Partners in UK offshore wind

MONA OFFSHORE WIND PROJECT

HRA Integrity Matrices

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Image of an offshore wind farm

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Glossary

Term	Meaning
Annex I habitat	A natural habitat type of community interest, defined in Annex I of the Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (Habitats Directive), whose conservation requires the designation of Special Areas of Conservation (SAC).
Annex II species	Animal or plant species of community interest, defined in Annex II of the Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (Habitats Directive), whose conservation requires the designation of Special Areas of Conservation (SAC).
Applicant	Mona Offshore Wind Limited.
Appropriate Assessment	A step-wise procedure undertaken in accordance with Article 6(3) of the Habitats Directive, to determine the implications of a plan or project on a European site in view of the site's conservation objectives, where the plan or project is not directly connected with or necessary to the management of a European site but likely to have a significant effect thereon, either individually or in-combination with other plans or projects.
Competent Authority	The term derives from the Habitats Regulations and relates to the duties which the Habitats Regulations impose on public bodies and individuals. Regulation 6(1) defines competent authorities as "any Minister, government department, public or statutory undertaker, public body of any description or person holding a public office".
Conservation objectives	In its most general sense, a conservation objective is the specification of the overall target for the species and/or habitat types for which a site is designated in order for it to contribute to maintaining or reaching favourable conservation status of the habitats and species concerned, at the national, the biogeographical or the European level.
Cumulative effects	Changes to the environment caused by a combination of present and future projects, plans or activities.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Project (NSIP).
Ensonified	Filled with sound.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment (EIA) process for the Mona Offshore Wind Project.
European Commission	The executive body of the European Union responsible for proposing legislation, enforcing European law, setting objectives and priorities for action, negotiating trade agreements and managing implementing European Union policies and the budget.
European site	A Special Area of Conservation (SAC), possible SAC (pSAC), or candidate SAC, (cSAC), a Special Protection Area (SPA) or potential SPA (pSPA), a site listed as a site of community importance (SCI).
Evidence Plan	The Evidence Plan is a mechanism to agree upfront what information the Applicant needs to supply to the Planning Inspectorate as part of the Development Consent Order (DCO) application for the Mona Offshore Wind Project.
Evidence Plan Expert Working Group (EWG)	Expert working groups set up with relevant stakeholders as part of the Evidence Plan process.
Habitat	The environment that a plant or animal lives in.

Term	Meaning
Habitats Directive	The Habitats Directive is the short name for European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. The Directive led to the establishing of European sites and setting out how they should be protected, it also extends to other topics such as European protected species.
Habitats Regulations	The Conservation (Natural Habitats, &c.) Regulations 1994, the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species 2017.
Habitats Regulations Assessment	A process required by the Habitats Regulations of identifying likely significant effects of a plan or project on a European site and (where likely significant effects are predicted or cannot be discounted) carrying out an appropriate assessment to ascertain whether the plan or project will adversely affect the integrity of the European site. If adverse effects on integrity cannot be ruled out, the latter stages of the process require consideration of the derogation provisions in the Habitats Regulations.
In-combination effects	The combined effect of the Mona Offshore Wind Project in-combination with the effects from a number of different projects on the same feature/receptor.
Inter-array cables	Cables which connect the wind turbines to each other and to the offshore substation platforms (OSPs). Inter-array cables will carry the electrical current produced by the wind turbines to the offshore substation platforms.
Interconnector cables	Cables that may be required to interconnect the Offshore Substation Platforms in order to provide redundancy in the case of cable failure elsewhere.
Landfall	The area in which the offshore export cables make contact with land and the transitional area where the offshore cabling connects to the onshore cabling.
Likely Significant Effect (LSE)	Any effect that may reasonably be predicted as a consequence of a plan or project that may affect the conservation objectives of the features for which the European site was designated, but excluding trivial or inconsequential effects. A likely effect is one that cannot be ruled out on the basis of objective information. A 'significant' effect is a test of whether a plan or project could undermine the site's conservation objectives.
Marine licence	The Marine and Coastal Access Act 2009 requires a marine licence to be obtained for licensable marine activities. Section 149A of the Planning Act 2008 allows an applicant for a DCO to apply for 'deemed marine licences' as part of the DCO process. In addition, licensable activities within 12nm of the Welsh coast require a separate marine licence from NRW. A separate marine licence is required for the offshore export cables and related works located within and between the Mona Array Area and the landfall at mean high water springs.
Maximum Design Scenario (MDS)	The scenario within the design envelope with the potential to result in the greatest impact on a particular topic receptor, and therefore the one that should be assessed for that topic receptor.
Mona 440 kV Cable Corridor	The corridor from the Mona onshore substation to the National Grid substation.
Mona Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, offshore export cables and offshore substation platforms (OSPs) forming part of the Mona Offshore Wind Project will be located.

Term	Meaning
Mona Offshore Cable Corridor and Access Areas	The corridor located between the Mona Array Area and the landfall up to Mean High Water Springs (MHWS), in which the offshore export cables and the offshore booster substation will be located.
Mona Offshore Wind Project	The Mona Offshore Wind Project is comprised of both the generation assets and offshore and onshore transmission assets and associated activities.
Offshore Substation Platform (OSP)	The offshore substation platforms located within the Mona Array Area will transform the electricity generated by the wind turbines to a higher voltage allowing the power to be efficiently transmitted to shore.
Ramsar site	A wetland site designated to be of international importance under The Convention on Wetlands, known as the Ramsar Convention.
Special Area of Conservation (SAC)	Special Areas of Conservation (SACs) are areas designated under the European Union (EU) Habitat's Directive to help conserve certain plant and animals species listed in the Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds).
Special Protection Area	Special Protection Areas (SPAs) are sites classified under the European Union (EU) Birds Directive (Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds) to protect rare or vulnerable birds (as listed on Annex I of the Directive), as well as regularly occurring migratory species.
Species	A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.
Statutory consultee	Organisations that are required to be consulted by an applicant pursuant to the Planning Act 2008 in relation to an application for development consent. Not all consultees will be statutory consultees (see non-statutory consultee definition).
Subtidal	Area extending from below low tide to the edge of the continental shelf.
Suspended sediment concentration (SSC)	The total value of both mineral and organic material carried in suspension by a volume of water.
The Planning Inspectorate	The agency responsible for operating the planning process for NSIPs.
The Secretary of State for the Department for Energy Security and Net Zero	The decision maker with regards to the application for development consent for the Mona Offshore Wind Project.
Tidal excursion	The horizontal distance over which a water particle may move during one cycle of flood and ebb.
Wind Turbines	The wind turbine generators, including the tower, nacelle and rotor.

Acronyms

Acronym	Description
ADD	Acoustic Deterrent Devices
cSAC	Candidate Special Area of Conservation
CMS	Construction Method Statement
CSIP	Cable Specification and Installation Plan
DCO	Development Consent Order
EDR	Effective Deterrence Range
EMF	Electromagnetic Field
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
HRA	Habitats Regulations Assessment
INNS	Invasive Non-Native Species
iPCoD	Interim Population Consequences of Disturbance
ISAA	Information to Support an Appropriate Assessment
LSE	Likely Significant Effect
MHWS	Mean High Water Springs
MMMP	Marine Mammal Mitigation Plan
MPCP	Marine Pollution Contingency Plan
NRW	National Resources Wales
NSIP	Nationally Significant Infrastructure Project
OSP	Offshore Substation Platform
OSPAR	Oslo-Paris
pSAC	Possible Special Area of Conservation
pSPA	Potential Special Protection Area
PTS	Permanent Threshold Shift
PVA	Population Viability Analysis
SAC	Special Area of Conservation
SNCB	Statutory Nature Conservation Bodies
SPA	Special Protection Area
SSC	Suspended Sediment Concentration
TTS	Temporary Threshold Shift
UXO	Unexploded Ordnance

Units

Unit	Description
%	Percentage
dB	Decibel
GW	Gigawatt
m	Metre
m^2	Square metres
nm	Nautical mile
km	Kilometre
km^2	Square kilometre
kV	Kilovolts

1 Habitats Regulations Assessment: Integrity matrices

1.1 Introduction

1.1.1.1 This document presents the Habitats Regulations Assessment (HRA) integrity matrices for the Mona Offshore Wind Project and summarises the assessments presented in the HRA Stage 2 Information to Support an Appropriate Assessment (ISAA) Part 2 – Special Area of Conservation (SAC) assessments (Document Reference E1.2) and Part 3 – Special Protection Area (SPA) assessments (Document Reference E1.3) for the Mona Offshore Wind Project. The layout of the document is as follows:

- Section 1.2.2 presents the integrity matrices for SACs designated for Annex I (coastal and subtidal) habitats
- Section 1.2.3 presents the integrity matrices for SACs designated for Annex II diadromous fish
- Section 1.2.4 presents the integrity matrices for SACs designated for Annex II marine mammals
- Section 1.2.5 presents the integrity matrices for SPAs designated for offshore ornithological features.

1.1.1.2 The integrity matrices present the potential impacts on the European sites and features which were identified for potential likely significant effect (LSE) from the Mona Offshore Wind Project alone and/or in combination with other plans or projects in the HRA Stage 1 Screening report (Document Reference E1.4) and were considered in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) and Part 3 – SPA assessments (Document Reference E1.3). The integrity matrices also summarise the evidence provided within the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) and Part 3 – SPA assessments (Document Reference E1.3) for why it has been concluded whether potential impacts of the Mona Offshore Wind Project alone and/or in combination with other plans or projects have/ or do not have a risk of adverse effect on integrity on the European site and the relevant features.

1.1.1.3 A summary of the European sites, features and impacts which were considered in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) and Part 3 – SPA assessments (Document Reference E1.3) are presented in Table 1.1.

Table 1.1: Summary of European Sites and relevant qualifying features for which potential LSEs were identified and screened in for further assessment in the HRA Stage 2 ISAA.

European Site	Relevant qualifying features	Project phase	Impact
Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC	Reefs	Construction/decommissioning	• Increase in Suspended Sediment Concentration (SSC) and sediment deposition (Mona Offshore Cable Corridor and Access Areas only) • Increased risk of introduction and spread of Invasive Non-Native Species (INNS) (Mona Offshore Cable Corridor and Access Areas only) • Removal of hard substrate (Mona Offshore Cable Corridor and Access Areas only and for Annex I reef only) • Changes in physical processes (Mona Offshore Cable Corridor and Access Areas only and decommissioning phase only) • Accidental pollution (Mona Offshore Cable Corridor and Access Areas only) • In-combination effects
		Operations and maintenance	• Increase in SSC and sediment deposition (Mona Offshore Cable Corridor and Access Areas only) • Increased risk of introduction and spread of INNS (Mona Offshore Cable Corridor and Access Areas only) • Changes in physical processes (Mona Offshore Cable Corridor and Access Areas only) • Accidental pollution (Mona Offshore Cable Corridor and Access Areas only) • In-combination effects
	Sandbanks which are slightly covered by seawater all the time	Construction/decommissioning	• Increase in SSC and sediment deposition (Mona Offshore Cable Corridor and Access Areas only) • Increased risk of introduction and spread of INNS (Mona Offshore Cable Corridor and Access Areas only)

