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MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Liverpool Bay/Bae Lerpwl SPA Clarification Note

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Image of an offshore wind farm

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Glossary

Term	Meaning
Applicant	Morgan Offshore Wind Limited.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
Morgan Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, scour protection, cable protection and offshore substation platforms (OSPs) forming part of the Morgan Offshore Wind Project: Generation Assets will be located.
Morgan Offshore Wind Project: Generation Assets	This is the name given to the Morgan Generation Assets project as a whole (includes all infrastructure and activities associated with the project construction, operations and maintenance, and decommissioning).
The Planning Inspectorate	The agency responsible for operating the planning process for applications for development consent under the Planning Act 2008.

Acronyms

Acronym	Description
AEoI	Adverse effect on integrity
AEoSI	Adverse effect on site integrity
dML	Deemed Marine Licence
HRA	Habitats Regulations Assessment
ISAA	Information to support an appropriate assessment
LSE	Likely Significant Effect
SPA	Special Protection Area

Units

Unit	Description
km	kilometres

1 LIVERPOOL BAY/BAE LERPWL SPA CLARIFICATION NOTE

1.1 Introduction

1.1.1 Overview

1.1.1.1 This clarification note has been produced in response to the Examining Authority's second round of written questions, specifically question HRA 2.3 ii) addressed to the Applicant, which is provided below:

"Liverpool Bay Special Protection Area

The Outline Offshore EMP [REP4-018] at 5.6 Annex E and the Commitments Register (Co65) [REP4-025] include reference to measures to minimise disturbance to rafting birds from transiting vessels to be attached to the final Offshore EMP, secured within Condition 20(e) of the DMLs.

i) Natural England and NRW are asked to confirm whether provision of the documents would allow them to agree that an AEoI of the qualifying features of the Liverpool Bay Special Protection Area (SPA) can be excluded, alone and in-combination.

ii) The Applicant is asked to update the Stage 2 SPA Report [APP-098] to record consideration of the Liverpool Bay SPA."

1.1.1.2 The Applicant has responded to question HRA 2.3 within the Applicant's Response to Examining Authority's Written Questions (S_D5_5 Applicant's Response to Examining Authority's Written Questions (ExQ2)_F01) and confirmed that the Applicant would provide the requested information in this clarification note.

1.1.1.3 This clarification note has been produced as an addendum to HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098). This clarification note provides the assessments required in response to the Examining Authority's question HRA 2.3. In addition so as to provide a full HRA assessment for the Liverpool Bay/Bae Lerpwl SPA, a Likely Significant Effect matrix is provided in Appendix A:.

1.1.2 Background

1.1.2.1 Both Natural England (RR-026) and Natural Resources Wales (NRW) relevant representations (RR-027) queried the conclusion of no Likely Significant Effect (LSE) for the Liverpool Bay/Bae Lerpwl SPA specifically in relation to potential disturbance impacts from vessel movements to and from the Morgan Array Area on the red-throated diver and common scoter features of the SPA. A summary of both Natural England's and NRW's relevant representations in relation to this topic are presented in Table 1.1. Also included in Table 1.1 are the Applicant's responses to each relevant representation.

Table 1.1: Summary of Natural England's and NRW's relevant representations in relation to the Liverpool Bay/Bae Lerpwl SPA.

Interested Party	Relevant Representation		Applicant's response as provided in PD1-017
	Comment	Recommendation	
Natural England (RR-026)	Natural England are concerned that the HRA Stage 1 Screening Report does not consider the potential for disturbance and displacement impacts from vessel movements in the construction or operation and maintenance phase on the red-throated diver and common scoter features of Liverpool Bay SPA. Until it can be confirmed that vessel movements will not pass through the SPA in the wintering period, LSE cannot be ruled out for these features.	Natural England advise that red-throated diver and common scoter at Liverpool Bay SPA should be assessed in the HRA Stage 2 ISAA Part 3 report. Vessel traffic should be considered from port to site as well as within the array, and any overlap with protected sites and the distribution of these features within the site properly considered. We note the commitment to secure and adhere to best practice vessel operations to minimise disturbance and suggest that the assessment fully considers the value and potential effectiveness of such measures. As regards suitable measures, Natural England has developed a Best Practice Protocol setting out some examples. Transiting along existing shipping lanes or other high traffic areas is likely to be particularly relevant in Liverpool Bay.	The Applicant considers that there will be no adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA as a result of disturbance impacts on the red-throated diver and common scoter qualifying features of the SPA. For similar projects that have considered the increase in vessel movements associated with the project the potential increase has been considered negligible when compared to the existing level of vessel traffic in the area with this of particular relevance to the Irish Sea. The Applicant highlights the inclusion of the measures listed in Table 5.26 of Volume 2, Chapter 5: Offshore ornithology (APP-023) of adherence to an offshore Environmental Management Plan (EMP) that will include measures to minimise disturbance to rafting birds from transiting vessels (as set out in Measures to minimise disturbance (APP-070)) and include a Marine Pollution Contingency Plan (MPCP). It is noted that NRW consider that, with the application of the aforementioned measures, there will be no adverse effect on the integrity of the SPA (RR-027).

