-entry surveys of several buildings and a built structure at the proposed development site at Bramley-Moore Dock, Liverpool, Merseyside (hereafter referred to as 'the site').

This set of surveys provide an update to information gathered in by WYG in 2017. In addition, further update surveys were completed in 2020.

This report was prepared by WYG Consultant Ecologist Tom McClellan-West BSc (Hons) MSc ACIEEM, Natural England Class 1 licenced bat surveyor (reference 2019-39969-CLS-CLS) and the conditions pertinent to it are provided in Appendix A. Following a series of scheme design changes and consultation with Natural England, Merseyside Environmental Advisory Service in 2020 (summarised within Appendix 12.1 ES Volume II, the ES for this project has been updated. However, design scheme changes and consultation with statutory bodies is not relevant to this baseline report.

1.2 Site Location

The Bramley-Moore Dock is located within the Port of Liverpool, alongside the River Mersey, nearest post code L3 0AP, and is centred at Ordnance Survey National Grid Reference SJ 33452 92491 (see Figure 1). It forms part of a group of docks, including the adjacent Sandon Half-Tide Dock and Nelson Dock.

The site comprises a dock, with hardstanding and various buildings and a waterbody being mostly enclosed by dock walls, with a narrow entrance into the adjacent dock to the north, leading to the River Mersey (Phase 1 Habitat Plan is provided in Figure 2).

Bramley-Moore Dock is bounded by the Dock Boundary Wall and Regent Road to the east, Nelson Dock to the south, the eastern bank of the River Mersey to the west, the Sandon Half-Tide Dock to the north-west and the United Utilities Liverpool Wastewater Treatment Works to the north-east. The city centre of Liverpool is approximately 1.5km south.

1.3 Development Proposals

The development proposals comprise a full planning application for the development of a 52,888-seat capacity stadium with associated facilities and infrastructure at Bramley-Moore Dock, Liverpool. A detailed description is provided in the wider planning application submission (Planning Statement, Environmental Statement etc.). However, in summary, the application proposes:

- Demolition of non-listed structure; part demolition of listed structures (Regent Road wall); remediation; infill of BMD; engineering works; and alterations to the dock walls to accommodate the development of the stadium (Use Class D2) with vehicle parking (external at grade).
- Creation of new (non-navigable) water channel, vehicular and pedestrian accesses, and hard / soft landscaping (including lighting, public art and boundary treatments).



- Proposed change of use of the Grade II listed Hydraulic Tower structure to exhibition/cultural centre (Use Class D1) (works to the tower to be subject to a separate listed building consent submissions).

The stadium is proposed to be orientated north-south with public realm and circulatory space to the west beyond the new water channel and a large fan zone plaza to the east with some soft landscaping.

1.4 Purpose of the Report

The purpose of this report is to:

- Outline the legislative protection given to bats;
- Detail existing bat records and locally designated sites of relevance to bats within 2km of the site;
- Summarise the findings of the bat emergence and re-entry surveys and report on the presence or likely absence of bat species roosting at the site; and
- Provide an assessment of the potential ecological constraints to the proposed development works at the site.

2.0 Methodology

2.1 Desk Study

2.1.1 Previous Reports

The following relevant reports have been reviewed to provide background information and have been summarised in Section 3.1:

- Ecological Appraisal, undertaken in June 2017 (WYG, 2017a);
- Bat Surveys, undertaken between July and August 2017 (WYG, 2017b); and
- Ecological Appraisal, undertaken in May 2019 (WYG, 2019).

2.1.2 Local Records Centre

The desk study within the Ecological Appraisal (WYG, 2017a) included a search for records for protected species, including bats and designated sites within a 2km radius of the site from Merseyside BioBank and RECORD. Information was requested from both record centres as Merseyside BioBank's records did not cover the full 2km radius from the site on the west (Wirral) side. The Wirral lies within RECORD's area and consequently information was also requested from RECORD.

2.1.3 Online Resources

A search for relevant information was also made on the following website:

- MAGIC www.magic.gov.uk - DEFRA's interactive, web-based database for statutory designations and information on any bat EPSL applications that have been granted in the local area since 2012.

2.2 Field Surveys

2.2.1 Bat Emergence / Re-entry Surveys

The buildings on site were appraised for their suitability to support roosting bats during an EA undertaken in June 2017 (WYG, 2017a). The condition of these buildings has not changed (EA WYG, 2019) and three buildings and one built structure (Sea Wall) were assessed to have the following suitability to support roosting bats:

- Building B1 – **Moderate potential**; and
- Building B2, B5 and Sea Wall – **Low Potential**.

Building B1, B1, B5 and the Sea Wall tunnel were subject to nocturnal surveys in accordance with *Bat Conservation Trust, Bat Surveys for Professional Ecologists, Good Practice Guidelines* (Collins, 2016) hereby referred to as the BCT guidelines. Buildings with low potential require a singular dusk emergence survey in the months of May-August inclusive. Moderate potential buildings require two survey visits, one dusk emergence and one dawn re-entry survey, with at least one survey visit in the months of May-August inclusive.

During the first two surveys of B1 a roost was confirmed therefore this was subject to an additional survey.

The date, type and personnel involved in each of the surveys is provided in Table 1. The qualifications (where relevant) of the surveyors are listed below:

- Laura Holmes (LH) MCIEEM – WYG Principal Ecologist (Natural England Class 3 and 4 bat survey licences, reference numbers 2018-37932-CLS-CLS / 2017-30919-CLS-CLS);
- Tom McClellan-West (TMW) ACIEEM – WYG Consultant Ecologist (Natural England Class 1 bat survey licence, reference number 2019-39969-CLS-CLS);
- Jessica Yorke (JY) Grad CIEEM – WYG Consultant Ecologist;
- Abi Campbell (ACA) – WYG Field Ecologist;
- Andrew Crone (AC) – WYG Field Ecologist;
- Andy Tomlinson (AT) – WYG Field Ecologist;
- Georgia Holmes (GH) – WYG Field Ecologist; and
- Mike Brown (MB) – WYG Field Ecologist.

Table 1. Date, type and personnel involved in each bat survey.

Visit Number	Date	Survey Type	Lead Surveyor	Other Surveyors
Building B1				
1	14/05/2019	Dusk	LH	AC, ACA
2	26/06/2019	Dawn	LH	TMW, GH
3	01/08/2019	Dusk	LH	TMW, GH
Building B2				
1	20/05/2019	Dusk	JY	ACA, MB
Building B5				
1	01/08/2019	Dusk	MB	GB, AC, AT
Sea Wall				
1	14/05/2019	Dusk	LH	AT, MB

Surveyors were positioned at vantage points around the buildings / built structures to enable observation of all potential roosting features on the buildings. Surveyor locations are shown on Figure 3. Each surveyor was equipped with an Elekon Batlogger M detector, which has a broad-spectrum microphone and uses frequency division to make bat calls audible and records data to enable subsequent analysis of files as sonograms. All bat activity heard and / or seen was noted by surveyors, including time of observation.

As per BCT guidelines (Collins, 2016) dusk surveys began 15 minutes prior to sunset and continued for 1.5 hours after sunset. The dawn surveys began 1.5 hours prior to sunrise and continued until at least 15 minutes after sunrise. Weather conditions for each survey can be seen in Table 2. Bat calls were analysed where necessary by Tom McClellan-West ACIEEM using Bat Explorer software.

Table 2: Date and weather conditions for bat emergence survey. Wind speed uses Beaufort scale. Cloud cover uses Oktas Scale.

Date of survey	Sunset/Sunrise	Start	Finish	Temperature Start/Finish	Rain Start/Finish	Wind speed Start/Finish	Cloud cover Start/Finish
14/05/19	Sunset: 21:03	20:48	22:33	20/18	Dry/Dry	3/1	1/1
20/05/19	Sunset: 21:13	20:58	22:43	13/12	Dry/Dry	3/2	0/1
26/06/19	Sunrise: 04:44	03:14	04:59	17/16	Dry/Dry	1/1	8/8
01/08/19	Sunset: 21:08	20:53	22:38	20/19	Dry/Dry	2/1	1/7

In addition to the above a single survey was undertaken at the hydraulic pump house in 2020 in order to inform a Bat Mitigation Class Licence application (BMCL) prior to undertaking works, date and conditions are displayed in Table 2a.

Table 2a: Date and weather conditions for bat emergence survey. Wind speed uses Beaufort scale. Cloud cover uses Oktas Scale.

Date of survey	Sunset/Sunrise	Start	Finish	Temperature Start/Finish	Rain Start/Finish	Wind speed Start/Finish	Cloud cover Start/Finish
15/75/20	Sunset: 21:29	21:14	23:29	20/18	Dry/Dry	3/1	1/1

2.3 Limitations

Surveys were undertaken at appropriate time of year, in accordance with the BCT Guidelines and under suitable weather conditions and therefore there are no limitations with regard to timing.

The surveys are compliant with the effort levels given in the BCT Guidelines for 'Confirmed Bat Roost' and 'Low' suitability features. The three surveys of B1 (with a confirmed roost) were spaced at least 2 weeks apart as recommended by the guidelines. In addition, the surveyors had clear sightlines of the PRFs being observed during each survey. The survey effort is therefore sufficient to categorise the identified roosts on site.

Bats vary their calls dependent on the habitats they fly in and on their activity (commuting, foraging, social interaction, etc). It is not always possible to identify bat calls to species level owing to the overlap of call parameters between some species and/or poor-quality recordings (e.g. brief and distant passes). In these cases, it is accepted that species are identified to genus level or group level (e.g. *Myotis*, *Myotis/Plecotus* and *Nyctalus/Eptesicus*) (Collins, 2016). Where call parameters are inconclusive the species has been labelled as 'unknown'. This allows the dataset to be interpreted accurately and transparently.



The bat surveys were completed with the assistance of bat detectors. Surveys using bat detectors have an advantage over other methodologies (such as radio tracking or trapping) in that they are 'non-intrusive' and will therefore not have an adverse effect on the conservation status or welfare of bats. However, all survey techniques for bats are subject to bias and bat detector surveys may under record species with weak echolocation calls, such as brown long-eared *Plecotus auritus* bats. Bats from the *Myotis* genus can be difficult to identify to species from call structure alone (Russ, 2012).

The details of this report will remain valid for a period of **one year** from the date of the first survey (i.e. 23rd May 2020) after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals which this report was based on.

3.0 Baseline Conditions

3.1 Desk Study

The buildings and built structures on site were assessed for their potential to support roosting bats during an Ecological Appraisal undertaken in June 2017 (WYG, 2017a). Three buildings and one built structure (Sea Wall) were found to have bat roost potential. The condition of these buildings and structure was found not to have changed during updated EA survey undertaken in May 2019 (WYG, 2019) so that:

- Building B1 – **Moderate Potential**;
- Buildings B2, B5 – **Low Potential**; and
- Built Structure (Sea Wall) – **Low potential**.

Nocturnal surveys completed between July and August 2017 recorded no bat emergences or re-entries at any of the buildings (WYG, 2017b). Only low numbers of common pipistrelle *Pipistrellus pipistrellus* and *Myotis* species were recorded and/or observed during the 2017 surveys.

Data obtained from Merseyside Biobank, RECORD and MAGIC data search returned 32 records of bats within 2km of the site, of which 25 were records of roosts (WYG, 2017a). The majority of the records are of common pipistrelle, followed by unidentified bat species. There was one record of roosting noctule bats *Nyctalus noctula*. Summary detail of the closest records to site for bat and their roost is given in Table 3. Please note that this includes works for which WYG have been involved, but exact location is removed to maintain confidentiality.

Table 3. Bat species recorded within 2km of the site.

Bat species	Approximate Distance (km) & Direction	Year	Record details
Common pipistrelle	0.2 SE	2015, 2016	21 records of roosts, including at least three locations of day roosts, 2015 & 2016.
Noctule	0.2 SE	2016	1 day roost 2016.
Common pipistrelle	0.2 SE	2019	Up to 5 bats utilising a building as a day roost, number of roosting locations unknown.

MAGIC returned no records of granted bat EPSLs within 2km of the site, as of 24th July 2019.

3.2 Field Survey

3.2.1 Dusk Survey 14th May 2019

Building B1

Two common pipistrelles were observed **emerging** from the building on the northern elevation at 21:46 (43 minutes after sunset). They emerged from the most westerly window arch, which is only partially boarded up. The two bats were then recorded commuting west by other surveyors. Only a couple of further common pipistrelle passes were recorded (not observed) during the survey with this activity attributed to commuting.



The flight path observed during the survey is shown in Figure 4.

Sea Wall

The first bat was identified as a common pipistrelle and was recorded at 22:00 (57 minutes after sunset) and was heard not seen, and the calls were characteristic of commuting activity. A further eight commuting passes were recorded sporadically during the remainder of the survey. Surveyor notes indicate the commuting took place above the water, along the sea wall. **No emergences were recorded from the Sea Wall.**

3.2.2 Dusk Survey 20th May 2019

Building B2

A singular common pipistrelle was recorded at 22:10 (57 minutes after sunset) commuting over building B2, from the northern aspect to the south-western aspect. No further activity was recorded. **No emergence was recorded from building B2.**

Flight paths observed during the survey are shown in Figure 5.

3.2.3 Dawn Survey 26th June 2019

Building B1

Common pipistrelle commuting activity was recorded sporadically from 03:25 (41 minutes before sunrise). A single common pipistrelle was **suspected to re-enter the building** at 03:28 (38 minutes before sunrise) flying from west and dropping over the one-storey section of roof. The bat was not seen by surveyors on other aspects at or just after this time. The last bat recorded was a common pipistrelle commuting at 04:03 (41 minutes before sunrise) but was heard not seen.

Flight paths observed during the survey are shown in Figure 6.

3.2.4 Dusk Survey 01st August 2019

Building B1

The first bat was identified as a common pipistrelle and was recorded at 22:00 (52 minutes after sunset) but was heard not seen. The calls were attributed to commuting activity. Further common pipistrelle commuting passes were recorded sporadically during the remainder of the survey. A single common pipistrelle was observed flying along the northern boundary of the site and around the western aspect of the building, before disappearing from the surveyor's field of view. **No emergence was recorded from building B1.**

Building B5

The first bat was identified as a common pipistrelle and was recorded at 21:58 (50 minutes after sunset) observed commuting along the southern aspect of building B5. There was frequent common pipistrelle commuting activity along this route, with as many as two bats seen at one time. These bats occasionally foraged along the same route.



A single noctule bat pass was recorded at 22:38 (1 hour, 30 minutes after sunset), which was heard not seen. The calls are attributed to commuting activity. **No emergence was recorded from building B5.**

Flight paths observed during the survey are shown in Figure 7.

3.2.5 Dusk – July 2020

No Bats were recorded emerging from the building.



4.0 Relevant Planning Policy & Legislation

4.1 Revised National Planning Policy Framework

A revised NPPF was issued on 19th February 2019 (Ministry of Housing Communities and Local Government, 2019) and currently supplements government Circular 06/2005, *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System* (Office of the Deputy Prime Minister, 2005).

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. Paragraph 170 of the NPPF also states that:

'Planning policies and decisions should contribute to and enhance the natural environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)*
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland*
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate*
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*

The conservation and enhancement of wildlife is also specifically reference re: development within the National Parks or the Broads.

Paragraph 174 then goes on to confirmed that:

When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*



- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*

Regarding EcIA's and HRA's – any sites identified, or required, as compensatory measures for adverse effects on any Natura 2000/habitats site should also be given the same level as protection as the pSPA's and cSAC's themselves. In addition, when an application is being determined, Paragraph 177 clarifies that:

"The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site."

Paragraph 180 is also relevant as;

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:...

- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

4.2 Biodiversity 2020: A Strategy For England's Wildlife & Ecosystem Services

Biodiversity 2020 (DEFRA 2011) replaces the previous UK Biodiversity Action Plan and sets national targets to be achieved. The intent of Biodiversity 2020, however, is much broader than the protection and enhancement of less common species and is meant to embrace the wider countryside as a whole.

The priority species and habitats considered under Biodiversity 2020 are the SPI & HPI detailed under NERC Act.

4.3 Local Biodiversity Action Plan

Local Biodiversity Action Plans (LBAPs) identify habitat and species conservation priorities at a local level (typically County by County) and are usually drawn up by a consortium of local Government organisations and conservation charities. Although they are no-longer managed at a national level many are still reviewed and updated at a local level.

The North Merseyside LBAP is the relevant plan but does not exist as a single published document and instead comprises a total of 44 species and habitat action plans and a business plan. Included is a species action plan for bats. The species included within this category are:



- Common pipistrelle;
- Soprano pipistrelle (*Pipistrellus pygmaeus*);
- Brown long-eared bat;
- Whiskered bat (*Myotis mystacinus*);
- Brandt's bat (*Myotis brandtii*);
- Natterer's bat (*Myotis nattereri*);
- Daubenton's bat (*Myotis daubentonii*); and
- Noctule bat.

It should be noted that the existence of a SAP or HAP does not always infer an elevated level of importance for those features. These plans may be designed to encourage an increase in these habitats/species, rather than to protect a county-scarce feature (for example).

4.4 Liverpool Local Plan

The statutory development plan for Liverpool is the Unitary Development Plan (UDP) which was adopted in November 2002. The UDP will be replaced when the Liverpool Local Plan is adopted.

4.4.1 Unitary Development Plan

The statutory development plan for Liverpool is the Unitary Development Plan (2002) (3). Policy OE5 "PROTECTION OF NATURE CONSERVATION SITES AND FEATURES" states:

"The City Council will seek to protect the nature conservation interest of open land and the water environment in the City by not permitting development which would:

- destroy, fragment or adversely affect directly or indirectly a designated or proposed Special Protection Area (SPA), Ramsar site, or Site of Specific Scientific Interest (SSSI), unless the City Council is satisfied that there is no alternative solution and there are imperative reasons of overriding public interest;*
- destroy, fragment or adversely directly or indirectly affect a Site of Nature Conservation Value as identified by the City Council unless it can be clearly demonstrated that there are reasons for the proposal including benefits to the community, which outweigh the need to safeguard the substantive nature conservation value of the site;*
- destroy, fragment or adversely affect, directly or indirectly, a Regionally Important Geological /Geomorphological Site (RIGS) unless it can be demonstrated that the benefits of the proposal to the community outweigh the need to safeguard the geological value of the site;*
- have an adverse effect on legally protected wildlife species; or*
- destroy, fragment or adversely affect, indirectly or directly, sites with known conservation value in a neighbouring authority area.*

In assessing criteria ii to iv full account will be taken of proposed mitigation measures."

4.4.2 Emerging Local Plan

A submission version of the local plan was submitted for examination in May 2018 (Liverpool City Council, 2018). Chapter 12 of this local plan focuses on 'Green Infrastructure.' This is defined in NPPF as '*a network of multifunctional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits*'. This 'network' includes land in both public and private ownership, comprising the city's 'green wedges', parks, local wildlife sites, allotments, street



trees, hedges, cemeteries, private gardens, water spaces (including the River Mersey, Leeds-Liverpool Canal), park lakes and water courses.

Policy GI1 states that *'the recreational function, visual amenity, historic and structural quality and value of the city's green infrastructure resource will be protected and enhanced.'* Specifically, protection will be afforded to:

- a. The Green Belt, and the Mersey Estuary SSSI/SPA/Ramsar Site;
- b. The Green Wedge;
- c. The City's network of Parks and Gardens;
- d. Biodiversity assets, including Local Wildlife Sites (LWS) and Local Nature Reserves (LNR);
- e. Regionally Important Geological/Geomorphological Sites (RIGS);
- f. Locally important open spaces including amenity spaces and allotments;
- g. Water spaces, including the Leeds Liverpool canal, park lakes and water courses;
- h. Playing fields and pitches; and
- i. Green Corridors, Recreational routes and the Public Rights of Way network.

Item 2 of Policy GI 5 states that *'Development which may cause direct or indirect significant harm to other designated sites of nature or geological conservation importance, Priority Habitats, legally protected species and / or Priority Species will only be permitted on:*

- *National sites (Mersey Estuary Ramsar site/Mersey Estuary Site of Special Scientific Interest (SSSI)): where there are no alternatives and where the reasons for and the benefits of development clearly outweigh the impact on the nature conservation value of the site and its broader contribution to the national network;*
- *Local Sites (Local Nature Reserves (LNRs), Local Wildlife Site (LWS) and Regionally Important Geological/Geomorphological Sites (RIGS): where the reasons for and the benefits of development clearly outweigh the impact on the nature conservation value of the site and its broader contribution to the Liverpool City Region (LCR) Ecological Network;*
- *Sites including Priority Habitats/ Irreplaceable habitats (including ancient woodlands and aged or veteran trees) unless the need for and the benefits of, the development on balance clearly outweigh the impact on the nature conservation value of the habitat and its broader contribution to the LCR Ecological Network.*

Item 5 of Policy GI 5 states that *'development proposals which affect sites of nature conservation importance, priority habitats, legally protected species or priority species must be supported by an Ecological Appraisal and include details of avoidance, mitigation and /or compensation where appropriate.'*

4.5 Legislation

All British bat species are given special protection within England by their inclusion on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

As a result, it is an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;



- Damage or destroy a bat's roosting place (even if bats are not occupying a roost at the time);
- Possess or advertise, sell or exchange a bat (dead or alive) or any part of a bat; and
- Intentionally or recklessly obstruct access to a bat roost.

Where development will result in damage to suitable habitat where the species is known to be present, or risk harming or significantly disturbing bats, an EPSL is likely to be required from Natural England to allow the development to proceed.

Bats are also afforded more general protection in England (and Wales) within the Natural Environment and Rural Communities Act (NERC Act) 2006. This imposes a duty on all public bodies, including local authorities and statutory bodies, in exercising their functions, "to have due regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity" [Section 40 (1)]. It notes that "conserving biodiversity includes restoring or enhancing a population or habitat" [Section 40 (3)]. Consequently, attention should be given to dealing with the modification or development of an area if aspects of it are deemed important to bats, such as roosts, flight corridors and foraging areas.

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of habitats and species which are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 habitats of principal importance and 1,150 species of principal importance.

Seven species of bat are listed under Section 41 of the NERC Act 2006; soprano pipistrelle, brown long-eared bat, greater horseshoe bat *Rhinolophus ferrumequinum*, lesser horseshoe bat *Rhinolophus hipposideros*, barbastelle *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii* and noctule.

5.0 Conclusion

5.1 Roosting Bats

5.1.1 Roosts Identified

One bat roost has been identified through the surveys undertaken in 2019 however this roost was not present in 2017 (WYG, 2017b). The below refers to updated surveys unless stated otherwise.

Common pipistrelle day roost (Building B1) – during the first dusk survey, **two** common pipistrelle bats were observed emerging from the one-storey section of the building on the northern aspect, with the emergences originating from the most westerly window.

During the dawn survey **one** bat is suspected to have re-entered the building flying from the west of the site and dropping down towards the flat roof on the western portion of the building (indicating a second access point). The bat was not recorded by any surveyors on the other aspects of the building. Anecdotal evidence given by a site worker is that this roof section has numerous small voids, cracks, crevices and access points, supporting the conclusion of a re-entry.

Day roosts can be used throughout the bats active season (generally between April – September inclusive) as traditional resting sites. Males and non-breeding females will roost alone or in small groups. Bats may use a selection of day roosts on a regular basis switching between them daily or conversely



occupying the same one for weeks at a time. All bat roosts are protected even if a bat is not currently in residence, therefore inactive roosts still require consideration.

The roost is not considered a maternity roost due to the low numbers of bats observed utilising the building, lack of historical use (WYG, 2017b), lack of social calls and lack of indicative maternity behaviours.

Without mitigation, the loss of Building B1 due to refurbishment would result in the disturbance to and destruction of one roost site used by a single or small number of one common bat species. The mitigation is addressed within Appendix 12.1 ES Volume II (WYG, 2020).

5.2 Foraging and Commuting Bats

The site was considered to provide negligible potential for foraging and commuting bats due to a lack of habitat features which are likely to attract insects (WYG, 2017a; 2019). Activity levels on site were extremely low, with only occasional passes by individual bats during each survey with no obvious patterns of behaviour. This confirms that the site is of **negligible** importance for foraging and commuting bats.



6.0 References

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FIGURES

Figure 1 – Site Location Plan

Figure 2 – Phase 1 Habitat Plan

**Figure 3 – Surveyor Location and
Building Suitability Plan**

Figure 4 – Bat Survey Results

14/05/2019 - Dusk

Figure 5 – Bat Survey Results

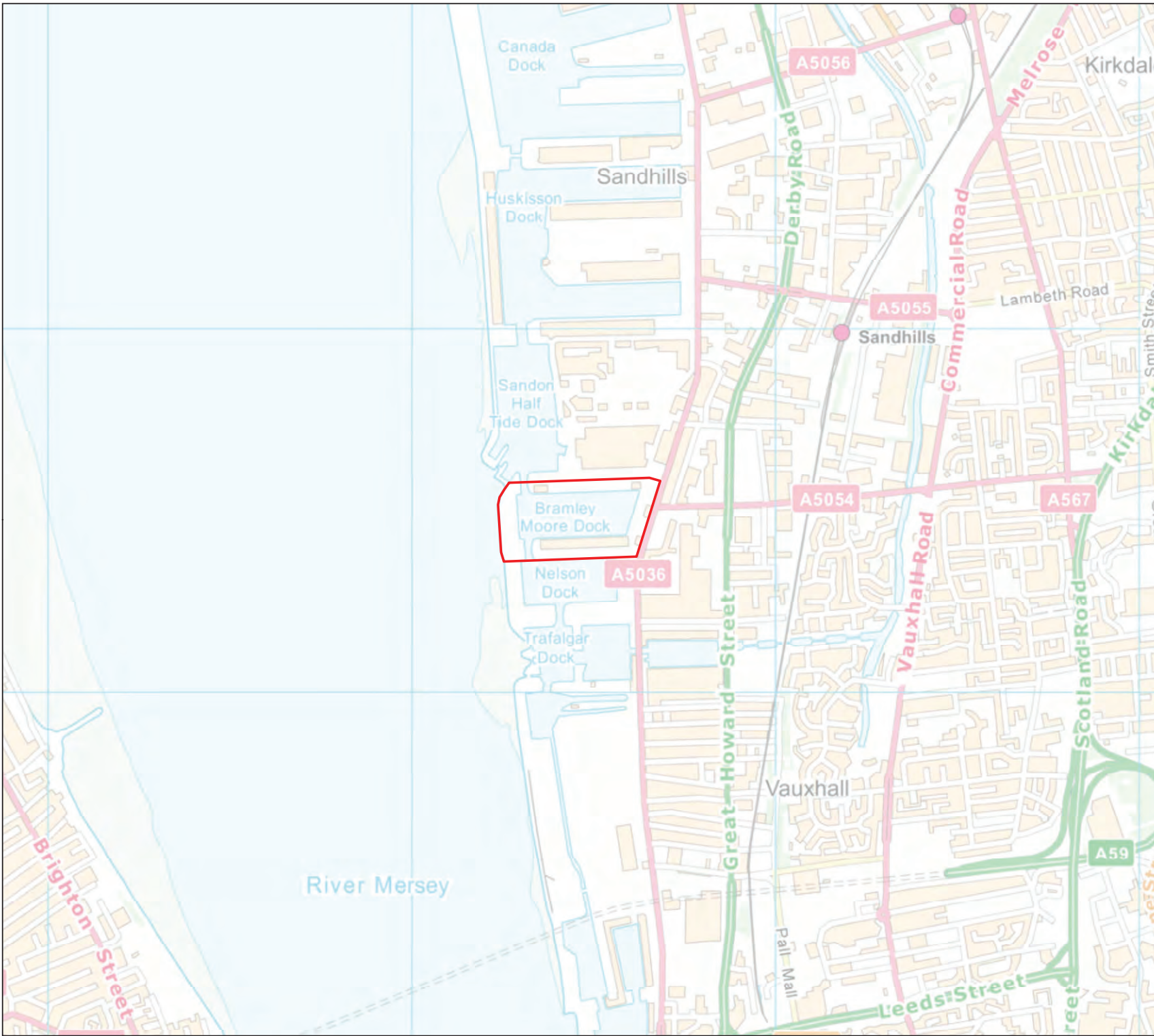
20/05/2019 - Dusk

Figure 6 – Bat Survey Results

26/06/2019 - Dawn

Figure 7 – Bat Survey Results

01/08/2019 - Dusk



Rev	Date	Notes
A	30/07/19	Initial map production

Legend

Site boundary

0 100 200 400 Metres



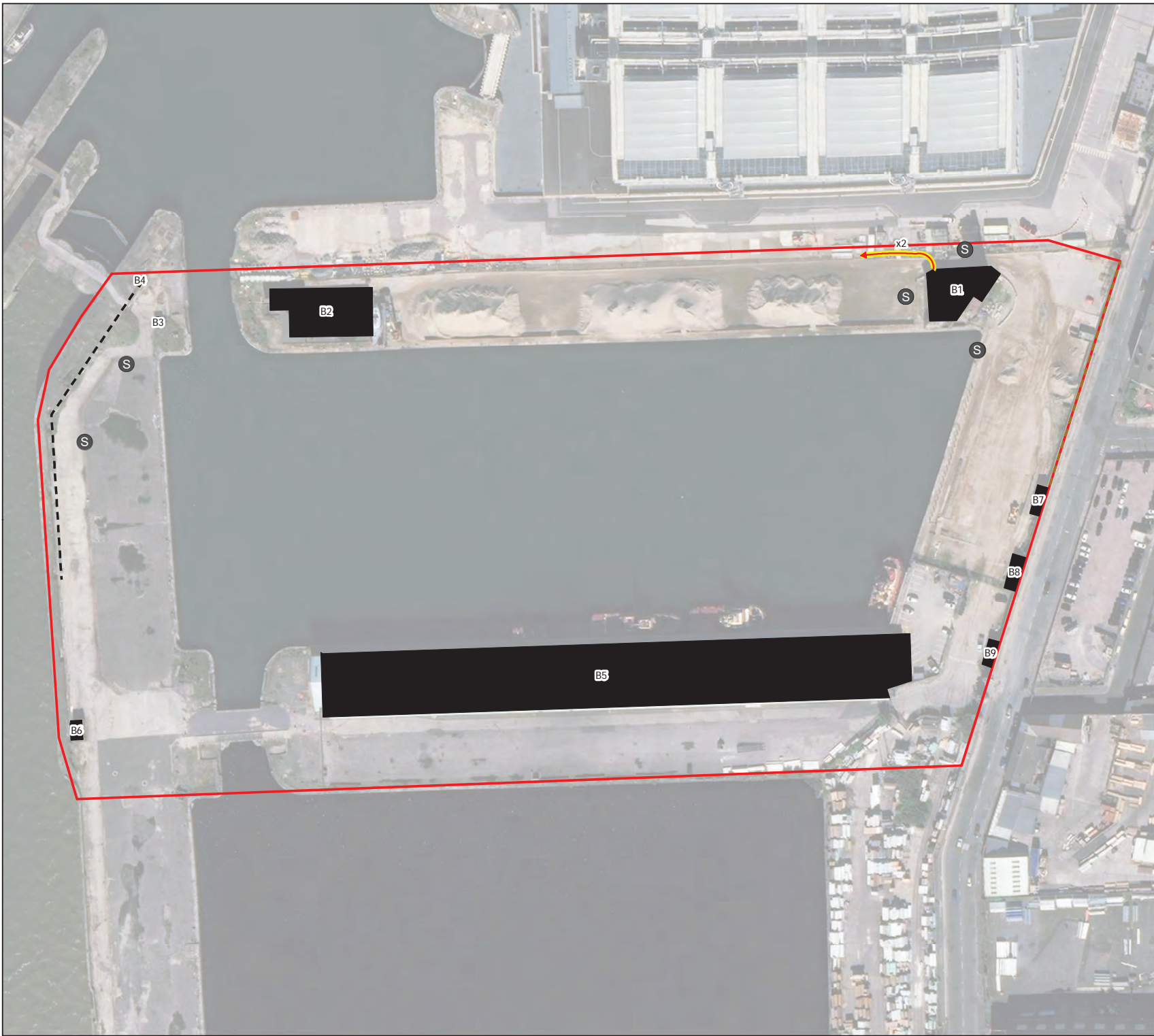
Site Location Plan

**Bramley-Moore Dock
Everton Stadium Development Limited**

Scale at A3: 1:10,000	Project No: A100795	Drawing No: Figure 1	Revision: A
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Drawn by: Maddie Errington	Drawn date: 30/07/2019	Approved by: Tom McClellan-West
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Rev	Date	Notes
A	30/07/19	Initial map production