European Site	Relevant qualifying features	Project phase	Impact
			• Changes in physical processes (Mona Offshore Cable Corridor and Access Areas only and decommissioning phase only) • Accidental pollution (Mona Offshore Cable Corridor and Access Areas only) • In-combination effects
		Operations and maintenance	• Increase in SSC and sediment deposition (Mona Offshore Cable Corridor and Access Areas only) • Changes in physical processes (Mona Offshore Cable Corridor and Access Areas only) • Increased risk of introduction and spread of INNS (Mona Offshore Cable Corridor and Access Areas only) • Accidental pollution (Mona Offshore Cable Corridor and Access Areas only) • In-combination effects
Dee Estuary/Aber Dyfrdwy SAC	Sea lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• Electromagnetic Field (EMF) • In-combination effects
	River lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Dee and Bala Lake/Afon Dyfrydwy a Llyn Tegid SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
	Sea lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	River lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Ehen SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	Freshwater pearl mussel	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Eden SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	Sea lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
	River lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
Afon Gwyrfai a Llyn Cwellyn SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Kent SAC	Freshwater pearl mussel	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Derwent and Bassenthwaite SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	Sea lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	River lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
Solway Firth SAC	Sea lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	River lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Bladnoch SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
North Anglesey Marine/Gogledd Môn Forol SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of Unexploded Ordnance (UXO) • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • Changes in prey availability (construction only) • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
North Channel SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC	Bottlenose dolphin	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
West Wales Marine/Gorllewin Cymru Forol SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
Strangford Lough SAC	Harbour seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
Murlough SAC	Harbour seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
Cardigan Bay/Bae Ceredigion SAC	Bottlenose dolphin	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
The Maidens SAC	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
Pembrokeshire Marine/Sir Benfro Forol SAC	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
Lundy SAC	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
Isles of Scilly Complex SAC	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
Rockabill to Dalkey Island SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
Saltee Islands SAC	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
Roaringwater Bay and Islands SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
Blasket Islands SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
17 French Sites • Mers Celtiques - Talus du golfe de Gascogne SCI • Abers - Côte des legends SCI • Ouessant-Molène SCI • Côte de Granit rose-Sept-Iles SCI • Anse de Goulven, dunes de Keremma SCI	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from pre-construction site surveys • Underwater sound from vessels and other vessel activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
• Tregor Goëlo SCI • Côtes de Crozon SCI • Chaussée de Sein SCI • Cap Sizun SCI • Récifs du talus du golfe de Gascogne SCI • Anse de Vauville SCI • Cap d'Erquy-Cap Fréhel SCI • Baie de Saint-Brieuc – Est SC • Banc et récifs de Surtainville SCI • Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard SCI • Estuaire de la Rance SCI • Baie du Mont Saint-Michel SCI			
Liverpool Bay/Bae Lerpwl SPA	Red-throated diver Little gull Common scoter Little tern Common tern Waterbird assemblage	Construction/decommissioning	• Temporary habitat loss/disturbance and increased SSC • Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Changes in prey availability (construction only) • Accidental pollution • In-combination effects
		Operations and maintenance	• Temporary habitat loss/disturbance and increased SSC • Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Accidental pollution

European Site	Relevant qualifying features	Project phase	Impact
			• In-combination effects
Irish Sea Front SPA	Manx shearwater	Construction/decommissioning	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
		Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Skomer, Skokholm and the Seas off Pembrokeshire SPA	Manx shearwater Common guillemot (non-breeding only) Razorbill (non-breeding only)	Construction/decommissioning	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
		Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Ribble and Alt Estuaries SPA (and Ramsar site)	Lesser black-backed gull	Operations and maintenance	• Collision risk • In-combination effects
Bowland Fells SPA	Lesser black-backed gull	Operations and maintenance	• Collision risk • In-combination effects
Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA	Manx shearwater	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Lambay Island SPA	Black-legged kittiwake	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
Howth Head Coast SPA	Black-legged kittiwake	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Ireland's Eye SPA	Black-legged kittiwake	Construction/decommissioning	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
		Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Copeland Islands SPA	Manx shearwater	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Grassholm SPA	Gannet	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collison risk • In-combination effects
Ailsa Craig SPA	Northern gannet Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collison risk (northern gannet only) • In-combination effects
Rathlin Island SPA	Black-legged kittiwake Common guillemot (non-breeding only) Razorbill (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collison risk (black-legged kittiwake only) • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
Saltee Islands SPA	Northern gannet	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collison risk • In-combination effects
North Colonsay and Western Cliffs SPA	Black-legged kittiwake Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collison risk (black-legged kittiwake only) • In-combination effects
Rum SPA	Manx shearwater	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Shiant Isles SPA	Razorbill (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Handa SPA	Common guillemot (non-breeding only) Razorbill (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
St Kilda SPA	Northern gannet Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk (northern gannet only) • In-combination effects
Cape Wrath SPA	Black-legged kittiwake (non-breeding only) Common guillemot (non-breeding only) Razorbill (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk (black-legged kittiwake only) • In-combination effects
Flannan Isles SPA	Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure

European Site	Relevant qualifying features	Project phase	Impact
			• In-combination effects
Flamborough and Filey Coast SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Fowlsheugh SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Canna and Sanday SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision Risk • In-combination effects
Mingulay and Berneray SPA	Common guillemot (non-breeding only) Razorbill (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Isles of Scilly SPA	Great black-backed gull	Operations and maintenance	• Collision risk • In-combination effects
Buchan Ness to Collieston SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Troup, Pennan and Lions Heads SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
East Caithness Cliffs SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
North Caithness Cliffs SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Sule Skerry and Sule Stack SPA	Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
North Rona and Sula Sgeir SPA	Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
West Westray SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects

1.2 Matrix key

1.2.1 Overview

1.2.1.1 The following matrix key is applicable to the matrices presented in the subsequent sections of this document:

- ✓ = Risk of adverse effect on integrity
- × = No risk of adverse effect on integrity
- C = Construction
- O&M = Operations and maintenance
- D = Decommissioning.

1.2.1.2 Within the integrity matrices, lower case letters relate to the evidence which supports the conclusions made within the footnotes.

1.2.1.3 Where effects were screened in within the LSE screening matrices and were considered in the ISAA, they have been coloured with green, effects that were screened out within the LSE screening matrices, and were not considered in the ISAA, they have been greyed out in the integrity matrices.

1.2.1.4 The distances to the Mona Array Area and Mona Offshore Cable Corridor and Access Areas within the integrity matrices refer to the closest distance from the European designated site using a marine pathway for European sites with Annex I habitat, Annex II diadromous fish and Annex II marine mammal features and a straight line distance for European sites and Ramsar sites with ornithology features.

1.2.2 Integrity matrices for Annex I habitats

Table 1.2: Integrity matrix for Annex I Habitats of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC.

European Site: Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC Distance to Mona Array Area: 26.8 km Distance to Mona Offshore Cable Corridor and Access Areas: 0.0 km																		
Qualifying features	**Increases in SSC and sediment deposition**			**Changes in physical processes**			**Increased risk of introduction and spread of invasive non-native species**			**Removal of hard structures**			**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**
Reefs	× a	× a	× a		× b	× b	× c	× c	× c			× d	× e	× e	× e	× f	× f	× f
Sandbanks which are slightly covered by seawater all the time	× a	× a	× a		× b	× b	× c	× c	× c				× e	× e	× e	× f	× f	× f

a. **Increases in SSC and sediment deposition** – All increases in SSC and associated sediment deposition associated with offshore export cable installation and associated activities (e.g. sandwave clearance, pre-lay preparation) during construction and decommissioning activities will be intermittent and of local spatial extent, restricted to approximately one tidal excursion (i.e., a plume envelope with a total width of approximately 20 km). Furthermore, as outlined in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) a measure has been adopted as part of the Mona Offshore Wind Project to develop and adhere to an Offshore construction method statement (CMS) which includes a cable specification and installation (CSIP) that does not permit sandwave clearance within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. This measure will limit sediment disturbance within the SAC to that arising from the cable installation tool only within a 20 m corridor during the construction phase. Furthermore, as demonstrated by the site-specific benthic surveys, the Mona Offshore Cable Corridor and Access Areas does not overlap with any Annex I designated features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. Increases in SSC and associated deposition, if they extend to reach designated features beyond the Mona Offshore Cable Corridor and Access Areas, would only affect a very small percentage of the total available extent of Annex I habitats within the SAC at any one time. As such, it is concluded beyond reasonable scientific doubt that there is no potential for an adverse effect on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the construction, operations and maintenance and decommissioning phases as a result of increases in SSC and sediment deposition.

b. **Changes in physical processes** - Volume 6, Annex 1.1: Physical processes technical report of the Environmental Statement (Document Reference F6.1.1) indicated that peak tidal flows are redirected in the immediate proximity of cable protection however, they would be undetectable beyond the immediate vicinity of the Mona Offshore Cable Corridor and Access Areas. As demonstrated by the site-specific benthic surveys, the Mona Offshore Cable Corridor and Access Areas does not overlap with any Annex I designated features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. The limited nature of these changes would not influence the tidal regime which underpins sediment transport. In addition, the background hydrodynamic regime is highly variable through tidal cycles and due to meteorological conditions and the scale of impacts are well within the natural variation. Measures adopted as part of the Mona Offshore Wind Project to mitigate potential impacts resulting from changes in physical processes include the development and adherence to an Offshore CMS which includes a CSIP that does not permit cable protection higher than 70 cm to be installed within the Menai Strait and Conwy Bay/ Y Fenai a Bae Conwy SAC. In addition, a measure has been adopted as part of the Mona Offshore Wind Project that ensures no more than 5% reduction in water depth (referenced to Chart Datum) will occur at any point along the Mona Offshore Cable Corridor without prior approval from the Licensing Authority in consultation with the Maritime and Coastguard Agency. These measures will ensure any cable protection- is sufficiently low profile to cause minimal changes to waves, tides and sediment transport. The changes to tidal currents, wave climate, littoral currents, and sediment transport are insignificant in terms of the hydrodynamic regime and would not alter Annex I sandbank or Annex I reef features. Any secondary scour effects associated with cable protection would likely be confined to within a few meters of the direct footprint of that scour protection material. During the operations and maintenance phase of the Mona Offshore Wind Project, routine annual inspections will be made of cable and scour protection in line with the Offshore Monitoring Plan. If secondary scour is identified remedial works may be

undertaken to both mitigate environmental impacts and also provide asset security. Whilst the MDS for this impact pathway assumes that cable protection may be left in situ during the decommissioning phase, in the event that the decommissioning strategy required the removal of cable protection from the Menai Strait and Conwy Bay/ Y Fenai a Bae Conwy SAC, the potential impacts would be reversible. As such, it is concluded beyond reasonable scientific doubt that there is no potential for an adverse effect on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the operations and maintenance and decommissioning phase as a result of changes in physical processes.

c. **Increased risk of introduction and spread of INNS** - The Mona Offshore Cable Corridor and Access Areas does not overlap with any Annex I features within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. The nearest Annex I reef feature is located 2.4 km from the Mona Offshore Cable Corridor and Access Areas and the nearest Annex I sandbank feature is 3.5 km from the Mona Offshore Cable Corridor and Access Areas, therefore considering this distance the likelihood of a stepping stone effect is limited. As outlined in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2), an Offshore Environmental Management Plan (EMP) will be implemented, which will aim to manage and reduce the risk of potential introduction and spread of INNS so far as reasonably practicable. Included in the Offshore EMP will be a Biosecurity Risk Assessment as well as an INNS Management Plan which will detail the measures to ensure vessels comply with the IMO ballast water management guidelines, it will consider the origin of vessels and contain standard housekeeping measures for such vessels as well as specific measures to be adopted in the event that a high alert species is recorded. This will ensure that the risk of potential introduction and spread of INNS will be minimised. As such, it is concluded beyond reasonable scientific doubt that there is no potential for an adverse effect on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the construction, operations and maintenance and decommissioning phases as a result of increased risk of introduction and spread of INNS.