Interested Party	Relevant Representation		Applicant's response as provided in PD1-017
	Comment	Recommendation	
	With respect to vessel management plans, the Applicant commits to "The development of and adherence to an Offshore EMP which will include measures to minimise disturbance to rafting birds from transiting vessels."	Natural England advise that if vessel movements are expected to transit through the Liverpool Bay SPA then they should strictly adhere to pre-existing shipping routes to reduce the risk of additional disturbance to wintering red-throated diver and common scoter. The levels of existing shipping traffic, as well as red-throated diver and common scoter density distribution in those areas may require consideration to ascertain the likely additional impacts of vessel movements associated with the project.	Please see response to comment RR-026.B.83. (Response above).
Natural Resources Wales (RR-027)	Liverpool Bay SPA: Whilst the Morgan Generation Assets application does not cover the offshore export cable, as the port location is not yet decided, we consider that there is the potential for operations and maintenance vessel movements through the Liverpool SPA for such vessels transiting from port to the array area. No consideration has been given in the HRA Stage 1 Screening Report [APP-099] to the potential impacts from such activities on the qualifying features of this SPA, particularly the red-throated diver and common scoter features. Given that these features are particularly sensitive to disturbance/displacement from vessel movements, we would consider that an LSE cannot be ruled out for these features and hence should be taken through to the HRA Stage 2 ISAA. However, we note the measures listed in Table 5.26 of Volume 2, Chapter 5 [APP-023] of adherence to an offshore Environmental Management Plan (EMP) that will include measures to minimise disturbance to rafting birds from transiting vessels (as set out in APP-070) and include a Marine Pollution Contingency Plan (MPCP). We note and agree that the Offshore EMP is secured within the dML in Schedule 3 Part 2 of the draft DCO [APP-005]. Therefore, based on the adoption of best practice vessel operations to minimise disturbance it is likely that an AEoSI from operation and maintenance vessel movements can be ruled out for these features of the SPA.		The Applicant welcomes and agrees with NRW's conclusion of likely no adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA.

1.1.2.2 NRW reiterated their advice at Deadline 1 (REP1-056) again stating that due to the inclusion of vessel management measures in the EMP, an adverse effect on integrity (AEoI) of the Liverpool Bay/Bae Lerpwl SPA could be ruled out. At Deadline 3, Natural England confirmed that *"once mitigation,* [in the form of vessel management measures] *is secured within the outline Offshore EMP and submitted into Examination, it is likely that we can agree that an AEoI from operation and vessel movements can be ruled out."* (REP3-049).

1.1.2.3 In the Applicant's response to Interested Party (IP) submissions at Deadline 4 (S_D5_4 Applicant's Response to IP submissions submitted at Deadline 4 F01), the Applicant confirms that the Outline Offshore Environmental Management Plan (EMP) was submitted at Deadline 4 (REP4-018) and included in Annex E within this plan the Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (APP-070), which accords with Natural England's best practice protocol on displacement advice. This addresses Natural England's stated concern. The Applicant notes that Natural Resources Wales confirmed (within REP3-051, reference HRA 1.11) that 'based on the adoption of best practice vessel operations to minimise disturbance we would consider it is likely that an AEoSI from operation and maintenance vessel movements can be ruled out for these features of the [Liverpool Bay] SPA'. From the engagement with Natural England between Deadline 4 and 5 it is anticipated that this will also be confirmed by Natural England at Deadline 5.

1.2 HRA Stage 1 – Screening

1.2.1.1 A full screening exercise is not required for the Liverpool Bay/Bae Lerpwl SPA as those features for which there is the potential for a LSE have been identified through consultation with relevant stakeholders. To provide a full HRA assessment for the Liverpool Bay/Bae Lerpwl SPA, a LSE matrix is provided in Appendix A. This considers all potential impacts of the Morgan Generation Assets on the red-throated diver and common scoter features (and therefore the waterbird assemblage for which these two species are named features) of the Liverpool Bay/Bae Lerpwl SPA, with these being the features for which LSE has been identified through consultation with relevant stakeholders. There is considered to be no potential for LSE on the remaining features of the SPA. This comprises the little gull, little tern and common tern features of the SPA.

1.3 HRA Stage 2 – Appropriate Assessment

1.3.1 Sites considered within the assessment of potential Adverse Effect on Integrity: Step 2

1.3.1.1 The HRA Stage 2 – Appropriate Assessment presented in this clarification note will include an assessment of the potential for adverse effect on site integrity on the SPAs and associated features listed in Table 1.2.

Table 1.2: SPAs and relevant offshore ornithological features for which assessments are required in this clarification note.

SPA	Qualifying features
Liverpool Bay	Red-throated diver *Gavia stellata*
	Common scoter *Melanitta nigra*
	Waterbird assemblage

1.3.2 Baseline information

Liverpool Bay/Bae Lerpwl SPA

Site description

1.3.2.1 Liverpool Bay is situated in the east of the Irish Sea, bordering the northwest of England and the north of Wales, and running as a broad arc from Morecambe Bay to the east coast of Anglesey.

1.3.2.2 The Liverpool Bay/Bae Lerpwl SPA lies in both English and Welsh territorial waters and in offshore United Kingdom (UK) waters. The border between English and Welsh territorial waters runs northwest from the Dee Estuary. The Morgan Generation Assets are located outside of the SPA (10 km distant).