Legend

- Site boundary
- Buildings
- Tunnels at sea wall
- Wall on to road
- Common pipistrelle - emergence
- Surveyor location

0 10 20 40 60 Metres

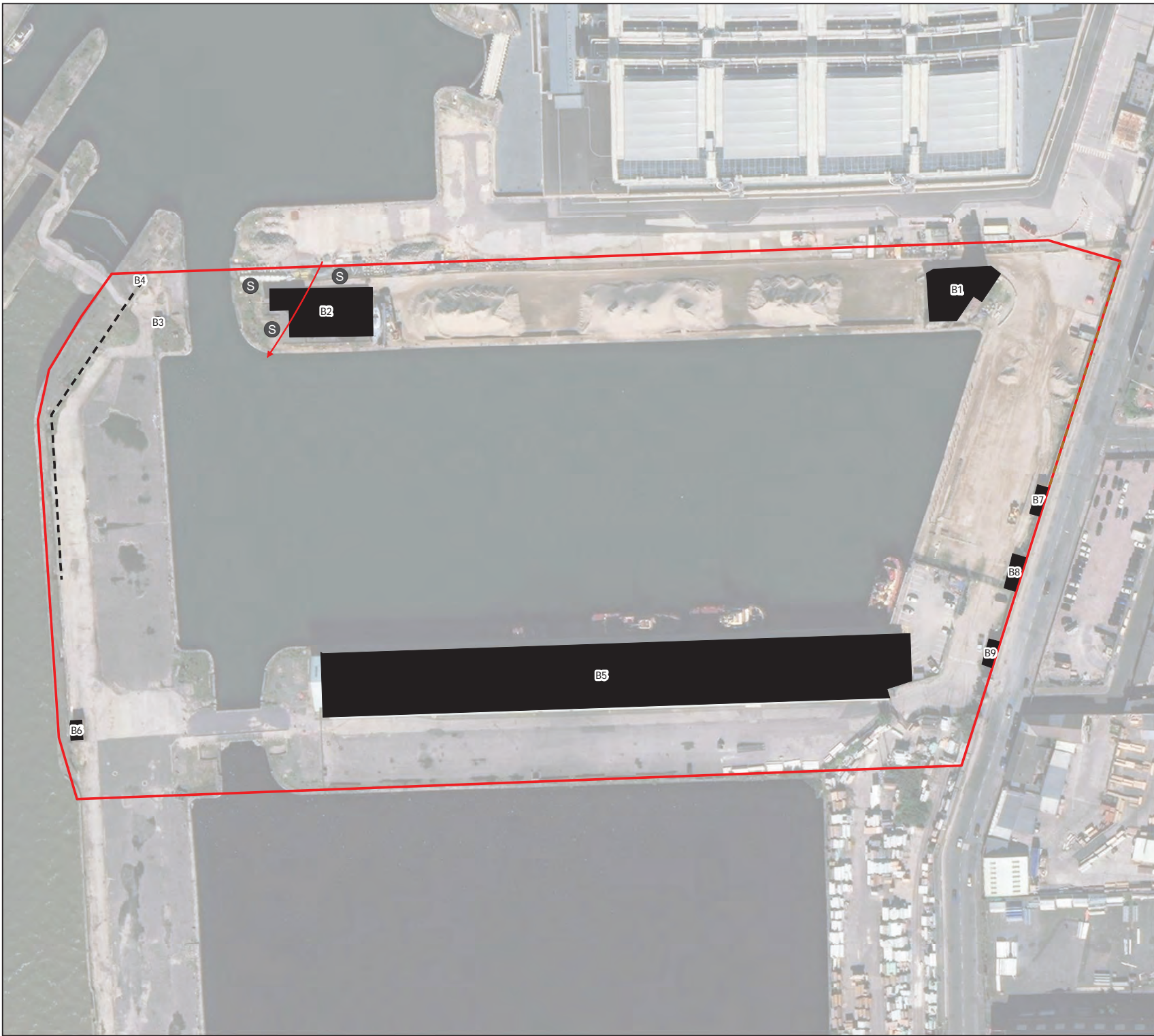


Bat Survey Results
14/05/19 - Dusk

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:1,500	Project No: A100795	Drawing No: Figure 4	Revision: A
Drawn by: Maddie Errington	Drawn date: 30/07/2019	Approved by: Tom McClellan-West	

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Rev	Date	Notes
A	30/07/19	Initial map production

Legend

- Site boundary
- Buildings
- Tunnels at sea wall
- Wall on to road
- Common pipistrelle - commuting
- Surveyor location

0 10 20 40 60 Metres



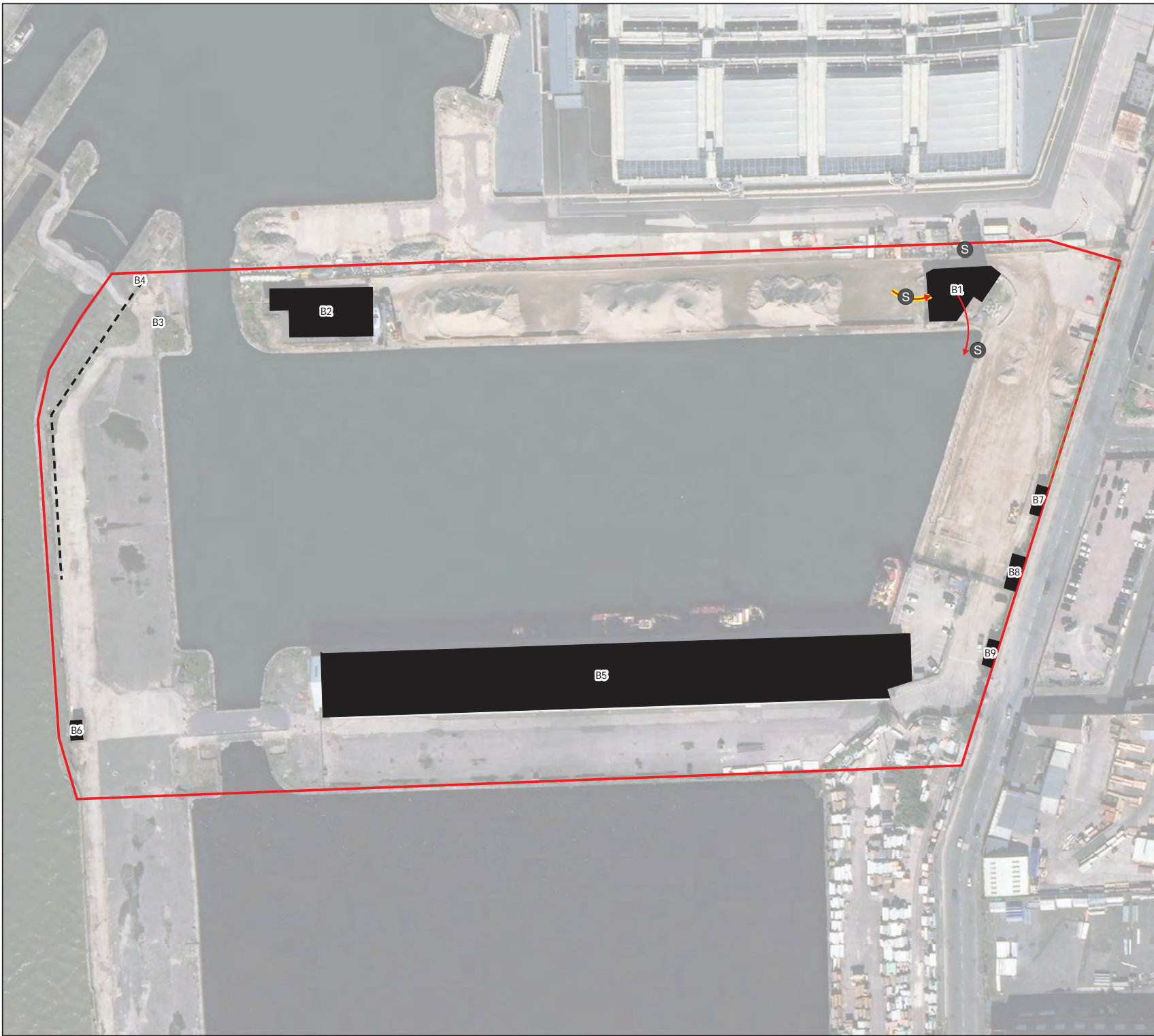
Bat Survey Results
20/05/19 - Dusk

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:1,500	Project No: A100795	Drawing No: Figure 5	Revision: A
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Rev	Date	Notes
A	30/07/19	Initial map production

Legend

- Site boundary
- Buildings
- Tunnels at sea wall
- Wall on to road
- Common pipistrelle - suspected re-entry
- Common pipistrelle - commuting
- Surveyor location

0 10 20 40 60 Metres



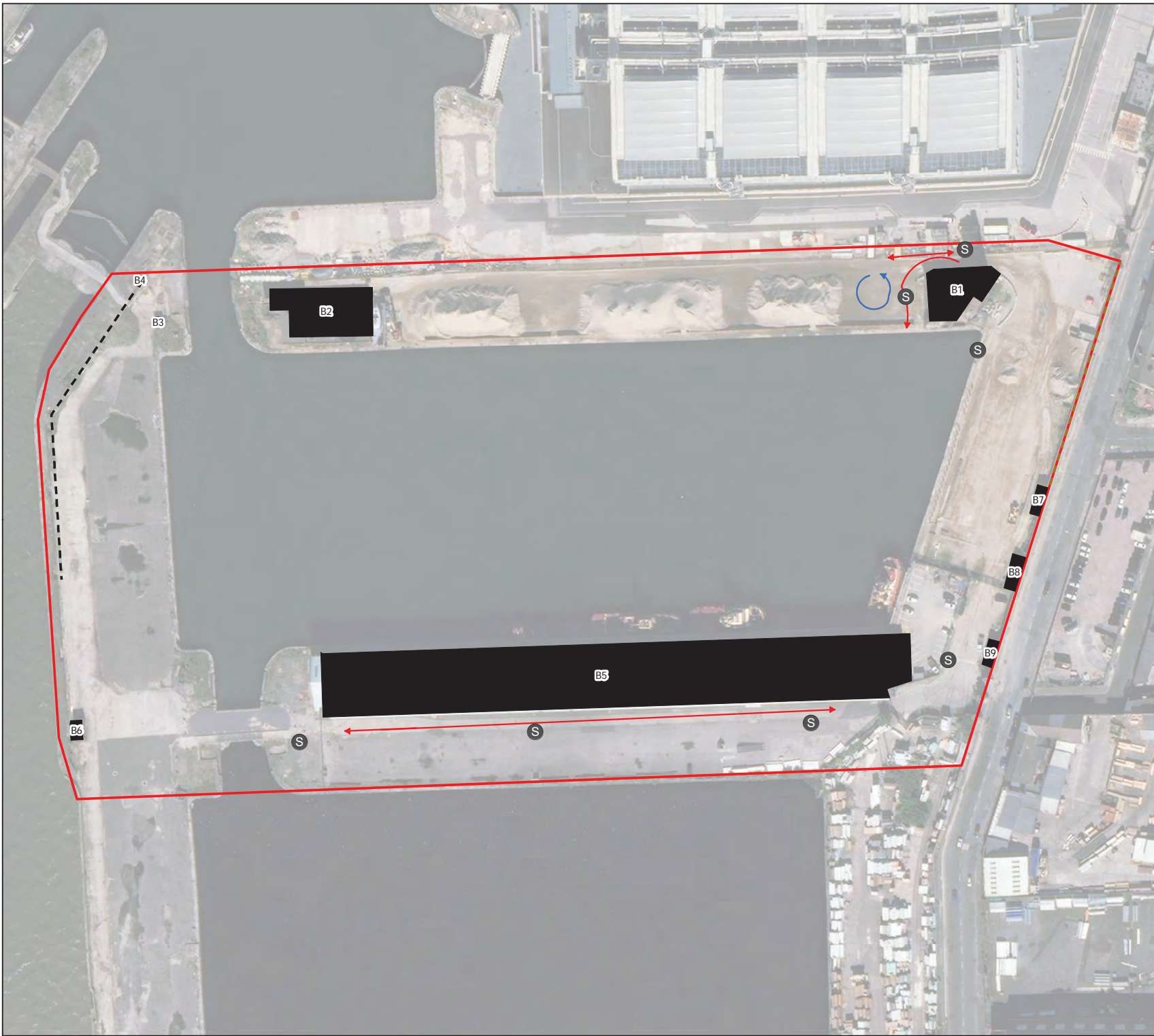
Bat Survey Results
26/06/19 - Dawn

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:1,500	Project No: A100795	Drawing No: Figure 6	Revision: A
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Drawn by: Maddie Errington	Drawn date: 30/07/2019	Approved by: Tom McClellan-West
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Rev	Date	Notes
A	02/08/19	Initial map production

Legend

- Site boundary
- Buildings
- Tunnels at sea wall
- Wall on to road
- Common pipistrelle - commuting
- Common pipistrelle - foraging
- Surveyor location

0 10 20 40 60 Metres



Bat Survey Results
01/08/19 - Dusk

Bramley-Moore Dock
Everton Stadium Development Limited

Scale at A3: 1:1,500	Project No: A100795	Drawing No: Figure 7	Revision: A
Drawn by: Maddie Errington	Drawn date: 02/08/2019	Approved by: Tom McClellan-West	

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Appendix A – Report Conditions

REPORT CONDITIONS

This Report has been prepared using reasonable skill and care for the sole benefit of Everton Stadium Development Limited ("the Client") for the proposed uses stated in the report by WYG Environment Planning Transport Limited ("WYG"). WYG exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

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The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factor.



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Technical Appendix 4 – WYG, (2019d), Bramley-Moore Dock: Shadow Habitats Regulations Assessment Stage 1 and Stage 2, Report on behalf of Everton Stadium Development Limited, A100795.



Bramley Moore Dock, Liverpool

Shadow Habitats Regulations Assessment Stage 1 and Stage 2

**For Everton Stadium Development
Limited**

December 2019 Updated January 2021

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Document Control

Project: Bramley Moore Dock, Liverpool. Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2

Client: Everton Stadium Development Limited

Job Number: A100795

File Origin: L:\Projects\Projects A100000 on\A100795 Bramley-Moore Dock, Liverpool\REPORTS\HRA

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WYG Environment Planning Transport Ltd. accept no responsibility or liability for the use which is made of this document other than by the Client for the purpose for which it was originally commissioned and prepared.



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Appendix B – Site Boundary and Development Layout

Appendix C – Detailed Construction Methodology

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Appendix E – Map Showing Statutory Designated Sites within 10 km

Appendix F – LAeq and LMax baseline noise levels and noise levels at ecological receptor locations



Appendix G – External lighting sheets

Figure 1 – In-combination Schemes

Figure 2 – Indicative pontoon location, specification and installation measures



Glossary

ALSE	Assessment of Likely Significant Effects
AA	Appropriate Assessment
BMD	Bramley-Moore Dock
CEFAS	Centre for Environment Fisheries and Aquaculture Science
DAS	Discretionary Advice Service
Habitats Regulations	Conservation of Habitats and Species Regulations 2017
HRA	Habitats Regulations Assessment
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
LCC	Liverpool City Council
MCIEEM	Full Member of the Chartered Institute of Ecology & Environmental Management
MEAS	Merseyside Environmental Advice Service
Natura 2000 site	A European site designated for its nature conservation value
IAQM	Institute of Air Quality Management
PEA	Preliminary Ecological Appraisal
SSSI	Site of Special Scientific Interest
SAC	Special Area of Conservation
SIP	Site Improvement Plan
SPA	Special Protection Area



Contents	Summary
Site Location	The application site is located at Bramley-Moore Dock (BMD) in Liverpool, National Grid Reference SJ3345292491. BMD forms a small part of a larger dock and canal network along the River Mersey.
Proposals	<p>The development proposals are for the development of a 52,888-seat capacity stadium with associated facilities and infrastructure at Bramley-Moore Dock, Liverpool. A full planning application was submitted to Liverpool City Council (LPA ref. 20F/0001) in December 2019 and has been subject to statutory consultation.</p> <p>A detailed description of development is provided in the wider planning application submission (Planning Statement, Environmental Statement etc.), including the design changes associated with the revised 2020 submission reported in ES Chapter 3, Volume II. However, in summary, the application proposes:</p> <ul style="list-style-type: none"> • Demolition of non-listed structures; part-demolition of listed structures (Regent Road wall); remediation; infill of BMD; engineering works; and alterations to the dock walls to accommodate the development of the stadium (Use Class D2) with vehicle parking (external at grade). • Creation of a new (non-navigable) water channel, vehicular and pedestrian accesses, and hard / soft landscaping (including lighting, public art and boundary treatments). • Proposed change of use of the Grade II listed Hydraulic Tower structure to an exhibition/cultural centre (Use Class D1) (works to the tower to be subject to separate listed building consent submissions). <p>The stadium is proposed to be orientated north-south with public realm and circulatory space to the west beyond the new water channel and a large fan zone plaza to the east with some soft landscaping.</p> <p>The final proposed development is included in the EcIA report (WYG, 2020); refer to this report for full scheme details.</p>
Existing Site Information	Natural England have provided advice under their Discretionary Advice Service (DAS) which has been reviewed in order to inform this report along with detailed phase 1 habitat survey and breeding, passage and wintering bird surveys. Summary of consultee comments is presented within Bramley-Moore Dock ES Volume II, Chapter 12 – Ecology, and in Appendix 5 of ES Appendix 12.1, ES Volume III.
Scope of this Assessment	<p>This report assesses the Likely Significant Effects (LSE) (HRA Stage 1) of the proposed development upon qualifying habitats and species of relevant designated Natura 2000 sites within the Zone of Influence of the proposed scheme.</p> <p>Where LSEs are identified, HRA Stage 2 subsequently assesses these effects against the conservation objectives of all screened-in Natura 2000 sites, to determine whether or not these effects will result in an adverse effect on the integrity of these designated Natura 2000 sites.</p>



Contents	Summary
Results of HRA Stage 1: Screening	<p>Stage 1 concluded that the application site has potential to result in:</p> <p>Construction phase</p> <ol style="list-style-type: none"> 1) Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat 2) Habitat loss within functionally linked habitat beyond the boundary of the designated sites 3) Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen) 4) Habitat degradation – effects on water quality at Nelson Dock during dock infill 5) Habitat degradation - water quality impacts as a result of pollution events 6) Disturbance of qualifying features – visual and auditory disturbance 7) Habitat degradation - deposition of waste/litter <p>Operation phase</p> <ol style="list-style-type: none"> 8) Loss of qualifying features - potential bird strike 9) Habitat degradation - deposition of waste/litter <p>These pathways could potentially result in LSEs upon favourable conservation status of qualifying features of relevant designated sites.</p> <p>LSEs are possible when this project is considered alone and in-combination with other relevant plans and projects. It is therefore considered necessary for this project to progress to HRA Stage 2 - Appropriate Assessment.</p>
Results of HRA Stage 2: Appropriate Assessment	<p>Following the incorporation of inbuilt and additional mitigation, Stage 2 determined that the identified LSEs of the proposed development, when considered alone and in combination with other relevant plans and projects, will not result in any adverse effect on the integrity of any designated sites.</p>
Conclusions	<p>As such, the 'Competent Authority' is considered unlikely to require any further assessment under the Habitats Regulations, and construction and operational phases of the proposed development for this project should be able to proceed without any adverse effects on the integrity of the internationally designated sites in the wider area.</p>



1.0 Introduction

1.1 Background.

WYG was commissioned by Everton Stadium Development Limited in September 2019 to prepare a report to inform a Habitats Regulations Assessment (HRA), for proposed redevelopment of Bramley-Moore Dock (BMD), hereby referred to as “the application site”. The planning application for this project was submitted in December 2019 (Liverpool City Council planning application reference 20F/0001), in addition to an MMO licence application which was submitted to the MMO in March 2020 (MMO reference: MLA/2020/00109) to apply for a marine licence to cover various elements of the works.

However, a revised planning application which incorporates changes to the development layout and construction methods was submitted in September 2020. This HRA addresses scheme changes along with comments received from Natural England and MEAS in relation to the assessment for the original application. A summary of design changes and consultee comments is provided within Bramley-Moore Dock ES Volume II, Chapter 12 – Ecology, and in Appendix 5 of ES Appendix 12.1, ES Volume III. In addition, following changes to the CMP for this project this assessment was revised in January 2020.

This report has been prepared by WYG Principal Ecologist Phil Preston BSc (Hons) MSc MCIEEM. The conditions pertinent to the report are provided in Appendix A.

1.2 Site Location and description

The application site covers 8.67 hectares and is bounded to the north by the United Utilities wastewater treatment plant and Sandon Half Tide Dock, to the east by Regent Road, to the south by Nelson Dock and to the west by the River Mersey wall. The western boundary of the application site is limited to the foot of the concrete crown wall, built on top of the River Mersey wall. A site location plan is provided at Appendix B.

The application site currently features the waterbody known as Bramley – Moore Dock (BMD) and associated Grade II listed dock walls of Bramley-Moore Dock, the Grade II listed Regent Road dock wall, a Grade II listed Hydraulic Engine House, further red brick structures that are non-listed including a substantial warehouse on the south quay of the dock and areas of hardstanding.

Habitats recorded during an ecological appraisal of the application site (WYG 2019) were dominated by hard standing with open water (BMD) with small areas of ephemeral vegetation, scrub and tall ruderal vegetation.

1.3 Development Proposals

The development proposals comprise a planning application for:

The development proposals comprise a full planning application for the development of a 52,888-seat capacity stadium with associated facilities and infrastructure at Bramley-Moore Dock, Liverpool. A



detailed description of development is provided in the wider planning application submission (Planning Statement, Environmental Statement etc.), including the design changes associated with the revised 2020 submission reported in ES Chapter 3, Volume II. However, in summary, the application proposes:

- Demolition of non-listed structures; part-demolition of listed structures (Regent Road wall); remediation; infill of BMD; engineering works; and alterations to the dock walls to accommodate the development of the stadium (Use Class D2) with vehicle parking (external at grade).
- Creation of a new (non-navigable) water channel, vehicular and pedestrian accesses, and hard / soft landscaping (including lighting, public art and boundary treatments).
- Proposed change of use of the Grade II listed Hydraulic Tower structure to an exhibition/cultural centre (Use Class D1) with ancillary cafe (works to the tower to be subject to separate listed building consent submissions).

The stadium is proposed to be orientated north-south with public realm and circulatory space to the west beyond the new water channel and a large fan zone plaza to the east with some soft landscaping. The proposed development layout for this project is displayed in Appendix B. The detailed construction methodology document is presented within Appendix C and summarised below:

The construction of the development is set to take 3 years, with several activities overlapping or running concurrently. The Construction Management Plan (Laing O'Rourke, 2020), provided in Appendix 4.1, ES Volume III, includes multiple stages. This construction methodology is informed by the "Dock Infill Methodology for Planning" (DIMP) document (BuroHappold 2020, ref:0040026). A summary of all construction methodology stages is presented below (see Appendix C for details). Pathways of effect relevant to this construction methodology and subsequent assessment of likely significant effects and appropriate assessment relevant to designated sites surrounding the application site are provided in section 4 onwards.

1. Installation of bird mitigation in the form of 2 no. floating pontoons in Nelson Dock. Protection of the listed structures and removal of heritage assets for reuse.
2. Construction of 3 new openings into the Grade II listed Regent Road wall (1 new opening required at start of construction programme).
3. Removal of buildings and in-ground obstructions.
4. Dock wall heritage repairs to Grade II Listed dock walls.
5. Dock filling, such works will include:
 - a. Install bubble screen;
 - b. Undertake 1st stage fish removal and relocation;
 - c. Rake dock bed & remove debris;
 - d. Install silt curtain;
 - e. Construct temporary isolation structure;
 - f. Undertake 2nd stage fish removal;
 - g. Undertake dock filling;
 - h. Undertake compaction operations.



6. Service diversions, incoming electrical supply.
7. Substructure works, including piling.
8. Substructure pile cap foundations and lift pits.
9. Underground drainage and other services.
10. Precast concrete work to columns, walls, slabs and stairs, as well as lower-tier rakers and terrace units.
11. Structural steelwork including upper rakers.
12. Precast terracing units, vomitories and step blocks.
13. Steelwork roof trusses and purlins.
14. Aluminium standing seam roof coverings and polycarbonate.
15. Aluminium mesh cladding to roof barrel.
16. Brickwork piers.
17. Glazing, mesh and brickwork infills.
18. Lifts and escalators.
19. Handrails, balustrades and bowl barrier rails.
20. Mechanical, electrical and public health installations.
21. Fit-out activities, including bowl, concessions and concourses.
22. Pitch works.
23. Testing and commissioning.
24. External works including western water channel, DNO compound and external stepped promenade and wind mitigation measures.

It is noted that the dock infill works will involve the use of marine won aggregate acquired from dredging site 457 located to the north west of the application site. It is noted that this forms part of approved operations being undertaken as part of the dredging site. It is assumed that all necessary approvals have been gained to undertake this work and therefore no further assessment is required in relation to dredging of material.

The construction phase is scheduled to commence during the first/second quarter of 2021. Works are currently planned to be completed over a three-year period.

It is understood that this site falls within the jurisdiction of the MMO (which extends to any works that are within the active tidal limit, which extends into the dock system given the hydraulic connectivity to the marine environment).

1.4 Requirements for the Habitats Regulations Assessment

The requirement for a HRA is established through Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, hereby referred to as the 'Habitats Directive', in Articles 6(3) and 6(4). The Habitats Directive is transposed into national legislation by the Conservation of Habitats and Species Regulations 2017. These are hereafter referred to as the 'Habitats Regulations'.

Under Regulation 63, any project which is likely to have a significant effect on a European site (either alone or in-combination with other projects) and is not directly connected with, or necessary for the management of the application site, must be subject to an HRA to determine the implications for the application site in view of its conservation objectives. This is determined during the Stage 1: Screening Assessment of a HRA (see below).



A Stage 2: Appropriate Assessment then needs to be carried out in respect of any plan or project which:

- either alone or in combination with other plans or projects would be likely to have a significant effect on a site designated within the European network; and
- is not directly connected with the management of the application site for nature conservation.

The term European site is defined fully in Regulation 8 of the Habitats Regulations and includes:

- Special Areas of Conservation (SACs);
- candidate SACs;
- Special Protection Areas (SPAs);
- potential SPAs;
- Ramsar sites (Wetlands of International Importance designated or proposed for their wetland features under the auspices of the Convention of Wetlands of International Importance);
- proposed Ramsar sites; and
- sites identified for Natura 2000 compensatory measures.

The final two categories are afforded the same level of protection as SACs and SPAs as a matter of Government policy, and the assessment provisions of the Habitats Regulations are applied to them (Natural England, 2017).

1.5 Consultation

Natural England, under their Discretionary Advice Service (DAS), provided advice on the 17th June 2017 regarding designated sites in the wider area which should be considered within this assessment.

A second meeting with Natural England (NE) and Merseyside Environmental Advice Service (MEAS) in 2019 provided an updated confirmation of which designated sites to include along with information on potential pathways to LSEs.

A third stage of consultation was received from NE on 2nd September 2019. This advice note referred to sources of information to assist with the production of this report along with providing guidance on assessment of functionally linked habitat associated with Liverpool Docks, plans to consider in terms of in-combination assessment (Liverpool Local Plan (Liverpool City Council, 2018), Wirral Core Strategy (Wirral Council, 2012), Wirral Local Plan 2020-2035 (AECOM 2019) and specific guidance regarding assessment of wintering bird populations in relation to the proposed development. In addition, advice provided emphasised the requirement to consider the potential of the dock areas to form functionally linked habitat for bird species which form qualifying features of relevant designated sites.

The planning application for this project (LPA ref. 20F/0001) was submitted in December 2019, following which, comments were received from Natural England and MEAS in April 2020. A consultation meeting was subsequently held between WYG, MEAS and Natural England on the 13th July 2020. A summary of consultee comments is addressed within chapter 12, ES Volume II, and provided in Appendix 5 of ES Appendix 12.1, ES Volume III.



The revised planning application was submitted in September 2020 and comments were received from Natural England and MEAS on the 30th of October 2020. A subsequent meeting was held between WYG and Natural England on the 13th of November 2020 to agree actions required to address outstanding issues. Brief discussions were also held between WYG and Natural England during November and December 2020 in relation to relevant mitigation measures.

In addition, consultation was held with Natural England on the 15th of January 2021 regarding changes to the CMP which will result in removal of reference to monitoring of water quality within Nelson Dock and associated mitigation.

All written consultation received from NE and MEAS is presented within Appendix D.