d. **Removal of hard structures** – Cable protection installed within the SAC during the construction phase may potentially develop a reef like community. However, the approach regarding the removal of cable protection within the SAC (if required) will be discussed with the relevant statutory nature conservation bodies (SNCBs) prior to the decommissioning phase to ensure the appropriate approach is taken depending on the nature of the habitats present at the time. If the cable protection was to be removed, only a very small area would be affected, specifically the MDS assumes the removal of cable protection (10 m in width) from up to 10% of cables within the SAC, which equates to 0.003% of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. The measures adopted as part of the Mona Offshore Wind Project include the development and adherence to an Offshore CMS which includes a CSIP that does not permit the percentage of export cable requiring cable protection to exceed 10% of the total length of the export cable within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. In addition, areas of the seabed where cable protection was not present prior to decommissioning would be expected to recover, with benthic communities in these areas recolonising habitats previously lost beneath offshore structures. In time, these communities are predicted to revert to their pre-construction state. As such, it is concluded beyond reasonable scientific doubt that there is no potential for an adverse effect on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the decommissioning phase as a result of removal of hard structures.

e. **Accidental Pollution** - Effects of an accidental spill could potentially kill, smother or poison benthic fauna associated with the Annex I reef and Annex I sandbanks which are slightly covered by seawater all the time features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. Although, potential impacts are likely to affect sedentary organisms to a greater extent that mobile fauna which would be able to move away from the impact. However, accidental pollution events are very unlikely on the basis that a measure has been adopted as part of the Mona Offshore Wind Project to develop and adhere to an Offshore EMP that will include a Marine pollution contingency plan (MPCP) which will include planning for accidental spills, address all potential contaminant releases and include key emergency details. With these measures in place, should an accidental pollution event occur, effects would be temporary, reversible and limited in spatial extent. Adverse effects on the Annex I designated features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC can be ruled out beyond reasonable scientific doubt. As such, it is concluded beyond reasonable scientific doubt that there is no potential for an adverse effect on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the construction, operations and maintenance and decommissioning phases as a result of accidental pollution.

f. **In-combination effects:**

i. **In-combination assessment for increases in SSC and sediment deposition** - The Mona Offshore Cable Corridor and Access Areas does not overlap with any areas of Annex I reef or Annex I sandbank within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. The nearest Annex I reef feature is also located 2.4 km from the Mona Offshore Cable Corridor and Access Areas. The potential for in-combination increases in SSCs and associated deposition for the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC is limited as most projects considered within the in-combination assessment are located outside the boundary of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. Only small increases in SSC are expected to occur which will be of limited spatial extent as a result of other projects/plans. It is unlikely that these would combine with the plumes arising from the Mona Offshore Cable Corridor and Access Areas. As such, it is concluded beyond reasonable scientific doubt that there is no potential for an adverse effect on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the construction, operations and maintenance and decommissioning phases as a result of in-combination increases in SSC and sediment deposition.

ii. **In-combination assessment for the risk of introduction and spread of INNS** – There are two projects/plans, the Conwy River dredging site and MaresConnect interconnector cable which overlap with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC, all other projects/plans are located at an increased distance from the SAC than the Mona Offshore Cable Corridor and Access Areas and therefore there is limited pathway for them to contribute to in-combination effects from increased risk of introduction and spread of INNS. The Conwy River dredging site is located within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC, however there would be no introduction of hard substrates associated with dredging activity which is the primary pathway for the introduction and spread of INNS. The MaresConnect interconnector cable may overlap with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC, depending on the route selected, but there is currently no information on the impacts or whether cable protection would be required. If it was, the project will likely need to minimise the extent of cable protection placed within the Menai Strait and Conwy

Bay/Y Fenai a Bae Conwy SAC in order to reduce impacts. It is considered likely that other projects in the wider area may implement similar measures to the Mona Offshore Wind Project such as an Offshore EMP which will also secure measures to reduce likelihood of the introduction and spread of INNS so far as reasonably practicable. As such, it is concluded beyond reasonable scientific doubt that there is no potential for an adverse effect on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the construction, operations and maintenance and decommissioning phases in-combination increased risk of introduction and spread of INNS.

iii. **In-combination assessment for changes in physical processes** - The changes in physical processes alone assessment concluded that there would be no adverse effects on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC from the Mona Offshore Wind Project. This was concluded on the basis that effects for the Mona Offshore Wind Project alone are predicted to be limited to the immediate vicinity of the cable protection (i.e. within the boundary of the Mona Offshore Cable Corridor and Access Areas) and similarly for other projects (e.g. Awel y Môr) changes to physical processes are predicted to be similarly limited in extent and will not extend into the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. As such, it is concluded beyond reasonable scientific doubt that there is no potential for an adverse effect on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the operations and maintenance phase as a result of in-combination changes in physical processes.

iv. **In-combination assessment for removal for hard substrates** - There are no other projects/plans which overlap with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC which will be active during the decommissioning phase on the Mona Offshore Wind Project based on current knowledge. Therefore, there is no potential for in-combination impacts as a result of the removal of hard substrates from the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. As such, it is concluded beyond reasonable scientific doubt that there is no potential for an adverse effect on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the decommissioning phase as a result of in-combination removal of hard structures.

v. **In-combination assessment for accidental pollution** - The risk of any in-combination effects associated with accidental pollution is very low however, should an event occur, any effects will be temporary, reversible, limited in spatial extent. All other projects/plans considered will most likely also implement similar standard measures to the measures adopted as part of the Mona Offshore Wind Project, such as development and adherence to an Offshore EMP that will include a MPCP . These measures will further reduce the likelihood of an accidental pollution event occurring. As such, it is concluded beyond reasonable scientific doubt that there is no potential for an adverse effect on the integrity of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the construction, operations and maintenance and decommissioning phases as a result of in-combination accidental pollution.

1.2.3 Integrity matrices for Annex II diadromous fish

Table 1.3: Integrity matrix for Annex II diadromous fish species of the Dee Estuary/Aber Dyfrdwy SAC.

European Site: European Site: Dee Estuary/Aber Dyfrdwy SAC Distance to Mona Array Area: 39.3 km Distance to Mona Offshore Cable Corridor: 13.2 km									
Qualifying features	**Underwater sound impacting fish and shellfish receptors**			**EMF**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Sea lamprey *Petromyzon marinus*	×a		×a		×b		×c	×c	×c
River lamprey *Lampetra fluviatilis*	×a		×a		×b		×c	×c	×c

a. **Underwater sound impacting fish and shellfish receptors**– sea and river lamprey features within close proximity to piling operations may experience injury or mortality. However, given that they are highly mobile and have a tendency to only utilise the environment within the Mona fish and shellfish ecology study area to pass through during migration, the impact is unlikely to result in significant mortality of lamprey species. A measure adopted as part of the Mona Offshore Wind Project includes the development and adherence to a Marine Mammal Mitigation Plan (MMMP), based on the Outline MMMP (Document Reference J21), that requires implementation of an initiation stage of a piling soft start and ramp-up. This will allow individuals in close proximity to piling to move away from the ensonified area, further reducing the likelihood of injury and mortality on lamprey features. Behavioural effects in response to piling may occur in lamprey features but the underwater sound modelling indicated that this would not result in barriers to migration to and from the SAC, with only short-term and intermittent potential impacts during construction phase. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Dee Estuary/Aber Dyfrdwy SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound impacting fish and shellfish receptors.

b. **EMF** – sea and river lamprey features are considered to have a low sensitivity and high recoverability to EMF effects, and it has been concluded that impacts from the Mona Offshore Wind Project would not impact lamprey ecology. As the lamprey features for the SAC are highly mobile and pelagic, they are capable of changing course when migrating and it is concluded that any EMF impacts, would be localised and would not result in any barriers to the population or distribution of the qualifying species. Measures adopted as part of the Mona Offshore Wind Project for localised impacts includes cable burial, to increase the distance between lamprey features and cables, which will reduce the effect of EMFs. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Dee Estuary/Aber Dyfrdwy SAC during the operations and maintenance phase of the Mona Offshore Wind Project as a result of EMF effects.

c. **In-combination effects**

   i. **In-combination assessment for underwater sound** - The in-combination assessment for underwater sound impacting fish and shellfish receptors considered tier 1 projects (Awel y M Môr Offshore Wind Farm) and tier 2 projects (Morecambe Offshore Wind Farm, Morgan Offshore Wind Project, and the Morgan and Morecambe Offshore Wind Farms: Transmission Assets projects). In-combination effects were predicted to be of relatively short-term duration, intermittent over the construction phase of the Mona Offshore Wind Project and sea and river lamprey are assessed as having a low sensitivity to underwater sound impacts (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). Other projects are likely to implement measures, similar to those implemented as part of the Mona Offshore Wind Project, such as soft starts which will reduce the potential for in-combination sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Dee Estuary/Aber Dyfrdwy SAC as a result of underwater sound impacting fish and shellfish receptors with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for EMF** - The in-combination assessment for EMF considered tier 1 projects (Awel y Môr Offshore Wind Farm), tier 2 projects

(Morgan Offshore Wind Project Generation Assets, the Morecambe Offshore Windfarm Generation Assets, the Morgan and Morecambe Offshore Wind Farms: Transmission Assets and the Mooir Vannin Offshore Windfarm) and tier 3 projects (MaresConnect Wales-Ireland Interconnector Cable). In-combination effects for EMF were predicted to be long term in duration but the Annex II diadromous features are assessed as having a low sensitivity and high recoverability in relation to the impact, with EMF effects confined to close vicinity of cables. Other projects are likely to implement measures such as cable burial, which will increase the space between diadromous fish and cables, attenuating the EMFs and thereby reducing the effect of EMFs on the diadromous fish. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Dee Estuary/Aber Dyfrdwy SAC as a result of EMF effects with respect to the operation and maintenance of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.4: Integrity matrix for Annex II diadromous fish species of the River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC.

European Site: European Site: River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC Distance to Mona Array Area: 64.4 km Distance to Mona Offshore Cable Corridor and Access Areas: 40.7 km									
Qualifying features	**Underwater sound impacting fish and shellfish receptors**			**EMF**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Atlantic salmon *Salmo salar*	×a		×a		×b		×c	×c	×c
Sea lamprey *Petromyzon marinus*	×a		×a		×b		×c	×c	×c
River lamprey *Lampetra fluviatilis*	×a		×a		×b		×c	×c	×c

a. **Underwater sound impacting fish and shellfish receptors**– Diadromous fish features within close proximity to piling operations may experience injury or mortality. However, given that they are highly mobile and their tendency to only utilise the environment within the Mona fish and shellfish ecology study area to pass through during migration, the impact is unlikely to result in significant mortality. A measure adopted as part of the Mona Offshore Wind Project includes the development and adherence to an MMMP, based on the Outline MMMP (Document Reference J21), that requires implementation of an initiation stage of a piling soft start and ramp-up. This will allow individuals in close proximity to piling to move away from the ensonified area, further reducing the likelihood of injury and mortality on the diadromous fish features. Behavioural effects in response to piling may occur in diadromous fish features, such as avoidance reactions but the modelling indicated that this would not result in barriers to migration to and from the SAC, with only short-term and intermittent potential impacts during construction phase. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound impacting fish and shellfish receptors.

b. **EMF** - Atlantic salmon and lamprey features are considered to have a low sensitivity to EMF effects, and it has been concluded that impacts from the Mona Offshore Wind Project would not impact the diadromous fish features ecology (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). As the diadromous fish features for the SAC are highly mobile and pelagic they are capable of changing course when migrating and it is concluded that any EMF impacts, would be localised and would not result in any barriers to the population or distribution of the qualifying species. Measures adopted as part of the Mona Offshore Wind Project for localised impacts includes cable burial, to increase the distance between diadromous fish features and cables, reducing the effect of EMFs. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC during operation and maintenance phases of the Mona Offshore Wind Project as a result of EMF effects.

c. **In-combination effects:**

   i. **In-combination assessment for underwater sound** - The in-combination assessment for underwater sound impacting fish and shellfish receptors considered tier 1 projects (Awel y M Môr Offshore Wind Farm) and tier 2 projects (Morecambe Offshore Wind Farm, Morgan Offshore Wind Project, and the Morgan and Morecambe Offshore Wind Farms: Transmission Assets). In-combination effects were predicted to be of relatively short-term duration, intermittent over the construction phase of the Mona Offshore Wind Project and sea and river lamprey are assessed as having a low sensitivity to underwater sound impacts (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). Other projects are likely to implement measures, similar to those implemented as part of the Mona Offshore Wind Project, such as soft starts which will reduce the potential for in-combination sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC as a result of underwater sound impacting fish and shellfish receptors with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

ii. **In-combination assessment for EMF** - The in-combination assessment for EMF considered tier 1 projects (Awel y Môr Offshore Wind Farm), tier 2 projects (Morgan Offshore Wind Project Generation Assets, the Morecambe Offshore Windfarm Generation Assets, the Morgan and Morecambe Offshore Wind Farms: Transmission Assets and the Mooir Vannin Offshore Windfarm) and tier 3 projects (MaresConnect Wales-Ireland Interconnector Cable). In-combination effects for EMF were predicted to be long term in duration but the Annex II diadromous features are assessed as having a low sensitivity and high recoverability in relation to the impact, with EMF effects confined to close vicinity of cables. Other projects are likely to implement measures such as cable burial, which will increase the space between diadromous fish and cables, attenuating the EMFs and thereby reducing the effect of EMFs on the diadromous fish. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC as a result of EMF effects with respect to the operation and maintenance of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.5: Integrity matrix for Annex II diadromous fish species of the River Ehen SAC.