1.3.2.3 The seabed of Liverpool Bay/Bae Lerpwl SPA contains a wide range of mobile sediments. Sand is the most common substrate, with a concentrated area of gravelly sand located off the Mersey Estuary.

1.3.2.4 The Liverpool Bay/Bae Lerpwl SPA was designated by the UK Government to meet obligations set out in the Birds Directive (2009/147/European Commission (EC)) and is protected by the Conservation of Offshore Marine Habitats and Species Regulations 2017.

1.3.2.5 The SPA qualifies under Article 4.1 of The Habitats Directive for its non-breeding (wintering) populations of red-throated diver and little gull *Hydrocoloeus minutus*, and for providing foraging areas for breeding little tern *Sternula albifrons* and common tern *Sterna hirundo*.

1.3.2.6 The SPA also qualifies under Article 4.2 for its non-breeding (wintering) population of common scoter as well as its wintering waterbird assemblage, which includes over 1% of the Great Britain population of cormorant *Phalacrocorax carbo* and red-breasted merganser *Mergus serrator*.

1.3.2.7 The SPA covers an area of approximately 2,528 km^2. The SPA was originally designated in 2010 for its wintering red-throated divers and common scoters and covered an area of approximately 1,703 km^2. The SPA was extended in 2017, in order to support three new protected features: wintering little gulls, and also foraging little terns and common terns. Wintering red-breasted merganser and cormorant also became new named components of the waterbird assemblage.

1.3.2.8 The original SPA boundary was delineated primarily based on the abundance and distribution of red-throated diver except in the north most region which was delineated based on the distribution and abundance of common scoter. When the SPA was extended, the new areas beyond the original boundary were designated due to the abundance and distribution of little gull.

Lawson *et al.* (2016) assessment of the numbers and distributions of wintering waterbirds and seabirds in Liverpool Bay

1.3.2.9 A study by Lawson *et al.* (2016) assessed the numbers and distributions of wintering waterbirds and seabirds in Liverpool Bay/Bae Lerpwl area. Lawson *et al*. (2016) analyses survey data from the winter in order to re-assess the number of waterbirds and seabirds within Liverpool Bay/Bae Lerpwl area of search.

1.3.2.10 The aim of the report was to determine whether any species could be considered under the SPA guidelines for protection within the site as interest features in their own right, in addition to the red-throated diver and common scoter populations which were

identified for classification in the Liverpool Bay/Bae Lerpwl SPA in 2010. The results were also assessed to see whether any named component species should be added to the existing assemblage within Liverpool Bay/Bae Lerpwl SPA.

1.3.2.11 Eight winter seasons of aerial survey data (2001 to 2002, 2002 to 2003, 2003 to 2004, 2004 to 2005, 2005 to 2006, 2006 to 2007, 2007 to 2008, 2010 to 2011) were analysed and assessed against the UK SPA selection guideline thresholds (Stroud *et al*., 2016) to determine whether any species occurred in numbers exceeding these thresholds.

1.3.2.12 Red-throated divers were found to be abundant throughout Liverpool Bay/Bae Lerpwl SPA, with the majority of the SPA boundary delineated based on the distribution of this species. The highest densities of the species occur off the Lancashire coast at Formby, off the coast of the Wirral, offshore of Llandulas on the North Wales coast and off the coast of Penmaenmawr, North Wales. Common scoters were shown to aggregate in two main areas: to the northwest of Rhyl and to the west of Blackpool.

1.3.2.13 The analysis showed a regularly occurring aggregation of little gull which informed the expansion of the SPA in 2017 (Lawson *et al.,* 2016).

NECR440 (HiDef Aerial Surveying Limited, 2023) Densities of qualifying species within Liverpool Bay/Bae Lerpwl SPA: 2015 to 2020

1.3.2.14 Natural England published a Research Report (NECR440) in 2023 (HiDef Aerial Surveying Limited, 2023) on the densities of qualifying species within the Liverpool Bay/Bae Lerpwl SPA (the original boundary as designated in 2010), based on data from 2015 to 2020.

1.3.2.15 Digital video aerial surveys were conducted between 2015 and 2020 by HiDef Aerial Surveying Ltd ('HiDef') and commissioned by DONG and Ørsted as part of their post-consent monitoring programme for Burbo Bank Extension offshore wind farm. In total, eight surveys were completed between January and March in 2015, 2018, 2019 and 2020, covering the original SPA boundary designated in 2010.

1.3.2.16 The aim of this monitoring programme and report was to provide updated density and abundance estimates for red-throated diver, common scoter and the waterbird assemblage within the SPA. Estimates for other species, including little gull, red-breasted merganser, and cormorant were included in the report as components of the waterbird assemblage.

1.3.2.17 Red-throated divers were one of the most abundant species recorded, with population estimates throughout the survey period ranging from 372 birds in January 2018 to 2,073 birds in March 2020. Red-throated divers were shown to aggregate in two main areas: to the northwest of Rhyl and a broad area to the west of the Ribble Estuary.

1.3.2.18 Common scoters were the most abundant species recorded, with population estimates ranging between 78,797 birds in March 2020 and 202,224 birds in February 2015. Common scoters were well distributed throughout the SPA, with aggregations varying over the survey period.