1.6 Site Selection

The zone of influence for this assessment has been defined as a 10km radius from the application site. This radius was selected as it incorporates designated sites that are connected hydrologically to the application site and may be affected by the proposals. In accordance with DAS provided by NE in 2017 the following designated sites were selected for inclusion in this assessment:

- Liverpool Bay SPA;
- Mersey Narrows & North Wirral Foreshore SPA;
- Mersey Narrows & North Wirral Foreshore Ramsar;
- Ribble & Alt Estuaries SPA;
- Ribble & Alt Estuaries Ramsar; and,
- Mersey Estuary SPA.

In addition to the above, Mersey Estuary Ramsar site has been included in this assessment because in the UK all Ramsar sites are to be assessed alongside European sites and this Ramsar shares the same boundary as the Mersey Estuary SPA.

Advice provided by NE in 2017 indicated that Sefton Coast SAC and Dee Estuary SAC and SPA should be considered. However, given the distance of these designated sites from the application site, it was considered unlikely that potential impact pathways would affect these designated sites, reasons for this are summarised as follows:

- Dee Estuary SAC / SPA is 2.8 km north west from the application site and largely isolated from any effects of the proposed development by the Wirral Peninsula.
- The Sefton Coast SAC (5.21 km north of the application site) is designated for habitats which support internationally important populations of great crested newt *Triturus cristatus* and petalwort *Petalophyllum ralfsii*. No habitats or species which form qualifying features of this SAC are likely to occur within the application site or surrounding area. Nor is the site considered likely to form functional habitat for these species.

It was therefore agreed with Natural England and MEAS during a meeting held in August 2019 that Sefton Coast SAC and Dee Estuary SAC / SPA could be excluded from consideration within this report.



Information relating to each designated site (including distance from the application site) is presented in Section 3.0.

1.7 Information Used in this Assessment

The potential pathways to LSE were identified following a review of the following information that is referred to in the report:

- The qualifying features of SACs and SPAs;
- The conservation objectives for SACs and SPAs;
- The threats to SPAs;
- The Ramsar criteria and
- Site Improvement Plans for SACs and SPAs.

2.0 Assessment Methodology

This report to inform a HRA is based on guidance provided within the Habitats Regulations Handbook (DTA – updated continually). The HRA process involves the following tasks split according to the guidance stages, the current report is concerned with HRA Stage 1 – Screening and HRA Stage 2 – Appropriate Assessment. Table 1 provides a summary of each stage of the HRA process.

Table 1: HRA Stages

Stage	Details
Stage 1 ALSE	<p>This is often called an Assessment of Likely Significant Effects (ALSE) and is essentially a risk assessment, typically utilising existing data, records and specialist knowledge. The purpose of the test is to decide whether 'full' Appropriate Assessment is required. The essential question is:</p> <p><i>"Is the project, either alone or in-combination with other relevant projects and plans, likely to result in a significant [adverse] effect upon European sites?"</i></p> <p>If it can be demonstrated that significant effects are unlikely without any form of mitigation, no further assessment is required. Section E7 of The HRA Handbook (DTA) states that 'A Significant Effect is any effect that would undermine the conservation objectives of a European Site'. If this cannot be demonstrated works progress to stage 2.</p>
Stage 2 Appropriate Assessment	<p>If it cannot be satisfactorily demonstrated that significant effects are unlikely, a full "Appropriate Assessment" will be required.</p> <p>In many ways this is analogous to an Ecological Impact Assessment but is focussed entirely upon the designated interest features of the European sites in question. Bespoke survey work and original modelling and data collation may be required. The essential question here is:</p>



Stage	Details
	<p>"Will the project, either alone or in-combination with other relevant projects and plans, actually result in an adverse effect upon the integrity of any European sites?"</p> <p>If it is concluded that adverse effects will occur, mitigation measures will be required to either avoid the impact in the first place, or to reduce the ecological effect to such an extent that it is no longer significant. Note that, unlike standard Ecological Impact Assessment, compensation for adverse effects (i.e. creation of alternative habitat) is not permitted to be considered at the Appropriate Assessment stage.</p>
Stage 3 Alternatives	Stage 3 involves the examination of alternative ways of achieving the objectives and avoiding adverse impacts on the integrity of the Natura 2000 sites
Stage 4 IROPI	Stage 4 is an assessment of compensatory measures, where, in light of an assessment of Imperative Reasons of Overriding Public Interest, it is deemed that a plan or project should proceed.

3.0 Scope of the Assessment

Projects can cause effects that lead to impacts on sites outside of the development footprint. These can be influenced by site variables such as prevailing wind conditions, surface and groundwater flow direction will all have an influence on the relative distance at which an impact can occur.

Additionally, the mobile nature of qualifying species must also be considered. This is because adverse effects on the qualifying species of a site, can occur even if they are not present within the application site. For instance, birds may forage in one area but roost at another, but both may not be within a site for which they are designated.

Following consultation with NE, six sites were screened into Stage 1 of this report. The details of these sites are provided in Table 2. The locations of these sites in relation to the proposed development area are shown in Appendix E. The details and descriptions of the sites in Table 2 are provided in Section 3.1 to 3.7.

Table 2: Summary of International Sites Screened in to this Report

Natura 2000 and Ramsar Sites	Area (ha)	Distance and direction from site
Liverpool Bay SPA	252757.73	Adjacent western boundary of application site
Mersey Narrows & North Wirral Foreshore SPA	2078.63	The application site is located approximately 1.2 km west from the designated site at its closest point.
Mersey Narrows & North Wirral Ramsar	2078.63	The application site is located approximately 1.2 km from the designated site at its closest point.
Ribble & Alt Estuaries SPA	12447.14	The application site is located approximately 4.6 km from the designated site at its closest point.
Ribble & Alt Estuaries Ramsar	13488.48	The application site is located approximately 4.5 km from the designated site at its closest point.
Mersey Estuary SPA	5023.35	The application site is located approximately 6.6 km from the designated site at its closest point.
Mersey Estuary Ramsar	5023.35	The application site is located approximately 6.6 km from the designated site at its closest point.

3.1 Liverpool Bay SPA

Liverpool Bay is located on the northwest coast of England stretching from the east coast of Anglesey along the coastline up to Morecambe Bay. The site comprises marine areas, sea inlets, tidal rivers, estuaries, mud flats, sand flats and lagoons.

Table 3 presents information on the qualifying features.

Table 3: Summary of Qualifying Features of Liverpool Bay SPA (Lawson et al. 2016)

Qualifying feature	Description
It is used regularly by 1% or more of the Great Britain populations of a number of species listed in Annex I in any season.	<p>Red-throated diver, <i>Gavia stellata</i>, 6.89% of the GB population (5-year peak mean 2004/05 - 2010/11), 1,171 individuals</p> <p>Little gull, <i>Hydrocoloeus minutus</i>, (wintering) (5-year peak mean 2004/05 - 2010/11), 319 individuals</p> <p>Little tern, <i>Sternula albifrons</i>, (breeding) 6.84% of the GB population 5-year mean 2010 – 2014), 130 pairs (260 individuals)</p> <p>Common tern, <i>Sterna hirundo</i>, (breeding) 1.80% of the GB population 5-year mean 2011 – 2015), 180 pairs (360 individuals)</p>
It is used regularly by 1% or more of the biogeographical populations of a number of regularly occurring migratory species (other than those listed in Annex I) in any season.	Common scoter, <i>Melanitta nigra</i> , 10.31% of the NW European population regularly occurring migrant (5-year mean of peaks 2004/05 - 2010/11), 56,679 individuals
An internationally important assemblage of birds in the non-breeding season.	Over winter the area regularly supports: 69,687 water birds (5-year peak mean 2004/05 - 2010/11) the main components of this assemblage are the non-breeding qualifying features listed above, and red-breasted merganser <i>Mergus serrator</i> and cormorant <i>Phalacrocorax carbo</i> which both exceed 1% of the GB total

The conservation objectives of the Liverpool Bay SPA are as follows (Natural England, 2019c):

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.*

A list of relevant pressures and threats to the Liverpool Bay SPA as presented within the Site Improvement Plan (SIP) (Natural England, 2015a) for the designated site is presented in Table 4.

Table 4: Summary of Pressures and Threats Associated with Liverpool Bay SPA

Description	Pressure / Threat?
Fisheries: Commercial marine and estuarine	Pressure
Transportation and service corridors	Threat

Description	Pressure / Threat?
Fisheries: Recreational marine and estuarine	Threat
Extraction: Non-living resources	Threat
Siltation	Threat
Water Pollution	Threat

3.2 Mersey Narrows & North Wirral Foreshore SPA

Mersey Narrows and North Wirral Foreshore is located on the northwest coast of England at the mouths of the Mersey and Dee estuaries. The site comprises intertidal habitats at Egremont foreshore, man-made lagoons at Seaforth and the extensive intertidal flats at North Wirral Foreshore.

Egremont is most important as a feeding habitat for waders at low tide whilst Seaforth is primarily a high tide roost site, as well as a nesting site for terns. North Wirral Foreshore supports large numbers of feeding waders at low tide and also includes important high tide roost sites. Table 5 presents information on the qualifying features.

Table 5: Summary of Qualifying Features of Mersey Narrows and North Wirral Foreshore SPA (JNCC, 2015)

Qualifying feature	Description
It is used regularly by 1% or more of the Great Britain populations of a number of species listed in Annex I in any season.	<p>Bar-tailed godwit <i>Limosa lapponica</i>, (5.5% of the GB population 5-year peak mean 2004/05 - 2008/09), 3,344 individuals</p> <p>Common tern, 213 individuals – non-breeding (2004/05 – 2008/09)</p> <p>On passage the area regularly supports:</p> <p>Little gull: 213 individuals (no national population estimate)</p> <p>Common tern: 1,475 individuals (no national population estimate)</p> <p>In the breeding season the area regularly supports:</p> <p>Common tern: 1.8% of the GB population (2005-2009), 177 pairs (354 individuals)</p>
It is used regularly by 1% or more of the biogeographical populations of a number of regularly occurring migratory species (other than those listed in Annex I) in any season.	<p>Red knot <i>Calidris canutus islandica</i> (2.4% W Europe/Waddensea/Britain/Ireland population 5-year peak mean (2004/05 - 2008/09)), 10,655 individuals</p>
An internationally important assemblage of birds in the non-breeding season.	<p>32,366 individual waterbirds (5-year peak mean 2004/05 - 2008/09) the main components of this assemblage include cormorant, oystercatcher <i>Haematopus ostralegus</i>, grey plover <i>Pluvialis squatarola</i>, sanderling <i>Calidris alba</i>, red knot, dunlin <i>Calidris alpina alpina</i>, bar-tailed godwit, common redshank <i>Tringa totanus</i>.</p>



The conservation objectives of the Mersey Narrows & North Wirral Foreshore SPA are as follows (Natural England, 2014a):

"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."*

A list of relevant pressures and threats to the Mersey Narrows and North Wirral Foreshore SPA as presented within the SIP (Natural England, 2015b) for the designated site is presented in table 6.

Table 6: Summary of Pressures and Threats Associated with Mersey Narrows and North Wirral Foreshore SPA

Description	Pressure / Threat or?
Public Access / Disturbance	Pressure / Threat
Changes in species distributions	Pressure
Invasive species	Pressure / Threat
Climate change	Pressure / Threat
Coastal squeeze	Pressure / Threat
Inappropriate scrub control	Pressure
Water Pollution	Pressure / Threat
Fisheries: Commercial marine and estuarine	Pressure / Threat
Inappropriate coastal management	Pressure / Threat
Overgrazing	Pressure / Threat
Direct impact from third party	Threat
Marine litter	Pressure / Threat
Predation	Threat
Planning Permission: general	Threat
Marine consents and permits	Threat
Wildfire/ arson	Threat
Air Pollution: impact of atmospheric nitrogen deposition	Pressure
Transportation and service corridors	Threat
Physical modification	Pressure / Threat



3.3 Mersey Narrows & North Wirral Ramsar

Mersey Narrows and North Wirral Ramsar site comprises intertidal habitats at Egremont foreshore on the south bank of the Mersey, man-made saline and freshwater lagoons at Seaforth on the north bank and the extensive intertidal flats at North Wirral Foreshore. Egremont is most important as a feeding habitat for waders at low tide whilst Seaforth is primarily a high tide roost site. The two areas are separated by approximately 2 km and have a constant exchange of bird populations. North Wirral Foreshore supports large numbers of feeding waders at low tide and also includes important high tide roost sites, it is an area of intertidal sands and mudflats with embryonic saltmarsh.

The Mersey Narrows & North Wirral Ramsar site fulfils three criteria that identify it as a wetland of international importance (JNCC, 2013). These are:

- **Criterion 4** – It regularly supports plant and / or animal species at a critical stage in their life cycles or provides refuge during adverse conditions.
- **Criterion 5** – It 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.
- **Criterion 6** – It regularly supports 1% of the individuals in the populations of the following species waterbird in any season: knot and bar-tailed godwits.

3.4 Ribble & Alt Estuaries SPA

The Ribble and Alt Estuaries SPA lies on the coast of Lancashire and Sefton in northwest England. The SPA encompasses all or parts of Ribble Estuary SSSI and Sefton Coast SSSI. It comprises two estuaries, of which the Ribble is by far the larger, together with an extensive area of sandy foreshore along the Sefton Coast, and forms part of the chain of west coast SPAs that fringe the Irish Sea. There is considerable interchange in the movements of birds between this site and Morecambe Bay, Mersey Estuary, Dee Estuary and Martin Mere.

A large proportion of the SPA is within the Ribble Estuary National Nature Reserve. The site consists of extensive areas of sand and mudflats and, particularly in the Ribble, large areas of saltmarsh. There are also areas of coastal grazing marsh. The intertidal flats are rich in invertebrates on which waders and some wildfowl feed. The highest densities of feeding birds are on the muddier substrates of the Ribble, though sandy shores throughout are also used. Saltmarshes and coastal grazing marshes support high densities of wildfowl and these, together with intertidal sand and mudflats throughout, are used as high tide roosts.

The site supports internationally important populations of waterbirds in winter, including swans, geese, ducks and waders. It is also of major importance during migration periods, especially for wader populations moving along the west coast of Britain. The larger expanses of saltmarsh and areas of coastal grazing marsh support breeding birds, including large concentrations of gulls and terns. These seabirds feed both offshore and inland, outside the SPA. Several species of waterfowl (notably Pink-footed Goose *Anser brachyrhynchus*) use feeding areas on agricultural land outside the SPA boundary.

Table 7 presents information on the qualifying features.



Table 7: Summary of qualifying features of Ribble and Alt Estuaries SPA (Programme Officer, 2015)

Qualifying feature	Description
It is used regularly by 1% or more of the Great Britain populations of a number of species listed in Annex I in any season.	<p>Ruff <i>Philomachus pugnax</i> (Western Africa - wintering), 1 nest, 9.1% of the GB breeding population Count as at late 1980s</p> <p>Common tern (Northern/Eastern Europe - breeding), 182 pairs (264 individuals), 1.5% of the GB breeding population Count as at 1996</p> <p>Tundra swan <i>Cygnus columbianus bewickii</i> (Western Siberia/North-eastern & North-western Europe), 276 individuals, 3.9% of the GB population 5-year peak mean 1993/94 - 1997/98</p> <p>Whooper swan <i>Cygnus cygnus</i> (Iceland/UK/Ireland), 182 individuals, 3.3% of the GB population 5-year peak mean 1993/94 - 1997/98</p> <p>Bar-tailed godwit (Western Palearctic - wintering), 20,086 individuals, 37.9% of the GB population 5-year peak mean 1993/94 - 1997/98</p> <p>Golden plover <i>Pluvialis apricaria</i> [North-western Europe - breeding], 3,598 individuals, 1.4% of the GB population 5-year peak mean 1993/94 - 1997/98</p>
It is used regularly by 1% or more of the biogeographical populations of a number of regularly occurring migratory species (other than those listed in Annex I) in any season	<p>Lesser black-backed gull <i>Larus fuscus</i> (Western Europe/Mediterranean/Western Africa), 1,800 pairs (3,600 individuals), 1.5% of the breeding population Count as at 1993</p> <p>Over winter the area regularly supports:</p> <p>Northern pintail <i>Anas acuta</i> (North-western Europe), 2,731 individuals 4.6% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Teal <i>Anas crecca</i> (North-western Europe), 7,157 individuals, 1.8% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Wigeon <i>Anas penelope</i> (Western Siberia/North-western/North-eastern Europe), 85,259 individuals, 6.8% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Pink-footed goose <i>Anser brachyrhynchus</i> (Eastern Greenland/Iceland/UK), 11,764 individuals, 5.2% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Sanderling <i>Calidris alba</i> (Eastern Atlantic/Western & Southern Africa - wintering), 2,882 individuals, 2.9% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Dunlin (Northern Siberia/Europe/Western Africa), 39,376 individuals, 2.8% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Red knot (North-eastern Canada/Greenland/Iceland/North-western Europe), 68,922 individuals, 19.7% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Oystercatcher (Europe & Northern/Western Africa), 18,535 individuals, 2.1% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Black-tailed godwit <i>Limosa limosa islandica</i> (Iceland - breeding), 1,273 individuals, 1.8% of the population 5-year peak mean 1993/94 - 1997/98</p>

Qualifying feature	Description
	<p>Grey plover (Eastern Atlantic - wintering), 9,355 individuals, 6.2% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Common shelduck <i>Tadorna tadorna</i> (North-western Europe), 4,925 individuals, 1.6% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>Common redshank <i>Tringa totanus</i> (Eastern Atlantic - wintering), 2,505 individuals, 1.7% of the population 5-year peak mean 1993/94 - 1997/98</p> <p>On passage the area regularly supports:</p> <p>Sanderling (Eastern Atlantic/Western & Southern Africa - wintering), 6,535 individuals, 6.5% of the population 5-year peak mean 1993 - 1997</p> <p>Ringed plover <i>Charadrius hiaticula</i> (Europe/Northern Africa - wintering), 1,657 individuals, 3.3% of the population 5-year peak mean 1993 - 1997</p>
An internationally important assemblage of birds in the non-breeding season.	323,861 individual waterbirds (5 year peak mean 1993/94 - 1997/98) including cormorant, Bewick's swan, whooper swan, pink-footed goose, shelduck, wigeon, teal, pintail, scaup <i>Aythya marila</i> , common scoter, oystercatcher, ringed plover, golden plover, grey plover, lapwing <i>Vanellus vanellus</i> , knot, sanderling, dunlin, Black-tailed Godwit, Bar-tailed Godwit, Whimbrel <i>Numenius phaeopus</i> , Curlew <i>Numenius arquata</i> and redshank.
It is used regularly by over 20,000 seabirds in any season.	29,236 individual seabirds (count period ongoing) including black-headed gull <i>Larus ridibundus</i> , lesser black-backed gull and common tern.

The conservation objectives of the Ribble & Alt Estuaries SPA are as follows (Natural England, 2019a):

"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."*

A list of relevant pressures and threats to the Ribble and Alt Estuaries SPA as presented within the SIP (Natural England, 2014b) for the designated site is presented in table 8.

Table 8: Summary of Pressures and Threats Associated with Ribble and Alt Estuaries SPA

Description	Pressure / Threat
Coastal squeeze	Threat
Air Pollution: impact of atmospheric nitrogen deposition	Threat
Inappropriate scrub control	Pressure / Threat

Description	Pressure / Threat
Invasive species	Threat
Hydrological changes	Threat
Public Access/Disturbance	Threat
Inappropriate coastal management	Pressure
Shooting / scaring	Pressure
Feature location / extent / condition unknown	Pressure

3.5 Ribble & Alt Estuaries Ramsar

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

The Ribble & Alt Estuaries Ramsar site fulfils three criteria that identify it as a wetland of international importance (JNCC, 2008a), these are:

- **Criterion 2** – Site supports up to 40% of the Great Britain population of natterjack toads *Epidalea calamita* and plant species: petalwort *Petalophyllum ralfsii* (Conservation status: European Red List: Vulnerable; EC Habitats Directive: Annex II)
- **Criterion 5** – Assemblages of international importance: Species with peak counts in winter: 222,038 waterfowl (5-year peak mean 1998/99-2002/2003)
- **Criterion 6** – Species / populations occurring at levels of international importance (as identified at designation) as shown in Table 9.

Table 9: Summary of the Ribble & Alt Estuaries Ramsar criterion 6 – species / populations occurring at levels of international importance of Ribble and Alt Estuaries SPA (JNCC, 2008a)

Qualifying feature	Description
Species regularly supported during the breeding season	Lesser black-backed gull <i>Larus fuscus graellsii</i> (Western Europe/Mediterranean/Western Africa), 4108 apparently occupied nests , representing an average of 2.7% of the breeding population (Seabird 2000 Census)
Species with peak counts in spring/autumn	Ringed plover <i>Charadrius hiaticula</i> (Europe/Northwest Africa), 3761 individuals , representing an average of 5.1% of the population (5-year peak mean 1998/9-2002/3 - spring peak) Grey plover <i>Pluvialis squatarola</i> (Eastern Atlantic/Western Africa -wintering), 11021 individuals , representing an average of 4.4% of the population (5-year peak mean 1998/9-2002/3 - spring peak) Red knot <i>Calidris canutus islandica</i> (Western & Southern Africa (wintering)), 42692 individuals , representing an average of 9.4% of the population (5-year peak mean 1998/9-2002/3)



Qualifying feature	Description
	<p>Sanderling <i>Calidris alba</i> (Eastern Atlantic), 7401 individuals, representing an average of 6% of the population (5-year peak mean 1998/9- 2002/3 - spring peak)</p> <p>Dunlin <i>Calidris alpina alpina</i> (Western Siberia/Western Europe), 38196 individuals, representing an average of 2.8% of the population (5-year peak mean 1998/9-2002/3 - spring peak)</p> <p>Black-tailed godwit <i>Limosa limosa islandica</i> (Iceland/Western Europe), 3323 individuals, representing an average of 9.4% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Common redshank <i>Tringa tetanus</i>, 4465 individuals, representing an average of 1.7% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Lesser black-backed gull <i>Larus fuscus graellsii</i>, 1747 individuals, representing an average of 2.8% of the GB population (5-year peak mean 1998/9-2002/3)</p>
Species with peak counts in winter	<p>Tundra swan <i>Cygnus columbianus bewickii</i> (North-West Europe), 230 individuals, representing an average of 2.8% of the GB population (5-year peak mean 1998/9- 2002/3)</p> <p>Whooper swan <i>Cygnus cygnus</i> (Iceland/UK/Ireland), 211 individuals, representing an average of 1% of the population (5-year peak mean 1998/9- 2002/3)</p> <p>Pink-footed goose <i>Anser brachyrhynchus</i> (Greenland, Iceland/UK), 6552 individuals, representing an average of 2.7% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Common shelduck <i>Tadorna tadorna</i>, (North-West Europe), 2944 individuals, representing an average of 3.7% of the GB population (5 year peak mean 1998/9-2002/3)</p> <p>Eurasian wigeon <i>Anas penelope</i> (North-West Europe), 69841 individuals, representing an average of 4.6% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Eurasian teal <i>Anas crecca</i> (North-West Europe), 5107 individuals, representing an average of 1.2% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Northern pintail <i>Anas acuta</i> (North-West Europe), 1497 individuals, representing an average of 2.4% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Eurasian oystercatcher <i>Haematopus ostralegus</i> (Europe & North-West Africa -wintering), 18926 individuals, representing an average of 1.8% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Bar-tailed godwit <i>Limosa lapponica lapponica</i> (Western Palearctic) 13935 individuals, representing an average of 11.6% of the population (5-year peak mean 1998/9-2002/3)</p>

3.6 Mersey Estuary SPA

The Mersey Estuary is on the Irish Sea coast of north-west England. The SPA encompasses all or parts of Mersey Estuary SSSI and New Ferry SSSI. It is a large, sheltered estuary which comprises large areas of saltmarsh and extensive intertidal sand and mudflats, with limited areas of brackish



marsh, rocky shoreline and boulder clay cliffs, within a rural and industrial environment. The intertidal flats and saltmarshes provide feeding and roosting sites for large and internationally important populations of waterfowl. During the winter, the site is of major importance for duck and waders. The site is also important during spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain.

Table 10 presents information on the qualifying features.

Table 10: Summary of qualifying features of Mersey Estuary SPA

Qualifying feature	Description
It is used regularly by 1% or more of the Great Britain populations of a number of species listed in Annex I in any season.	Golden plover (North-western Europe – breeding), 3,040 individuals , 1.2% of the GB population 5-year peak mean, 1993/94 -1997/98
It is used regularly by 1% or more of the biogeographical populations of a number of regularly occurring migratory species (other than those listed in Annex I) in any season	<p>Northern pintail (North-western Europe), 1,169 individuals, 1.9% of the population 5-year peak mean, 1993/94 -1997/98</p> <p>Teal (North-western Europe), 11,723 individuals, 2.9% of the population 5-year peak mean, 1993/94 -1997/98</p> <p>Wigeon, (Western Siberia/North-western/North-eastern Europe), 11,886 individuals, 4.2% of the population in Great Britain 5-year peak mean, 1993/94- 1997/98</p> <p>Dunlin, (Northern Siberia/Europe/Western Africa), 48,789 individuals 3.6% of the Population 5-year peak mean, 1993/94-1997/98</p> <p>Black-tailed godwit, (Iceland - breeding), 976 individuals, 1.6% of the population 5-year peak mean, 1993/94-1997/98</p> <p>Curlew, (Europe - breeding), 1,300 individuals, 1.1% of the population in Great Britain 5-year peak mean, 1993/94-1997/98</p> <p>Grey plover, (Eastern Atlantic - wintering), 3,040 individuals, 2.3% of the population in Great Britain 5-year peak mean, 1993/94-1997/98</p> <p>Great crested grebe (North-western Europe - wintering), 136 individuals, 1.4% of the population in Great Britain 5-year peak mean, 1993/94-1997/98</p> <p>Shelduck, (North-western Europe), 6,476 individuals, 2.2% of the population 5-year peak mean, 1993/94-1997/98</p> <p>Redshank, (Eastern Atlantic - wintering), 4,513 individuals, 2.8% of the population 5-year peak mean, 1993/94-1997/98</p> <p>Lapwing, (Europe - breeding), 10,544 individuals, 0.7% of the population in Great Britain 5-year peak mean, 1993/94-1997/98 On passage the area regularly supports:</p> <p>Ringed plover, (Europe/Northern Africa - wintering), 505 individuals, 1.7% of the population in Great Britain 5-year peak mean, 1993-1997</p> <p>Redshank, (Eastern Atlantic - wintering), 4,513 individuals, 3.8% of the population 5-year peak mean, 1993-1997</p>

The conservation objectives of the Mersey Estuary SPA are as follows (NE, 2019b):



"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."*

A list of relevant pressures and threats to the Mersey Estuary SPA as presented within the SIP for the designated site are presented in table 11.

Table 11: Summary of Pressures and Threats Associated with Mersey Estuary SPA

Description	Pressure / Threat
Changes in species distributions	Pressure
Invasive species	Pressure / Threat
Public Pressure Access / Disturbance	Pressure

3.7 Mersey Estuary Ramsar

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

The Mersey Estuary Ramsar site fulfils two criteria that identify it as a wetland of international importance (JNCC, 2008b). These are:

- **Criterion 5** – Assemblages of international importance. Species with peak counts in winter: 89576 waterfowl (5-year peak mean 1998/99-2002/2003).
- **Criterion 6** – Species / populations occurring at levels of international importance (as identified at designation) as shown in Table 12.

Table 12: Summary of the Mersey Estuary Ramsar criterion 6 – species / populations occurring at levels of international importance of Ribble and Alt Estuaries SPA (JNCC, 2008a)

Qualifying feature	Description
Species with peak counts in spring/autumn	Common shelduck <i>Tadorna tadorna</i> (North-West Europe), 12676 individuals , representing an average of 4.2% of the population (5-year peak mean 1998/9-2002/3)



Qualifying feature	Description
	<p>Black-tailed godwit <i>Limosa limosa islandica</i> (Iceland/Western Europe), 2011 individuals, representing an average of 5.7% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Common redshank <i>Tringa totanus tetanus</i>, 6651 individuals, representing an average of 2.6% of the population (5-year peak mean 1998/9-2002/3)</p>
Species with peak counts in winter	<p>Eurasian teal <i>Anas crecca</i> (North-West Europe), 10613 individuals, representing an average of 2.6% of the population (5-year peak mean 1998/9-2002/3)</p> <p>Northern pintail <i>Anas acuta</i> (North-West Europe), 565 individuals, representing an average of 2% of the GB population (5-year peak mean 1998/9- 2002/3)</p> <p>Dunlin <i>Calidris alpina alpina</i> (Western Siberia/Western Europe), 48364 individuals, representing an average of 3.6% of the population (5-year peak mean 1998/9-2002/3)</p>



4.0 Stage 1: Screening

4.1 Identification of Potential Pathways to LSE on European Site(s)

This section identifies potential pathways to LSE as a result of the construction and operation of the proposed development. These were identified following a review of the Conservation Objectives, Supplementary Advice Documents and SIPs for each of the European sites screened into Stage 1. Based on this review, the following pathways were identified:

Construction Phase

- Hydrological change
- Mobilisation of contaminated material via surface water run-off into designated sites or functionally linked habitat
- Habitat loss within the designated sites
- Habitat loss within functionally linked habitat beyond the boundary of the designated sites
- Habitat degradation – air quality and dust deposition
- Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill
- Habitat degradation – effects on water quality during dock infill
- Habitat degradation - water quality impacts as a result of pollution events
- Disturbance of qualifying features during transfer of aggregate to site
- Disturbance of qualifying features – visual and auditory disturbance
- Displacement of prey species for bird species forming qualifying features – noise and vibration
- Disturbance of qualifying features – lighting effects
- Habitat degradation - deposition of waste/litter

Operation Phase

- Habitat degradation within designated sites - as a result of increased visitor numbers causing trampling effects
- Disturbance of qualifying features as a result of increased visitor numbers
- Disturbance of qualifying features – visual and auditory disturbance
- Disturbance of qualifying features – lighting effects
- Habitat degradation - water quality impacts as a result of surface water run off
- Habitat degradation - water quality impacts as a result of pollution (fertilizer/herbicide application associated with pitch management)
- Habitat degradation – air pollution
- Displacement of prey for qualifying bird species – noise and vibration
- Loss of qualifying features - potential bird strike on the buildings associated with the operational site
- Habitat degradation - deposition of waste/litter
- Effects of shadowing on qualifying features.