European Site: European Site: River Ehen SAC Distance to Mona Array Area: 83.01 km Distance to Mona Offshore Cable Corridor and Access Areas: 106.4 km									
Qualifying features	**Underwater sound impacting fish and shellfish receptors**			**EMF**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Atlantic salmon *Salmo salar*	×a		×a		×b		×c	×c	×c
Freshwater pearl mussel *Margaritifera margaritifera*	×a		×a		×b		×c	×c	×c

a. **Underwater sound impacting fish and shellfish receptors**- Diadromous fish features within close proximity to piling operations may experience injury or mortality. However, given that they are highly mobile and their tendency to only utilise the environment within the Mona fish and shellfish ecology study area to pass through during migration, the impact is unlikely to result in significant mortality. A measure adopted as part of the Mona Offshore Wind Project includes the development and adherence to an MMMP, based on the Outline MMMP (Document Reference J21), that requires implementation of an initiation stage of a piling soft start and ramp-up. This will allow individuals in close proximity to piling to move away from the ensonified area, further reducing the likelihood of injury and mortality on the diadromous fish features. Behavioural effects in response to piling may occur in diadromous fish features, such as avoidance reactions but the modelling indicated that this would not result in barriers to migration to and from the SAC, with only short-term and intermittent potential impacts during construction phase. Although there is potential for indirect adverse effects on freshwater pearl mussels in their larval stage, due to their reliance on their host salmon individuals, assessment concluded that there is no significant indirect effect to the freshwater pearl mussel. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Ehen SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound impacting fish and shellfish receptors.

b. **EMF** - Atlantic salmon features are considered to have a low sensitivity and high recoverability to EMF effects, and it has been concluded that impacts from the Mona Offshore Wind Project would not impact the diadromous fish features ecology (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). As the diadromous fish features for the SAC are highly mobile and pelagic they are capable of changing course when migrating and it is concluded that any EMF impacts, would be localised and would not result in any barriers to the population or distribution of the qualifying species. Measures adopted as part of the Mona Offshore Wind Project for localised impacts includes cable burial, to increase the distance between diadromous fish features and cables, reducing the effect of EMFs. Freshwater pearl mussels have been considered within the HRA Stage 2 ISAA Part 2 - SAC assessments (Document Reference E1.2), and although reliant during their parasitic phase of their lifecycle on Atlantic salmon, there are no indirect effects of EMF on freshwater pearl mussels for reasons outlined above. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Ehen SAC during operation and maintenance phases of the Mona Offshore Wind Project as a result of EMF effects.

c. **In-combination effects:**

   i. **In-combination assessment for underwater sound** - The in-combination assessment for underwater sound impacting fish and shellfish receptors considered tier 1 projects (Awel y M Môr Offshore Wind Farm) and tier 2 projects (Morecambe Offshore Wind Farm, Morgan Offshore Wind Project, and the Morgan and Morecambe Offshore Wind Farms: Transmission Assets). In-combination effects were predicted to be of relatively short-term duration and intermittent over the construction phase of the Mona Offshore Wind Project (see Volume

   ii. 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). Other projects are likely to implement measures, similar to those implemented as part of the Mona Offshore Wind Project, such as soft starts which will reduce the

potential for in-combination sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Ehen SAC as a result of underwater sound impacting fish and shellfish receptors with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for EMF** - The in-combination assessment for EMF considered tier 1 projects (Awel y Môr Offshore Wind Farm), tier 2 projects (Morgan Offshore Wind Project Generation Assets, the Morecambe Offshore Windfarm Generation Assets, the Morgan and Morecambe Offshore Wind Farms: Transmission Assets and the Mooir Vannin Offshore Windfarm) and tier 3 projects (MaresConnect Wales-Ireland Interconnector Cable). In-combination effects for EMF were predicted to be long term in duration but the Annex II diadromous features are assessed as having a low sensitivity and high recoverability in relation to the impact, with EMF effects confined to close vicinity of cables. Other projects are likely to implement measures such as cable burial, which will increase the space between diadromous fish and cables, attenuating the EMFs and thereby reducing the effect of EMFs on the diadromous fish. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Ehen SAC as a result of EMF effects with respect to the operation and maintenance of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.6: Integrity matrix for Annex II diadromous fish species of the River Eden SAC.

European Site: European Site: River Eden SAC Distance to Mona Array Area: 39 km Distance to Mona Offshore Cable Corridor and Access Areas: 87 km									
Qualifying features	**Underwater sound impacting fish and shellfish receptors**			**EMF**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Atlantic salmon *Salmo salar*	×a		×a		×b		×c	×c	×c
Sea lamprey *Petromyzon marinus*	×a		×a		×b		×c	×c	×c
River lamprey *Lampetra fluviatilis*	×a		×a		×b		×c	×c	×c

a. **Underwater sound impacting fish and shellfish receptors**– Diadromous fish features within close proximity to piling operations may experience injury or mortality. However, given that they are highly mobile and their tendency to only utilise the environment within the Mona fish and shellfish ecology study area to pass through during migration, the impact is unlikely to result in significant mortality. A measure adopted as part of the Mona Offshore Wind Project includes the development and adherence to an MMMP, based on the Outline MMMP (Document Reference J21), that requires implementation of an initiation stage of a piling soft start and ramp-up. This will allow individuals in close proximity to piling to move away from the ensonified area, further reducing the likelihood of injury and mortality on the diadromous fish features. Behavioural effects in response to piling may occur in diadromous fish features, such as avoidance reactions but the modelling indicated that this would not result in barriers to migration to and from the SAC, with only short-term and intermittent potential impacts during construction phase. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Eden SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound impacting fish and shellfish receptors.

b. **EMF** - Atlantic salmon and lamprey features are considered to have a low sensitivity to EMF effects, and it has been concluded that impacts from the Mona Offshore Wind Project would not impact the diadromous fish features ecology (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). As the diadromous fish features for the SAC are highly mobile and pelagic they are capable of changing course when migrating and it is concluded that any EMF impacts, would be localised and would not result in any barriers to the population or distribution of the qualifying species. Measures adopted as part of the Mona Offshore Wind Project for localised impacts includes cable burial, to increase the distance between diadromous fish features and cables, reducing the effect of EMFs. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Eden SAC during operation and maintenance phases of the Mona Offshore Wind Project as a result of EMF effects.

c. **In-combination effects:**

   i. **In-combination assessment for underwater sound** - The in-combination assessment for underwater sound impacting fish and shellfish receptors considered tier 1 projects (Awel y M Môr Offshore Wind Farm) and tier 2 projects (Morecambe Offshore Wind Farm, Morgan Offshore Wind Project, and the Morgan and Morecambe Offshore Wind Farms: Transmission Assets). In-combination effects were predicted to be of relatively short-term duration, intermittent over the construction phase of the Mona Offshore Wind Project and sea and river lamprey are assessed as having a low sensitivity to underwater sound impacts (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). Other projects are likely to implement measures, similar to those implemented as part of the Mona Offshore Wind Project, such as soft starts which will reduce the potential for in-combination sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Eden SAC as a result of underwater sound impacting fish and shellfish receptors with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for EMF** - The in-combination assessment for EMF considered tier 1 projects (Awel y Môr Offshore Wind Farm), tier 2 projects

(Morgan Offshore Wind Project Generation Assets, the Morecambe Offshore Windfarm Generation Assets, the Morgan and Morecambe Offshore Wind Farms: Transmission Assets and the Mooir Vannin Offshore Windfarm) and tier 3 projects (MaresConnect Wales-Ireland Interconnector Cable). In-combination effects for EMF were predicted to be long term in duration but the Annex II diadromous features are assessed as having a low sensitivity and high recoverability in relation to the impact, with EMF effects confined to close vicinity of cables. Other projects are likely to implement measures such as cable burial, which will increase the space between diadromous fish and cables, attenuating the EMFs and thereby reducing the effect of EMFs on the diadromous fish. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Eden SAC as a result of EMF effects with respect to the operation and maintenance of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.7: Integrity matrix for Annex II fish species of the Afon Gwyrfai a Llyn Cwellyn SAC.

European Site: European Site: Afon Gwyrfai a Llyn Cwellyn SAC Distance to Mona Array Area: 92.3 km Distance to Mona Offshore Cable Corridor and Access Areas: 91.2 km									
Qualifying features	**Underwater sound impacting fish and shellfish receptors**			**EMF**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Atlantic salmon *Salmo salar*	×a		×a		×b		×c	×c	×c

a. **Underwater sound impacting fish and shellfish receptors**– Atlantic salmon feature within close proximity to piling operations may experience injury or mortality. However, given that they are highly mobile and their tendency to only utilise the environment within the Mona fish and shellfish ecology study area to pass through during migration, the impact is unlikely to result in significant mortality. A measure adopted as part of the Mona Offshore Wind Project includes the development and adherence to an MMMP, based on the Outline MMMP (Document Reference J21), that requires implementation of an initiation stage of a piling soft start and ramp-up. This will allow individuals in close proximity to piling to move away from the ensonified area, further reducing the likelihood of injury and mortality on the Atlantic salmon. Behavioural effects in response to piling may occur in diadromous fish features, such as avoidance reactions but the modelling indicated that this would not result in barriers to migration to and from the SAC, with only short-term and intermittent potential impacts during construction phase. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Afon Gwyrfai a Llyn Cwellyn SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound impacting fish and shellfish receptors.

b. **EMF** - Atlantic salmon features are considered to have a low sensitivity to EMF effects, and it has been concluded that impacts from the Mona Offshore Wind Project would not impact the diadromous fish features ecology (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). As the diadromous fish feature for the SAC are highly mobile and pelagic they are capable of changing course when migrating and it is concluded that any EMF impacts, would be localised and would not result in any barriers to the population or distribution of the qualifying species. Measures adopted as part of the Mona Offshore Wind Project for localised impacts includes cable burial, to increase the distance between diadromous fish feature and cables, reducing the effect of EMFs. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Afon Gwyrfai a Llyn Cwellyn SAC during operation and maintenance phases of the Mona Offshore Wind Project as a result of EMF effects.

c. **In-combination effects:**

   i. **In-combination assessment for underwater sound** - The in-combination assessment for underwater sound impacting fish and shellfish receptors considered tier 1 projects (Awel y M Môr Offshore Wind Farm) and tier 2 projects (Morecambe Offshore Wind Farm, Morgan Offshore Wind Project, and the Morgan and Morecambe Offshore Wind Farms: Transmission Assets). In-combination effects were predicted to be of relatively short-term duration and intermittent over the construction phase of the Mona Offshore Wind Project (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). Other projects are likely to implement measures, similar to those implemented as part of the Mona Offshore Wind Project, such as soft starts which will reduce the potential for in-combination sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Afon Gwyrfai a Llyn Cwellyn SAC as a result of underwater sound impacting fish and shellfish receptors with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for EMF** - The in-combination assessment for EMF considered tier 1 projects (Awel y Môr Offshore Wind Farm), tier 2 projects

(Morgan Offshore Wind Project Generation Assets, the Morecambe Offshore Windfarm Generation Assets, the Morgan and Morecambe Offshore Wind Farms: Transmission Assets and the Mooir Vannin Offshore Windfarm) and tier 3 projects (MaresConnect Wales-Ireland Interconnector Cable). In-combination effects for EMF were predicted to be long term in duration but the Annex II diadromous features are assessed as having a low sensitivity and high recoverability in relation to the impact, with EMF effects confined to close vicinity of cables. Other projects are likely to implement measures such as cable burial, which will increase the space between diadromous fish and cables, attenuating the EMFs and thereby reducing the effect of EMFs on the diadromous fish. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Afon Gwyrfai a Llyn Cwellyn SAC as a result of EMF effects with respect to the operation and maintenance of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.8: Integrity Matrix for Annex II diadromous fish species of the River Kent SAC.