Feature accounts

Red-throated diver

1.3.2.19 The non-breeding population of red-throated divers in Great Britain is estimated to be 17,166 individuals (O'Brien *et al.,* 2008), representing between 10% and 19% (depending on the areas included) of the northwest Europe biogeographical non-breeding population.

1.3.2.20 The Great Britain wintering population is aggregated in substantial numbers in several areas, from the Moray Firth in the north to northeast Norfolk to Kent in the south. It is considered that the wintering population is largely made up of birds which breed in the UK, Greenland and Scandinavia.

1.3.2.21 In the UK, wintering red-throated divers are associated with shallow (between 0-20 m deep and less frequently in depths of around 30 m) inshore waters, often occurring within sandy bays, firths and sea lochs, although open coastline is also frequently used (Skov *et al.*, 1995; Stone *et al.,* 1995). There is some evidence of association with areas of salinity change (e.g. where low salinity river water meets higher salinity level sea water). Such areas tend to fluctuate with state of tide, volume of river flow and wind conditions. Their diet is principally small fish of a variety of species (particularly of the cod family, herring and sprats) and there is evidence to suggest that in some areas, the higher numbers of birds are associated with shoals of sprats.

1.3.2.22 Red-throated diver is listed on Annex I of the Birds Directive (2009/147/EC). The Liverpool Bay/Bae Lerpwl SPA protects the third largest aggregation of red-throated diver in the UK during the non-breeding season, and red-throated diver was designated as a qualifying feature due to supporting 6.89% of the UK wintering population (five-year peak mean 2004 and 2005 to 2010 and 2011, 1,171 individuals). Webb *et al.* (2006) and Lawson *et al.* (2016) have found large concentrations of red-throated diver along the North Wales coast. The population of red-throated divers at the SPA, as included on the SPA citation, as estimated by Lawson *et al.* (2016), is 1,171 birds.

1.3.2.23 The latest densities of red-throated divers in the Liverpool Bay/Bae Lerpwl SPA were derived from wintering aerial surveys carried out between 2015 and 2020 (HiDef Aerial Surveying Limited, 2023). Red-throated divers were one of the most abundant species recorded, with population estimates throughout the survey period ranging from 372 birds in January 2018 to 2,073 birds in March 2020. Red-throated divers were shown to aggregate in two main areas: to the northwest of Rhyl and a broad area to the west of the Ribble Estuary.

Common scoter

1.3.2.24 Common scoter migrate from their breeding grounds to moulting and overwintering grounds at more southerly latitudes and arrive in Liverpool Bay in large numbers from October onwards (Natural England and CCW, 2010). Male birds arrive first, followed by females from December onwards. The females also depart for the breeding grounds before males (in February). Some birds remain in Liverpool Bay over the summer period but these tend to be immature or birds that are moulting. Liverpool Bay is an important overwintering site for common scoter due to its abundant bivalve shellfish stocks that occur in shallow waters at depths of less than 20 m.

1.3.2.25 In the UK, wintering common scoters are associated with shallow (between 0-20 m deep (less frequently in depths of around 30 m)) offshore areas with sandy sea beds (Lack, 1986). Kaiser *et al.* (2002) conducted a review of the literature concerning the diet of common scoter. This revealed that in each of eight quantitative studies, the percentage value for the occurrence of molluscs in their diet exceeded 90% and that for bivalves exceeded 88%.

1.3.2.26 Common scoter was designated as a qualifying feature due to the SPA supporting 10.31% of the northwest European wintering population (five-year peak mean 2004 and 2005 to 2010 and 2011, 56,679 individuals). Common scoters have been shown to aggregate in two main areas of the SPA: to the northwest of Rhyl and to the west of Blackpool (Lawson *et al*., 2016).

1.3.2.27 The latest densities of common scoters in the Liverpool Bay/Bae Lerpwl SPA were derived from wintering aerial surveys carried out between 2015 and 2020 (HiDef Aerial Surveying Limited, 2023). Common scoters were the most abundant species recorded, with population estimates ranging between 78,797 birds in March 2020 and 202,224 birds in February 2015. Common scoters were well distributed throughout the SPA, with aggregations varying over the survey period.

Condition assessment

1.3.2.28 Natural England, NRW and the Joint Nature Conservation Committee (JNCC) published a Liverpool Bay/Bae Lerpwl SPA Conservation Advice Package in December 2022 (Natural England *et al.,* 2022).

Red-throated diver

1.3.2.29 The Conservation Advice Package states that the interest feature red-throated diver will be considered to be in favourable condition only when each of the following three conditions are met.

1. The red-throated diver population shows only non-significant fluctuation around the mean population at the time of classification of the SPA, with due consideration to the potential for natural change.
2. Red-throated diver distribution and ability to use the site does not significantly change (subject to natural fluctuations and variation).
3. The extent and distribution of the supporting habitat available to the red-throated diver population within the site, including its structure, function and supporting processes, is maintained.

1.3.2.30 The Conservation Advice Package sets targets (Table 1.3), including targets to restore the distribution of red-throated divers and their suitable habitats within the SPA, due to displacement from large infrastructure, such as wind farms. Points 2 and 3, when considered alongside the targets in Table 1.3 indicate that Natural England, NRW and JNCC consider the distribution of red-throated diver to be unfavourable, and therefore consider the overall condition of this interest feature to be unfavourable, even though the overall wintering red-throated diver population of the SPA (i.e. the number of birds) is favourable.