In addition to the above, MEAS and Natural England requested in their consultation response (April 2020 and further discussions in July 2020) that further information should be included in relation to the effects of shading upon relevant ecological receptors. The effects of shading upon aquatic ecological receptors has been completed within the aquatic ecology ES chapter (Chapter 13, ES



Volume II). This states that the significance of overshadowing upon aquatic ecology receptors such as fish and shellfish, which do not form qualifying features of the above designated sites but may form prey to support qualifying feature bird species, as a result of this project is considered to be negligible (proposed stadium located to the north of Nelson Dock). In addition, the assessment of overshadowing undertaken for this project states:

“As the proposed stadium sits to the north of Nelson Dock, the site of the proposed Liverpool Waters scheme, minimal shadow will be cast from the proposed stadium over Nelson Dock at the spring equinox which is the BRE guidelines suggested date of assessment for overshadowing. This is due to the suns path throughout the day. As the sun rises in the east and sets in the west, the stadium will cast a shadow to the west in the morning, to the north in the middle part of the day and to the east in the evening. The shadow will be cast to its greatest extend at the winter solstice, when the sun is lowest in the sky. The opposite can be said for the summer solstice when the sun is highest in the sky and the shadows cast will be more limited. It is important to note that the shadow cast by the stadium will be transient in nature and will therefore be constantly moving throughout the course of the day. As such, there is limited potential for overshadowing to impact the Nelson Dock waterbody and associated ecological features as a result of the proposed stadium development”.

It is therefore considered that there would be no pathway of effect upon qualifying features (piscivorous birds, their prey or habitats which support such species) as a result of shading produced by the application site. Therefore, the effects of shading as result of this project are screened out of this assessment.

The European sites that these potential pathways could act upon and the mechanisms by which they could occur are provided in Table 15. This includes whether these require Appropriate Assessment at Stage 2.

4.2 Assessment of Likely Significant Effects

Consultation with Natural England in July 2020 indicated that where a particular qualifying feature is unlikely to occur within the application site or on functionally linked land in the surrounding area this can be screened out of the ALSE and any further assessment. Table 13 below provides an analysis of the habitat suitability of the application site and surrounding area based on information presented within RSPB, BTO and wildlife Trust websites. Where suitable habitat does not exist to support qualifying features of the above designated sites such species have been scoped out of further assessment as no effect upon their conservation status is anticipated as a result of any potential impact pathways associated with the application site; and therefore no likely significant effect is anticipated for such species. Only species which form qualifying features of designated sites which are scoped in to further assessment are considered within the ALSE.

In addition, it is noted that the application site is not directly connected to and is unlikely to form functionally linked habitat for natterjack toad or petalwort which are listed as qualifying features of the Ribble & Alt Estuaries Ramsar or plant species listed under Criterion 4 of Mersey Narrows & North Wirral Ramsar. The favourable conservation status of these features is therefore considered highly unlikely to be affected by any of the above impact pathways **therefore no likely significant effect** is anticipated as a result of this impact pathway and such features are screened out of any further assessment.

Table 13. Suitability of habitat for qualifying species within the application site and surrounding area.

Liverpool Bay SPA Qualifying Species		Scoped in to ALSE assessment and rationale
Article 4.1 of the Birds Directive: Qualifying Species regularly occurring by 1% or more of the Great Britain populations in any season		
Red-throated diver Non-breeding	Winters in open maritime habitats, occasionally found in estuarine habitats and sporadically recorded in small number on inland waterbodies. Unlikely to be recorded on a regularly occurring basis within the application site and adjacent Mersey Estuary.	No
Little gull Non-breeding	Found in open maritime habitats during the non-breeding season, occasionally found in estuarine habitats, coastal lagoons and sporadically recorded in small number on inland waterbodies. Unlikely to be regularly recorded on a regularly occurring basis within the application site and areas immediately surrounding the application site and the adjacent Mersey Estuary.	No
Little tern Breeding	Breeds on shingle beaches in North-East Wales, feeds in coastal and open maritime habitats in Liverpool Bay and the Dee Estuary, very occasionally found in the Mersey Estuary. Unlikely to be recorded within the application site and adjacent Mersey Estuary.	No
Common tern Breeding	Breeds within Seaforth Dock Lagoons located approximately 5.6km north of the application site, feeds in coastal, estuarine, open maritime and inland waterbody habitats. Likely to be occasionally found feeding in the Mersey Estuary adjacent to the application site, unlikely to be recorded regularly within the application site.	Yes
Article 4.2 of the Birds Directive: Qualifying Species regularly occurring by 1% or more of the biogeographical populations of a number of regularly occurring migratory species (other than those listed in Annex I) in any season.		
Common scoter Non breeding	Winters in open maritime habitats, occasionally found in estuarine habitats and sporadically recorded in small number on inland waterbodies. Unlikely to be recorded on a regularly occurring basis within the application site and adjacent Mersey Estuary.	No
Article 4.2 of the Birds Directive: Qualifying Waterbird Species Assemblage occurring in the non-breeding season		
Red-breasted merganser Non-breeding	Winters in open maritime and coastal habitats, occasionally found in estuarine habitats and recorded in smaller numbers on inland waterbodies/watercourses. Unlikely to be regularly recorded on a regularly occurring basis within the application site and adjacent Mersey Estuary.	No
Cormorant Non-breeding	Commonly recorded wintering in a variety of open maritime, coastal habitats, estuarine habitats and inland waterbodies/watercourses. Regularly occurring species on the Mersey Estuary and in smaller numbers within the Liverpool Docks adjacent to the application site. Likely to be regularly occurring on or adjacent the application site.	Yes
Non main component species of the assemblage include: black-headed gull, common gull, common eider, fulmar, great black-backed gull, great crested grebe, guillemot, gannet, herring gull, kittiwake, lesser black-backed gull, little gull, puffin, razorbill, shag, grebe sp. velvet scoter,	Non main component assemblage species are a mix of open ocean marine birds that use coastal habitat such as sea cliffs for breeding purposes and species more closely associated with coastal and urban/industrial habitats. Species considered likely to regularly occur on or adjacent the application site (based on habitat preferences) include: black headed gull, common gull, lesser black-backed gull, great crested grebe, herring gull, kittiwake, great black-backed gull and shag.	Yes (highlighted species only)

Mersey Narrows and North Wirral Foreshore SPA / Ramsar Qualifying Species		
Article 4.1 of the Birds Directive: Qualifying Species regularly occurring by 1% or more of the Great Britain populations of a number of species listed in Annex I in any season		
Bar-tailed godwit Breeding	A predominantly coastal species very rarely found inland. Habitat requirements: mud flats/sand flats and beaches. Negligible potential to be regularly occurring on application site due to the lack of a regularly exposed shoreline, the species is unlikely to be present on the section of Mersey Estuary located adjacent to the application site.	No
Common Tern Breeding	See above	Yes
Little gull Breeding	See above	No
Article 4.2 of the Birds Directive: Qualifying Species regularly occurring by 1% or more of the biogeographical populations of a number of regularly occurring migratory species (other than those listed in Annex I) in any season		
Knot Breeding	Largely coastal and estuarine species, favouring sandflats, saltmarsh, and sandy shores. Negligible potential to be regularly occurring on application site and due to the lack of a regularly exposed shoreline, the species is unlikely to be present within the application site or on the section of Mersey Estuary located adjacent to the application site.	No
Article 4.2 of the Birds Directive: Qualifying Waterbird Species Assemblage internationally important assemblage of birds in the non-breeding season.		
Cormorant Non-breeding	See above	Yes
Oystercatcher Non-breeding	A predominantly coastal wintering species occurring in a range of habitats such as rocky shores, mud flats, salt marshes, sand dunes, beaches, tidal rivers and enclosed tidal waters, occasionally found on inland habitats such as open fields, farmland, inland waterbodies and marshes. Often forages on open hard standing and coastal ephemeral Habitats in coastal areas. Potential for irregular use of the application site as docklands areas may mimic rocky shore and or coastal ephemeral habitat.	Yes
Grey Plover Non-breeding	Largely coastal and estuarine species, favouring sandflats, saltmarsh, and sandy shores. Negligible potential to be regularly occurring on application site and due to the lack of a regularly exposed shoreline, the species is unlikely to be present within the application site or on the section of Mersey Estuary located adjacent to the application site.	No
Sanderling Non-breeding	A predominantly coastal species, very rarely found inland. Habitat requirements: mud flats/sand flats and beaches. Negligible potential to be regularly occurring on Site and due to the lack of a regularly exposed shoreline, the species is unlikely to be present within the application site or on the section of Mersey Estuary located adjacent to the application site.	No
Dunlin Non-breeding	A coastal species, very rarely found inland other than the occasional record at reservoirs. Habitat requirements: mud flats and sand flats; rivers and streams; salt marshes; sand dunes and beaches; standing freshwater; tidal rivers and enclosed tidal waters. Negligible potential to be regularly occurring within the application site and due to the lack of a regularly exposed shoreline, the species is unlikely to be present within the application site or on the section of Mersey Estuary located adjacent to the application site.	No
Redshank Non-breeding	Largely a coastal and estuarine species, favouring sandflats, saltmarsh, and sandy shores. Requires shallow muddy areas and damp grassland. Negligible potential to be regularly occurring on application site and due to the lack of a regularly exposed shoreline, the species is unlikely to be present within the application site or on the section of Mersey Estuary located adjacent to the application site.	No
Ribble & Alt Estuaries SPA		
Article 4.1 of the Birds Directive: Qualifying Species regularly occurring by 1% or more of the Great Britain populations of a number of species in any season		
Ruff Breeding	Largely coastal and wetland species over winter. Breeds in wet grassland. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site.	No
Common tern Breeding	See above	Yes
Bewick's Swan Wintering	Largely associated with freshwater open water habitat. Grazes on grassland, saltmarsh and arable land. Breeds in wetland habitat. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site.	No
Whooper Swan Wintering	Largely associated with freshwater open water habitat. Grazes on grassland, saltmarsh and arable land. Breeds in wetland habitat. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site.	No
Golden Plover Wintering	Overwinters on farmland and coastal mudflats, associated with inland habitats such as moors and heathland during breeding season. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site.	No
Bar-tailed Godwit Wintering	See above	No
Article 4.2 of the Birds Directive: Qualifying Species regularly occurring by 1% or more of the biogeographical populations of a number of regularly occurring migratory species in any season		
Lesser Black-backed Gull breeding	Occurs mainly within farmland and wetland along UK coastlines, also found within urban/industrial coastal areas Potential habitat exists within the application site and surrounding area.	Yes

Ringed Plover Passage	Mainly found on coastal beaches, flooded gravel pits and reservoirs. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site.	No
Sanderling Passage	See above	No
Redshank Passage	See above	No
Pink-footed Goose Wintering	Over winters on coastal saltmarsh, mudflats, grassland, wetland and arable habitats. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site.	No
Shelduck Wintering		Yes
Wigeon Wintering	Wintering birds often forming large flocks on freshwater and coastal habitats, such as wetlands and marshes. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site.	No
Teal Wintering	In winter birds mainly rely on freshwater habitats. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site.	No
Pintail Wintering	Overwinters in estuaries and sheltered coasts. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site.	No
Oystercatcher Wintering	See above	Yes
Grey Plover Wintering	See above	No
Knot Wintering	See above	No
Sanderling Wintering	See above	No
Dunlin Wintering	See above	No
Black-tailed Godwit Wintering	Found mostly in estuaries and coastal lagoons, sometimes in inland wetlands. Small breeding populations found in wet meadows and marshes. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site.	No
Redshank Wintering	See above	No
Article 4.2 of the Birds Directive: qualifying assemblage – water birds occurring in the non-breeding season.		
Cormorant, Bewick's Swan, Cygnus, Whooper Swan, Pink-footed Goose, Shelduck, Wigeon, Teal, Pintail, , Common Scoter, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Dunlin, Black-tailed Godwit, Bar tailed Godwit, Whimbrel, Curlew and Redshank. Non-breeding	Species listed within this assemblage are discussed above with the exception of those presented below.	See individual species scoping response.
Scaup Non-breeding	Overwinters on estuaries. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site	No
Lapwing Non-breeding	Overwinters in coastal habitat such as mudflats, saltmarshes and estuaries. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site	No
Wimbrel Non-breeding	Found on passage in coastal habitats such as mudflats, sandflats, saltmarsh, lagoons and estuaries. Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site	No
Curlew Non-breeding	Overwinters on coastal habitats such as mud flats, saltmarsh and wetland habitat, Negligible potential to regularly occur due to lack of suitable habitat within the application site and section of the Mersey adjacent to the application site	No
Article 4.2 of the Birds Directive: qualifying assemblage – sea birds in any season		
Lesser Black-backed gull and Common tern Breeding	Lesser black backed gull and common tern habitat preferences and likelihood to occur on site are discussed above	Yes
Black-headed gull Breeding	Found on farmland, wetland and coastal habitats throughout the UK. It nests on saltmarshes and on islands in flooded gravel pits and reservoirs. Also occurs within coastal urban and industrial areas.	Yes

Mersey Estuary SPA/Ramsar		
Article 4.1 & 4.2 of the Birds Directive : Qualifying species regularly occurring by 1% or more of the Great Britain populations in any season.		
Golden plover Wintering	See above	No
Redshank passage	See above	No
Shelduck Wintering	See above	No
Teal Wintering	See above	No
Pintail Wintering	See above	No
Dunlin Wintering	See above	No
Black-tailed Godwit Wintering	See above	No
Article 4.2 of the Birds Directive : Qualifying assemblage regularly occurring by 1% or more of the biogeographical populations of a number of regularly occurring migratory species in any season		
Shelduck, wigeon, teal, pintail, ringed plover, golden plover, grey plover, lapwing, dunlin, black-tailed godwit, curlew and redshank non-breeding season	Species listed within this assemblage are discussed above with the exception of great crested grebe which is discussed below.	No
Shelduck Non breeding season	See above	Yes
Great crested grebe Non-breeding season	Occurs within wetland habitats and open water such as lowland lakes, reservoirs, gravel pits and rivers, also found along the coast in winter. Potential to occur on site	Yes

Table 14 provides a summary of scoped in designated sites and qualifying features. Habitats on site (ephemeral vegetation, open water, hard standing and grassland) are considered likely to support these species (for resting/loafing and foraging purposes) and are therefore considered functionally linked land/habitat for qualifying features of the designated sites as highlighted below.

Table 14. Suitability of habitat for qualifying species within the application site and surrounding area

Designated site	Scoped in qualifying feature
Liverpool Bay SPA	Common tern, cormorant, (species which also present within the assemblage but do not form main components - black headed gull, common gull, lesser black-backed gull, great crested grebe, herring gull, kittiwake, great black-backed gull and shag.).
Mersey Narrows & North Wirral Foreshore SPA & Ramsar	Common tern, cormorant, oystercatcher
Ribble and Alt Estuaries SPA & Ramsar	Common tern, cormorant, oystercatcher, lesser black-backed gull, black-headed gull, shelduck
Mersey Estuary SPA & Ramsar	Great crested grebe

Table 15 indicates the aspects of the proposed development that could in theory create adverse effects on the qualifying features of the above designated sites (as scoped in above) in isolation. In addition to direct and indirect effects of the proposed development upon qualifying features of relevant designated sites, potential effects upon habitats which support qualifying features are also discussed in this assessment. For the purposes of this assessment, all the scoped in designated sites are grouped and the conclusions drawn apply to all sites (unless stated otherwise).

Table 15: Assessment of Likely Significant Effects

Pathway of Effect	Assessment	Appropriated Assessment Required at Stage 2
Construction phase (enabling and construction works)		
Hydrological change to designated sites	The hydrological connectivity between the docks to the north and south of the application site will be temporarily removed during the construction phase (approximately 2 years). Towards completion of the construction phase a channel will be constructed to the west of the stadium to provide hydrological connectivity between the north and south dock network controlled by sluice gates; eight 600mm diameter pipes with sluice gates are proposed within the isolation structure which provide hydrological connectivity between north and south when the gates are open. In addition, Nelson and Sandon Half-tide dock are connected to the wider dock network therefore loss of any connectivity via the application site is considered unlikely to result in any hydrological change to these water bodies that may support scoped in qualifying features of designated sites. Therefore, temporary hydrological change during construction works is not considered likely to affect the function or quality of habitats within the application site and is therefore considered unlikely to adversely affect foraging and resting bird species using functionally linked habitat associated with designated sites	No

Pathway of Effect	Assessment	Appropriated Assessment Required at Stage 2
	<p>(recorded within the application site and surrounding docks).Hydrological change is therefore unlikely to adversely affect the conservation status of qualifying features of the designated sites.</p> <p>Therefore, no likely significant effect (LSE) is anticipated as a result of this impact pathway.</p>	
Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat	<p>The "Construction Management Plan, V7" (Laing O'Rourke 2020) highlights the presence of contaminated land on the application site. Such contaminants include areas of hydrocarbon contamination within the north of the application site to a depth of 1m within made ground and an area of very high pH. An area of contamination is also recorded within the east of the application site. In the absence of mitigation, it is considered likely that run off of such contaminants may have an adverse effect upon the conservation status of qualifying features of the designated sites.</p> <p>Therefore, LSEs are anticipated as a result of this impact pathway.</p>	Yes, all scoped in designated sites and qualifying features.
Habitat loss within the designated sites	<p>Construction works within the application site are located beyond the boundary of the designated sites and therefore will not result in direct loss of habitat availability to support qualifying features of the designated sites.</p> <p>Therefore, no LSE is anticipated as a result of this impact pathway.</p>	No
Habitat loss within functionally linked land/habitat beyond the boundary of the designated sites	<p>The application site does not form suitable nesting habitat for scoped in breeding birds which form qualifying features of the designated sites. However, construction works within the application site will result in the permanent loss of open water, hard standing and ephemeral vegetation which form functionally linked land (fll)/habitat. Such fll/habitat may be used by foraging breeding birds and foraging/resting wintering bird species which form qualifying features of these designated sites. Such loss of functionally linked habitat has the potential to result in an adverse effect upon the conservation status of species which form qualifying features of the designated sites.</p> <p>Therefore, LSE on designated sites as a result of this impact pathway are anticipated.</p>	Yes – all scoped in designated sites and qualifying features for foraging and roosting passage and wintering purposes.
Habitat degradation – air quality & dust deposition	<p>Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance, (IAQM, 2019) has been produced in relation to ecological receptors. This states that assessment of the effects of construction- related air pollution only require detailed assessment when sensitive receptors (such as the designated sites included within this assessment) are located within a maximum of 500m from construction works. It is therefore considered unlikely that construction related deposition of air pollutants will result in LSE upon qualifying features present within the boundary of the Mersey Narrows and North Foreshore SPA and Ramsar, Mersey Estuary SPA and Ramsar or the Ribble & Alt Estuaries SPA and Ramsar or habitats which support such features within the designated site. This is because all scoped in designated sites are located over 500m from the application site.</p> <p>However, as Liverpool Bay SPA is located adjacent to the application site, deposition of air pollutants during enabling and construction works within this designated site (which may also affect functionally linked land associated with the application site) is likely. However, a review of information presented by Air Pollution Information System (APIS - http://www.apis.ac.uk/src/select-a-feature?site=UK9005131&SiteType=SPA&submit=Next) indicates that scoped in qualifying features of the designated sites are not directly sensitive to critical loads associated with air pollution. APIS also states, in relation to exceedance of critical load for NH3, nutrient nitrogen and NOx, that the impacts of exceedance are either unlikely to affect qualifying features or provide a positive effect due to a potential increase in food supply as a result of increased nutrient loading.</p> <p>It is noted that APIS highlights a likely effect as a result of exceedance of critical load for NOx and nitrogen upon broad habitats associated with scoped in qualifying features of the designated sites (these broad habitat do not form qualifying features of any of the scoped in designated sites, however APIS notes these as they are capable of supporting qualifying features associated with each site); such broad habitats include:</p> <ul style="list-style-type: none"> • Littoral sediment • Supralittoral sediment (calcareous and acidic) • Neutral grassland <p>None of the above habitats are recorded within the application site or surrounding area (within 500m as per the above guidelines) therefore potential negative effects on these habitats can be screened out.</p> <p>APIS also notes that exceedance of NOx critical load may affect open water habitat however this depends upon nitrogen and phosphate deposition limitations. The air quality chapter produced for the ES for the application site (WYG, 2020), Chapter 8, ES Volume II, has concluded that the long-term significance of the effects associated with this project with respect to NO2 and NOx exposure is determined to be 'negligible' at all existing sensitive ecological receptor locations during the operational phase. It is therefore considered unlikely that atmospheric deposition of NO2 and NOx will adversely affect the quality of open water habitat recorded within the application site.</p>	No

Pathway of Effect	Assessment	Appropriated Assessment Required at Stage 2
	<p>Enabling and construction works are likely to result in dust emissions during this phase of works which may be deposited within the internationally designated sites. However, in accordance with the guidance provided by IAQM (2014), the effects of fugitive dust would be limited to within 50m of sources. Dust settlement is therefore only likely to occur within approximately 1.2ha of Liverpool Bay SPA, this equates to 0.0004% of the total area of this designated site. Deposition of air pollutants within this area is then likely to be diluted and/or washed away by the flow of the River Mersey. Such a minor area of dust deposition in relation to the total area of the SPA is considered unlikely to adversely affect the conservation status of qualifying features of Liverpool Bay.</p> <p>It is noted that BMD forms functionally linked habitat for scoped in qualifying species of designated sites, however relevant qualifying features of the designated sites are not considered sensitive to the effects of dust deposition. In addition, dust deposition is considered unlikely to affect the condition of functionally linked land within the application site which supports scoped in qualifying features.</p> <p>All other designated sites are located beyond 50m from the application site and therefore this pathway of effect from dust deposition can be screened out as being unlikely to result in adverse effects upon qualifying features of such sites.</p> <p>Based on the above, it is considered unlikely that air quality impacts during the construction phase may have an adverse effect upon the conservation status of qualifying features of the designated sites.</p> <p>Therefore, LSEs on these designated sites as a result of dust and airborne pollution are not anticipated.</p>	
Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (reduction in dissolved oxygen)	<p>The aquatic survey report for BMD (APEM 2017) indicates that the dock within the application site supports a large population of fish which may form prey for qualifying features of the designated sites.</p> <p>“Bramley-Moore Dock Aquatic Ecology Environmental Statement” (Carcinus 2020), provided in Appendix 13.1, ES Volume III, states that increases in suspended sediment concentrations (SSCs) will occur as a result of the raking process and during infill of BMD with marine aggregate. Raking will be a singular event occurring early and over a very short timeframe within the proposed three-year construction window. Dissolved oxygen levels are likely to fall immediately. In the absence of mitigation measures it is considered that there would be a localised reduction in fish and invertebrate density within BMD. This may in turn result in a negative effect upon the foraging success of piscivorous bird species (which form scoped in qualifying features) which use the application site for foraging purposes. Therefore, LSE is anticipated upon scoped in designated sites which support such species as a result of this pathway of effect.</p>	<p>Yes – Liverpool Bay Cormorant, common tern herring gull</p> <p>Mersey Narrows & North Wirral Foreshore SPA & Ramsar – Cormorant, common tern</p> <p>Ribble and Alt Estuaries SPA & Ramsar -Cormorant, common tern, lesser black-backed gull, black-headed gull</p> <p>Mersey Estuary SPA & Ramsar-great crested grebe</p>
Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (suspension of particulates and contaminants)	<p>“Bramley-Moore Dock Aquatic Ecology Environmental Statement” also recognises the potential for suspension of particulate matter and the mobilisation of contaminants within the water column as a result of raking. However, a two-month period will be allowed for such contaminants to settle out within the isolated waterbody. In addition, analysis undertaken within the Dock Deposit Disturbance assessment (Appendix 11.8, ES Volume III) (BuroHappold, 2020) has determined that none of the contaminants recorded within BMD exceed action level 2 threshold levels determined by CEFAS guidance and therefore no specific mitigation is required. It is therefore considered that dispersal of contaminants as a result of dock raking and infill works will not result in an adverse effect upon prey species of any of the qualifying features of designated sites relevant to this project. Therefore, LSEs on designated sites as a result of the release of contaminants during dock infill raking are not anticipated.</p>	No
Habitat degradation – effects on water quality during dock infill	<p>The methods to infill BMD are presented within the “Dock Infill Methodology for Planning” (DIMP) document (Buro Happold 2020, ref: 0040026) presented within Appendix B. Such methods describe displacement of water from BMD to Sandon Half Tide Dock. Sandon Half Tide Dock, adjoining the north of BMD, may also form functional habitat for birds which are noted as qualifying features of the designated sites.</p> <p>Infilling of BMD is considered likely to take approximately 10 weeks (based on planned frequency of infill deliveries from area 457, weather permitting). It is considered unlikely that discharge of water from BMD to Sandon Half Tide Dock over this time period will have any adverse effect upon foraging ability of bird species which form qualifying features of the designated sites. This is due to the fact that BMD is connected to Sandon Half Tide Dock to the north and Nelson Dock to the south. While no flow data between these docks is available it is understood that there will be an interchange of water between these docks (when isolation feature gates are open) prior to works commencing. Any water discharged from BMD to Sandon Half Tide Dock during infill work is therefore unlikely to result in significant changes in salinity or nutrient status to this water body which may affect prey availability. It is also considered that any depletion of dissolved oxygen as a result of increased turbidity</p>	No

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	<p>during discharge would be minimal and would be localised to the discharge point and temporary in nature. It is anticipated (in accordance with the aquatic ecology chapter submitted within the ES (Carcinus 2020) that fish which form prey species to scoped in qualifying features of designated sites may display temporary localised displacement. However, this is unlikely to have a long term effect on distribution or foraging success of qualifying features.</p> <p>In addition, analysis of contaminants within BMD (BuroHappold 2020, ref: 0040026) shows that none of the contaminants recorded within BMD exceed action level 2 threshold levels determined by CEFAS guidance and therefore no specific mitigation is required during dock infill and displacement of water.</p> <p>Based on the above it is considered unlikely that dock infilling works will result in adverse effects upon functional habitat utilised by qualifying features of the designated sites for foraging purposes. In addition, Sandon Half Tide Dock is not connected directly to the River Mersey (or Liverpool Bay SPA directly adjacent site), the nearest direct connection to this designated site is approximately 1.8km north Brocklebank Dock/Langton Dock via a lock system. It is considered that any minor discharge of suspended solids created as a result of disturbance of sediment during BMD infill works will have settled out within functionally linked habitat prior to reaching the Liverpool Bay SPA or any of the other above designated sites. It is therefore unlikely that BMD infilling works will result in any adverse effect upon water quality which will affect foraging success of bird species which form qualifying features of the designated sites either within functionally linked habitat or within designated sites themselves.</p> <p>It is therefore considered that the conservation status of scoped in qualifying features of the designated sites would be unaffected as a result of this impact pathway and LSE are not anticipated.</p>	
Habitat degradation – effects on water quality at Nelson Dock during dock infill	<p>During construction works, Nelson Dock will be temporarily isolated from BMD and the dock network to the north. Although Nelson Dock is connected to the dock network to the south, this isolation has the potential to adversely affect water quality within Nelson Dock (which also forms functionally linked habitat for relevant qualifying features of the above designated sites). Adverse effects on water quality have the potential to reduce prey availability for scoped in birds which form qualifying features of the designated sites. Such a reduction in prey availability may potentially reduce foraging success of scoped in bird species and therefore affect their conservation status.</p> <p>Therefore, LSEs on the designated sites as a result of this impact pathway are anticipated.</p>	Yes - All designated sites, foraging breeding, passage and wintering birds
Habitat degradation - water quality impacts as a result of pollution events	<p>Construction works within the application site carry the risk of causing pollution events as a result of accidental chemical and hydrocarbon (fuel & oil) spill from materials and machinery used during the construction phase. Due to the distance of Mersey Estuary SPA and Ramsar, Ribble & Alt Estuary's SPA and Ramsar and Mersey Narrows and North Wirral Foreshore from the application site (minimum 1.2km from the application site) it is considered unlikely that any direct habitat degradation will occur at these sites. However, Liverpool Bay SPA is located adjacent the application site therefore, pollution events have the potential to adversely affect foraging habitat within this SPA. Pollution events within the application site also carries the risk of adversely affecting functionally linked habitat to designated sites and may therefore adversely affect the conservation status of relevant qualifying features.</p> <p>Therefore, LSEs on the designated sites as a result of this impact pathway are anticipated.</p>	Yes - All designated sites, foraging breeding, passage and wintering birds
Disturbance of qualifying features during transfer of aggregate to site	<p>As discussed above aggregate will be obtained from an approved extraction area (23 nautical miles north west of the application site) and therefore does not require assessment within this report.</p> <p>Allowing for 24/7 non-tidal working, we anticipate the 'Freeway' vessel will deliver one load of aggregate every 7 hours from Area 457 (via approved operational shipping routes within the Mersey Estuary, which are unlikely to cause any additional disturbance and is therefore not included within this assessment) delivering 46,500M3 of aggregate per week. In order to provide enough aggregate to fill the dock to the required level (480,000M3) it is anticipated that this stage of the construction phase will take approximately 100 round trips to dredge material, deliver to BMD and return to the dredging site over the course of approximately 10 weeks. Information provided by "UK Port Freight Statistics: 2018" Department for Transport 2019) indicates that there were 10,100 cargo related vessel arrivals at Liverpool Docks in 2018. Therefore, (assuming cargo deliveries to the docks do not significantly reduce in the next year) the number of vessel trips required for this project is considered likely to represent an increase in boat traffic in the river Mersey by approximately 0.9%. Cargo departure statistics are not included within this document however, according to http://maps.dft.gov.uk/port-freight-statistics/interactive-dashboard/, of the 32 million tonnes</p>	No