European Site: European Site: River Kent SAC Distance to Mona Array Area: 96.7 km Distance to Mona Offshore Cable Corridor and Access Areas: 105.1 km									
Qualifying features	**Underwater sound impacting fish and shellfish receptors**			**EMF**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Freshwater pearl mussel *Margaritifera margaritifera*	×a		×a		×b		×c	×c	×c

a. **Underwater sound impacting fish and shellfish receptors**– Freshwater pearl mussels are confined to freshwater habitats and so there is no pathway for direct underwater sound effects to the species during construction and decommissioning. There is potential for indirect adverse effects on freshwater pearl mussels in their larval stage, due to their reliance on their host Atlantic salmon individuals, but assessment on diadromous fish features (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement) concluded that potential underwater sound impacts would be short-term and intermittent with no barrier to their migration. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Kent SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound impacting fish and shellfish receptors.

b. **EMF** - Freshwater pearl mussels have been considered within the HRA Stage 2 ISAA Part 2 - SAC assessments (Document Reference E1.2) and although not subject to direct effects there is the potential of indirect adverse effects on the larval stage of the freshwater pearl mussel, as this is when they are reliant on Atlantic salmon as a host species for their first year. However, assessment of Atlantic salmon concluded that there are no significant indirect effects of EMF on freshwater pearl mussels. This is due to Atlantic salmon having low sensitivity and high recoverability to localised EMF effects and therefore, there is negligible risk of disruption to Atlantic salmon migration and in turn the populations freshwater pearl mussel from the Mona Offshore Wind Project. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Kent SAC during operation and maintenance phases of the Mona Offshore Wind Project as a result of EMF effects.

c. **In-combination effects:**

   i. **In-combination assessment for underwater sound** - The in-combination assessment for underwater sound impacting fish and shellfish receptors considered tier 1 projects (Awel y M Môr Offshore Wind Farm) and tier 2 projects (Morecambe Offshore Wind Farm, Morgan Offshore Wind Project, and the Morgan and Morecambe Offshore Wind Farms: Transmission Assets). In-combination effects were predicted to be of relatively short-term duration and intermittent over the construction phase of the Mona Offshore Wind Project (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). Other projects are likely to implement measures, similar to those implemented as part of the Mona Offshore Wind Project, such as soft starts which will reduce the potential for in-combination sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Kent SAC as a result of underwater sound impacting fish and shellfish receptors with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for EMF** - The in-combination assessment for EMF considered tier 1 projects (Awel y Môr Offshore Wind Farm), tier 2 projects (Morgan Offshore Wind Project Generation Assets, the Morecambe Offshore Windfarm Generation Assets, the Morgan and Morecambe Offshore Wind Farms: Transmission Assets and the Mooir Vannin Offshore Windfarm) and tier 3 projects (MaresConnect Wales-Ireland Interconnector Cable). In-combination effects for EMF were predicted to be long term in duration but the Annex II diadromous features are assessed as having a low sensitivity and high recoverability in relation to the impact, with EMF effects confined to close vicinity of cables. Other

projects are likely to implement measures such as cable burial, which will increase the space between diadromous fish and cables, attenuating the EMFs and thereby reducing the effect of EMFs on the diadromous fish. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Kent SAC as a result of EMF effects with respect to the operation and maintenance of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.9: Integrity matrix for Annex II diadromous fish species of the River Derwent and Bassenthwaite SAC.

European Site: European Site: River Derwent and Bassenthwaite SAC Distance to Mona Array Area: 99.7 km Distance to Mona Offshore Cable Corridor and Access Areas: 119.7 km									
Qualifying features	**Underwater sound impacting fish and shellfish receptors**			**EMF**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Atlantic salmon *Salmo salar*	×a		×a		×b		×c	×c	×c
Sea lamprey *Petromyzon marinus*	×a		×a		×b		×c	×c	×c
River lamprey *Lampetra fluviatilis*	×a		×a		×b		×c	×c	×c

a. **Underwater sound impacting fish and shellfish receptors**– Diadromous fish features within close proximity to piling operations may experience injury or mortality. However, given that they are highly mobile and their tendency to only utilise the environment within the Mona fish and shellfish ecology study area to pass through during migration, the impact is unlikely to result in significant mortality. A measure adopted as part of the Mona Offshore Wind Project includes the development and adherence to an MMMP, based on the Outline MMMP (Document Reference J21), that requires implementation of an initiation stage of a piling soft start and ramp-up. This will allow individuals in close proximity to piling to move away from the ensonified area, further reducing the likelihood of injury and mortality on the diadromous fish features. Behavioural effects in response to piling may occur in diadromous fish features, such as avoidance reactions but the modelling indicated that this would not result in barriers to migration to and from the SAC, with only short-term and intermittent potential impacts during construction phase. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Derwent and Bassenthwaite SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound impacting fish and shellfish receptors.

b. **EMF** - Atlantic salmon and lamprey features are considered to have a low sensitivity to EMF effects, and it has been concluded that impacts from the Mona Offshore Wind Project would not impact the diadromous fish features ecology (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). As the diadromous fish features for the SAC are highly mobile and pelagic they are capable of changing course when migrating and it is concluded that any EMF impacts, would be localised and would not result in any barriers to the population or distribution of the qualifying species. Measures adopted as part of the Mona Offshore Wind Project for localised impacts includes cable burial, to increase the distance between diadromous fish features and cables, reducing the effect of EMFs. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Derwent and Bassenthwaite SAC during operation and maintenance phases of the Mona Offshore Wind Project as a result of EMF effects.

c. **In-combination effects:**

   i. **In-combination assessment for underwater sound** - The in-combination assessment for underwater sound impacting fish and shellfish receptors considered tier 1 projects (Awel y M Môr Offshore Wind Farm) and tier 2 projects (Morecambe Offshore Wind Farm, Morgan Offshore Wind Project, and the Morgan and Morecambe Offshore Wind Farms: Transmission Assets). In-combination effects were predicted to be of relatively short-term duration, intermittent over the construction phase of the Mona Offshore Wind Project and sea and river lamprey are assessed as having a low sensitivity to underwater sound impacts (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). Other projects are likely to implement measures, similar to those implemented as part of the Mona Offshore Wind Project, such as soft starts which will reduce the potential for in-combination sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Derwent and Bassenthwaite SAC as a result of underwater sound impacting fish and shellfish receptors with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

ii. **In-combination assessment for EMF** - The in-combination assessment for EMF considered tier 1 projects (Awel y Môr Offshore Wind Farm), tier 2 projects (Morgan Offshore Wind Project Generation Assets, the Morecambe Offshore Windfarm Generation Assets, the Morgan and Morecambe Offshore Wind Farms: Transmission Assets and the Mooir Vannin Offshore Windfarm) and tier 3 projects (MaresConnect Wales-Ireland Interconnector Cable). In-combination effects for EMF were predicted to be long term in duration but the Annex II diadromous features are assessed as having a low sensitivity and high recoverability in relation to the impact, with EMF effects confined to close vicinity of cables. Other projects are likely to implement measures such as cable burial, which will increase the space between diadromous fish and cables, attenuating the EMFs and thereby reducing the effect of EMFs on the diadromous fish. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Derwent and Bassenthwaite SAC as a result of EMF effects with respect to the operation and maintenance of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.10: Integrity matrix for Annex II diadromous fish species of the Solway Firth SAC.

European Site: European Site: Solway Firth SAC Distance to Mona Array Area: 114.5 km Distance to Mona Offshore Cable Corridor and Access Areas: 134.8 km									
Qualifying features	**Underwater sound impacting fish and shellfish receptors**			**EMF**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Sea lamprey *Petromyzon marinus*	×a		×a		×b		×c	×c	×c
River lamprey *Lampetra fluviatilis*	×a		×a		×b		×c	×c	×c

a. **Underwater sound impacting fish and shellfish receptors**- sea and river lamprey features within close proximity to piling operations may experience injury or mortality. However, given that they are highly mobile and their tendency to only utilise the environment within the Mona fish and shellfish ecology study area to pass through during migration, the impact is unlikely to result in significant mortality of lamprey species. A measure adopted as part of the Mona Offshore Wind Project includes the development and adherence to an MMMP, based on the Outline MMMP (Document Reference J21), that requires implementation of an initiation stage of a piling soft start and ramp-up. This will allow individuals in close proximity to piling to move away from the ensonified area, further reducing the likelihood of injury and mortality on lamprey features. Behavioural effects in response to piling may occur in lamprey features but the modelling indicated that this would not result in barriers to migration to and from the SAC, with only short-term and intermittent potential impacts during construction phase. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Solway Firth SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound impacting fish and shellfish receptors.

b. **EMF** – sea and river lamprey features are considered to have a low sensitivity and high recoverability to EMF effects, and it has been concluded that impacts from the Mona Offshore Wind Project would not impact lamprey ecology (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). As the lamprey features for the SAC are highly mobile and pelagic they are capable of changing course when migrating and it is concluded that any EMF impacts, would be localised and would not result in any barriers to the population or distribution of the qualifying species. Measures adopted as part of the Mona Offshore Wind Project for localised impacts includes cable burial, to increase the distance between lamprey features and cables, reducing the effect of EMFs. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Solway Firth SAC during operation and maintenance phases of the Mona Offshore Wind Project as a result of EMF effects.

c. **In-combination effects:**

i. **In-combination assessment for underwater sound** - The in-combination assessment for underwater sound impacting fish and shellfish receptors considered tier 1 projects (Awel y M Môr Offshore Wind Farm) and tier 2 projects (Morecambe Offshore Wind Farm, Morgan Offshore Wind Project, and the Morgan and Morecambe Offshore Wind Farms: Transmission Assets). In-combination effects were predicted to be of relatively short-term duration, intermittent over the construction phase of the Mona Offshore Wind Project and sea and river lamprey are assessed as having a low sensitivity to underwater sound impacts (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). Other projects are likely to implement measures, similar to those implemented as part of the Mona Offshore Wind Project, such as soft starts which will reduce the potential for in-combination sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Solway Firth SAC as a result of underwater sound impacting fish and shellfish receptors with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

ii. **In-combination assessment for EMF** - The in-combination assessment for EMF considered tier 1 projects (Awel y Môr Offshore Wind Farm), tier 2 projects

(Morgan Offshore Wind Project Generation Assets, the Morecambe Offshore Windfarm Generation Assets, the Morgan and Morecambe Offshore Wind Farms: Transmission Assets and the Mooir Vannin Offshore Windfarm) and tier 3 projects (MaresConnect Wales-Ireland Interconnector Cable). In-combination effects for EMF were predicted to be long term in duration but the Annex II diadromous features are assessed as having a low sensitivity and high recoverability in relation to the impact, with EMF effects confined to close vicinity of cables. Other projects are likely to implement measures such as cable burial, which will increase the space between diadromous fish and cables, attenuating the EMFs and thereby reducing the effect of EMFs on the diadromous fish. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Solway Firth SAC as a result of EMF effects with respect to the operation and maintenance of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.11: Integrity matrix for Annex II diadromous fish species of the River Bladnoch SAC.