1.3.2.31 Therefore, the wintering population of red-throated divers within the Liverpool Bay/Bae Lerpwl SPA is in unfavourable condition.

Common scoter

1.3.2.32 The Conservation Advice Package sets targets (see Table 1.3 below), all of which are to maintain attributes. The Conservation Advice Package states that '"Maintain" is used here because existing evidence suggests the feature to be in favourable condition for each attribute with a maintain target, and the objective is for it to remain so'.

1.3.2.33 Therefore, the wintering population of common scoters within the Liverpool Bay/Bae Lerpwl SPA is in favourable condition.

Conservation objectives

1.3.2.34 The conservation objectives set out in Table 1.3 are taken from the Liverpool Bay/Bae Lerpwl SPA Conservation Advice Package (Natural England *et al.*, 2022).

Table 1.3: Conservation objectives (attributes and targets) for the Liverpool Bay/Bae Lerpwl SPA interest features.

Feature	Attribute	Target
Red-throated diver	Non-breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 1,800 individuals (mean peak, 2015, 2018, 2019 and 2020).
	Non-breeding population: distribution	Restore the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution.
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.
	Supporting habitat: Food availability and quality of prey	Maintain the distribution, abundance and availability of key food and prey items (e.g., fish) to maintain the population.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	Restore the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality).
Common scoter	Non-breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 141,801 individuals (mean peak 2015, 2018, 2019 and 2020).
	Non-breeding population: distribution	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.
	Supporting habitat: Food availability and quality of prey	Maintain the distribution, abundance and availability of key food and prey items (e.g., molluscs and bivalves) to maintain the population.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).

1.3.3 Measures adopted as part of the Morgan Generation Assets

1.3.3.1 Measures adopted as part of the Morgan Generation Assets which are of relevance to the assessment of potential impacts on ornithological features of Liverpool Bay/Bae Lerpwl SPA from disturbance and displacement from airborne sound and presence of vessels and infrastructure are presented in Table 1.4.

Table 1.4: Measures adopted as part of the Morgan Generation Assets to minimise potential disturbance impacts from vessel movements to and from the array area on the red-throated diver and common scoter features of Liverpool Bay/Bae Lerpwl SPA.

Measures adopted as part of the Morgan Generation Assets	Justification	How the measure will be secured
Tertiary measures: Measures required to meet legislative requirements, or adopted standard industry practice		
Offshore EMP that will include measures to minimise disturbance to rafting birds from transiting vessels.	The development of and adherence to an Offshore EMP which will include measures to minimise disturbance to rafting birds from transiting vessels.	The Offshore EMP is secured by condition 20(1)(e) within the deemed Marine Licences of the draft DCO (S_D5_7 Draft Development Consent Order_ F07) and is presented in APP-070. Please also see REP2-017 and REP4-018.

1.3.4 Appropriate Assessment

Red-throated diver

1.3.4.1 The Morgan Generation Assets are located in the Irish Sea, near areas important to wintering populations of red-throated diver. The areas important to red-throated diver closest to the Morgan Generation Assets are within the geographical extent of the Liverpool Bay/Bae Lerpwl SPA. However, the Morgan Generation Assets are outside of the Liverpool Bay/Bae Lerpwl SPA (Lawson *et al.,* 2016; HiDef Aerial Surveying Limited, 2023) located over 10 km from the SPA and therefore outside of the areas of importance for red-throated diver. Vessels associated with the construction, operations and maintenance and decommissioning phases of the Morgan Generation Assets may interact with red-throated divers in the Liverpool Bay/Bae Lerpwl SPA as they transit to and from ports and the Morgan Generation Assets.

1.3.4.2 Vessel traffic associated with the Morgan Generation Assets has the potential to lead to an increase in vessel movements which may disturb red-throated diver within the Liverpool Bay/Bae Lerpwl SPA. Vessel movements would be increased by up to 1,929 return trips during the construction phase and up to 719 return trips each year within the operations and maintenance phase of the Morgan Generation Assets.

1.3.4.3 As part of the measures adopted as part of the project design, the Applicant has committed to the production of an Offshore EMP that will include measures to minimise disturbance to rafting birds from transiting vessels. The Offshore EMP is secured within condition 20(1)(e) of the dMLs in the Draft DCO (S_D5_7 Draft Development Consent Order F07) and an Outline Offshore EMP has been prepared (REP4-018). The dML conditions require the submission of the Offshore EMP to the Marine Management

Organisation (MMO) for approval post-consent and subsequent compliance with the approved document.

1.3.4.4 The measures to minimise disturbance to rafting birds are described in APP-070 and will be included as an annex to the Offshore EMP as set out in REP4-018. The following options will be discussed with the MMO through finalisation of the Offshore EMP:

- The adoption of best practice vessel handling protocols (e.g. following the Codes of Conduct provided by the WiSe Scheme, Scottish Marine Wildlife Watching Code or Guide to Best Practice for Watching Marine Wildlife) which will minimise the potential for any impact, where appropriate, during all authorised construction and operations and maintenance activities. The final codes of conduct will be discussed and agreed with statutory consultation bodies.
- It is proposed that key vessels will use indicative vessel transit corridors, as detailed in the Outline vessel traffic management plan (S_D5_18 Outline Vessel Traffic Management Plan_F03). Use of regular vessel transit routes which follow, where possible, established shipping routes within Liverpool Bay or charted approaches to ports and harbours will nonetheless act to restrict the spatial distribution of such disturbance and minimise any potential disturbance as far as possible.
- All vessels associated with the Morgan Generation Assets will use an Automatic Identification System (AIS) which broadcasts the location of the vessel and is monitored by the project's Marine Co-ordination Centre.