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	<p>of cargo processed at Liverpool Docks approximately 26% of this constitutes outward freight indicating a further increase to boat traffic within the Mersey. Passenger vessel data is omitted from the above statistics, such data is presented within Sea Passenger Statistics 2019: Short Sea Routes (DFT 2019) however is presented in terms of passenger numbers and not vessel trips. While passenger data is not comparable with vessel trip data associated with this project it is recognised that approximately 0.2-0.3 million passengers travelled between Liverpool and Belfast and between Liverpool and Douglas in 2019. This number of passengers would have contributed to higher vessel usage of Liverpool Docks and the Mersey Estuary than inward bound freight alone. It should also be noted that any effect of any increase in boat traffic as a result of this project is temporary in nature. It is therefore considered that in reality boat traffic associated with this project will contribute to less than a 0.9% increase in shipping traffic. It is considered unlikely that such a minor increase in boat traffic as a result of the project would result in any significant disturbance to qualifying features of the designated sites during delivery and transfer works to infill the dock.</p> <p>In addition, as transfer of materials will be achieved via floating pipeline, no disturbance or damage to habitats which support qualifying features is anticipated.</p> <p>Therefore, adverse effects upon conservation status of such features are not anticipated.</p> <p>Therefore, LSE on designated sites as a result of this impact pathway are not anticipated.</p>	
Disturbance of qualifying features – visual and auditory disturbance.	<p>Construction is anticipated to commence during the first/second quarter of 2021 and will take place over a 3 year period. Visual, noise and vibration effects from enabling and construction works are likely to occur over at least three winter periods. Such works will coincide with times of year when wintering birds associated with Liverpool Bay SPA (adjacent to the application site) are likely to be present within functionally linked habitat associated with the application site or in the surrounding area. Construction works associated with the application site represent a change to baseline conditions and therefore carry a risk of causing disturbance to qualifying features associated with Liverpool Bay SPA (as the application site is directly adjacent). In addition, qualifying features associated with other scoped designated sites using the application site and surrounding area as functionally linked land may experience visual disturbance. Therefore, based on a precautionary approach, the application site is considered likely to adversely affect conservation status of scoped in qualifying features and LSE are anticipated.</p> <p>The Mersey Estuary SPA and Ramsar, Ribble & Alt Estuary's SPA and Ramsar and Mersey Narrows and North Wirral Foreshore are located a minimum of 1.2km from the application site. Therefore, visual disturbance of qualifying features present within the boundaries of these designated sites is considered unlikely.</p> <p>Auditory – It is anticipated that, in the absence of mitigation, increased noise levels within the application site will cause disturbance to scoped in qualifying features of designated sites up to a distance of 500m from the application site. Such disturbance has the potential to have a LSE on the conservation status of qualifying features of the designated sites.</p> <p>Therefore, LSEs on designated sites as a result of this impact pathway are anticipated.</p>	Yes, all scoped in designated sites and qualifying features (as scoped in qualifying features from all sites have the potential to utilise functionally linked land associated with the application site and adjoining docks)
Displacement of prey species for qualifying bird species– noise and vibration	<p>An assessment of the effects of noise and vibration upon fish species during the construction phase of works is provided within the "Bramley-Moore Dock Aquatic Ecology Environmental Statement" (Carcinus 2020) provided in Appendix 13.1, ES Volume III. This assessment concludes that the main fish species of concern include sea lamprey (fish lacking swim-bladders that are only sensitive to particle motion (kinetic energy of sound) and respond to only a narrow band of frequencies), Atlantic salmon and sea trout (fish with swim-bladders that are only sensitive to particle motion and show sensitivity to a narrow band of frequencies) and Atlantic cod and European eel (fish with swim-bladders close to but not connected to the ear). These species are sensitive to both particle motion and sound pressure.</p> <p>Such species of fish located within the dock system and adjacent lower Mersey may form prey species to piscivorous scoped in qualifying features (i.e. common tern, gull species, cormorant and great crested grebe) of scoped in designated sites. However, "Bramley-Moore Dock Aquatic Ecology Environmental Statement" ES Appendix 13.1, ES Volume III (Carcinus 2020) states that the significance of noise and vibration effects upon fish within the dock and adjacent Mersey Estuary as a result of dock infilling works and construction are assessed as negligible. This is as a result of the inherent works schedule associated with this project and not as a result of any in built or species-specific mitigation designed to accommodate fish species.</p> <p>It is therefore unlikely that prey species of qualifying features will be displaced during works and the conservation status of such species are considered unlikely to be affected by this pathway of effect.</p> <p>Therefore, LSE on designated sites as a result of this impact pathway are not anticipated.</p>	No

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Disturbance of qualifying features – lighting effects	<p>The Mersey Estuary SPA and Ramsar, Ribble & Alt Estuary's SPA and Ramsar and Mersey Narrows and North Wirral Foreshore are located a minimum of 1.2km from the application site. Therefore, light disturbance of qualifying features present within the boundaries of these designated sites is considered unlikely. Such an effect upon these designated sites is therefore not considered within this report. However, scoped in qualifying features which may visit functionally linked land within the application site from the above designated sites are considered further. In addition, as Liverpool Bay is located adjacent the application site, scoped in qualifying features associated with Liverpool Bay SPA are considered both in terms of birds within the designated site boundary and within functionally linked land associated with the application site.</p> <p>The proposed construction works will generally be limited to the following working hours:</p> <p>a) Monday to Friday: 07:00 -19:00</p> <p>b) Saturday: 07:00 -13:00</p> <p>c) Sundays and Bank Holidays: No Working</p> <p>No work is to be undertaken on Sundays or Public Holidays, unless written consent is obtained from Liverpool County Council (LCC) for extreme emergency cases. In this scenario the Contractor would be required to fully justify any proposed deviation from those operating periods, provide written justification to LCC, and notify neighbours in writing, before works outside normal hours commence).</p> <p>Some elements of the construction process will require alternative working hour arrangements, as a consequence of their technical requirements. These will be small-scale / short timeframe works i.e. infill of the dock with imported material (typically done through a 24 hour/7 days-a-week approach); dock infill compaction process (07:00-19:00, six days-a-week); power floating concrete slabs (highly localised activity continuing sometimes overnight depending on environmental conditions and the concrete setting process). These alternative working hours will be used through this phase upon agreement with all parties.</p> <p>All lights onsite will be low level and angled into the application site due to the specific work tasks that such lighting is required for. Such lighting is an in-built measure of the construction works schedule/methods which by default avoids any significant effect upon scoped in features of the designated site. As such it is not anticipated that construction lighting will affect any of the scoped in qualifying features of the designated site. Therefore, no disturbance to qualifying features as a result of construction lighting is anticipated during the construction phase of works.</p> <p>Therefore, LSE on designated sites as a result of this impact pathway are not anticipated.</p>	No
Habitat degradation - deposition of waste/litter	<p>Construction waste will be generated during all stages of the construction programme. This will be carefully managed and cleared to prevent nuisances such as litter, odour and pests, and to maintain a 'clean' working and site environment. However, it is anticipated that accidental release of litter and waste has the potential to result in adverse effects upon functionally linked habitat associated with the designated sites. This in turn may result in adverse effects upon the conservation status of qualifying features of designated sites.</p> <p>Therefore, LSE on these designated sites as a result of this impact pathway are anticipated.</p>	Yes, all scoped in designated sites and qualifying features.
Operational phase		
Habitat degradation within designated sites and functionally linked land- as a result of increased visitor numbers causing trampling effects	<p>It is recognised that the operational phase of the proposed development will result in an increase in visitor numbers to the local area to an anticipated maximum of 52,888 people (plus approximately 2,000 staff members) on match days (with an annual total of approximately 28 home match events played at the stadium) along with approximately 4 non match day events at full capacity (52,888, plus 2,000 staff).</p> <p>Additional non-match day events will include (but may not be limited to) conferences, weddings, Christmas parties. The western terrace and viewing platform will also be accessible to the general public (anticipated visitor numbers for such events/use by the general public will vary considerably but are considered to be significantly less than during match day and full capacity non match day events).</p> <p>However, it is anticipated that all visitors to the operational phase of the proposed development will primarily be visiting for the specific reason of attending match and non-match events or functions held at this location. It is therefore considered unlikely that such visitors to the operational application site will also visit scoped in designated sites included within this assessment and are therefore unlikely to increase recreational pressures (such as trampling) within designated sites.</p> <p>In addition, remaining functionally linked habitat within and surrounding the application site will comprise hard standing and open water. Neither hard standing or open water are susceptible to trampling by the public and are unlikely to be affected by match day and non-match day event attendees. It is therefore unlikely that the operational site will result in degradation of habitats which form or support qualifying or features of scoped in designated sites as a result of the operation of this project.</p> <p>Therefore, LSEs on the designated sites as a result of this impact pathway are not anticipated.</p>	No

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Disturbance of qualifying features – visual disturbance.	<p>The Mersey Estuary SPA and Ramsar, Ribble & Alt Estuary's SPA and Ramsar and Mersey Narrows and North Wirral Foreshore are located a minimum of 1.2km from the application site. Therefore, visual disturbance of qualifying features present within the boundaries of these designated sites is considered unlikely. Such an effect upon these designated sites is therefore not considered within this report. However, scoped in qualifying features which may visit functionally linked land within the application site from the above designated sites are considered further. In addition, as Liverpool Bay is located adjacent the application site, scoped in qualifying features associated with Liverpool Bay SPA are considered both in terms of birds within the designated site boundary and within functionally linked land associated with the application site.</p> <p>It is recognised that the operational phase of this project will result in an increase in visitor numbers to the local area up to an anticipated maximum of 52,888 (plus 2,000 staff) people on match days (with an annual total of approximately 28 home match events played at the stadium) along with approximately 4 non-match day events at full capacity (i.e. music concerts).</p> <p>Additional non-match day events will include (but may not be limited to) conferences, weddings, Christmas parties. The western terrace and viewing platform will also be accessible to the general public (anticipated visitor numbers for such events/use by the general public will vary considerably but are considered to be significantly less than during match day and full capacity non match day events).</p> <p>It is anticipated that match day events are unlikely to exceed 4.5 hours on average (estimated at 1.5 hours for attendees to arrive, 1.5 hour match and 1.5 hours for attendees to leave) and non-match day events may occasionally exceed this slightly (depending upon the nature of the event). Such events will involve high levels of vehicular and pedestrian traffic within the operational application site. However, with the exception of access to limited onsite parking, pedestrian access will be directed to within the operational stadium for specific time periods and is unlikely to result in disturbance of qualifying features associated with designated sites or functionally linked land beyond the boundary of the operational application site.</p> <p>In addition, disturbance caused by match day and non-match day events will occur at a low frequency of short duration (28 Match day events/year and 4 non match day events taking approximately 4-6 hours) over the course of each year during operation. In addition, small scale additional non match day events will involve weddings and Christmas parties held within indoor function rooms in addition to low level public access visiting the site from the surrounding Liverpool Docks. In the absence of disturbance events it is anticipated that scoped in qualifying features of designated sites (as highlighted above) will continue to utilise habitat associated with areas surrounding the application site. Any short-term, infrequent displacement of scoped in species is unlikely to result in negative effects on foraging/roosting and resting behaviour of such species. Such scoped in qualifying features of the designated sites may become de-sensitised to these disturbance events over the long-term operational phase of the project and the conservation status of such features is unlikely to be adversely affected by the operational site.</p> <p>Therefore, LSE on scoped in designated sites as a result of this impact pathway are not anticipated.</p>	No
Disturbance of qualifying features –auditory disturbance.	<p>The Mersey Estuary SPA and Ramsar, Ribble & Alt Estuary's SPA and Ramsar and Mersey Narrows and North Wirral Foreshore are located a minimum of 1.2km from the application site. Therefore, auditory disturbance of qualifying features present within the boundaries of these designated sites is considered unlikely. Such an effect upon these designated sites is therefore not considered within this report. However, scoped in qualifying features which may visit functionally linked land within the application site from the above designated sites are considered further. In addition, as Liverpool Bay is located adjacent the application site, scoped in qualifying features associated with Liverpool Bay SPA are considered both in terms of birds within the designated site boundary and within functionally linked land associated with the application site.</p> <p>The noise assessment (which assesses noise levels which may affect ecological receptors up to 500m from the application site, see Appendix F for data extract) for the operational application site indicates that the worst-case L_{Amax} levels from noise associated with a goal being scored on matchday events have the potential to result in high level noise effects in accordance with the Tide Handbook (Cutts et al 2013) (i.e. greater than 72dB) within 400m, but dropping to moderate noise levels beyond this distance. However, on average there are approximately 2.65 goals scored per premier league match, therefore over the course of 28 home games played at the operational stadium it is estimated that the worst case scenario noise levels would occur approximately 74 times a season and given the nature of the source is unlikely to extend beyond 5 minutes per goal. Noise levels cannot be predicted beyond the worst case however it is anticipated that levels would be significantly lower at a continuous level either side of goal scoring events. Such infrequent short duration noise events are unlikely to cause the permanent displacement of scoped in qualifying features from functionally linked land associated with the operational application site. In addition, it should be noted that existing baseline L_{Amax} noise levels along Bramley Moore Dock are greater than levels predicted for the operational site (up to 75 dB). As such, sensitive species within the</p>	No

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	<p>urban environment are more likely to habituate to noise from within the stadium, in accordance with guidance provided within the TIDE handbook (Cutts et al 2013).</p> <p>In addition, worst-case L_{Aeq} noise levels from non-match day music events are predicted to be within the TIDE handbook Moderate Noise Level Effects criteria of 55-72 dB Cutts et al (2013) at all sensitive receptor locations. There are expected to be a maximum of 4 non-matchday event days per year, as such noise levels from the short-term events are likely to be below the levels at which interference with bird calls / communication / hunting habits etc would be expected. Therefore, displacement as a result of non-match day music events is considered unlikely.</p> <p>Additional non-match-day events have not been specifically assessed within the above noise assessment, this is due to the fact that they are likely to involve small scale functions such as weddings and Christmas parties held within indoor function rooms and are therefore unlikely to cause noise disturbance in exterior areas of the operational application site. It is recognised that such events held during good weather may involve additional outside noise centred around the top of the western terrace. However, such noise levels are considered to be significantly lower than the worst levels predicted during match day and non-match day events. It is therefore considered that additional non match day events will not result in displacement of scoped in qualifying features of designated sites.</p> <p>Therefore, LSE on these designated sites as a result of this impact pathway are not anticipated.</p>	
Disturbance of qualifying features – lighting effects.	<p>The Mersey Estuary SPA and Ramsar, Ribble & Alt Estuary's SPA and Ramsar and Mersey Narrows and North Wirral Foreshore are located a minimum of 1.2km from the application site. Therefore, light disturbance of qualifying features present within the boundaries of these designated sites is considered unlikely. Such an effect upon these designated sites is therefore not considered within this report. However, scoped in qualifying features which may visit functionally linked land within the application site from the above designated sites are considered further. In addition, as Liverpool Bay is located adjacent the application site, scoped in qualifying features associated with Liverpool Bay SPA are considered both in terms of birds within the designated site boundary and within functionally linked land associated with the application site.</p> <p>The lighting assessment for this project (ES Appendix 16.1, ES Volume III) (WYG, 2020) states that, in the absence of any guidance regarding ecological receptors, impacts are considered potentially significant where predicted illuminance significantly exceeds 2 lux at ecological receptors in line with the ILP criteria. This assessment has determined that operational lighting will exceed 2 lux at six locations at Nelson Dock to the south and the entrance to Sandon Half-Tide Dock to the north of the application site. The lux levels within the operational site are displayed in Appendix G.</p> <p>No guidance is currently available regarding light levels which may cause disturbance to wintering birds such as scoped in qualifying features of relevant designated sites. However, "The Impact of artificial Light on waterfowl behaviour" (BTO 1990) (document provided by MEAS), indicates that water birds that forage within estuarine habitats may benefit from artificial lighting as this has the potential to increase foraging time.</p> <p>Given that the event day scenario is only expected to occur fewer than 32 times a year including football matches (depending on Everton's progress in Domestic and European cup competitions – not all games in the evening) and concerts, the overall impact of lighting on ecological receptors from event day lighting is not considered significant. In addition, non-event day lighting along the western, southern and northern boundary levels will not exceed ILP criteria of 2 lux Except for the entrance to Sandon Half-Tide Dock, the results do show that the locations surrounding this area and further back into the dock (beyond 5m from this location) will be below 2 lux.</p> <p>Such lighting is therefore considered unlikely to cause displacement or disturbance to scoped in features of designated sites. However, such lighting effects have the potential to enhance foraging/hunting success and therefore benefit notifiable features in accordance with the above BTO study.</p> <p>It is therefore unlikely that the operational phase of the proposed development will adversely affect the conservation status of scoped in qualifying features of designated sites as a result of lighting on site.</p> <p>Therefore, LSE on these designated sites as a result of this impact pathway are not anticipated.</p>	No
Habitat degradation - water quality impacts as a result of surface water run off within the application site	<p>The proposed surface water drainage strategy presented within BMD01-BHE-ZX-XX-RP-C-0300 - Drainage Strategy (ES Appendix 11.4, ES Volume III) (Buro Happold, 2020) states that only areas of the application site open to the elements (excluding the pitch) will drain to the surface water drainage network. This will discharge into River Mersey, and Nelson Dock via appropriately designed measures which follow best practice standards. Such measures include downstream defender units designed to separate particulates from water prior to discharge and oil/fuel separator units to be installed in areas which drain from carparking zones within the application site.</p>	No

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	<p>It is considered that surface water drainage has been designed appropriately and by default this avoids adversely affecting habitats which support scoped in qualifying features of designated sites.</p> <p>Therefore, LSE on these designated sites as a result of this impact pathway are not anticipated.</p>	
Habitat degradation - water quality impacts as a result of pollution (foul water/fertilizer/herbicide application associated with pitch management)	<p>The proposed foul water drainage strategy presented within BMD01-BHE-ZX-XX-RP-C-0300 - Drainage Strategy (ES Appendix 11.4, ES Volume III) (Buro Happold, 2020) states that onsite foul water drainage will be managed by Everton Football Club and will utilise existing infrastructure. Such infrastructure will discharge into the existing foul water chamber located at the Regent Road / Blackstone Street Junction, United Utilities chamber, and will be directed away from designated sites via foul water sewer system. There will be no LSEs upon any designated site as a result of foul water discharge during the operational phase of this project.</p> <p>All covered areas (including storage yards/works areas at higher risk of causing pollution) of the application site will drain to the foul water network. In addition, the pitch will have a specialist drainage system that harvests and recycles rainwater for irrigation. The system will have an overflow to the foul water network. This is due to the presence of fertilisers in the discharge making it unsuitable for discharge to the adjacent docks.</p> <p>It is considered that foul drainage has been designed appropriately to avoid adversely affecting habitats which form or support qualifying features of relevant designated sites.</p> <p>Therefore, LSE on these designated sites as a result of this impact pathway are not anticipated.</p>	No
Habitat degradation – air pollution	<p>A review of information presented by Air Pollution Information System (APIS - http://www.apis.ac.uk/src/select-a-feature?site=UK9005131&SiteType=SPA&submit=Next) indicates that qualifying features of the designated sites are not directly sensitive to critical loads associated with air pollution. APIS also states, in relation to exceedance of critical load level for NH₃, Nutrient Nitrogen and NO_x, that the impacts of exceedance are either unlikely to affect qualifying features, or provide a positive effect due to a potential increase in food supply as a result of increased nutrient loading. It is noted that APIS highlights a likely effect as a result of exceedance of critical load for NO_x and nitrogen upon broad habitats associated with qualifying features of the designated sites, such broad habitats include:</p> <ul style="list-style-type: none"> • Littoral sediment • Supralittoral sediment (Calcareous and acidic) • Neutral grassland and • Open water <p>Open water exists within the application site but none of the above terrestrial habitats are recorded within the application site or surrounding area (within 200m of roads affected by the application site in accordance with “guide to the assessment of air quality impacts on designated nature conservation sites” IAQM 2020), however such habitats do exist within the wider ZoI. .</p> <p>However, The air quality chapter produced for the ES for the application site (ES Chapter 8, ES Volume II) (WYG, 2019) has concluded that long-term Process Contributions (PC) relative to the Air Quality Assessment Limit (AQAL) as a result of the operational application site at all ecological receptor locations, with respect to NO_x (as NO₂) exposure, are determined to be 0.33% or less. Therefore, the significance is deemed to be ‘negligible’ for all relevant designated sites. As the percentage change in long-term Process Contributions relative to the AQAL is below 1% of the relevant critical load for the protection of vegetation and ecosystems, the long-term PCs have been screened out against the relevant standard/critical level. It is therefore considered unlikely that atmospheric deposition of NO₂ and NO_x will adversely affect the condition of broad habitats as identified above within the application site and surrounding docks to the north and south or the wider area within the ZoI of the application site.</p> <p>It is therefore considered that adverse effect upon qualifying/notifiable features of designated sites as a result of the operational phase of this project are unlikely.</p> <p>Therefore, LSE on this designated site as a result of this impact pathway are not anticipated.</p>	No
Displacement of prey for qualifying bird species– noise and vibration	<p>An assessment of the effects of noise and vibration upon fish species during the operational phase of works is provided within the “Bramley-Moore Dock Aquatic Ecology Environmental Statement” (Carcinus 2019) provided in Appendix 13.1, ES Volume III. This assessment concludes that impact significance of underwater noise and vibration during operational phase is negligible. It is therefore unlikely that prey species of qualifying features will be displaced during works and therefore foraging success of scoped in qualifying features of the designated sites are unlikely to be affected during operation of the proposed development. Therefore, conservation status of such species is considered unlikely to be affected by this impact pathway.</p> <p>Therefore, LSEs on designated sites as a result of this impact pathway are not anticipated.</p>	No

Pathway of Effect	Assessment	Appropriated Assessment Required at Stage 2
Loss of qualifying features - potential bird strike	<p>There is currently no guidance relating to the analysis of bird strike on static structures in the UK. It is however, recognised that birds generally do not see clear or reflective glass (Klem and Saenger 2013). Glass reflectivity and transparency create a lethal illusion of clear airspace that birds do not see as a barrier. During the daytime, birds collide with windows because they see reflections of the landscape in the glass (e.g., clouds, sky, vegetation, or the ground); or they see through glass to perceived habitat (including potted plants or vegetation inside buildings) or to the sky on the other side. At night, during spring and autumn bird migrations when inclement weather occurs, birds can be attracted to lighted structures resulting in collisions, entrapment, excess energy expenditure, and exhaustion (Manville 2009). This phenomenon has resulted in a number of concentrated avian mortality events. These mass events are less common at city, office or residential buildings, but still a possibility under the right weather and lighting conditions (Klem and Saenger 2013). The majority of collisions with both residential and urban buildings happen during the day, as birds fly around looking for food.</p> <p>The Construction Management Plan (Laing O'Rourke, 2020) provided in Appendix 4.1 of ES Volume III, states that the main structure of the operational application site will be constructed primarily from prefabricated concrete and steelwork. The exterior façade is to be comprised of brickwork, "mesh" and glazing. It is anticipated that brickwork and "mesh" construction materials will not present a risk to bird collision.</p> <p>It is anticipated that such a reflective surface associated with glazing presents a high risk of bird strike which may affect qualifying features of the designated sites. This is especially the case for low flying birds with low manoeuvrability in the air (i.e. cormorant).</p> <p>Regular mortality events as a result of collision with the operational stadium on site have the potential to significantly reduce population numbers of qualifying feature populations in the local area. Such reduction will adversely affect the conservation status of qualifying features of the designated site.</p> <p>Therefore, LSE on these designated sites as a result of this impact pathway are anticipated.</p>	Yes, all scoped in designated sites and qualifying features.
Habitat degradation - deposition of waste/litter	<p>The operational waste management strategy (Buro Happold 2020) provided in Appendix 3.2, ES Volume III, recognises that during each match day event the application site will generate 16,700kg of waste. Such waste has the potential to enter the surrounding docks and break down causing degradation of aquatic habitat, break down and enter the aquatic food chain (potentially causing this to diminish). In addition, certain items of waste have the potential to entrap bird species which form qualifying features of the designated sites and cause injury or mortality.</p> <p>Regular mortality events as a result of entrapment within litter or displacement/as a result of adverse effects upon the aquatic food-chain (causing bird species to forage further afield may have an adverse effect upon the conservation status upon qualifying features of designated sites.</p> <p>Therefore, LSE on designated sites as a result of this impact pathway are anticipated.</p>	Yes, all scoped in designated sites and qualifying features.
Effects of shadowing on qualifying features	<p>MEAS and Natural England requested in their consultation response (April 2020 and further discussions in July 2020) that further information should be included in relation to the effects of shading upon relevant ecological receptors. The assessment of overshadowing undertaken for this project states:</p> <p><i>"As the proposed stadium sits to the north of Nelson Dock, the site of the proposed Liverpool Waters scheme, minimal shadow will be cast from the proposed stadium over Nelson Dock at the spring equinox which is the BRE guidelines suggested date of assessment for overshadowing. This is due to the sun's path throughout the day. As the sun rises in the east and sets in the west, the stadium will cast a shadow to the west in the morning, to the north in the middle part of the day and to the east in the evening. The shadow will be cast to its greatest extent at the winter solstice, when the sun is lowest in the sky. The opposite can be said for the summer solstice when the sun is highest in the sky and the shadows cast will be more limited. It is important to note that the shadow cast by the stadium will be transient in nature and will therefore be constantly moving throughout the course of the day. As such, there is limited potential for overshadowing to impact the Nelson Dock waterbody and associated ecological features as a result of the proposed stadium development".</i> This assessment confirms that functionally linked habitats associated with relevant designated sites (i.e. hard standing and open water – which are not considered sensitive to the effects of shading) are unlikely to be affected by shade cast by the operational site.</p> <p>In addition, the effects of shading upon aquatic ecological receptors have been assessed within the aquatic ecology ES chapter (Chapter 13, ES Volume II). This states that the significance of overshadowing upon aquatic ecology receptors such as fish and shellfish, which do not form qualifying features of the above designated sites but may form prey to support qualifying feature bird species, as a result of this project is considered to be negligible (proposed stadium located to the north of Nelson Dock. It is therefore considered that there will be no pathway of effect upon qualifying features (piscivorous birds), their prey, or functionally linked habitats which support such species, as a result of shading</p>	No



Pathway of Effect	Assessment	Appropriated Assessment Required at Stage 2
	resulting from the proposed development. Therefore, the effects of shading as result of this project are screened out of this assessment.	

Of the pathways of effects which have been assessed in terms of potential effects upon scoped in designated sites, **LSE is anticipated for the following:**

Construction

- Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat
- Habitat loss within functionally linked habitat beyond the boundary of the designated sites
- Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen)
- Habitat degradation – effects on water quality at Nelson Dock during dock infill
- Habitat degradation - water quality impacts as a result of pollution events
- Disturbance of qualifying features – visual and auditory disturbance
- Habitat degradation - deposition of waste/litter

Operation

- Loss of qualifying features - potential bird strike
- Habitat degradation - deposition of waste/litter



5.0 Consideration of In-combination Effects

5.1 Projects

A list of schemes has been identified as requiring assessment in-combination with the proposed development, details of which are provided within ES Chapter 2 (EIA Methodology), ES Volume II, detailing a list of cumulative developments considered in the assessment (CBRE, 2020). In addition, Natural England and MEAS have provided a list of 4 additional projects to consider in combination with the application site. Furthermore, a review of MMO licencing has identified 7 areas of ongoing works under MMO licence (expired MMO licence works are not considered in this assessment).

A total of 39 of these schemes scoped out ecology all together and/or have not been required to consider effects upon designated sites due to their small scale (building conversions, redevelopment of existing buildings), location in central Liverpool and isolation from designated sites. These schemes have been scoped out of this assessment as **LSE are not anticipated** when considered in-combination with the application site or other developments.

The remaining 21 schemes have scoped in assessment upon designated sites within the relevant ecological assessment documents, these are detailed in Table 16.



Table 16: Summary of relevant planning applications.

Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
Isle of Man Ferry Terminal	18F/3231	1.191km South	<p>The HRA for this scheme (Waterman 2018) states the overall conclusion is that Likely Significant Effects (LSEs) cannot be ruled out for impact of loss of roosting location for cormorant: direct impact of displacement of birds from feeding, roosting or nesting locations due to loss of land and / or water under the footprint of the construction works. Some of the structures used by cormorant to rest/roost are to be removed/disturbed, such as existing dock walls.</p> <p>Therefore, when considered in combination with the application site LSE are anticipated.</p>	Yes
Land bounded by Blackstone Street, Fulton Street and Regent Road Liverpool 5	20F/0217	Approx. 0.94km north east	<p>The ecological report produced for this project (ERAP 2019) has determined that LSE can be ruled out for this project when considered alone and in combination with other plans or projects.</p> <p>Therefore, when considered in combination with the application site no LSE are anticipated.</p>	No
Vacant Land, Plot A06	20F/1203	Approx. 1.48km south	<p>The HRA for this project (ARUP 2020) concludes that LSE is anticipated as a result of construction related pollution and noise disturbance.</p>	Yes



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
William Jessop Way Princes Dock Liverpool L3 1QP			Therefore, when considered in combination with the application site LSE are anticipated .	
Plot 11, Land Off Princes Road Princes Dock Liverpool	19F/1038	1.63km south	<p>The HRA for this scheme (Waterman, 2017) concludes that this project will not result in LSEs during construction and operational phases of works when considered alone. This is due to anticipated lack of disturbance and displacement of relevant qualifying features of designated sites during operation of this scheme.</p> <p>The HRA states, when relevant projects in the surrounding area are considered in combination with this scheme, that Given that there are no impacts predicted from the Liverpool Cruise Liner Hotel – and no issues where effects from the Liverpool Cruise Liner Hotel may be added to cumulatively from relevant nearby developments, there are considered to be no in-combination effects.</p> <p>It is therefore considered (in accordance with the HRA Handbook (DTA)) that this project will not result in any additive or synergistic effects when considered in combination with the application site and therefore in combination LSEs are not anticipated.</p>	No
Liverpool City Centre Connectivity Phase	17F/2628	0.89km South	The HRA for this scheme (Amey 2017) states it has been determined that the Northern Link Road is unlikely to have a significant effect on any of the Natura 2000 sites or their qualifying features during construction or operational phases. It is also considered that	No



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
2 – Northern Link Road			although the redevelopment of the Liverpool Docks area and other schemes in the city centre are proposed, no significant in-combination effects are likely. Therefore, when considered in combination with the application site LSE are not anticipated .	
Southern Link Road	18F/1419	1.366km South-East	The HRA for this scheme (Amey 2019) screens in LSE upon cormorant which form qualifying features of Liverpool Bay SPA, Mersey Narrows and North Wirral Foreshore SPA/RAMSAR and Ribble and Alt Estuaries SPA/RAMSAR when considered in isolation. The HRA also states that construction phase of this scheme may act in combination with other developments if construction periods coincide with one another. This scheme is scheduled to be constructed between the 1 st and 3 rd quarter of 2021. Therefore, when considered in combination with the application site LSE are anticipated .	Yes
District Heating Network at Central Docks	19F/1745	0.896km South	The HRA for this scheme (Avian Ecology 2018) states it is concluded that the proposed development will have no LSEs upon any European sites or their qualifying interests, either alone or in-combination with other plans or projects. Therefore, when considered in combination with the application site LSE are not anticipated .	No
"Quay Central", Plot and "Park Central", land to west of	17F/1628 To erect 2 residential blocks of 237 PRS apartments	1.070km South	The ES for this scheme (P4 Planning, 2017) states that detailed HRA Screening exercise focused on two sites: Mersey Narrows and North Wirral Foreshore SPA and Ramsar site, and Mersey Estuary SPA and Ramsar site. The assessment is based on the known areas of vulnerability for each site and considers potential impact types including invasive species and changes in vegetation, outdoor activities and recreation, and disturbance from urban development. The report concludes that there are no LSEs on the Mersey Estuary SPA and Ramsar as it is distant from the proposed development site. Potential significant effects on	No



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
Waterloo Road, Central Docks.	with gym, parking and cycle spaces, office and ground floor commercial space		<p>the Mersey Narrows and North Wirral Foreshore SPA and Ramsar are also screened out due to distance and accessibility, although recommendations are made in relation to best practice construction methods and use of appropriate species in landscaping.</p> <p>No effects on any European statutory nature conservation sites are predicted during the construction phase of this scheme.</p> <p>The ES also states that the Ribble & Alt Estuaries SPA/Ramsar is located in excess of 6 km from this scheme, with the vast majority of this large designated site located over 10 km distant. A small-scale increase in visitor pressure is inevitable as these are both desirable visitor attractions, however the vast proportion of visitors will most likely travel to managed recreation areas such as the Sefton Coastal Path. Reference to respective JNCC data sheets for these sites does not highlight recreational pressure as a key threat or area of vulnerability. Overall the potential for recreational impacts from the small-scale development proposed is considered to be negligible.</p> <p>No effects on any European statutory nature conservation sites are predicted during the operational phase of this scheme.</p> <p>Therefore, no LSEs on these designated sites are anticipated in relation to this scheme.</p> <p>When considered in combination with the application site LSEs are not anticipated.</p>	
LJMU Campus, Copperas Hill/Brown Low Hill	18F/1410 To erect 5 storey Student Life building and 2 storey sports building	2.6km Southeast	<p>The Preliminary Ecological Appraisal (ARUP, 2016) states:</p> <p>Mersey Narrows and North Wirral Foreshore Site of Special Scientific Interest (SSSI)/Special Protection Area (SPA) and Ramsar is located 2.6km to the west and is the closest nature conservation designation to the application site. This designated area is</p>	No



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
	with retail and cafe uses.		<p>separated from the application site by the estuary, residential and commercial buildings. Consequently, there will be no direct impacts.</p> <p>Therefore, no LSEs on these designated sites are anticipated in relation to this scheme.</p> <p>When considered in combination with the application site LSEs are not anticipated.</p>	
Liverpool Waters Non material amendment	20NM/1801 – Non-material amendment to LW outline consent – adjusting boundary of parcel 3a/3b, re-orientate plot C01 and reducing heights of plot C01 from 12m and 44m, down to a single 11.3m to respond to the approved height of the commenced Isle of Man	As above	<p>No HRA has been submitted in support of this non-material amendment. However, the Liverpool Waters S96a Appendix 1 – Land Use Implication Verification Report (ARUP 2020) states that changes to land boundary parcels, height and orientation of development will have no material effect upon ecology and nature conservation in relation to this amendment. It is therefore considered that the conclusions drawn above in relation to the Liverpool Waters project remain valid. Therefore, when considered in combination with the application site LSE are anticipated.</p>	Yes



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
	Ferry Terminal.			
2-6 Lightbody Street, Liverpool	20F/1947 (Full App.) – application to erect 210 residential units at land where Lightbody Street meets Great Howard Street		<p>The HRA for this scheme (Wardell Armstrong 2020) concludes that this project will not result in LSEs during construction and operational phases of works when considered alone.</p> <p>The HRA also states that, given that the proposed development has been assessed as causing no adverse effect alone, then there is no possibility of in combination impacts. This is because there is no adverse effect from the 'source' to combine with other projects potential adverse effects in the region. This is clarified where the impact is zero/neutral or 'not appreciable' (Sweetman C-258/11 (2013) as follows:</p> <p><i>'The requirement that the effect in question be significant lays down a de minimis threshold. Plans or projects that have no appreciable effect on the site are therefore excluded'.</i></p> <p>Therefore, when considered in combination with the application site LSE are not anticipated.</p>	No
Liverpool Waters	100/2424 The comprehensive redevelopment of up to 60 hectares of former dock	Includes application site and extends South approximately 2km	<p>The ES for the Liverpool Waters Project (Liverpool Waters, 2011) states:</p> <p>"The cormorants recorded (30) equated to 6.99% of the Mersey Narrows & North Wirral Foreshore pSPA/pRamsar (now SPA/Ramsar) total population (429). Activities on site that may cause disturbance include piling, loading and unloading of vessels, intermittent moving of large loads and people and movement of vehicles and plant. Assumed noise generating construction activities are also a significant source of disturbance. However, if waders and wildfowl are disturbed to the point they are temporarily displaced from site, there are numerous alternative roosting/feeding sites within the local area that these</p>	YES – in-combination loss of functionally linked land associated with scoped in designated sites



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
	land comprising a maximum of 305,479sqm office space, 752,675 sqm of residential space accommodating 9,152 homes, 69,735 sqm of hotel and conference facilities, 24,696 sqm comparison retailing, 7,768 sqm convenience retailing, 8,588 sqm financial and professional services, 33,638 sqm cafes and restaurants, 20,210 sqm		<p>species may and do use. Therefore, it is considered disturbance impacts to waders and wildfowl will not be a significant impact at a local level.</p> <p>It is considered unlikely that the effects of the Liverpool Waters project will interact with the effects of this project during the construction phase due to displacement of and loss of functionally linked habitat for cormorant.</p> <p>The Liverpool Waters ES states (in relation to operation of the site):</p> <p><i>"The increase in activity associated with the operational usage of the site will result in some additional noise, light and an increase in human activity. Due to the low numbers of waterbirds present on the site and the likelihood they will habituate to the presence of new infrastructure and use the dock network instead, this impact is considered to be not significant at a local level; confidence in this prediction is probable."</i></p> <p>In addition, the Liverpool Waters ES states:</p> <p><i>"The operation of the site will include several tall buildings which can have two main potential effects on birds: the collision of migrating birds at night and collision of diurnal resident and migrant feeding birds with glass windows. However, most available data associated with these collision events relates to migrant passerines rather than water birds. Also, there is no fixed definition as to what constitutes a 'tall building'. Although Drewett & Langston (2008) defined it as any building over five storeys in height. Under this definition 228 tall buildings will be constructed and operated. However, it is known that water birds fly up and down the River Mersey between roosting and feeding, including to and from internationally protected sites. The Proposed Development site only had small numbers of water birds and the closest area of intertidal feeding is c. 700m away, on the other side of the river. Therefore, birds are more likely to be taking off and landing in these areas, whilst using the river to migrate, rather than flying across the city. Overall this reduced collision risk. Surveys undertaken to support this ES confirmed only</i></p>	



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
	drinking establishments , 9,764 sqm of non-residential institutions, 33,299 sqm assembly and leisure, and public open spaces.		<p><i>small numbers of qualifying species were using the development site, but flight lines associated with these were associated with those disturbed, departing, circling or returning to site. No significant numbers of these species were observed migrating over the footprint of the development, indicating that it does not contribute significantly to the migration route the river offers. It is also considered that due to the phased nature of the project that as the tall number of buildings increases, birds will likely habituate to their presence and therefore collision risk will decrease increasingly with time. Therefore, the impacts of tall buildings are considered not significant at a local level".</i></p> <p>The ES for Liverpool Waters concludes there will be no significant effect upon relevant qualifying features of the designated sites. However, it should be noted that this the ES for this scheme has not recognised the reduction in available functionally linked habitat as a result of this project and development of the wider docks area including the application site. When such loss over all is considered then LSE on designated sites scoped into this assessment are anticipated in relation to this scheme. In addition, the proposed development of BMD will result in an increase in local high rise structures which may result in in-combination effects on bird collision risk.</p> <p>When considered in combination with the application site LSE are anticipated.</p>	
Liverpool Cruise Liner Terminal, Princes Dock	170/3230 & 19RM/1037 – New cruise liner terminal and a vehicular link span bridge and pedestrian	1.5km South	<p>The HRA for this scheme (Waterman, 2019) concludes that when this project is considered in isolation LSE cannot be ruled out during construction when considered alone. This is due to the loss of roosting/resting habitat (along with temporary disturbance) for cormorant which have been recorded at 1.6% of the Liverpool Bay SPA population.</p> <p>Therefore, when considered in combination with the application site LSE are anticipated.</p>	Yes – cormorant only



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
	bridge/ walkways.			
West Waterloo Dock (Liverpool Waters Plot CO2)	18F/3247 – To erect residential development comprising 646 apartments with ground floor commercial space, in six blocks of between 10 to 14 storeys in height, with single storey concierge pavilion building, parking, soft and hard landscaping/ public open	1.041km South	<p>The HRA for this scheme (Middlemarch Environmental, 2018) states:</p> <p><i>"A number of potential impact pathways on Natura 2000 sites were identified, arising as a result of the proposed development in isolation. These comprised: loss of supporting habitat for cormorants, a species which forms part of the qualifying assemblage of the Liverpool Bay SPA and Mersey Narrows and North Wirral Foreshore SPA/Ramsar, as a result of the partial infilling of West Waterloo Dock; disturbance of cormorants, during both the construction phase and the operational phase of the proposed development; and, pollution of West Waterloo Dock, during both the construction phase and the operational phase of the proposed development, leading to a potential decline in the availability of prey resources for cormorant. In the absence of mitigation this scheme Likely Significant Effects as a result of construction and operational phases of works are anticipated."</i></p> <p>The application site is also considered likely to result in adverse effects upon conservation status of qualifying features of the designated sites as a result of habitat loss and pollution during the construction phase.</p> <p>Therefore, when considered in combination with the application site, LSE are anticipated.</p>	Yes – all scoped in qualifying features



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
	space, including two floating timber jetties and dockside walkway.			
Naylor Street – Phase 1”, St Bartholomew Road/Paul Street/Naylor Street	18F/1035 – To erect 3 buildings from 6 to 11 storeys containing 240 residential apartments in a mix of studios, 1 and 2 bedrooms, car parking and lower ground/ground floor mixed commercial uses	2.5km Southeast	<p>The HRA for this scheme (Rachel Hacking Ecology, 2018) concludes that there will be no adverse impact on the designated sites from the construction or operation of this scheme. This is due to the fact that the scheme is located within central Liverpool and is isolated from scoped in designated sites by existing buildings and road infrastructure associated with the city centre. Therefore, noise, visual and air quality impacts as a result of construction and operation of this project are not considered to form pathway of effect which may affect designated sites.</p> <p>No in-combination assessment was produced within the HRA for this scheme. However, it is recognised that this project may interact with other small-scale developments within Liverpool City Centre to increase public pressure on designated sites.</p> <p>However, the application site is not considered to result in an increase in public pressure to designated sites. Nor is there likely to be a direct loss of land associated with the designated sites or functionally linked land. In addition, no impacts are anticipated in relation to water and air quality as a result of this scheme.</p> <p>Therefore, when considered in combination with the application site, LSEs are not anticipated.</p>	No
Land bounded	18F/0417 –	1.5km East	The HRA for this scheme (Wardell Armstrong, 2018) concludes that the proposed development has been assessed as being unlikely to result in likely significant adverse	No



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
by Whittle Street/Smith Street/Kirkdale Road	To demolish existing building and erect mixed use part 6/part 5 storey building creating 177 residential apartments, commercial space, residents gym, lounge and parking.		effects upon designated sites either alone or combination with relevant plans and projects. Therefore, when considered in-combination with the application site, LSEs are not anticipated .	
Wirral Waters	OUT/09/06509	2.5km Southwest	The EIA for this scheme (WSP, 2010) states: <i>"Construction phase of works unlikely to result in negative effects upon Natura 2000 sites (including Liverpool Bay SPA and North Wirral Foreshore SPA/Ramsar). However, the operational phase of this scheme has the potential to result in increased disturbance levels which may affect designated site bird assemblages as a result of increase in amenity use in the local area. In addition, increased lighting within the operational site associated with this scheme has the potential to cause disorientation of migrating and night flying birds and buildings may create obstacles to such species. Such operational effects have been assessed as being likely to represent a probable direct long-term negative impact on a receptor of 'International' value for nature conservation."</i>	Yes – all scoped in qualifying features



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
			<p>The application site is also considered likely to result in adverse effects upon conservation status of qualifying features of the designated sites as a result of potential bird strike during the operational phase.</p> <p>Therefore, when considered in combination with the application site, LSEs are anticipated.</p>	
EGERTON VILLAGE, WIRRAL WATERS	APP/18/00647	2.98km southwest	<p>No HRA for this project has been produced. However, the preliminary ecological assessment (WSP 2018) states:</p> <p><i>"Given that the Site is situated within an area of heavy development regeneration and industrial environment, there will be no direct or indirect significant effects to the conservation interests of the protected sites and that a HR screening assessment (assessment of likely significant effects, 'ALSE') will not be required because of the current land use".</i></p> <p>Therefore, when considered in-combination with the application site, LSEs are not anticipated.</p>	No
Wirral Waters - Land at Vittoria Studios	DLS/18/00717	3.19km southwest	<p>The HRA for this scheme (TEP 2018) identifies the following pathways of effect which may result in Likely Significant Effects upon scoped in designated sites. These include:</p> <ul style="list-style-type: none"> Deterioration of waterbird breeding, roosting and foraging sites (construction disturbance); Deterioration of waterbird breeding, roosting and foraging sites (operational disturbance) – recreational pressure from users of Legacy site; 	Yes – all scoped in qualifying features



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
			<ul style="list-style-type: none"> • Predation at tern colony by corvids and gulls (operational) – increased tree cover on Legacy site; • Contamination of the East Float Dock during construction; • Artificial lighting causing nocturnal disturbance (operation); • Diffuse recreational pressures on coastal SPAs (operational). <p>The application site is also considered likely to result in adverse effects upon conservation status of qualifying features (including wintering great crested grebe and cormorant) of the designated sites as a result of potential disturbance and water pollution during the construction phase of works.</p> <p>Therefore, when considered in combination with the application site, LSEs are anticipated.</p> <p>However, the effects of artificial lighting and recreational pressure associated with the application site have been screened out of the LSE assessment when considered alone. Therefore (in accordance with the HRA Handbook (DTA)) the application site will result in any additive or synergistic effects when considered in combination with the application site and therefore in combination LSEs are not anticipated in relation to these pathways.</p>	
Wirral Waters - USP Project	APP/19/01061	2.68km southwest	The HRA for this scheme (TEP 2019) identifies the following pathways of effect which may result in Likely Significant Effects upon scoped in designated sites. These include:	Yes – common tern great crested grebe at Liverpool Bay SPA and Mersey



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
Northbank East			<ul style="list-style-type: none"> Deterioration of waterbird breeding, roosting and foraging sites (construction disturbance_ - common tern, cormorant and great crested grebe; Contamination of the East Float Dock during construction and operation; Artificial lighting causing nocturnal disturbance during operation; Diffuse recreational pressures on coastal SPAs during operation. <p>The application site is also considered likely to result in adverse effects upon conservation status of qualifying features (including wintering great crested grebe and cormorant) of the designated sites as a result of potential disturbance and water pollution during the construction phase of works.</p> <p>Therefore, when considered in combination with the application site, LSEs are anticipated.</p> <p>However, the effects of artificial lighting and recreational pressure associated with the application site have been screened out of the LSE assessment when considered alone. Therefore (in accordance with the HRA Handbook (DTA)) the application site will result in any additive or synergistic effects when considered in combination with the application site and therefore in combination LSEs are not anticipated in relation to these pathways.</p>	Estuary SPA & Ramsar
Land at Northbank East,	APP/18/00470	2.67km southwest	<p>The HRA for this scheme (Urban Green 2018) identifies potential negative effects upon the conservation of great crested grebe as a result of the following pathways of effect:</p> <ul style="list-style-type: none"> Noise and vibration during construction; Water pollution during construction; 	Yes – great crested grebe at Liverpool Bay SPA and Mersey



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
Wirral Waters			<ul style="list-style-type: none"> Dust and airborne pollution during construction. <p>The application site is also considered likely to result in adverse effects upon conservation status of qualifying features (including great crested grebe associated with Liverpool Bay SPA and Mersey Estuary SPA & Ramsar) of the designated sites as a result of potential noise, disturbance and water pollution during the construction phase of works.</p> <p>Therefore, when considered in combination with the application site, LSEs are anticipated.</p>	Estuary SPA & Ramsar
No 1 Tower Road South, Wirral Waters	APP/18/00409	2.17km southwest	<p>The HRA produced in support of this project (WSP 2018) states LSE is anticipated as a result of disturbance during the construction phase of works to populations of great crested grebe present as part of the wintering bird assemblage of the Mersey Estuary SPA/Ramsar.</p> <p>Therefore, when considered in combination with the application site, LSEs are anticipated.</p>	Yes – Great crested grebe only at Liverpool Bay SPA and Mersey Estuary SPA & Ramsar
Wirral Waters – Legacy Project	DLS/18/00715	2.97km southwest	<p>The HRA produced in support of this project (TEP 2018) identifies the following pathways of effect which may result in Likely Significant Effects upon scoped in designated sites. These include:</p> <ul style="list-style-type: none"> Deterioration of waterbird breeding, roosting and foraging sites due to disturbance (construction – visual and noise disturbance); Deterioration of waterbird breeding, roosting and foraging sites due to disturbance (operational – recreational pressure); Deterioration of waterbird breeding, roosting and foraging sites due to disturbance (operational - Artificial lighting causing nocturnal disturbance) 	Yes – in-combination loss of functionally linked land associated with scoped in designated sites



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
			<ul style="list-style-type: none"> • Predation at tern colony by corvids and gulls; • Contamination of the East Float Dock during construction; • Diffuse recreational pressures on coastal SPAs. <p>The effects on breeding colonies of terns and other breeding birds, and due to diffuse recreational pressure, are not considered relevant to the applications site. However, deterioration of roosting and foraging sites and the effects of contamination may act in combination with impact pathways identified above.</p> <p>Therefore, when considered in combination with the application site, LSEs are anticipated.</p>	
Wirral Waters ITC	OUT/11/00645	3.76km southwest	<p>Chapter 12 (Ecology & Biodiversity) of the ES chapter for this project (Peel Land and Property (Ports) Ltd, states:</p> <p><i>“Any works in the proximity to the Mersey Estuary SPA and Ramsar, and the Mersey Narrows and North Wirral Foreshore proposed Ramsar and potential SPA have the potential to result in both direct and indirect effects on the integrity of important habitats and the species assemblages which these sites of nature conservation support. The susceptibility of sites to deleterious effects is directly associated with both the sensitivity of the features, the type of environmental effects and the existence of pathways through which environmental effects can pass. Contamination sources included within this assessment include the release of physical and chemical contaminants arising from the generation and release of dust during Site preparation, earthworks and construction and the release or disturbance of contaminants from soils or sediment.”</i> However, the designated site section of the ES concludes that <i>“In the absence of any supplementary mitigation measures it is unlikely that works will represent a direct medium-term negative effect on the Mersey Estuary SPA and Ramsar, and the Mersey Narrows and North Wirral Foreshore proposed Ramsar and potential SPA at the ‘International’ level.”</i></p>	No



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
			<p>The ES also states that the site is not considered to be of value for wintering or breeding birds associated with the designated sites and that works associated with this project are unlikely to result in significant effect on the breeding and wintering bird assemblage.</p> <p>It is therefore considered that this project is unlikely to result in any adverse effect upon the conservation status of scoped in qualifying features of relevant designated sites. Therefore, when considered in combination with the application site, LSEs are not anticipated.</p>	
MMO licence	<p>MLA/2015/0017 2/1</p> <p>Monitoring and maintenance of navigational marker network</p>	8.9km	<p>The Assessment of Likely Significant Effects document produced by UU (Undated) states that this project is unlikely to result in significant effects upon designated sites either alone or in combination with other projects. This is due to the short term, small scale temporary nature of the works likely to be involved.</p> <p>Therefore, when considered in combination with the application site, LSEs are not anticipated.</p>	NO
MMO licence	<p>MLA/2014/0008 8/1</p> <p>Monitoring and maintenance of navigational marker network</p>	8.7km south	<p>The Assessment of Likely Significant Effects document produced by UU (Undated) states that this project is unlikely to result in significant effects upon designated sites either alone or in combination with other projects. This is due to the short term, small scale, temporary nature of the works likely to be involved.</p> <p>Therefore, when considered in combination with the application site, LSEs are not anticipated.</p>	NO
MMO licence	<p>L/2014/00129/1</p> <p>Monitoring and maintenance</p>	6.82km south	<p>The Assessment of Likely Significant Effects document produced by UU (Undated) states that this project is unlikely to result in significant effects upon designated sites either alone or in combination with other projects. This is due to the short term, small scale, temporary nature of the works likely to be involved.</p>	NO



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
	of navigational marker network		Therefore, when considered in combination with the application site, LSEs are not anticipated.	
MMO licence	L/2014/00129/1 Monitoring and maintenance of navigational marker network	5.8km south	The Assessment of Likely Significant Effects document produced by UU (Undated) states that this project is unlikely to result in significant effects upon designated sites either alone or in combination with other projects. This is due to the short term, small scale, temporary nature of the works likely to be involved. Therefore, when considered in combination with the application site, LSEs are not anticipated.	NO
MMO licence	MLA/2014/0008 8/1 Monitoring and maintenance of navigational marker network	6.3km north west	The Assessment of Likely Significant Effects document produced by UU (Undated) states that this project is unlikely to result in significant effects upon designated sites either alone or in combination with other projects. This is due to the short term, small scale, temporary nature of the works likely to be involved. Therefore, when considered in combination with the application site, LSEs are not anticipated.	NO
MMO licence	MLA/2014/0008 8/1 Monitoring and maintenance of navigational marker network	5.9km north west	The Assessment of Likely Significant Effects document produced by UU (Undated) states that this project is unlikely to result in significant effects upon designated sites either alone or in combination with other projects. This is due to the short term, small scale, temporary nature of the works likely to be involved. Therefore, when considered in combination with the application site, LSEs are not anticipated.	NO



Scheme	Planning Ref and brief description	Distance from application site	Summary assessment	Appropriate Assessment Required at Stage 2
MMO licence	L/2014/00129/1 Monitoring and maintenance of navigational marker network	2.3km north west	<p>The Assessment of Likely Significant Effects document produced by UU (Undated) states that this project is unlikely to result in significant effects upon designated sites either alone or in combination with other projects. This is due to the short term, small scale, temporary nature of the works likely to be involved.</p> <p>Therefore, when considered in combination with the application site, LSEs are not anticipated.</p>	NO

It should be noted that Natural England, during consultation undertaken in November 2020, highlighted that the **HIF Remediation and Public Realm Works (planning ref: APP/19/00202)** should be considered in combination with the application site. However, at the time of writing no ecological information relating to this project was available on the Wirral Planning Portal. The planning decision makes reference (within condition 7) to a HRA for this project. In addition, condition 6 states that mitigation for SPA birds should be drafted but no detailed information is available for review on the planning portal. It has therefore not been possible to include this project within the in-combination assessment of this report.



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Of the schemes which have been assessed in terms of potential effects upon designated sites only the following schemes are considered likely to act in combination with the proposed development to result in a **LSE** upon scoped in qualifying features of designated sites:

- Isle of Man Ferry (18F/3231),
- Vacant Land- Plot A06 William Jessop Way Princes Dock (20F/1203),
- Southern Link Road (18F/1419).
- Liverpool Waters (100/2424 – latest non-material amendment being 19NM/1121),
- Liverpool Cruise Liner Terminal, Princess Dock (170/3230 & 19RM/1037)
- Liverpool Waters pending non-material amendment (20NM/1801),
- West Waterloo Dock (Liverpool Waters Plot CO2) (Ref 18F/3247),
- Wirral Waters (OUT/09/06509)
- Land at Vittoria Studios (DLS/18/00717)
- USP Project Northbank East (APP/19/01061)
- Land at Northbank East, Wirral Waters (APP/18/00470)
- No1 Tower Road South, Wirral Waters (APP/18/00409)
- Wirral Waters Legacy Project (DLS/18/00715)

Pathways of effect to be considered further at Appropriate Assessment include loss of functionally linked land and disturbance during construction. Therefore, only these schemes are considered when discussing in combination effects further in this report.

5.2 Plans

5.2.1 Liverpool Unitary Development Plan

The HRA produced in support of the Liverpool Unitary Development Plan: A Plan for Liverpool (2002). Relevant policies include: Policy OE5 "PROTECTION OF NATURE CONSERVATION SITES AND FEATURES" which stated:

"The City Council will seek to protect the nature conservation interest of open land and the water environment in the City by not permitting development which would:

- destroy, fragment or adversely affect directly or indirectly a designated or proposed Special Protection Area (SPA), Ramsar site, or Site of Specific Scientific Interest (SSSI), unless the City Council is satisfied that there is no alternative solution and there are imperative reasons of overriding public interest;*
- destroy, fragment or adversely directly or indirectly affect a Site of Nature Conservation Value as identified by the City Council unless it can be clearly demonstrated that there are reasons for the proposal including benefits to the community, which outweigh the need to safeguard the substantive nature conservation value of the site;*
- destroy, fragment or adversely affect, directly or indirectly, a Regionally Important Geological /Geomorphological Site (RIGS) unless it can be demonstrated that the benefits of the proposal to the community outweigh the need to safeguard the geological value of the site;*
- have an adverse effect on legally protected wildlife species; or*
- destroy, fragment or adversely affect, indirectly or directly, sites with known conservation value in a neighbouring authority area.*

In assessing criteria ii to iv full account will be taken of proposed mitigation measures."



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5.2.2 Liverpool Local Plan

In accordance with the NPPF para. 48, the local plan has substantive but not full weight as whilst it has been submitted for examination it has yet to be examined. However, *Policy G15 'Protection of Biodiversity and Geodiversity' of the emerging Liverpool Local Plan (2018) (as modified in 2020) states:*

“Development which may result in a likely significant effect on an internationally important site must be accompanied by sufficient evidence to enable the Council to make a Habitats Regulations Assessment. Adverse effects should be avoided and/or mitigated to ensure that the integrity of internationally important sites is protected. Development which may adversely affect the integrity of internationally important sites will only be permitted where there are no alternative solutions and there are imperative reasons of overriding public interest and suitable compensatory provision is secured. This also applies to sites and habitats outside the designated boundaries that support species listed as being important in the designations of the internationally important sites. [Emphasis added]

Development which may cause direct or indirect significant harm to other designated sites of nature or geological conservation importance, Priority Habitats, legally protected species and / or Priority Species will only be permitted on:

- *National sites (Mersey Estuary Ramsar site/Mersey Estuary Site of Special Scientific Interest (SSSI)): where there are no alternatives and where the benefits of development clearly outweigh the impact on the features of the site that make it of special scientific interest and its broader contribution to the national network;*
- *Local Sites (Local Nature Reserves (LNRs), Local Wildlife Site (LWS) and Regionally Important Geological/Geomorphological Sites (RIGS): where the reasons for and the benefits of development clearly outweigh the impact on the nature conservation value of the site and its broader contribution to the*
- *Liverpool City Region (LCR) Ecological Network; Sites including Priority Habitats/ Irreplaceable habitats (including ancient woodlands and aged or veteran trees) where there are wholly exceptional reasons and a suitable compensation strategy exists having regard to.*

Where it has been demonstrated that significant harm cannot be avoided, appropriate mitigation, replacement or other compensatory provision may be required.

Where significant harm resulting from development cannot be avoided, adequately mitigated or, as a last resort, compensated, then planning permission will be refused.

Development proposals which affect sites of nature conservation importance, priority habitats, legally protected species or priority species must be supported by an Ecological Appraisal and include details of avoidance, mitigation and /or compensation where appropriate.

The policy applies where development proposals in Liverpool may directly or indirectly affect sites with known conservation value in a neighbouring authority area.

This policy will apply to other sites recognised during the Plan period as being of nature conservation importance, including land provided as compensation.”



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5.2.3 Emerging Liverpool Local Plan HRA

The HRA produced in support of the draft Liverpool Local Plan (Aecom 2018) considered the likely effects upon the above designated sites and states that:

"Of the 100 detailed policies put forward by the Local Plan, the following 12 were screened in for Likely Significant Effects upon designated sites (therefore requiring further consideration in the HRA) due to potential pathways being identified to European Sites. These are as follows:

- *CC 23 Housing Provision in the City Centre*
- *Employment Land and the Economy*
- *EC1 Employment Land Supply, EC2 Employment Areas, EC3 Delivering Economic Growth, EC5 Office Development*
- *H1 Housing Requirements, H2 Site Allocations, H4 Older Persons Housing, H5 Student Housing Provision, H7 Primarily Residential Areas, H10 Conversion of Dwellings and Buildings*
- *Although the following detailed policies were screened out when the plan was considered in isolation however, they have been considered further in the HRA regarding their 'in combination effects':*
- *CC1 The Main Office Area, CC1a Pall Mall, CC2 Pumpfields, CC3 The Knowledge Quarter (KQ Liverpool), CC4 Paddington Village, CC6 The Fabric District, CC12 Liverpool Waters (already has planning permission but considered as part of the overall quantum of housing and employment growth to be delivered in Liverpool), CC13 Ten Streets."*

Detailed information is not provided within the HRA for the above policy document regarding reason for scoping in of relevant policies. It is however recognised that construction of projects brought forward in relation to relevant policies have the potential to interact in combination with the application site (i.e. by causing loss of habitat loss and pollution during the construction phase).

Therefore, when the application site is considered in-combination with the above policies LSE upon the conservation status of scoped in qualifying features of the designated sites are anticipated.

5.2.4 Wirral Core Strategy

The HRA report prepared in support of the Core Strategy for Wirral (AECOM 2010) determined that LSEs at the above designated sites were anticipated in relation to the following policies (generally because they promote and determine the location or scale of development (particularly housing and commercial development)):

- 2: Settlement Area Policies
- 3: Spatial Vision (with respect to the following Spatial Objectives):
 - Spatial Objective 1 - Economic Revitalisation,
 - Spatial Objective 2 - Housing Growth and Market Renewal,
 - Spatial Objective 7 - New City Neighbourhood
- 4: Broad Spatial Strategy
- 5: Local Housing Targets
- 6: Distribution of Housing



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- 8: Order of Preference
- 10: Gypsies and Travellers
- 11: Distribution of Employment
- 12: Retail Network
- 14: Decentralised Energy
- 21: Strategic Locations

Detailed information is not provided within the HRA for the above policy document regarding reason for scoping in of relevant policies. It is however recognised that construction of projects brought forward in relation to relevant policies have the potential to interact in combination with the application site (i.e. by causing loss of habitat loss and pollution during the construction phase). It is also noted that since the HRA for the Wirral Local Plan was prepared, a number of significant changes have occurred (such as designation of Liverpool Bay SPA). Natural England have therefore advised in their written consultation (April 2020) that the HRA cannot be relied upon to screen out LSE.

Therefore, when the application site is considered in combination with the above policies LSEs upon the conservation status of qualifying features of the designated sites are anticipated.