European Site: European Site: River Bladnoch SAC Distance to Mona Array Area: 121.5 km Distance to Mona Offshore Cable Corridor and Access Areas: 141.4 km									
Qualifying features	**Underwater sound impacting fish and shellfish receptors**			**EMF**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Atlantic salmon *Salmo salar*	×a		×a		×b		×c	×c	×c

a. **Underwater sound impacting fish and shellfish receptors**– Atlantic salmon feature within close proximity to piling operations may experience injury or mortality. However, given that they are highly mobile and their tendency to only utilise the environment within the Mona fish and shellfish ecology study area to pass through during migration, the impact is unlikely to result in significant mortality. A measure adopted as part of the Mona Offshore Wind Project includes the development and adherence to an MMMP, based on the Outline MMMP (Document Reference J21), that requires implementation of an initiation stage of a piling soft start and ramp-up. This will allow individuals in close proximity to piling to move away from the ensonified area, further reducing the likelihood of injury and mortality on the diadromous fish features. Behavioural effects in response to piling may occur in diadromous fish features, such as avoidance reactions but the modelling indicated that this would not result in barriers to migration to and from the SAC, with only short-term and intermittent potential impacts during construction phase. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Bladnoch SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound impacting fish and shellfish receptors.

b. **EMF** - Atlantic salmon features are considered to have a low sensitivity to EMF effects, and it has been concluded that impacts from the Mona Offshore Wind Project would not impact the diadromous fish features ecology (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). As the diadromous fish feature for the SAC are highly mobile and pelagic they are capable of changing course when migrating and it is concluded that any EMF impacts, would be localised and would not result in any barriers to the population or distribution of the qualifying species. Measures adopted as part of the Mona Offshore Wind Project for localised impacts includes cable burial, to increase the distance between diadromous fish feature and cables, reducing the effect of EMFs. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Bladnoch SAC during operation and maintenance phases of the Mona Offshore Wind Project as a result of EMF effects.

c. **In-combination effects:**

   i. **In-combination assessment for underwater sound** - The in-combination assessment for underwater sound impacting fish and shellfish receptors considered tier 1 projects (Awel y M Môr Offshore Wind Farm) and tier 2 projects (Morecambe Offshore Wind Farm, Morgan Offshore Wind Project, and the Morgan and Morecambe Offshore Wind Farms: Transmission Assets). In-combination effects were predicted to be of relatively short-term duration and intermittent over the construction phase of the Mona Offshore Wind Project (see Volume 2, Chapter 8: Fish and Shellfish Ecology of the Environmental Statement). Other projects is likely to implement measures, similar to those implemented as part of the Mona Offshore Wind Project, such as soft starts which will reduce the potential for in-combination sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Bladnoch SAC as a result of underwater sound impacting fish and shellfish receptors with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for EMF** - The in-combination assessment for EMF considered tier 1 projects (Awel y Môr Offshore Wind Farm), tier 2 projects (Morgan Offshore Wind Project Generation Assets, the Morecambe Offshore

Windfarm Generation Assets, the Morgan and Morecambe Offshore Wind Farms: Transmission Assets and the Mooir Vannin Offshore Windfarm) and tier 3 projects (MaresConnect Wales-Ireland Interconnector Cable). In-combination effects for EMF were predicted to be long term in duration but the Annex II diadromous features are assessed as having a low sensitivity and high recoverability in relation to the impact, with EMF effects confined to close vicinity of cables. Other projects is likely to implement measures such as cable burial, which will increase the space between diadromous fish and cables, attenuating the EMFs and thereby reducing the effect of EMFs on the diadromous fish. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the River Bladnoch SAC as a result of EMF effects with respect to the operation and maintenance of the Mona Offshore Wind Project in-combination with other plan/projects.

1.2.4 Integrity matrices for Annex II marine mammals

Table 1.12: Integrity matrix for Annex II marine mammals of the North Anglesey Marine/Gogledd Môn Forol SAC.

European Site: European Site: North Anglesey Marine/Gogledd Môn Forol SAC Distance to Mona Array Area: 22.5 km Distance to Mona Offshore Cable Corridor and Access Areas: 17.5 km																		
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**Changes in prey availability**			**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**
Harbour porpoise *Phocoena phocoena*	×a		×a	×a		×a	×a		×a	×b	×b	×b	×c			×d	×d	×d

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project including the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16), it is predicted that there will be no residual risk of injury to harbour porpoise during piling activities associated with the construction phase. Assessments for disturbance due to underwater sound from piling included both the Effective Deterrence Range (EDR) approach alongside the unweighted sound threshold value of 143 dB re 1 μPa^2s single strike sound exposure level (SEL_{ss}). The maximum area of disturbance, based on the 15 km EDR for pin piles does not overlap the North Anglesey Marine/Gogledd Môn Forol SAC. The unweighted 143 dB re 1 μPa^2s SEL_{ss} threshold demonstrates a daily overlap of 4.33% with the North Anglesey Marine/Gogledd Môn Forol SAC, however this does not exceed the daily 20% guidance threshold from JNCC (2020). Both assessments concluded that there will be no significant disturbance of harbour porpoise within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Anglesey Marine/Gogledd Môn Forol SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is the potential for harbour porpoise to be present within the impact zone of UXO, when tertiary measures are applied, including the MMMP (Document Reference J21) as an annex of the Underwater sound management strategy (Document Reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of Permanent Threshold Shift (PTS) and disturbance. Disturbance (using Temporary Threshold Shift (TTS) as a proxy) from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level. Tertiary measures (including visual and acoustic monitoring, use of an Acoustic Deterrent Device (ADD) and soft start changes) may contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. Disturbance ranges (using TTS as a proxy) are up to a maximum of 28.3 km for a 907 kg UXO, which leads to an overlap with 1.79% of the North Anglesey Marine/Gogledd Môn Forol SAC. The implementation of a 26 km EDR for the Mona Offshore Wind Project could potentially result in a 66.06 km^2 overlap with the North Anglesey Marine/Gogledd Môn Forol SAC. The 66.06 km^2 overlap could result in potential disturbance across an area equating to 2.03 % of the total area of the North Anglesey Marine/Gogledd Môn Forol SAC which, is below the daily 20% guidance threshold from JNCC (2020). In terms of disturbance across the site averaged over the season (summer, 183 days) a daily footprint of 66.06 km^2, over up to 22 days of UXO detonation across the construction phase would result in an average of 0.24% of the relevant area of the North Anglesey Marine/Gogledd Môn Forol SAC being affected over the season. Therefore, disturbance associated with UXO detonation would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Anglesey Marine/Gogledd Môn Forol SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short term duration and intermittent. There are no adverse effects leading to auditory injury for harbour porpoise associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition to this, given the distance from the Mona Offshore Wind Project to the SAC, it is expected that harbour porpoise will avoid the area of the survey. Noting that pre-construction site surveys will not be undertaken nearby or within this SAC and with harbour porpoise recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Anglesey Marine/Gogledd Môn Forol SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results presented within the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2), indicate that the threshold for PTS was not exceeded for marine mammals for all vessels and vessel activities. As the underwater sound associated with vessels will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for harbour porpoise associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Offshore Cable Corridor and Access Areas, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Anglesey Marine/Gogledd Môn Forol SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **Changes in prey availability –** Impacts to prey species are predicted to be localised, short term and intermittent, and harbour porpoise populations expected to adapt and recover quickly to changes in fish and shellfish communities within the vicinity of the Mona Offshore Wind Project. Despite the increased energetic cost it may cause harbour porpoise to adapt to these impacts on prey species it is anticipated that harbour porpoise can compensate any loss by increasing foraging outside the impact zone, of which there is sufficient similar prey resources available in the wiser area of the Irish Sea (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Anglesey Marine/Gogledd Môn Forol SAC during construction phases of the Mona Offshore Wind Project as a result of changes in prey availability.

f. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – the in-combination assessment for underwater sound from piling focusses on disturbance only (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). Using the EDR approaches, the disturbance footprints

associated with both the Mona Offshore Wind Project and the Tier 1 project Awel y Môr project in-combination would result in potential disturbance across an area equating to 0.84% of the total area of the SAC. This, therefore, would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. The EDR approach was also used to assess disturbance for Tier 2 projects, however the EDRs associated with the Tier 2 projects did not overlap with the North Anglesey Marine/Gogledd Môn Forol SAC. In terms of injury, the interim Population Consequences of Disturbance (iPCoD) modelling for harbour porpoise also concluded that there is low potential for long-term in-combination effects due to cumulative piling when Mona Offshore Wind Project and Tier 1 project were included. This was also concluded when there was no noticeable difference in iPCoD models with the addition of the Tier 2 projects (for which quantitative information was available), concluding that underwater sound from piling will not result in long-term population-level effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Anglesey Marine/Gogledd Môn Forol SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

ii. **In-combination assessment for underwater sound from UXO detonation** - The impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. Using the EDR approaches available in both Mona Offshore Wind Project and Awel y Môr, (as outlined in the Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2), the disturbance footprints associated with both projects in-combination would result in potential disturbance across an area equating to 2.43% of the total area of the North Anglesey Marine/Gogledd Môn Forol SAC. This, therefore, would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. In order reduce the in-combination impacts of underwater sound from UXO detonation during the Mona Offshore Wind Farm Project in-combination with other projects/plans the Mona Offshore Wind Project will also implement measures such as an MMMP (Document Reference J21) as an annex of the Underwater sound management strategy (Document Reference J16). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Anglesey Marine/Gogledd Môn Forol SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and

to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Anglesey Marine/Gogledd Môn Forol SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Anglesey Marine/Gogledd Môn Forol SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

v. **In-combination assessment changes in prey availability** - Whilst there may be some potential in-combination effects to fish and shellfish communities, these effects will be highly localised and short term and therefore marine mammals are likely to be able to compensate and move to alternative foraging grounds. In addition, any projects/plans which may act in-combination with the Mona Offshore Wind Project will also implement measures which will further reduce the potential for in-combination effects on prey availability. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Anglesey Marine/Gogledd Môn Forol SAC as a result of underwater sound from changes in prey availability with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.13: Integrity matrix for Annex II marine mammals of the North Channel SAC.