1.3.4.5 Vessel operators will be made aware of bird sensitivities in the Liverpool Bay/Bae Lerpwl SPA to enable them to operate their vessels in a way that minimises disturbance. This may include measures such as:

- Restricting vessel movements to existing navigation routes (where the densities of divers are typically relatively low)
- Where it is necessary to go outside of established navigational routes, selecting routes that avoid known aggregations of birds
- Maintaining direct transit routes (to minimise transit distances through areas used by key species)
- Avoiding sudden changes in speed or direction in transit to and from the Morgan Generation Assets as far as possible and unless required for health and safety reasons or other emergency purposes
- Avoid over-revving of engines (to minimise sound disturbance)
- Briefing of vessel crew on the purpose and implications of these vessel management practices (through, for example, inductions, tool-box talks and awareness materials).

1.3.4.6 Through the application of these measures, it is considered that there will be no adverse effect on the red-throated diver feature of the Liverpool Bay/Bae Lerpwl SPA due to disturbance from vessel movements associated with the Morgan Generation Assets. As the measures associated with the Morgan Generation Assets will, insofar as possible, reduce the impact associated with the Morgan Generation Assets to a negligible level, it is considered that the Morgan Generation Assets will not contribute to any existing in-combination impact and therefore in-combination impacts on the red-throated diver feature are not considered further.

Common scoter

1.3.4.7 The Morgan Generation Assets are located in the Irish Sea, near areas important to wintering populations of common scoter. The areas important to common scoter closest to the Morgan Generation Assets are within the geographical extent of the Liverpool Bay/Bae Lerpwl SPA. However, the Morgan Generation Assets are outside of the Liverpool Bay/Bae Lerpwl SPA (Lawson *et al.,* 2016; HiDef Aerial Surveying Limited, 2023) and therefore outside of the areas of importance for common scoter. Vessels associated with the construction, operations and maintenance and decommissioning phases of the Morgan Generation Assets may interact with common scoters in the Liverpool Bay/Bae Lerpwl SPA as they transit to and from ports and the Morgan Generation Assets. Therefore, measures specific to minimising disturbance to rafting birds, as described below, will apply within Liverpool Bay/Bae Lerpwl SPA only.

1.3.4.8 Vessel traffic associated with the Morgan Generation Assets has the potential to lead to an increase in vessel movements which may disturb common scoter within the Liverpool Bay/Bae Lerpwl SPA. Vessel movements would be increased by up to 1,929 return trips during the construction phase and up to 719 return trips each year within the operations and maintenance phase of the Morgan Generation Assets.

1.3.4.9 As part of the measures adopted as part of the project design, the Applicant has committed to the production of an Offshore EMP that will include measures to minimise disturbance to rafting birds from transiting vessels (see paragraph 1.3.4.3 above).

1.3.4.10 The measures to minimise disturbance to rafting birds are described in APP-070 and will be included as an annex to the Offshore EMP as set out in REP4-018. The following options will be discussed with the MMO through finalisation of the Offshore EMP:

- The adoption of best practice vessel handling protocols (e.g. following the Codes of Conduct provided by the WiSe Scheme, Scottish Marine Wildlife Watching Code or Guide to Best Practice for Watching Marine Wildlife) which will minimise the potential for any impact, where appropriate, during all authorised construction and operations and maintenance activities. The final codes of conduct will be discussed and agreed with statutory consultation bodies.
- It is proposed that key vessels will use indicative vessel transit corridors, as detailed in the Outline vessel traffic management plan (S_D5_18 Outline Vessel Traffic Management Plan_F03). Use of regular vessel transit routes which follow, where possible, established shipping routes within Liverpool Bay or charted approaches to ports and harbours will nonetheless act to restrict the spatial distribution of such disturbance and minimise any potential disturbance as far as possible
- All vessels associated with the Morgan Generation Assets will use an Automatic Identification System (AIS) which broadcasts the location of the vessel and is monitored by the project's Marine Co-ordination Centre.

1.3.4.11 Vessel operators will be made aware of bird sensitivities in the Liverpool Bay/Bae Lerpwl SPA to enable them to operate their vessels in a way that minimises disturbance. This information will be included in the Offshore EMP which all vessel operators will need to be aware of. This may include measures such as:

- Restricting vessel movements to existing navigation routes (where the densities of scoters are typically relatively low)
- Where it is necessary to go outside of established navigational routes, selecting routes that avoid known aggregations of birds

- Maintaining direct transit routes (to minimise transit distances through areas used by key species)
- Avoiding sudden changes in speed or direction in transit to and from the Morgan Generation Assets as far as possible and unless required for health and safety reasons or other emergency purposes
- Avoid over-revving of engines (to minimise sound disturbance)
- Briefing of vessel crew on the purpose and implications of these vessel management practices (through, for example, inductions, tool-box talks and awareness materials).