5.2.5 Wirral Local Plan 2020 – 2035

The HRA report prepared in support of the Wirral Local Plan 2020-2035 (AECOM 2019) has determined that LSE at the above designated sites cannot be ruled out as a result of the following:

Recreational pressure,

Loss of Functionally Linked Habitat (Excluding Liverpool Bay SPA),

Water quality impacts

Visual and noise disturbance (excluding Ribble & Alt Estuaries SPA and Ramsar)

It is however recognised that construction and operation of projects brought forward within allocations associated with this local plan have the potential to interact in combination with the application site (excluding recreational pressure as this is screened out for the application site when considered alone and therefore cannot interact in combination with other plans and projects via this pathway).

Therefore, when the application site is considered in-combination with this local plan LSE upon the conservation status of scoped in qualifying features of the designated sites are anticipated.



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5.2.6 North West Marine Plan

The HRA report prepared in support of the North West Marine Plan (AECOM 2019) determined that it cannot be screened out as posing no likely LSEs on European sites either alone or in combination with other plans and projects. However, the potential effects stem from a relatively small number of policies:

ACC-2: Proposals demonstrating appropriate enhanced and inclusive public access to and within the marine area, and that consider the future provision of services for tourism and recreation activities, will be supported.

SOC-3: Proposals that increase the understanding and enjoyment of the marine environment (including the natural, historic and social value) for the promotion of conservation management and increased education, and skills, should be supported.

FISH-3: Proposals that enhance access to or within aquaculture sites, or fishing activities, should be supported.

TR-1: Proposals supporting, promoting or facilitating sustainable tourism and recreation activities, or where this creates appropriate additional utilisation of related facilities beyond typical usage patterns, should be supported.

TR-2: Proposals supporting, promoting or facilitating sustainable tourism and recreation activities, or where this creates appropriate additional utilisation of related facilities beyond typical usage patterns, should be supported.

TR-4: Proposals promoting inclusive and accessible recreational use of the area by residents should be supported.

AQ-2: Proposals enabling the provision of appropriate infrastructure for sustainable fisheries, aquaculture and related industries will be supported.

EMP-2: Proposals resulting in a net increase to marine related employment will be supported, particularly in areas identified as the most deprived and /or where the proposals are in line with the skills available in and adjacent to the North East marine plan areas.

EMP-3: Proposals that promote employment, diversity of opportunities, implementation of new technologies and promote skills related to marine activities, particularly in line with local skills strategies, will be supported.

INF-1: Appropriate land-based infrastructure which facilitates marine activity (and vice versa) should be supported.

INF-2: Proposals for appropriate infrastructure that facilitates the diversification or regeneration of marine industries should be supported.



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INF-3: Proposals for alternative development at existing landing facilities will not be supported unless that facility is no longer viable or capable of being made viable for waterborne transport.

Proposals adjacent and opposite existing landing facilities, including safeguarded wharves, must demonstrate that they will in order of preference: a) avoid, b) minimise c) mitigate significant adverse impacts on existing facilities.

INF-4: Public authorities with functions capable of affecting the marine area should ensure provision for appropriate land-based infrastructure that facilitate marine activity.

CAB-1: Proposals which demonstrate due account to the potential for cable burial, interaction and coexistence with other users of the sea will be supported.

Where burial is not achievable, decisions should take account of protection measures for the cable that may be proposed by the applicant. Where burial or protection measures are not appropriate, proposals should state the case for proceeding without those measures.

CAB-2: Proposals demonstrating compatibility with existing landfall sites and incorporating measures to enable development of future landfall opportunities should be supported.

Where this is not possible proposals will, in order of preference: a) avoid b) minimise, c) mitigate significant adverse impacts, d) if it is not possible to mitigate significant adverse impacts, proposals should state the case for proceeding.

CCS-1: Carbon Capture Usage and Storage proposals incorporating the re-use of existing oil and gas infrastructure will be supported.

CCS-2: During the decommissioning phase of oil and gas facilities the potential for re-use of infrastructure in particular for Carbon Capture Usage and Storage should be considered.

HAB-1: Proposals which incorporate measures to support the resilience of deep sea habitats will be supported.

Proposals which may have significant adverse impacts on deep sea habitats must demonstrate that they will, in order of preference, a) avoid, b) minimise c) mitigate significant adverse impacts on deep sea habitats.

DD-4: Proposals identifying new dredge disposal sites which are subject to best practice and guidance from previous studies should be supported. Proposals will include an adequate characterisation study, be assessed against the waste hierarchy and must be informed by consultation with all relevant stakeholders.

REN-1: Proposals that enable the provision of emerging renewable energy technologies and associated supply chains, will be supported.



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WIND-2: Preference will be given to proposals for offshore wind farms inside areas of identified potential for offshore wind resource, including relevant enabling projects and infrastructure, will be supported.

PS-4: Proposals promoting short sea shipping as an alternative to road or rail transport will be supported.

Of the above policies TR-1, Tr-2 and TR4 , WIND-2 and PS-4 are the only policies within the Marine Plan considered to be of relevance to the application site. However, as the operational application site has been screened out for ALSE in terms of increased recreational pressure it is considered that this project will not act in combination with relevant policies of the North West Marine Plan.

Therefore, when the application site is considered in combination with the above relevant policies LSEs upon the conservation status of qualifying features of the designated sites are anticipated.

Of the plans which have been assessed in terms of potential effects upon scoped in designated sites all three are considered likely to act in combination with the application site to result in a **LSE** upon scoped in qualifying features of designated sites. Therefore, all three plans are considered when discussing in combination effects further in this report.

6.0 Information to Inform an Appropriate Assessment

The above Stage 1 assessment has determined that LSEs as a result of the proposed development are anticipated, Table 17 summarises these.

Table 17: Summary of pathways of effect taken forward to Appropriate Assessment.

Designated site	Scoped in qualifying feature (s)	Screened LSE- Alone	Screened LSE - in-combination: Projects	Screened LSE - in-combination: Plans
Liverpool Bay SPA	Common tern, cormorant, and non main component assemblage species	Construction Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat Habitat loss within functionally linked habitat beyond the boundary of the designated sites Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen) Habitat degradation – effects on water quality at Nelson Dock during dock infill Habitat degradation - water quality impacts as a result of pollution events Disturbance of qualifying features – visual and auditory disturbance	West Waterloo Dock Proposal (Liverpool Waters Plot CO2) (Ref 18F/3247), Liverpool Waters (Ref 100/2424) including non material amendment 20NM/1801, Liverpool Cruise Liner Terminal, Princess Dock (170/3230 & 19RM/1037) Isle of Man Ferry (Ref 18F/3231), Southern Link Road (Ref 18F/1419) Wirral Waters (Ref OUT/09/06509) Vacant Land, Plot A06 William Jessop Way Princes Dock Liverpool L3 1QP (Ref 20F/1203) Land at Vittoria Studios (DLS/18/00717)	Liverpool UDP and Local Plan; Wirral Core Strategy; Wirral Local Plan North West Marine Plan



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Designated site	Scoped in qualifying feature (s)	Screened LSE- Alone	Screened LSE - in-combination: Projects	Screened LSE - in-combination: Plans
		<p>Habitat degradation - deposition of waste/litter</p> <p>Operation</p> <p>Loss of qualifying features - potential bird strike</p> <p>Habitat degradation - deposition of waste/litter</p>	<p>USP Project Northbank East (APP/19/01061)</p> <p>Land at Northbank East, Wirral Waters (APP/18/00470)</p> <p>No1 Tower Road South, Wirral Waters (APP/18/00409)</p> <p>Wirral Waters Legacy Project (DLS/18/00715)</p>	
Mersey Narrows & North Wirral Foreshore SPA & Ramsar	Common tern, cormorant, oystercatcher	<p>Construction</p> <p>Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat</p> <p>Habitat loss within functionally linked habitat beyond the boundary of the designated sites</p> <p>Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen)</p> <p>Habitat degradation – effects on water quality at Nelson</p>	<p>West Waterloo Dock Proposal (Liverpool Waters Plot CO2) (Ref 18F/3247)</p> <p>Liverpool Waters (Ref 100/2424) including non material amendment 20NM/1801</p> <p>Liverpool Cruise Liner Terminal, Princess Dock (170/3230 & 19RM/1037)</p> <p>Isle of Man Ferry (Ref 18F/3231),</p> <p>Southern Link Road (Ref 18F/1419)</p>	<p>Liverpool UDP and Local Plan;</p> <p>Wirral Core Strategy;</p> <p>Wirral Local Plan</p> <p>North West Marine Plan</p>



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Designated site	Scoped in qualifying feature (s)	Screened LSE- Alone	Screened LSE - in-combination: Projects	Screened LSE - in-combination: Plans
		<p>Dock during dock infill</p> <p>Habitat degradation - water quality impacts as a result of pollution events</p> <p>Disturbance of qualifying features – visual and auditory disturbance</p> <p>Habitat degradation - deposition of waste/litter</p> <p>Operation</p> <p>Loss of qualifying features - potential bird strike</p> <p>Habitat degradation - deposition of waste/litter</p>	<p>Wirral Waters (Ref OUT/09/06509)</p> <p>Vacant Land, Plot A06 William Jessop Way Princes Dock Liverpool L3 1QP (Ref 20F/1203)</p> <p>Land at Vittoria Studios (DLS/18/00717)</p> <p>USP Project Northbank East (APP/19/01061)</p> <p>Land at Northbank East, Wirral Waters (APP/18/00470)</p> <p>No1 Tower Road South, Wirral Waters (APP/18/00409)</p> <p>Wirral Waters Legacy Project (DLS/18/00715)</p>	
Ribble and Alt Estuaries SPA & Ramsar	Common tern, cormorant, oyster catcher, lesser black-backed gull, black-headed gull, shelduck	<p>Construction</p> <p>Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat</p> <p>Habitat loss within functionally linked habitat beyond the</p>	<p>West Waterloo Dock Proposal (Liverpool Waters Plot CO2) (Ref 18F/3247)</p> <p>Liverpool Waters (Ref 100/2424) including non material amendment 20NM/1801</p> <p>Liverpool Cruise Liner Terminal, Princess</p>	<p>Liverpool UDP and Local Plan;</p> <p>Wirral Core Strategy;</p> <p>Wirral Local Plan</p> <p>North West Marine Plan</p>



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Designated site	Scoped in qualifying feature (s)	Screened LSE- Alone	Screened LSE - in-combination: Projects	Screened LSE - in-combination: Plans
		<p>boundary of the designated sites</p> <p>Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen)</p> <p>Habitat degradation – effects on water quality at Nelson Dock during dock infill</p> <p>Habitat degradation - water quality impacts as a result of pollution events</p> <p>Disturbance of qualifying features – visual and auditory disturbance</p> <p>Habitat degradation - deposition of waste/litter</p> <p>Operation</p> <p>Loss of qualifying features - potential bird strike</p> <p>Habitat degradation - deposition of waste/litter</p>	<p>Dock (170/3230 & 19RM/1037)</p> <p>Isle of Man Ferry (Ref 18F/3231),</p> <p>Southern Link Road (Ref 18F/1419)</p> <p>Wirral Waters (Ref OUT/09/06509)</p> <p>Vacant Land, Plot A06 William Jessop Way Princes Dock Liverpool L3 1QP (Ref 20F/1203)</p> <p>Land at Vittoria Studios (DLS/18/00717)</p> <p>USP Project Northbank East (APP/19/01061)</p> <p>Land at Northbank East, Wirral Waters (APP/18/00470)</p> <p>No1 Tower Road South, Wirral Waters (APP/18/00409)</p> <p>Wirral Waters Legacy Project (DLS/18/00715)</p>	

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Designated site	Scoped in qualifying feature (s)	Screened LSE- Alone	Screened LSE - in-combination: Projects	Screened LSE - in-combination: Plans
Mersey Estuary SPA & Ramsar	Great crested grebe	<p>Construction</p> <p>Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat</p> <p>Habitat loss within functionally linked habitat beyond the boundary of the designated sites</p> <p>Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen)</p> <p>Habitat degradation – effects on water quality at Nelson Dock during dock infill</p> <p>Habitat degradation - water quality impacts as a result of pollution events</p> <p>Disturbance of qualifying features – visual and auditory disturbance</p> <p>Habitat degradation - deposition of waste/litter</p> <p>Operation</p> <p>Loss of qualifying features - potential bird strike</p>	<p>West Waterloo Dock Proposal (Liverpool Waters Plot CO2) (Ref 18F/3247)</p> <p>Liverpool Waters (Ref 100/2424) including non material amendment 20NM/1801</p> <p>Liverpool Cruise Liner Terminal, Princess Dock (170/3230 & 19RM/1037)</p> <p>Isle of Man Ferry (Ref 18F/3231),</p> <p>Southern Link Road (Ref 18F/1419)</p> <p>Wirral Waters (Ref OUT/09/06509)</p> <p>Vacant Land, Plot A06 William Jessop Way Princes Dock Liverpool L3 1QP (Ref 20F/1203)</p> <p>Land at Vittoria Studios (DLS/18/00717)</p> <p>USP Project Northbank East (APP/19/01061)</p>	<p>Liverpool UDP and Local Plan;</p> <p>Wirral Core Strategy;</p> <p>Wirral Local Plan</p> <p>North West Marine Plan</p>

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Designated site	Scoped in qualifying feature (s)	Screened LSE- Alone	Screened LSE - in-combination: Projects	Screened LSE - in-combination: Plans
		Habitat degradation - deposition of waste/litter	Land at Northbank East, Wirral Waters (APP/18/00470) No1 Tower Road South, Wirral Waters (APP/18/00409) Wirral Waters Legacy Project (DLS/18/00715)	

It is recognised that the qualifying features of the designated sites included within this assessment include breeding, wintering and passage bird species and assemblages along with the functionally linked habitat which supports these features.

To inform this Appropriate Assessment a review of bird survey data presented within 'Liverpool Waters Strategic Ecological Mitigation Plan' (SEMP) (ARUP 2020) was undertaken. In addition, detailed breeding, wintering and passage bird surveys were undertaken by WYG from 2016 – 2019. Detailed survey results are presented within the Bramley-Moore Dock ES Volume II, Chapter 12 – Ecology, Technical Appendix 2 (Bird Survey Report WYG, 2020) prepared in support of the ES for proposed development. The bird surveys undertaken to inform this report covered all of the application site. Additionally, areas within 400m adjacent to the application site were surveyed, where access was possible, in order to include all birds utilising the application site, surrounding docklands and Mersey Estuary.

6.1 Liverpool Waters SEMP review

Ove Arup & Partners Ltd. (Arup) were commissioned by Peel Land & Property (Ports) Ltd. in May 2019 to produce a Strategic Ecological Mitigation Plan (SEMP) for Liverpool Waters, in response to comments received from Natural England. This document summarises breeding, wintering and passage bird survey data gathered during 2009-2019. The document covers the entire Liverpool Waters area which is split into five neighbourhoods (A-E). The application site lies within Neighbourhood E (Northern Docks) which also incorporates Nelson Dock.

Table 18 summarises data for qualifying feature or component species of assemblage qualifying features recorded at densities greater than 1% of the scoped in designated site population (species recorded at under 1% of the designated site populations are excluded from this table).



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Table 18: Peak count data across all neighbourhoods across the wider Liverpool Waters Scheme.

Species	Relevant designated site	Peak count
Oystercatcher	Mersey Narrows and North Wirral Foreshore SPA & Mersey Narrows and North Wirral Foreshore Ramsar	36 (1.32% of the qualifying feature population)
Cormorant	Mersey Narrows and North Wirral Foreshore SPA & Mersey Narrows and North Wirral Foreshore Ramsar & Liverpool Bay	33 (4.5% of Liverpool Bay SPA population, 3.4% of Mersey Narrows and North Wirral Foreshore SPA & Ramsar)
Shelduck	Mersey Estuary SPA and Ramsar	56 (0.54 % of the qualifying feature population)

Heat maps have been produced within the SEMP which summarise key areas for the above species. Such maps indicate that oystercatcher were recorded along the southern and northwest boundary of Neighbourhood E and ranged in density between 2-8 birds. Highest number of oystercatcher was recorded on the boundary of Neighbourhood E with numbers decreasing within the wider Liverpool Waters scheme site. Heat mapping indicates that peak counts associated directly with the application site do not exceed 6 birds.

Heat mapping produced for cormorants indicates that distribution is centred on two areas within the Liverpool Waters site. A peak count of 27 birds has been recorded within Neighbourhood E centred on the western boundary of Nelson Dock and radiating out across western sections of the application site (a peak count of 12 cormorant were recorded in this area. Cormorants have also been recorded within Neighbourhood C with low numbers of birds recorded within Neighbourhood A both of which are to the south of the application site.

Heat mapping produced for shelduck indicates that peak counts for this species have been recorded primarily on the north western edge of the application site with a peak count of 35 birds being recorded in this area. Low numbers (3-6) of shelduck were also recorded within Nelson Dock.

6.2 Breeding bird survey data

A summary of breeding bird data recorded within the application site and surrounding survey area (400m radius from application site) of the application site boundary is provided in Table 19 (WYG,



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2010). (only breeding birds which form qualifying features of scoped in designated sites are presented within this report).

Table 19 Comparison between breeding bird survey data and designated site qualifying feature survey data.

Common Name	Peak count of Breeding Pairs Recorded	Relevant designated site	Qualifying feature population count	Percentage of qualifying features recorded during breeding bird survey
Shelduck	23 (individual birds – non-breeding)	Ribble & Alt Estuary SPA	4,925 individuals	0.46%
		Mersey Estuary Ramsar	12,676 individuals	0.18%
Common Tern	1	Ribble & Alt Estuary SPA	182 pairs	0.54%
		Liverpool Bay SPA	180 pairs	0.55%
		Mersey Narrows & Wirral foreshore SPA	177 pairs	0.56%
Lesser black-backed Gull	1	Ribble & Alt Estuary SPA	1,800 pairs	0.05%

Shelduck, common tern and lesser black-backed gull form qualifying features of the above designated sites during the breeding season. However, numbers of birds recorded during surveys equate to less than 1% of the scoped in designated sites' qualifying features and are therefore are not considered to form a significant part of the qualifying feature of the designated sites.

It is therefore considered that **breeding birds** which form qualifying features of scoped in designated sites (as shown in table 19) can be **screened out** from any further assessment as impacts upon these features are not anticipated to adversely affect favourable conservation status of the feature or the integrity of the designated site.



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6.3 Wintering birds survey data

A summary of wintering bird species recorded by WYG (2019) on site or within 400m radius survey area of the application site boundary which form qualifying features of the above designated sites is provided in Table 20, full details are provided in Appendix 2 of Appendix 12.1, ES Volume III.



Table 20 Comparison between WYG wintering bird survey data and designated site qualifying feature survey data.

Species Name	Designated site	Qualifying feature population status (5-year mean peak)	Peak recorded on site during surveys (over winter)	Winter surveys % of the qualifying feature on site	Peak recorded within 400m of site during surveys (over winter)	Winter surveys % of the qualifying feature within 400m of site
Black-headed gull	<i>Liverpool Bay SPA</i>	Assemblage Qualification <i>22,000 individuals (5-year peak mean 04/05 – 10/11) *</i>	104	0.47%	232	1.05%
Common gull	<i>Liverpool Bay SPA</i>	Assemblage Qualification <i>1,494 individuals (5 year peak mean 04/05 – 10/11) *</i>	1	0.07%	150	10.04%
Cormorant*	<i>Liverpool Bay SPA</i>	Assemblage Qualification <i>732 individuals (5-year peak mean 04/05 – 10/11) *</i>	11	1.5%	12	1.64%
	<i>Mersey Narrows and North Wirral Foreshore Ramsar</i>	Waterbird species present in nationally important numbers or where numbers exceed 2,000 individuals during the non-breeding season <i>972 individuals (2004/05 - 2008/09)</i>	11	1.13%	12	1.23%



Species Name	Designated site	Qualifying feature population status (5-year mean peak)	Peak recorded on site during surveys (over winter)	Winter surveys % of the qualifying feature on site	Peak recorded within 400m of site during surveys (over winter)	Winter surveys % of the qualifying feature within 400m of site
	<i>Mersey Narrows and North Wirral Foreshore SPA</i>	Article 4.2 Assemblage of birds, <i>972 individuals (12/13-17/18 moving average)</i> (Out of total of 32,366 individuals in any season) ***	11	1.13%	12	1.24%
	<i>Ribble and Alt Estuaries SPA</i>	Article 4.2 Assemblage Waterbirds, <i>1,820 individuals (12/13-17/18 moving average)</i> ** (Out of a total of 23,861 individuals in any season)	11	0.6%	12	0.66%
Great Black-backed Gull	<i>Liverpool Bay SPA</i>	Assemblage Qualification <i>760 individuals</i> (5-year peak mean 04/05 – 10/11) *	2	0.26%	10	1.32%
Great Crested Grebe	<i>Liverpool Bay SPA</i>	Assemblage Qualification <i>5 individuals</i> (5-year peak mean 04/05 – 10/11) *	1	20%	-	-



Species Name	Designated site	Qualifying feature population status (5-year mean peak)	Peak recorded on site during surveys (over winter)	Winter surveys % of the qualifying feature on site	Peak recorded within 400m of site during surveys (over winter)	Winter surveys % of the qualifying feature within 400m of site
Herring Gull	<i>Liverpool Bay SPA</i>	Assemblage Qualification <i>1,377 individuals</i> (5-year peak mean 04/05 – 10/11) *	115	8.35%	180	13.07%
Lesser Black-backed Gull	<i>Liverpool Bay SPA</i>	Assemblage Qualification <i>226 individuals</i> (5-year peak mean 04/05 – 10/11) *	7	3.1%	10	4.43%
	<i>Ribble and Alt Estuaries SPA</i>	Article 4.2 <i>1,800 pairs</i> (during breeding season – count in period 1993) ***	7	0.39%	10	0.56%
		Assemblage of birds <i>5,024 individuals</i> (12/13-17/18 moving average) ** (Out of total of 323,861 individuals in any season)		0.14%		0.20%



Species Name	Designated site	Qualifying feature population status (5-year mean peak)	Peak recorded on site during surveys (over winter)	Winter surveys % of the qualifying feature on site	Peak recorded within 400m of site during surveys (over winter)	Winter surveys % of the qualifying feature within 400m of site
Oystercatcher	Mersey Narrows and North Wirral Foreshore SPA	Article 4.2 Assemblage of birds <i>2,718 individuals (12/13-17/18 moving average) ***</i> (Out of a total of 32,366 individuals in any season)	15	0.55%	6	0.22%
	<i>Ribble and Alt Estuaries SPA</i>	Assemblage Waterbirds <i>13,017 individuals (12/13-17/18 moving average) **</i> (Out of a total 323,861 individuals in any season)	15	0.12%	6	0.05%
Shelduck	<i>Mersey estuary SPA</i>	Article 4.2 <i>6,476 individuals over winter</i> (5-year peak mean 93/94 - 97/98) ***	17	0.26%	2	0.03%



Species Name	Designated site	Qualifying feature population status (5-year mean peak)	Peak recorded on site during surveys (over winter)	Winter surveys % of the qualifying feature on site	Peak recorded within 400m of site during surveys (over winter)	Winter surveys % of the qualifying feature within 400m of site
	<i>Ribble and Alt Estuaries SPA</i>	Assemblage Waterbirds <i>3,860 individuals (12/13-17/18 moving average) **</i> (Out of a total 323,861 individuals in any season)	17	0.44%	2	0.05%

*JNCC Report No: 576 – Liverpool Bay SPA **BTO website ***Citation documents for each site

It should be noted that populations of lesser black-backed gull, herring gull, great crested grebe recorded on site exceed 1% of the SPA population for Liverpool Bay SPA. Therefore, these species using the site (although a component of the assemblage for Liverpool Bay SPA) meet the threshold to be considered of international importance.

Surveys undertaken by WYG at the application site indicate that cormorant were present at a population level above 1% of the Liverpool Bay qualifying feature. It should also be noted that the population recorded is considered to form a component of the larger population of cormorant recorded within the Liverpool Waters area as presented within the SEMP. This population has been recorded at 4.5% of the Liverpool Bay SPA qualifying feature population and 3.4% of the Mersey Narrows and North Wirral Foreshore SPA/ Ramsar.

The population of oystercatcher recorded by WYG associated with the application site was below the 1% threshold for scoped in designated sites. However, it is considered that birds recorded by WYG within the application site form a component of the population recorded within the neighbourhood E (which includes the application site) of the Liverpool Waters as presented within the SEMP (i.e. 1.32% of Mersey Narrows and North Wirral Foreshore SPA & Mersey Narrows and North Wirral Foreshore Ramsar qualifying feature population). Therefore, the application site and its immediate surroundings is considered to support this population of international importance.

Therefore, wintering bird species which requires further assessment within the HRA Stage 2 assessment are:

- Cormorant
- Oystercatcher
- Great crested grebe
- Lesser black-backed gull and
- Herring gull

This is because the population recorded on site exceeds 1% of the scoped in qualifying feature population when considered.

All other qualifying features associated with scoped in designated sites were recorded at under 1% of the population associated with each designated site, the application site is therefore not considered to form significant functionally linked land for these species and they are not considered further in this assessment.

Bird survey data gathered by WYG indicates that all species recorded at or above 1% of the scoped in qualifying features used the application site primarily for resting/loafing or flying over with low occurrences of foraging behaviour over the survey period. This indicates that the application site does not form a valuable foraging resource for such species. However, the dock walls and hard standing areas used for resting/loafing form the functionally linked habitat which support these species.

6.4 Passage birds

It is noted that a single ringed plover was recorded during passage surveys. This species forms a qualifying feature of the Ribble & Alt Estuaries SPA. This single bird represents 0.06% of the passage population of the Ribble & Alt Estuaries SPA, 0.07% of the water bird assemblage and 0.03% of the Ramsar population. The population recorded during surveys does not meet or exceed the 1% threshold to be considered internationally important and therefore the application site is not considered to be of significant value for this species.

Therefore, passage birds are excluded from further consideration within the HRA Stage 2 assessment as an impact caused by construction or operational phases of the proposed development is unlikely to result in an adverse effect upon the favourable conservation status of the ringed plover population or the integrity of the designated site.

6.5 Confirmation of designated sites and features to include

Based on the above information the designated sites and qualifying features which are to be considered are presented in Table 21.

Table 21: Summary of designated sites and features to consider in HRA Stage 2 Appropriate Assessment.

Designated site	Qualifying feature	Construction Phase pathway of effect	Operational Phase pathway of effect
<i>Liverpool Bay SPA</i>	Cormorant Oystercatcher Great crested grebe Lesser black backed gull and Herring gull	Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat Habitat loss within functionally linked habitat beyond the boundary of the designated sites	Loss of qualifying features - potential bird strike Habitat degradation - deposition of waste/litter
<i>Mersey Narrows and North Wirral Foreshore Ramsar</i>	Cormorant Oystercatcher	Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen)	
<i>Mersey Narrows and North Wirral Foreshore SPA</i>	Cormorant Oystercatcher	Habitat degradation – effects on water quality at Nelson Dock during dock infill	

Designated site	Qualifying feature	Construction Phase pathway of effect	Operational Phase pathway of effect
<i>Ribble & Alt Estuaries SPA</i>	Oystercatcher	Habitat degradation - water quality impacts as a result of pollution events Disturbance of qualifying features – visual and auditory disturbance Habitat degradation - deposition of waste/litter	

Due to the distance of other designated sites (Ribble & Alt Estuaries Ramsar and Mersey Estuary SPA and Ramsar) from the proposed development and the absence of qualifying species within the application site and surrounding area it is unlikely that construction and operation phases will adversely affect the conservation status of qualifying features scoped in for these sites. Nor is it likely that the application site will adversely affect the size, extent or health of scoped in qualifying features. The application site is **unlikely to result in adverse effects upon the integrity of these Ribble & Alt Estuaries Ramsar and Mersey Estuary SPA and Ramsar sites are screened out of any further assessment.**

6.6 Assessment of Effects which are carried through to AA

The Stage 1 HRA considers potential for effects of the proposed development alone and in-combination with other relevant plans and projects without mitigation. However, at the HRA Stage 2 Appropriate Assessment (AA) stage any appropriate mitigation adopted can be considered in the assessment to avoid or mitigate LSEs on Natura 2000 sites.

As indicated in Table 15 above the following sites have been taken through to full AA at Stage 2 for the wintering birds:

Designated sites

- Liverpool Bay SPA
- Mersey Narrows and North Wirral Foreshore SPA
- Mersey Narrows and North Wirral Foreshore Ramsar
- Ribble & Alt Estuaries SPA.

Qualifying features

- Cormorant
- Oystercatcher
- Great crested grebe

- Lesser black backed gull and
- Herring gull

Pathways of effect

Construction

- Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat
- Habitat loss within functionally linked habitat beyond the boundary of the designated sites
- Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen)
- Habitat degradation – effects on water quality at Nelson Dock during dock infill
- Habitat degradation - water quality impacts as a result of pollution events
- Disturbance of qualifying features – visual and auditory disturbance
- Habitat degradation - deposition of waste/litter

Operation

- Loss of qualifying features - potential bird strike
- Habitat degradation - deposition of waste/litter

This assessment therefore considers the potential for adverse effects upon these designated sites and qualifying features alongside inbuilt mitigation measures summarised below and presented within the Construction Management Plan (ES Appendix 4.1, ES Volume III) (Laing O'Rourke, 2020) (CMP). These inherent measures have been 'designed-in' to the development plans to reduce the general impacts of the scheme following a review of the baseline data and consultation:

- Standard pollution prevention measures will be employed during the construction phase, implemented through a Construction Environmental Management Plan (CEMP).
- Lighting will be designed to reduce effects on ecological receptors in accordance with recommendation made within the lighting assessment for this Chapter 16, ES Volume II.
- Lighting will be designed to minimise impacts on bats and birds.
- Glazing to be installed on the north and south façade (large windows) along and the west stand portal (hospitality areas) will have graphics applied in order to reduce transparency/reflective potential of the glass and thereby reduce the potential for bird strike within the operational application site. Other areas of glazing (e.g. the pavilions between the stadium façade and roof structure which are associated with the upper level hospitality areas) will also be of a specification to reduce transparency/reflective potential (the specification of the glazing can be subject to appropriate planning condition(s)).

Additional measures designed to further mitigate against adverse effects during construction and operation phases are also considered in the following sections.

6.6.1 Mobilisation of contaminated material via surface run off into designated sites or functionally linked habitat

The CMP (ES Appendix 4.1, ES Volume III) for this project highlights the presence of contaminated ground which requires remediation. A site-specific remediation strategy has been developed along with a materials management plan. Work to remediate contamination will involve (in summary):

- Remove any gross contamination;
- Implement measures to minimise infiltration;
- Avoid stockpiling contaminated soil;
- Any stockpiled material will be covered/ placed on an impermeable surface;
- Removal of areas of contamination with potential to generate vapours.