European Site: European Site: North Channel SAC Distance to Mona Array Area: 81.5 km Distance to Mona Offshore Cable Corridor and Access Areas: 94.5 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Harbour porpoise *Phocoena phocoena*	×a		×a	×a		×a	×a		×a	×b	×b	×b	×c	×c	×c

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project including the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that there will be no residual risk of injury to harbour porpoise during piling activities associated with the construction phase. Assessments for disturbance due to underwater sound from piling included both the EDR approach alongside the unweighted sound threshold value of 143 dB re 1 μPa^2s SEL_{ss}. The range of effect will be localised within the Mona Array Area, with no potential spatial overlap with the North Channel SAC. Both assessments concluded that there is no significant disturbance of harbour porpoise feature within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Channel SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

1.2.4.1 **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is the potential for harbour porpoise to be present within the impact zone of UXO, when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. Disturbance (using TTS as a proxy) from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level. Tertiary measures (including visual and acoustic monitoring, use of an Acoustic Deterrent Devices (ADD) and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term, and it is anticipated that features will fully recover. The North Channel SAC, is located 81.5 km away from the Mona Array Area and 94.5 km away from the Mona Offshore Cable Corridor and Access Areas which is outside the 26 km EDR range for UXO. Therefore with the implementation of a 26 km EDR, there will be no overlap with the North Channel SAC designated for harbour porpoise and disturbance associated with UXO detonation will not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Channel SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from UXO detonation.

b. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short term duration and intermittent. There is no adverse effects leading to auditory injury for harbour porpoise associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition to this, given the distance from the Mona Offshore Wind Project to the SAC, it is expected that harbour porpoise will avoid the area of the survey. Noting that pre-construction site surveys will not be undertaken nearby or within this SAC and with harbour porpoise recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the

integrity of the North Channel SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound from pre-construction site surveys.

c. **Underwater sound from vessels and other vessel activities** – Sound modelling results presented within the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2), indicate that the threshold for PTS was not exceeded for marine mammals for all vessels and vessel activities. As the underwater sound associated with vessels will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for harbour porpoise associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Offshore Cable Corridor and Access Areas, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Channel SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

d. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – the in-combination assessment for underwater sound from piling focusses on disturbance only (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). The unweighted 143 dB re 1 μPa^2s SEL_{ss} threshold approach has not been applied to the assessment of disturbance for harbour porpoise features in-combination with other plans and projects, as this would require the generation of project-specific unweighted 143 dB re 1 μPa^2s SEL_{ss} contours for Tier 1 Projects, which are not publicly available. Using the EDR approaches available in both Mona Offshore Wind Project and the Tier 1 project Awel y Môr, the disturbance footprints associated with both projects in-combination would not interact with the SAC. This, therefore, would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. The EDR approach was also used to assess disturbance for Tier 2 projects, however the EDRs associated with the Tier 2 projects did not overlap with the North Channel SAC. The iPCoD modelling for harbour porpoise also concluded that there is low potential for long-term in-combination effects due to cumulative piling when Mona Offshore Wind Project and Tier 1 project were included. This was also concluded when there was no noticeable difference in iPCoD models with the addition of the Tier 2 projects (for which quantitative information was available), concluding that underwater sound from piling will not result in long-term population-level effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Channel SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each

project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. Using the EDR approaches available in both Mona Offshore Wind Project and Awel y Môr, (as outlined in the Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2), the disturbance footprints associated with both projects in-combination would not overlap with the North Channel SAC. Therefore, this would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. In order reduce the in-combination impacts of underwater sound from UXO detonation during the Mona Offshore Wind Farm Project in-combination with other projects/plans the Mona Offshore Wind Project has committed to the Underwater sound management strategy (Document Reference J16). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Channel SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Channel SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Channel SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.14: Integrity matrix for Annex II marine mammals of the Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC.

European Site: European Site: Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC Distance to Mona Array Area: 94.1 km Distance to Mona Offshore Cable Corridor and Access Areas: 93 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Bottlenose dolphin *Tursiops truncatus*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e
Grey seal *Halicheorus grypus*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project and the implementation of the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16), it is predicted that there will be no residual risk of injury to bottlenose dolphin ana grey seal features during piling activities. For both bottlenose dolphin and grey seal there was no spatial overlap between the strong disturbance (160 dB re 1 µPa SPL_{rms}) contour and the SAC. The iPCoD modelling suggests that over the duration of the impact up to 25 years after the start of piling, there would be no long-term effects on the bottlenose dolphin or grey seal reference population. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is potential for bottlenose dolphin and grey seal features to be present within the impact zone of UXO when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document Reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. It is predicted that there may be measurable changes at an individual level (<1 bottlenose dolphin and <6 grey seal), but this would not manifest to population level effects. Disturbance from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level with high recoverability. Tertiary measures (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. Therefore, it is predicted that there will not be significant disturbance to the grey seal population (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short-term duration and intermittent. There will be no adverse effects leading to auditory injury for bottlenose dolphin and grey seal associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition, pre-construction site surveys will not be undertaken nearby or within this SAC and with bottlenose dolphin and grey seal recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) indicate that the maximum range for grey seal for risk of PTS does not exceed the threshold for marine mammals for all vessels and vessel activities. As this underwater sound will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for bottlenose dolphin and grey seal associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Cable Corridor, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity and considering the distance to the SAC it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling –** piling at other projects may result in disturbance of Annex II bottlenose dolphin and grey seal features of the SAC, however the numbers presented above are inconsequential in the context of the grey seal reference population and OSPAR III (Oslo-Paris III) region. Furthermore, grey seal has a large foraging range (up to 448 km reported in Carter *et al.*, 2022) and could therefore move to alternative foraging grounds during piling associated with the Mona Offshore Wind Project and other projects considered in the in-combination assessment. The iPCoD modelling grey seal also concluded that there is no potential for a long-term effects on this species when all Tier 1 and Tier 2 projects (for which quantitative information was available) were included. For bottlenose dolphin there could be potential reductions to lifetime reproductive success to some individuals in the Irish Sea MU population as disturbance in offshore areas during piling could lead to a longer duration over which individuals may be displaced from key areas. It should however be noted that recovery is anticipated to occur between piling events, which will be intermittent for in-combination projects. In particular, baseline levels of activity are anticipated to resume where there are long gaps between piling of respective projects. Based on the iPCoD modelling, these changes are not sufficient to significantly affect the population trajectory over a generational scale (i.e. the trajectory falls within natural variation), however, there may be a small reduction in population size for the impacted population. With the implementation of relevant measures adopted as part of the Mona Offshore Wind Project (i.e. MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16)), impacts on the SAC from the Mona Offshore Wind Project alone will be reduced and therefore reducing the potential for the Mona Offshore Wind Project to contribute to any in combination effect. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.15: Integrity matrix for Annex II marine mammals of the West Wales Marine/Gorllewin Cymru Forol SAC.

European Site: European Site: West Wales Marine/Gorllewin Cymru Forol SAC Distance to Mona Array Area: 95.4 km Distance to Mona Offshore Cable Corridor and Access Areas: 94.4 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Harbour porpoise *Phocoena phocoena*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project including the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that there will be no residual risk of injury to harbour porpoise during piling activities associated with the construction phase. Assessments for disturbance due to underwater sound from piling included both the EDR approach alongside the unweighted sound threshold value of 143 dB re 1 μPa^2s SEL_{ss}. The range of effect will be localised within the Mona Array Area, with no potential spatial overlap with the West Wales Marine/Gorllewin Cymru Forol SAC. Both assessments concluded that there is no significant disturbance of harbour porpoise feature within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the West Wales Marine/Gorllewin Cymru Forol SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is the potential for harbour porpoise to be present within the impact zone of UXO, when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. Disturbance (using TTS as a proxy) from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level. Tertiary measures (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. The West Wales Marine/Gorllewin Cymru Forol SAC, is located 95.4 km away from the Mona Array Area and 94.4 km away from the Mona Offshore Cable Corridor and Access Areas which is outside the 26 km EDR range for UXO. Therefore with the implementation of a 26 km EDR, there will be no overlap with the West Wales Marine/Gorllewin Cymru Forol SAC designated for harbour porpoise and disturbance associated with UXO detonation will not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the West Wales Marine/Gorllewin Cymru Forol SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short term duration and intermittent. There is no adverse effects leading to auditory injury for harbour porpoise associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition to this, given the distance from the Mona Offshore Wind Project to the SAC, it is expected that harbour porpoise will avoid the area of the survey. Noting that pre-construction site surveys will not be undertaken nearby or within this SAC and with harbour porpoise recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA

Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the West Wales Marine/Gorllewin Cymru Forol SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results presented within the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2), indicate that the threshold for PTS was not exceeded for marine mammals for all vessels and vessel activities. As the underwater sound associated with vessels will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for harbour porpoise associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Offshore Cable Corridor and Access Areas, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the West Wales Marine/Gorllewin Cymru Forol SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – the in-combination assessment for underwater sound from piling focusses on disturbance only (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). The unweighted 143 dB re 1 μPa^2s SEL_{ss} threshold approach has not been applied to the assessment of disturbance for harbour porpoise features in-combination with other plans and projects, as this would require the generation of project-specific unweighted 143 dB re 1 μPa^2s SEL_{ss} contours for Tier 1 Projects, which are not publicly available. Using the EDR approaches available in both Mona Offshore Wind Project and the Tier 1 project Awel y Môr, the disturbance footprints associated with both projects in-combination would not overlap with the SAC. This, therefore, would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. The EDR approach was also used to assess disturbance for Tier 2 projects, however the EDRs associated with the Tier 2 projects did not overlap with the West Wales Marine/Gorllewin Cymru Forol SAC. In terms of injury, the iPCoD modelling for harbour porpoise also concluded that there is low potential for long-term in-combination effects due to cumulative piling when Mona Offshore Wind Project and Tier 1 project were included. This was also concluded when there was no noticeable difference in iPCoD models with the addition of Tier 2 projects (for which quantitative information was available) were included, concluding that underwater sound from piling will not result in long-term population-level effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the West Wales Marine/Gorllewin Cymru Forol SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the

magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. Using the EDR approaches available in both Mona Offshore Wind Project and Awel y Môr, (as outlined in the Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2), the disturbance footprints associated with both projects in-combination would not overlap with the West Wales Marine/Gorllewin Cymru Forol SAC. Therefore, this would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. In order reduce the in-combination impacts of underwater sound from UXO detonation during the Mona Offshore Wind Farm Project in-combination with other projects/plans the Mona Offshore Wind Project has committed to the Underwater Sound Management Strategy (Document Reference J16). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the West Wales Marine/Gorllewin Cymru Forol SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the West Wales Marine/Gorllewin Cymru Forol SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the West Wales Marine/Gorllewin Cymru Forol SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.16: Integrity matrix for Annex II marine mammals of the Strangford Lough SAC.

European Site: European Site: Strangford Lough SAC Distance to Mona Array Area: 112.2 km Distance to Mona Offshore Cable Corridor and Access Areas: 125.1 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Harbour seal *Phocoena vitulina*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project and the implementation of the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that there will be no residual risk of injury to harbour seal during piling activities. There was no overlap with the strong disturbance (160 dB re 1 µPa SPL_{rms}) contour and the SAC. Harbour seal close to the coast could experience mild disturbance but it is unlikely to cause a barrier to movement due to large foraging ranges which could provide alternative grounds during piling. The iPCoD modelling (see Volume 2, Chapter 4: Marine Mammals of the Environmental Statement) predicts that there will be no long-term effects on the seal population due to underwater sound from piling. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Strangford Lough SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is potential for the harbour seal feature to be present within the impact zone of UXO when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. It is predicted that there may be measurable changes at an individual level (less than one animal), but this would not manifest to population level effects. Disturbance from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level with high recoverability. Tertiary measures (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. Therefore, it is predicted that there will not be significant disturbance to the harbour seal population (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Strangford Lough SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short-term duration and intermittent. There will be no adverse effects leading to auditory injury for harbour seal associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition, pre-construction site surveys will not be undertaken nearby or within this SAC and with harbour seal recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Strangford Lough SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) indicate that the maximum range for harbour seal for risk of PTS does not exceed the threshold for marine mammals for all vessels and vessel activities. As this underwater sound will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for harbour seal associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Cable Corridor, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity and considering the distance to the SAC it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Strangford Lough SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – piling at other projects may result in disturbance of Annex II harbour seal features of the SAC, however the numbers presented above are inconsequential in the context of the harbour seal reference population. Furthermore, harbour seal also have a large foraging range (up to 273 km reported in Carter *et al.*, 2022) and could therefore move to alternative foraging grounds during piling associated with the Mona Offshore Wind Project and other projects considered in the in-combination assessment. The iPCoD modelling for harbour seal also concluded that there is no potential for a long-term effects on this species when all Tier 1 and Tier 2 projects (for which quantitative information was available) were included. With the implementation of relevant measures adopted as part of the Mona Offshore Wind Project (e.g. MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16)) impacts on the SAC from the Mona Offshore Wind Project alone will be reduced and therefore reducing the potential for the Mona Offshore Wind Project to contribute to any in combination effect. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Strangford Lough SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to

be much lower. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Strangford Lough SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Strangford Lough SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Strangford Lough SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.17: Integrity matrix for Annex II marine mammals of the Murlough SAC.