1.3.4.12 Through the application of these measures it is considered that there will be no adverse effect on the common scoter feature of the Liverpool Bay/Bae Lerpwl SPA due to disturbance from vessel movements associated with the Morgan Generation Assets. As the measures associated with the Morgan Generation Assets will, insofar as possible, reduce the impact associated with the Morgan Generation Assets to a negligible level, it is considered that the Morgan Generation Assets will not contribute to any existing in-combination impact and therefore in-combination impacts on the common scoter feature are not considered further.

1.3.5 Conclusion

1.3.5.1 Adverse effects which undermine the conservation objectives of the qualifying offshore ornithological features of the Liverpool Bay/Bae Lerpwl SPA will not occur during any phase of the Morgan Generation Assets as a result of disturbance and displacement from airborne sound, underwater sound, and presence of vessels and infrastructure. An assessment of the potential impact 'disturbance and displacement from airborne sound, underwater sound, and presence of vessels and infrastructure' against each relevant conservation objective is presented in Table 1.5. Where the justifications and supporting evidence are the same for more than one conservation objective, the assessments have been grouped.

1.3.5.2 It is considered that the impact associated with the Morgan Generation Assets is, as a result of measures adopted as part of the project design, negligible. It is therefore considered that the Morgan Generation Assets will not contribute to the existing in-combination impact as the impact predicted for the Morgan Generation Assets is not measurable and is within the limits of natural variation.

1.3.5.3 The conclusions reached for the red-throated diver and common scoter features of the Liverpool Bay/Bae Lerpwl SPA are also considered applicable to the waterbird assemblage of the SPA.

Table 1.5: Conclusions against the conservation objectives of the Liverpool Bay/Bae Lerpwl SPA for disturbance and displacement from airborne sound, underwater sound, and presence of vessels and infrastructure during all project phases.

Qualifying feature	Conservation objective	Conclusion
Red-throated diver	Maintain the size of the non-breeding population at a level which is at or above 1,800 individuals (mean peak, 2015, 2018, 2019 and 2020).	Impacts associated with the Morgan Generation Assets are temporary and localised. It is not expected that there will be any detectable increase in mortality or

Qualifying feature	Conservation objective	Conclusion
	Restore the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution.	disturbance of red-throated divers or their prey as a result of airborne sound, underwater sound, and/or presence of vessels during all project phases. Therefore, airborne sound, underwater sound and/or presence of vessels and infrastructure will not prevent the population, distribution or prey availability of red-throated divers from being maintained or restored.
	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Maintain the distribution, abundance and availability of key food and prey items (e.g., fish) to maintain the population.	
	Restore the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality).	There is negligible potential for airborne sound, underwater sound and/or presence of vessels and infrastructure to result in adverse effects on the habitats of red-throated divers during all project phases. Therefore, airborne sound, underwater sound, and/or presence of vessels and infrastructure associated with the Morgan Generation Assets will not prevent the extent, distribution and/or availability of suitable habitat of red-throated divers from being maintained or restored.
Common scoter	Maintain the size of the non-breeding population at a level which is at or above 141,801 individuals (mean peak 2015, 2018, 2019 and 2020).	Impacts associated with the Morgan Generation Assets are temporary and localised. It is not expected that there will be any detectable increase in mortality or disturbance of common scoters or their prey as a result of airborne sound, underwater sound, and/or presence of vessels during all project phases. Therefore, airborne sound, underwater sound and/or presence of vessels and infrastructure will not prevent the population, distribution or prey availability of common scoters from being maintained.
	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Maintain the distribution, abundance and availability of key food and prey items (e.g., molluscs and bivalves) to maintain the population.	
	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	There is negligible potential for airborne sound, underwater sound and/or presence of vessels and infrastructure to result in adverse effects on the habitats of common scoters during all project phases. Therefore, airborne sound, underwater sound, and/or presence of vessels and infrastructure associated with the Morgan Generation Assets will not prevent the extent, distribution and/or availability of suitable habitat of common scoters from being maintained.

1.4 References

HiDef Aerial Surveying Limited (2023) Densities of qualifying species within Liverpool Bay/ Bae Lerpwl SPA: 2015 to 2020. Natural England Commissioned Report, Natural England.

Kaiser, M., Elliot, A., Galanidi, M., Ivor, E., Rees, S., Caldow, R., Stillman, R., Sutherland, W. and Showler, D. (2002) Predicting the displacement of common scoter Melanitta nigra from benthic feeding areas due to offshore windfarms. University of Wales, Bangor.

Lack P. (Ed) (1986) The atlas of wintering birds in Britain and Ireland. T. and A.D. Poyser, Calton.

Lawson, J., Kober, K., Win, I., Allcock, Z., Black, J. Reid, J.B., Way, L. & O'Brien, S.H. (2016) An assessment of the numbers and distribution of wintering waterbirds and seabirds in Liverpool Bay/Bae Lerpwl area of search. JNCC Report No 576. JNCC, Peterborough.

Natural England, Natural Resources Wales, JNCC (2022) Liverpool Bay / Bae Lerpwl Special Protection Area. Conservation Advice Package. [Online]. Available at: https://publications.naturalengland.org.uk/publication/3236717 (Accessed June 2024).