Providing the measures proposed above are applied, it is considered that there will be no risk of adverse effects on the integrity of the four designated sites scoped into AA as a result of mobilisation of contaminated material during the construction phase of the proposed development.

In-combination

Mobilisation of contaminants into designated sites or functionally linked land is not considered within relevant in-combination projects. However, in the event of run off of contaminated materials during construction and operational phases of in-combination projects or as a result of relevant plans and policies it is considered that the above mitigation measures **will avoid in-combination adverse effects upon the integrity of scoped in designated sites.**

6.6.2 Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen)

It is recognised that the potential loss of prey species for piscivorous qualifying features of scoped in designated sites (cormorant, great crested grebe, lesser black-backed gull and herring gull) may have an adverse effect upon the conservation status of these species. However, in order to avoid the localised loss of prey species as a result of reductions in dissolved oxygen during the construction phase of the proposed development, a fish rescue programme will be implemented, as reported in a fish rescue plan to be agreed with the EA and LCC prior to construction. The Construction Management Plan (Appendix 4.1, ES Volume III) states that methods will target all known fish species known to inhabit the dock including pouting, European eel and coal fish. Every effort will be made to remove as many fish as possible (but no guarantee can be given that all fish will be caught and relocated during the rescue due to equipment limitations). Fish will be released back into the wider dock network. Detailed methods have not been produced at the time of preparing this assessment. However, outline fish rescue methods include the setting of fyke nets within the dock and the subsequent checking of these daily by an appropriately experienced ecologist. All fish captured will be processed and released within adjacent docks. In order to prevent fish re-entering BMD a bubble curtain will be installed at the entrance to BMD from Sandon Half tide dock.

Provided this method is employed it is considered that infilling works at the application site will not adversely affect density of prey species taken by scoped in qualifying features. **It is therefore considered that there will be no risk of adverse effects on the integrity of the four designated sites scoped into AA as a result of Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen) during the construction phase of the proposed development.**

In-combination

Assessment documents for projects and plans included within this assessment do not consider Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen) in relation to the designated site. This is due to the fact that no other projects propose the large-scale infilling of aquatic habitat and/or potential and therefore this impact pathway is not presented for any other projects or plans considered in combination with the application site. **It is therefore considered that there will be no risk of adverse effect on the integrity of scoped in designated sites as a result of this impact pathway during the construction of the proposed development in-combination with other plans and projects.**

6.6.3 Habitat degradation – effects on water quality at Nelson dock during dock infill

The construction phase of the proposed development has the potential to cause water quality issues within Nelson Dock as a result of temporary isolation from BMD and the dock network to the north. The revised CMP has removed reference to monitoring and over pumping to the southern water body (Nelson Dock) during the construction phase of works. Consultation with Natural England on the 15th of January 2021 highlighted this change to the CMP. Natural England advised that Nelson Dock and water bodies to the south have the potential to form valuable foraging resource for qualifying features of scoped in designated sites (cormorant, great crested grebe, lesser black-backed gull and herring gull). Therefore, any change in the condition of this habitat has the potential to adversely affect the conservation status of qualifying features of scoped in designated sites. It was highlighted by Laing o' Rourke and CBRE that there is currently no long-term data regarding water quality within Nelson Dock and the water bodies to the south. However, it is known that the port operator and landowner can close the existing isolation structure between Nelson Dock and BMD and this is believed to have occurred at irregular intervals for unknown durations during the operation of Liverpool Docks for an undetermined time period. It is also recognised that that the Leeds & Liverpool Canal is used to top up water levels within the dock system with fresh water in accordance with information provided by the Canals and Rivers Trust. Natural England recognised that Nelson Dock and connected water bodies to the south were dynamic in nature and subject to change over the course of the dock operations and indicated that flow data could be analysed to determine likely outcome of isolation of Nelson Dock from BMD. Buro Happold have produced a technical note providing an analysis of flow data based on monitoring data collected during December 2010 to December 2011 and supplementary monitoring information gathered during October 2020 (Buro Happold 2021, ref: BMD01-BHE-ZZ-XX-FN-C-05-0004).

Information presented within Buro Happold's technical note indicates that water levels within Nelson Dock are generally higher than those within BMD and therefore, while there is an interchange of water between Nelson Dock and BMD (depending on water levels throughout the year), the predominant flow is considered to be from south to north. Nelson Dock and connected waterbodies to the south are replenished with freshwater from the Leeds Liverpool Canal (reported by the Canals and Rivers Trust (who manage the canal) to be typically 10 megalitres per day), along with stormwater drainage from inland catchments. In addition, while docks to the south are connected to the River Mersey at Brunswick Dock (approximately 4.5km south of Nelson Dock) the Prince's Lock (located between Brunswick Dock and Nelson Dock) prevents saltwater from entering Nelson Dock. Therefore, flow from north to south through the isolation structure between BMD and Nelson Dock is considered to provide the main source of saltwater to the southern water body. It is therefore considered, based on flow data, that Nelson Dock and the connected southern waterbody are predominantly less saline than BMD.

Water quality sampling and analysis undertaken by Buro Happold in 2020 has determined that salinity levels within Nelson Dock have been measured at approximately 24000 – 27000 Electrical Conductivity (uS/cm) which equates to salinity level of approximately 16-18 parts per thousand (ppt). Sample points located to the south of Nelson Dock indicate electrical conductivity/salinity levels decrease in water bodies south of Nelson Dock to as low as 9500 electrical conductivity/6ppt. Saline water associated with the marine environment is defined as having a salinity level of 35ppt therefore the levels of salinity recorded within Nelson Dock fall within the definition for Brackish water.

Consultation undertaken between Buro Happold and Peel Ports and Peel Holdings has identified that the isolation structure sluice gates have been shut for extended periods since construction of the structure in 2008. In addition, short term closure of the sluice gates is undertaken to control water levels, either to the north or south, to safeguard their respective operations. As an example of this, the sluice gates were closed on 7th January 2021 by Peel Ports due to concerns regarding excessive loss of water to the south. To our knowledge the gates remain closed at the time of preparing this assessment.

No detailed aquatic ecology surveys have been undertaken for Nelson Dock. However, it is considered, that based on information gathered for BMD (which has intermittent connectivity with Nelson Dock) that the fish assemblage within Nelson Dock and water bodies to the south may largely reflect that recorded within BMD. This is due to the fact that fish species such as European eel, Dover sole *Solea solea*, plaice *Pleuronectes platessa* are tolerant of brackish/dynamic water conditions associated with estuarine habitat associated with the Mersey Estuary. In addition, should salinity continue to drop during the course of the construction period it is considered that the presence of freshwater species may increase within dock habitat as a result of migration from Leeds and Liverpool Canal.

Data presented within the bird survey for the application site, detailed in the Bramley-Moore Dock ES Volume II, Chapter 10 – Ecology, Technical Appendix 2 (Bird Survey Report WYG, 2020), and that presented within the SEMP indicates that the application site and areas associated with Nelson Dock are primarily used for resting purposes and are not considered to form a valuable resource for foraging behaviour. In addition, piscivorous species which form qualifying features of scoped in designated sites (cormorant, great crested grebe, lesser black-backed gull and herring gull) are not exclusively reliant on marine species to form their prey and will feed upon estuarine/freshwater fish species as well. It is therefore considered unlikely that any change in salinity within Nelson Dock or the water bodies to the south during the construction phase will adversely affect foraging behaviour or success of scoped in qualifying features. Therefore, no affect is anticipated upon the conservation status of such features as a result of this aspect of the construction phase of this project.

It is therefore considered that there will be no risk of adverse effects on the integrity of the four designated sites scoped into AA as a result of **Habitat degradation – effects on water quality at Nelson dock during dock infill during the construction phase of the proposed development.**

In combination

None of the projects or plans to be considered in combination with the application site highlight potential water quality issues as a result of isolation of Nelson Dock or any other part of the dock system. **It is therefore considered that there will be no risk of adverse effect on the integrity of scoped in designated sites as a result of this impact pathway during the construction of the proposed development in-combination with other plans and projects.**

6.6.4 Habitat loss within functionally linked habitat beyond the boundary of the designated sites

The construction phase of the proposed development will result in the loss of functionally linked habitat used by cormorant, herring gull, lesser black-backed gull and great crested grebe in the form of BMD itself. Data presented within the bird survey for the application site, detailed in the Bramley-Moore Dock ES Volume II, Chapter 10 – Ecology, Technical Appendix 2 (Bird Survey Report WYG, 2020), and that presented within the SEMP indicates that the application site is primarily used for resting purposes and is not considered to form a valuable resource for foraging behaviour. Therefore, adverse effects upon these species populations as a result of loss of foraging habitat are not anticipated. Therefore, no mitigation for loss of foraging habitat is proposed.

However, the dock walls are considered to form a valuable resting resource for the species noted above. Such loss of habitat is considered likely to result in significant effects upon the local population of scoped in species (as per above) (and by default the populations which form the qualifying features of the above noted designated sites). Therefore, in order to mitigate for the loss of resting habitat it is proposed that two floating rafts/pontoons, consisting of a frame, platform, floats and fittings for mooring are installed within the neighbouring Nelson Dock.

Specifications for the rafts are provided in '*Nestboxes: Extracts from British Trust for Ornithology Field Guide Number 23 with some additions and amendments*' (Du Feu, 2005), the scale of each pontoon to be installed will measure 8.88m². The provision of these features will not directly replace the loss of dock wall resting habitat (measuring 747m along the edge of BMD). Following consultation with Natural England on 13th November 2020, the carrying capacity of each pontoon was calculated in order to determine suitability for this project. Such calculations determined that, based on the cormorant's wingspan when resting, the maximum area required per cormorant would be 1.6m² (in accordance with calculations used to calculate mitigation measures within the LWSEMP). Each of the pontoons will have a potential carrying capacity of 5.5 cormorants (or, in reality, 5 on one pontoon and 6 on the other). This carrying capacity equals the peak count recorded on site during wintering bird surveys completed to inform this report. Natural England were consulted on 18th/19th of November 2020 in relation to the pontoon scale, specification and carrying capacity during which confirmation was received that this mitigation measure was acceptable (Angela Leigh Pers. Comm, via email 19/11/2020). It is recognised that the proposed mitigation for the application site does not provide a like for like replacement of resting habitat used by scoped in qualifying features of designated sites within the application site. However, it should be noted that the entirety of the dock wall was not used by cormorants during wintering bird surveys. Rather, discrete areas were used by individual birds at varying density throughout each survey period. The decision to provide two pontoons in strategic, undisturbed (within the context of the application site and wider approved Liverpool Waters scheme) areas within Nelson Dock aligns with mitigation measures designed and implemented for the wider Liverpool Waters Project as presented within "Liverpool Cruise Terminal Framework Construction Environmental Management Plan (CEMP)" (Waterman Group, 2019). It should also be noted that there is no formal guidance regarding appropriate positioning of floating pontoons to support target species associated with this project, however indicative positions of two pontoons have been selected in order to minimise disturbance of cormorants from activities occurring along the dock wall at Nelson Dock (i.e. members of the public walking vehicles etc) by providing a minimum buffer of 25m from dock walls. Indicative position of the pontoons also aims to reduce

disturbance from the operational site while also taking into consideration potential future developments within Nelson Dock associated with the wider Liverpool Waters Scheme.

Pontoons installed in association with the application site would be installed prior to commencement of dock infill works by Peel Land & Property, depending on the outcome of the planning application, this is currently scheduled to take place in Spring 2021. Detailed methods to construct and install the pontoons will be determined post planning, this detail is therefore not currently available at this stage. However, indicative pontoon locations, specification and installation measures are presented within figure 2. Such specification and installation methods are based on similar projects completed to date within the Liverpool Waters area along with other projects in the UK. Natural England accepted these spec and methods in principal during phone consultation on 7th of December 2020 (Angela Leigh pers comm.) Monitoring and maintenance of these pontoons would be undertaken by Everton Stadium Developments Limited for the first 12 months following completion of installation. Thereafter, the pontoons would be managed and maintained by Peel Land & Property (or their appointed management company) as part of its wider Liverpool Waters ecology strategy.

Monitoring works in subsequent years would be completed by an ecologist appointed by Peel Holdings as part of the wider monitoring programme highlighted within the Liverpool Waters SEMP (produced to discharge condition 16 of the Liverpool Waters Outline consent) and agreed with Natural England and MEAS for the Liverpool Waters Project. Such monitoring would take place for a minimum of five years in accordance with the SEMP following which the requirement for further monitoring will be reviewed.

Mitigation proposed for the West Waterloo residential scheme (Liverpool Waters Plot CO2) (Ref 18F/3247) also involves the placement of permanent and temporary floating pontoons to mitigate for the loss of habitat associated with this scheme. Pontoons associated with the Liverpool Waters Plot CO2 scheme are to be positioned within North Salisbury Dock (approximately 60m from Nelson Dock).

In addition to the above, details provided within the Wirral Waters SPA Bird Mitigation Strategy (TEP 2018) show that similar floating pontoons will be installed at strategic locations within the Wirral Waters site in order to offset loss of suitable roosting habitat.

Mitigation proposed for the application site is considered likely to compliment that proposed within the Liverpool Waters SEMP (which includes pontoons proposed for the above projects) as this provides a network of platforms in the local area that can be used by the local cormorant population in place of dock habitat that is lost to development.

The principles of the proposed mitigation measures for both Wirral Waters and Liverpool Waters SEMP mirror those proposed for the application site and aim to provide alternative resting habitat for cormorants within functionally linked habitat either side of the River Mersey.

Aligning the mitigation proposed for the application site, the wider Liverpool Waters SEMP, and Wirral Waters projects (as discussed above) represents a co-ordinated approach to mitigation as requested during consultation with NE and MEAS. Such a co-ordinated approach will result in mitigation effects

to scoped in qualifying features of the designated sites by replacing resting habitat used by cormorant, lesser black-backed gull, herring gull and great crested grebe in the wider dock network.

Therefore, it is considered that there will be no risk of adverse effects on the integrity of relevant designated sites (as scoped in above) as a result of functionally linked habitat loss.

In-combination

As discussed above, mitigation measures are designed to operate in line with measures that are proposed for **projects** scoped in for in-combination assessment. Provided mitigation measures are implemented **it is considered that there will be no risk of adverse effects on the integrity of scoped in designated site as a result of habitat loss effects when the application site is considered in-combination with other relevant projects.**

Loss of functional habitat associated with the designated site is not specifically discussed within the draft Liverpool Local Plan, however the HRA for this plan notes that Policy EC8 states: *"the policy explicitly states that any proposals must '... comply with other relevant policies in the Local Plan; include measures to address the potential environmental issues raised by expansion of the Ports, including impact on the adjacent natural ... environment, and nationally and internationally important sites ...'."*

It is therefore considered that the references in the draft Local Plan are sufficient to ensure that the SPA and Ramsar sites are protected and no adverse effect on the integrity of these sites is considered likely in-combination with the application site.

Loss of functionally linked habitat associated with the designated site is not discussed within the HRA for the Wirral Core Strategy. It is however considered within the emerging Wirral Local Plan, the HRA for this local plan advocates that relevant policy is written to ensure appropriate mitigation is incorporated and assessed within a project specific HRA. Provided such measures are in place it is considered that no adverse effects are anticipated in relation to this plan.

Therefore, it is considered that there will be no risk of adverse effects on the integrity of scoped in designated site as a result of habitat loss effects when the application site is considered in-combination with other relevant plans.

6.6.5 Disturbance of qualifying features – visual disturbance (construction)

Construction works on the application site will result in an increased level of human presence (many of whom will be wearing high visibility Personal Protective Equipment). In addition, construction machinery may cause an increase in visual disturbance to qualifying species of the designated sites. The potential to cause LSEs via visual disturbance was identified at the ALSE stage of this assessment. However, in accordance with the CMP for the application site, 2.4m high hoarding will be installed along the application site boundary. This will screen out all visual disturbance associated with dock infill works during weeks 1-25 along with works to construct the steel substructure during weeks 25-50 of the construction phase. In addition, pedestrian and vehicle presence on site

(excluding large plant i.e. 100t crane to install precast construction features) will be screened from visual disturbance for the duration of the construction phase.

It is noted that works to the structure and roofing will involve construction heights above 2.4m and will therefore be visible to qualifying bird species utilising functionally linked habitat surrounding the application site. However, while these works will take place during weeks 26 – 150 this will not involve constant visual disturbance. Works to the north, south east and west stands will be phased in accordance with the CMP and will involve low numbers of 100-500t crawler cranes to install various components of the stadium (such cranes are a regular landscape feature within the frontage of the wider Liverpool Docks due to historic use and ongoing construction projects). It is anticipated that as construction progresses the structure itself would screen the majority of activities associated with the construction phase. Therefore, although construction is scheduled to take place over approximately 3 years, any visual disturbance that may occur during this period would diminish in frequency and intensity as works progress. It is therefore considered unlikely that the construction phase would result in significant effects on qualifying bird populations or impact on their conservation objectives taking into account the mitigation proposed.

Providing the measures proposed above are applied, it is considered that there will be no risk of adverse effect on the integrity of scoped in designated sites as a result of disturbance during the construction phase of the proposed development when considered alone.

In combination

Assessments of in combination projects (those located within Wirral Waters) has determined that visual disturbance during construction forms a pathway of effect. However, the application site is located a minimum of 2.17km away from Wirral Waters. In addition, all Wirral Waters projects are located inland from the Wirral/Mersey Estuary coastline and are visually isolated from the application site by existing urban and industrial development associated with the town of Seacombe/Egremont. It is considered unlikely that the application site will act in combination with these projects with regards visual disturbance. Therefore, when considered in combination with the application site this is pathway of effect is screened out of further assessment in relation to scoped in designated sites. Visual disturbance is not considered in detail within relevant local plans (with the exception of Wirral Local Plan) however should implementation of relevant policies result in increased visual disturbance it is considered that the mitigation provided for the application site will avoid any in combination effect that may undermine the conservation objectives of scoped in designated sites. The HRA for Wirral Local Plan makes recommendation to amend policies to ensure that sufficient distance is maintained to avoid causing disturbance to qualifying features of scoped in designated sites. **it is considered that there will be no risk of adverse effect on the integrity of scoped in designated sites as a result of visual disturbance during the construction phase of the proposed development when considered in combination with other plans or projects.**

6.6.6 Disturbance of qualifying features – auditory disturbance (construction)

In order to determine the likely effects of noise and vibration disturbance during the construction phase of this project a review of relevant guidance documents has been undertaken. This review determined that there is no known guidance that specifies noise disturbance thresholds for species

identified within the application site and scoped into AA (i.e. cormorant, herring gull, lesser black-backed gull and great crested grebe). Therefore, the generic precautionary threshold of 70dB as determined within the TIDE handbook (Cutts et al 2013) is adopted within this assessment.

It is recognised that the construction phase will result in an increase in noise levels in comparison with baseline conditions. The Noise Assessment chapter (WYG, Chapter 9, ES Volume II) in the ES has determined that the baseline noise level of the application site is recorded at a range of between 47-52dB. The CMP for this project states that acoustic hoarding will be installed around the perimeter of the application site during the construction phase. Therefore, this mitigation has been taken into consideration during the assessment of noise levels during the construction phase. The noise assessment concludes that construction works will result in average noise level ranging from 67.4dB on the application site decreasing to 40.2dB approximately 500m from site.

Due to the nature of the various construction works such noise levels are considered likely to present as both regular and irregular events over the course of construction works depending on specific tasks. Therefore although noise levels are predicted to exceed baseline noise levels within the application site, such levels during the construction phase of this project remain below the threshold set by the TIDE Handbook (Cutts et al 2013) and are considered likely to cause primarily low levels of disturbance (with the exception of regular and irregular noises ranging 50- 70dB and occasional crane movements which are considered likely to cause moderate-low response to waterbirds) and are therefore unlikely to cause significant disturbance to foraging and resting birds which form relevant qualifying features of designated sites included within this assessment. In addition, the TIDE Handbook recognises that the effects of noise disturbance may be reduced where visual stimuli are obscured. As discussed above it is considered that the acoustic hoarding will screen out visual disturbance and therefore this is also considered likely to reduce the effects of noise disturbance during the construction phase of works.

Therefore, providing the measures designed within the CMP for the application site are applied, it is considered that there will be no risk of adverse effects on the integrity of scoped in designated site as a result of noise disturbance during the construction phase of the proposed development when considered alone.

In combination

The southern link road project identified pathways of effect resulting in disturbance to scoped in qualifying features of the designated site. However, the HRA for this project states that construction works are scheduled to take place outside of the wintering bird season. Therefore, it is considered that construction works for this project will not coincide with works associated with the application site.

Assessment of other potential in combination projects (those located within Wirral Waters) has determined that auditory disturbance during construction forms a pathway of effect. However, the application site is located a minimum of 2.17km away from Wirral Waters. In addition, all Wirral Waters projects are located inland from the Wirral/Mersey Estuary coastline and are isolated from the application site by existing urban and industrial development associated with the town of Seacombe/Egremont. In addition mitigation has been designed for these projects in the form of suitable buffers to ensure noise levels at key areas for birds do not cause disturbance along with

erecting appropriate screening between works areas and key areas. When such mitigation measures at incombination sites along with measures to be implemented at the application site are taken into consideration this pathway of effect (auditory disturbance) is screened out of further assessment in relation to scoped in designated sites. The emerging Wirral Local Plan is the only planning document screened into this stage of assessment which considers noise disturbance, the HRA for this document makes recommendation for mitigation measures to be required under relevant policy. Therefore, in-combination effects of noise disturbance are not considered likely to undermine the conservation objectives of scoped in qualifying features of designated sites. In addition, it is considered that the above mitigation is sufficient to avoid in combination with any other project or implemented policy within the local plans. **Therefore, providing the measures designed within the CMP for the application site are applied, it is considered that there will be no risk of adverse effects on the integrity of scoped in designated site as a result of noise disturbance during the construction phase of the proposed development when considered in combination with other plans and projects.**

6.6.7 Habitat degradation - water quality impacts as a result of pollution events

The construction phase of the proposed development carries the risk of causing pollution events as a result of chemical spill or oil leakages within functionally linked habitat used by cormorant herring gull, lesser black-backed gull, oystercatcher and great crested grebe which form qualifying features of scoped in designated sites (as highlighted above).

Such pollution events have the potential to result in direct injury or mortality to scoped in species which form qualifying features of scoped in designated sites (i.e. should birds become coated within or ingest petrochemicals spill). Such spills may also reduce the availability of prey items within Liverpool Bay in close proximity to the application site and the dock system associated with the this area (i.e. BMD before infill along with Nelson Dock and Sandon Half Tide Dock to the north and south of the proposed application site). Such negative effects have the potential to adversely affect the integrity of Liverpool Bay SPA and the favourable conservation status of qualifying features of both Liverpool Bay SPA and Mersey Narrows and North Wirral Foreshore SPA and Ramsar site.

The CMP produced for the application site incorporates inbuilt mitigation measures designed to avoid and or minimise the risk of pollution event as a result of spillage. Such measures include:

- Avoidance of use of diesel- or petrol-powered generators and through using mains electricity or battery powered equipment;
- Appropriate COSHH and fuel storage facilities (bunded);
- Appropriate storage and processing of concrete/cement;
- Robust spillage procedures and sufficient clean up equipment available on site to promptly address any spillages;
- The use of biodegradable oils in plant working near water.

In addition, Appendix 4.1, ES Vol III sets out the recommendations to be incorporated into a CMP document to avoid water pollution.

Therefore, providing the measures designed within the CMP for the application site are applied, it is considered that there will be no risk of adverse effects on the integrity of relevant designated site as a result of water quality effects when the application site is considered alone.

In-combination

Water pollution is considered to form an impact pathway with projects brought forward to in-combination assessment at AA stage. The HRAs for planning documents brought forward to AA do not specifically consider pollution effects upon designated sites with the exception of the emerging Wirral Local Plan. The HRA for the emerging Wirral Local Plan recognises the potential for water quality impacts which may adversely affect designated sites. Recommendations are therefore made to be incorporated into relevant policies to avoid adverse effects on designated sites. However, it is assumed that projects will incorporate their own CEMP in order to mitigate for any accidental spill. Providing such measures are implemented for in-combination plans and projects (along with the application site) it is considered that there will be no risk of adverse effects on the integrity of scoped in designated sites as a result of water quality effects when the application site is considered in-combination with other relevant plans and projects.

6.6.8 Loss of qualifying features - potential bird strike

As stated within the HRA Stage 1 assessment it is considered likely that bird strike within the operational application site has the potential to cause mortality to qualifying birds of the designated site.

Cormorant, lesser black-backed gull, herring gull and great crested grebe habitat requirement includes the presence of open water for foraging and resting purposes. These species is known to occur within the application site at numbers which exceed 1% of the qualifying population of Liverpool Bay SPA and Mersey Narrows and North Wirral Foreshore SPA/Ramsar. In order to mitigate for the loss of habitat which supports this species, floating pontoons are to be installed within Nelson Dock. However, while pontoons may attract scoped in qualifying features of scoped in designated sites to dock habitat directly adjacent to the operational site, the presence of reflective glass on the façade of the operational stadium may reflect the water surface and cause such species to collide with the building. In order to mitigate against this potential impact, the following measures will be incorporated into the building design:

- Use of graphics and/or UV patterning on glass façade on the southern, northern and western elevation of the stadium to reduce transparency and reflective value of high risk glazed areas.
- Positioning of 2 no. pontoons within Nelson Dock an appropriate distance from the operational stadium and other tall vertical structures to reduce likelihood of cormorants approaching these in flight.

Natural England confirmed on 13/11/20 that the above measures were in keeping with similar projects in the wider areas, are considered acceptable in relation to this project and that no further assessment would be required in relation to bird strike.

Providing the measures proposed above are applied, it is considered that this will significantly minimise the risk of adverse effect on the integrity of scoped in designated sites as a result of loss of bird species due to bird collision during operation of the application site alone.

In combination

Potential bird strike has been scoped out of projects included in the in-combination assessment, this is due to the fact that such projects are of such a nature and location that they do not present a risk of bird strike. There is therefore considered to be no effect upon the integrity of the scoped in designated sites as a result of projects considered in combination with the application site.

The HRA for Liverpool Local Plan and Wirral Core Strategy do not consider the potential for bird strike in relation to the scoped in designated site. It is recognised that projects may be implemented as a result of local plan policies which present a risk to scoped in qualifying birds of designated sites via bird strike. However, it is considered that mitigation designed for the application site is sufficient to avoid in-combination effects between the application site and any other project which may come forward in respect of local plan policies. In-combination assessment in terms of this impact pathway is therefore not considered relevant and is not discussed further.

The HRA for the North West Marine Plan highlights that policy WIND-2 highlights the potential for bird strike as a result of the delivery of offshore windfarms. The HRA for the north west marine plan states that must be determined on a case by case basis, however, provided measures described above are implemented it is considered that the application site will not interact with this policy.

It is considered that there will be no risk of adverse effect on the integrity of scoped in designated sites as a result of loss of bird species due to bird collision during operation of the application site when considered in-combination with other plans or projects.

6.6.9 Habitat degradation - deposition of waste/litter

The construction and operational waste management strategy (Buro Happold 2020) (provided in Appendix 3.2 and 4.3 of ES Volume III) recognises that during each match day event the application site will generate 16,700kg of waste. Such waste has the potential to enter the surrounding docks and break down causing degradation of aquatic habitat and enter the aquatic food chain (potentially causing this to diminish). In addition, certain items of waste have the potential to entrap or choke bird species which form qualifying features of the designated sites and cause injury or mortality.

Regular mortality events as a result of entrapment within litter or displacement/as a result of adverse effects upon the aquatic food-chain (causing bird species to forage further afield) may have a significant effect on qualifying bird species. However, the CMP (Laing O'Rourke (2020) (provided in Appendix 4.1 of ES Volume III) and construction and operational waste management strategies (Buro Happold 2020) set out clear strategies to ensure that construction and operational waste is contained, processed and removed from site. These measures will be controlled through an Environmental Management Plan and Resource Management Plan, in consultation with the relevant authorities. It is therefore considered that significant waste deposition within designated sites or functionally linked habitat during operation of the proposed development is unlikely.

Providing the methods prescribed within the CMP and waste management strategies are applied, it is considered that there will be no risk of adverse effect on the integrity of scoped in designated sites as a result of litter deposition during the operation of the proposed development alone.

In combination

Assessment documents for projects and plans included within this assessment do not consider the potential litter deposition in relation to the designated site. It is however recognised that increased litter deposition is possible as a result of operational projects brought forward in the area resulting in in combination effects as a result of this impact pathway when considered with the application site. However, provided the methods described within the CMP (Appendix 4.1, ES Volume III) and waste management strategy (Appendices 3.2 and 4.3, ES Volume III) are implemented it is considered unlikely that the application site will contribute significantly to litter deposition and is therefore unlikely to act in-combination with other plans or projects. **It is therefore considered that there will be no risk of adverse effect on the integrity of scoped in designated sites as a result of litter deposition during the operation of the proposed development in-combination with other plans and projects.**

6.7 Conclusion

Using a precautionary approach, it is recognised that, in the absence of inbuilt and additional mitigation, there is potential for LSEs to qualifying features of designated sites scoped into this assessment. There is therefore potential for adverse effect on the integrity of Liverpool Bay SPA, Mersey Narrows & North Wirral Foreshore SPA & Ramsar, Mersey Estuary SPA & Ramsar and Ribble and Alt Estuaries SPA & Ramsar associated with the proposed development.

However, the CMP and additional mitigation designed for the application site will take into consideration the requirements of the scoped in qualifying features relevant to Liverpool Bay and Mersey Narrows and North Wirral Foreshore SPA and the Ribble & Alt Estuaries SPA to mitigate adverse effects and make sure they do not occur during the construction and operational phases of the proposed development.

The residual impacts arising from construction and operational phase pathways of effect are therefore considered to be **negligible**. It is considered that such pathways of effect are unlikely to have any appreciable or discernible effect upon the conservation status of scoped in qualifying features of Liverpool Bay and Mersey Narrows and North Wirral Foreshore SPA or Ribble & Alt Estuaries SPA or the integrity of such designated sites. This applies when the application site is considered in isolation and in combination with other relevant plans and projects.

As such, the 'Competent Authority', in consultation with Natural England, is considered unlikely to require any further assessment under the Habitats Regulations, and the proposed development should be able to proceed without any adverse effects on the integrity of the relevant internationally designated sites.

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Appendix A – Report Conditions

This Report has been prepared using reasonable skill and care for the sole benefit of Everton Stadium Development Limited ("the Client") for the proposed uses stated in the report by WYG Environment Planning Transport Limited ("WYG"). WYG exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

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The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.

Appendix B – Site Boundary and Development Layout