Natural England and the Countryside Council for Wales (2010) Departmental Brief: Liverpool Bay / Bae Lerpwl Special Protection Area. [Online]. Available at: https://publications.naturalengland.org.uk/file/3240865 (Accessed June 2024).

O'Brien, S.H., Wilson, L.J., Webb, A. and Cranswick, P.a. (2008) Revised estimate of numbers of wintering Redthroated Divers Gavia stellata in Great Britain. *Bird Study.* 55 (2), pp. 152-160.

Skov, H., Durinck, J., Leopold, M.F. and Tasker, M.L. (1995) Important bird areas for seabirds in the North Sea. Birdlife International, Cambridge.

Stone, C.J., Webb, A., Barton, C., Ratcliffe, N., Redd, T.C., Tasker, M.L., Camphuysen, C.J. and Pienkowski, M.W. (1995) An atlas of seabird distribution in north-west European waters. Joint Nature Conservation Committee and Nederlands Institute voor Onderzoek der Zee, Peterborough.

Stroud, D.A., Bainbridge, I.P., Maddock, A., Anthony, S., Baker, H., Buxton, N., Chambers, D., Enlander, I., Hearn, R.D., Jennings, K.R., Mavor, R., Whitehead, S. & Wilson, J.D. (2016) The status of UK SPAs in the 2000s: the Third Network Review [Online]. Available at: https://data.jncc.gov.uk/data/d1b21876-d5a4-42b9-9505-4c399fe47d7e/ukspa3-status-uk-spas-2000s-web.pdf (Accessed January 2025).

Webb, A., McSorley, C.A., Dean, B.J. and Reid, J.B. (2006) Recommendations for the selection of, and boundary options for, an SPA in Liverpool Bay. JNCC Report 388.

Appendix A: Likely Significant Effect matrix for the Liverpool Bay/Bae Lerpwl SPA

Table A. 1: LSE matrix for offshore ornithological features of the Liverpool Bay/Bae Lerpwl SPA.

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collision risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Red-throated diver	×a	×a	×a	✓b	✓b	✓b		×c			×d		×e	×e	×e	×f	×f	×f	✓g	✓g	✓g
Common scoter	×a	×a	×a	✓b	✓b	✓b		×c			×d		×e	×e	×e	×f	×f	×f	✓g	✓g	✓g
Waterbird assemblage	×h	×h	×h	✓h	✓h	✓h		×h			×h		×h	×h	×h	×h	×h	×h	✓h	✓h	✓h

The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green. Grey shaded columns indicate that the impact is not relevant in the associated development phase.

a. **Temporary habitat loss/disturbance and increased SSC** - Temporary habitat loss/disturbance and increased SSC due to all phases of the Morgan Generation Assets is unlikely to have effects on SPA seabird populations due to the no overlap between those areas within which activities associated with the construction, operations and maintenance and decommissioning phases of the Morgan Generation Assets will occur and the extent of marine habitats available to relevant species). On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for any qualifying feature of this SPA.

b. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** –

c. **Collision risk** – Red-throated diver and common scoter are not considered vulnerable to collision risk (Wade et al., 2016) and were not considered in collision risk modelling for the Morgan Generation Assets. In addition there is no connectivity between the Morgan Generation Assets array area, within which collision risk impacts will occur, and the red-throated diver and common scoter features of the Liverpool Bay/Bae Lerpwl SPA. On this basis, it is considered that there is no potential for LSE in relation to collision risk for the red-throated diver and common scoter qualifying features of this SPA.

d. **Barrier to movement** - There is no connectivity between the Morgan Generation Assets array area, (i.e. the area where barrier effects will occur) and the red-throated diver and common scoter features of the Liverpool Bay/Bae Lerpwl SPA. On this basis, it is considered that there is no potential for LSE in relation to collision risk for the red-throated diver and common scoter qualifying features of this SPA.

e. **Changes in prey availability** - There is no connectivity between the Morgan Generation Assets array area, (i.e. the area where changes in prey availability may occur) and the red-throated diver and common scoter features of the Liverpool Bay/Bae Lerpwl SPA. On this basis, it is considered that there is no potential for LSE in relation to collision risk for the red-throated diver and common scoter qualifying features of this SPA.

f. **Accidental Pollution** - There is a risk of pollution being accidentally released during all phases of the Morgan Generation Assets from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. In addition, it is anticipated that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans which will be implemented as part of the Morgan Generation Assets. While these plans are not considered in the determination of no LSE, they will nevertheless reduce the potential for LSE. On this basis, there is considered to be no potential for LSE on qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** - Other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Morgan Generation Assets, so that the potential for LSE cannot be excluded in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure in-combination during the operations and maintenance phase. Where the potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination. Where the additional mortality associated with the Morgan Generation Assets is zero birds or it has been concluded for the project alone that there is no LSE it is considered that the Morgan Generation Assets will not act in-combination with other plans and projects and therefore no LSE is concluded.

h. **Waterbird assemblage** - The screening conclusions for the waterbird assemblage are identical to those reached for the constituent features that form part of the assemblage. Where LSE is concluded assessments will therefore be conducted for each feature for which LSE has been concluded alone and as part of the waterbird assemblage. Where the potential for LSE has not been concluded for a feature, the potential for LSE is therefore discounted for the waterbird assemblage.