European Site: European Site: Murlough SAC Distance to Mona Array Area: 115.9 km Distance to Mona Offshore Cable Corridor and Access Areas: 127.1 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Harbour seal *Phocoena vitulina*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project and the implementation of the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) a as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that there will be no residual risk of injury to harbour seal during piling activities. There was no overlap with the strong disturbance (160 dB re 1 µPa SPL_{rms}) contour and the SAC. Harbour seal close to the coast could experience mild disturbance but it is unlikely to cause a barrier to movement due to large foraging ranges which could provide alternative grounds during piling. The iPCoD modelling (see Volume 2, Chapter 4: Marine Mammals of the Environmental Statement) predicts that there will be no long-term effects on the seal population due to underwater sound from piling. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Murlough SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is potential for the harbour seal feature to be present within the impact zone of UXO when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. It is predicted that there may be measurable changes at an individual level (less than one animal), but this would not manifest to population level effects. Disturbance from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level with high recoverability. Tertiary measures (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. Therefore, it is predicted that there will not be significant disturbance to the harbour seal population (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Murlough SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short-term duration and intermittent. There will be no adverse effects leading to auditory injury for harbour seal associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition, pre-construction site surveys will not be undertaken nearby or within this SAC and with harbour seal recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Murlough SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) indicate that the maximum range for harbour seal for risk of PTS does not exceed the threshold for marine mammals for all vessels and vessel activities. As this underwater sound will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for harbour seal associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Offshore Cable Corridor and Access Areas, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity and considering the distance to the SAC it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Murlough SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – piling at other projects may result in disturbance of Annex II harbour seal features of the SAC, however the numbers presented above are inconsequential in the context of the harbour seal reference population. Furthermore, harbour seal also have a large foraging range (up to 273 km reported in Carter *et al.*, 2022) and could therefore move to alternative foraging grounds during piling associated with the Mona Offshore Wind Project and other projects considered in the in-combination assessment. The iPCoD modelling for harbour seal also concluded that there is no potential for a long-term effects on this species when all Tier 1 and Tier 2 projects (for which q/uantitative information was available) were included. With the implementation of relevant measures adopted as part of the Mona Offshore Wind Project (e.g. MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16))) impacts on the SAC from the Mona Offshore Wind Project alone will be reduced and therefore reducing the potential for the Mona Offshore Wind Project to contribute to any in combination effect. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Murlough SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to

be much lower. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Murlough SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Murlough SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Murlough SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.18: Integrity matrix for Annex II marine mammals of the Cardigan Bay/Bae Ceredigion SAC.

European Site: European Site: Cardigan Bay/Bae Ceredigion SAC Distance to Mona Array Area: 162.5 km Distance to Mona Offshore Cable Corridor and Access Areas: 161.5 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Bottlenose dolphin *Tursiops truncatus*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e
Grey seal *Halicheorus grypus*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project and the implementation of the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that there will be no residual risk of injury to bottlenose dolphin ana grey seal features during piling activities. For both bottlenose dolphin and grey seal there was no overlap with the strong disturbance (160 dB re 1 µPa SPL_{rms}) contour and the SAC. The iPCoD modelling suggests that over the duration of the impact, six years post impact and up to 25 years after the start of piling, there would be no long-term effects on the bottlenose dolphin or grey seal reference population. As a result, it is concluded that there is no risk of an adverse effect on the integrity of the Cardigan Bay/Bae Ceredigion SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is potential for bottlenose dolphin and grey seal features to be present within the impact zone of UXO when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. It is predicted that there may be measurable changes at an individual level (<1 bottlenose dolphin and <6 grey seal), but this would not manifest to population level effects. Disturbance from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level with high recoverability. Tertiary measures (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. Therefore, it is predicted that there will not be significant disturbance to the grey seal population (see HRA Stage 2 ISAA Part 2 – SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Cardigan Bay/Bae Ceredigion SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** – During pre-construction site surveys sonar-based systems have strong directivity and will be of short-term duration and intermittent. There will be no adverse effects leading to auditory injury for bottlenose dolphin and grey seal associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition, pre-construction site surveys will not be undertaken nearby or within this SAC and with bottlenose dolphin and grey seal recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 – SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Cardigan Bay/Bae Ceredigion SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results (see HRA Stage 2 ISAA Part 2 – SAC assessments, Document Reference E1.2) indicate that the maximum range for grey seal for risk of PTS does not exceed the threshold for marine mammals for all vessels and vessel activities. As this underwater sound will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for bottlenose dolphin and grey seal associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Offshore Cable Corridor and Access Area, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity and considering the distance to the SAC it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Cardigan Bay/Bae Ceredigion SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – piling at other projects may result in disturbance of Annex II bottlenose dolphin and grey seal features of the SAC, however the numbers presented above are inconsequential in the context of the grey seal reference population and OSPAR III region. Furthermore, grey seal has a large foraging range (up to 448 km reported in Carter *et al.*, 2022) and could therefore move to alternative foraging grounds during piling associated with the Mona Offshore Wind Project and other projects considered in the in-combination assessment. The iPCoD modelling grey seal also concluded that there is no potential for a long-term effects on this species when all Tier 1 and Tier 2 projects (for which quantitative information was available) were included. For bottlenose dolphins there could be potential reductions to lifetime reproductive success to some individuals in the Irish Sea MU population as disturbance in offshore areas during piling could lead to a longer duration over which individuals may be displaced from key areas. It should however be noted that recovery is anticipated to occur between piling events, which will be intermittent for in-combination projects. In particular, baseline levels of activity are anticipated to resume where there are long gaps between piling of respective projects. Based on the iPCoD modelling, these changes are not sufficient to significantly affect the population trajectory over a generational scale (i.e. the trajectory falls within natural variation), however, there may be a small reduction in population size for the impacted population. With the implementation of relevant mitigation measures (e.g. MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16))) impacts on the SAC from the Mona Offshore Wind Project alone will be reduced and therefore reducing the potential for the Mona Offshore Wind Project to contribute to any in combination effect. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Cardigan Bay/Bae Ceredigion SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** – Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the

magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Cardigan Bay/Bae Ceredigion SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects

iii. **In-combination assessment for underwater sound from pre-construction site surveys** – For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Cardigan Bay/Bae Ceredigion SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Cardigan Bay/Bae Ceredigion SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.19: Integrity matrix for Annex II marine mammals of The Maidens SAC.

European Site: European Site: The Maidens SAC Distance to Mona Array Area: 166.8 km Distance to Mona Offshore Cable Corridor and Access Areas: 179.8 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Grey seal *Halicheorus grypus*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** – With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project and the implementation of the MMMP (outlined in the HRA Stage 2 ISAA Part 2 – SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that there will be no residual risk of injury to grey seal during piling activities. There was no overlap with the strong disturbance (160 dB re 1 µPa SPL_{rms}) contour and the SAC. Grey seal close to the coast could experience mild disturbance but it is unlikely to cause a barrier to movement due to large foraging ranges which could provide alternative grounds during piling. The iPCoD modelling (see Volume 2, Chapter 4: Marine Mammals of the Environmental Statement) predicts that there will be no long-term effects on the seal population due to underwater sound from piling. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of The Maidens SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is potential for the grey seal feature to be present within the impact zone of UXO when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. It is predicted that there may be measurable changes at an individual level (<6 animals), but this would not manifest to population level effects. Disturbance from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level with high recoverability. Tertiary measures adopted as part of the Mona Offshore Wind Project (including visual and acoustic monitoring, use of an ADD and soft start changes) do contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. Therefore, it is predicted that there will not be significant disturbance to the grey seal population (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of The Maidens SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short-term duration and intermittent. There will be no adverse effects leading to auditory injury for grey seal associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition, pre-construction site surveys will not be undertaken nearby or within this SAC and with grey seal recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of The Maidens SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) indicate that the maximum range for grey seal for risk of PTS does not exceed the threshold for marine mammals for all vessels and vessel activities. As this underwater sound will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for grey seal associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Cable Corridor, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity and considering the distance to the SAC it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of The Maidens SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling –** piling at other projects may result in disturbance of Annex II grey seal features of the SAC, however the numbers presented above are inconsequential in the context of the grey seal reference population and OSPAR III region. Furthermore, grey seal has a large foraging range (up to 448 km reported in Carter *et al.*, 2022) and could therefore move to alternative foraging grounds during piling associated with the Mona Offshore Wind Project and other projects considered in the in-combination assessment. The iPCoD modelling for grey seal also concluded that there is no potential for a long-term effects on this species when all Tier 1 and Tier 2 projects (for which quantitative information was available) were included. With the implementation of the measures adopted as part of the Mona Offshore Wind Project, impacts on the SAC from the Mona Offshore Wind Project alone will be reduced and therefore reducing the potential for the Mona Offshore Wind Project to contribute to any in combination effect. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of The Maidens SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of The Maidens SAC as a result of underwater sound from UXO detonation with respect to the construction

or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of The Maidens SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of The Maidens SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.20: Integrity matrix for Annex II marine mammals of the Pembrokeshire Marine/Sir Benfro Forol SAC.

European Site: European Site: Pembrokeshire Marine/Sir Benfro Forol SAC Distance to Mona Array Area: 211.7 km Distance to Mona Offshore Cable Corridor and Access Areas: 210.7 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Grey seal *Halicheorus grypus*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project and the implementation of the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16), it is predicted that there will be no residual risk of injury to grey seal during piling activities. There was no overlap with the strong disturbance (160 dB re 1 µPa SPL_{rms}) contour and the SAC. Grey seal close to the coast could experience mild disturbance but it is unlikely to cause a barrier to movement due to large foraging ranges which could provide alternative grounds during piling. The iPCoD modelling (see Volume 2, Chapter 4: Marine Mammals of the Environmental Statement) predicts that there will be no long-term effects on the seal population due to underwater sound from piling. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pembrokeshire Marine/Sir Benfro Forol SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is potential for the grey seal feature to be present within the impact zone of UXO when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. It is predicted that there may be measurable changes at an individual level (<6 animals), but this would not manifest to population level effects. Disturbance from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level with high recoverability. Tertiary measures (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. Therefore, it is predicted that there will not be significant disturbance to the grey seal population (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pembrokeshire Marine/Sir Benfro Forol SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short-term duration and intermittent. There will be no adverse effects leading to auditory injury for grey seal associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition, pre-construction site surveys will not be undertaken nearby or within this SAC and with grey seal recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pembrokeshire Marine/Sir Benfro Forol SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) indicate that the maximum range for grey seal for risk of PTS does not exceed the threshold for marine mammals for all vessels and vessel activities. As this underwater sound will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for grey seal associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Cable Corridor, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity and considering the distance to the SAC it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pembrokeshire Marine/Sir Benfro Forol SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – piling at other projects may result in disturbance of Annex II grey seal features of the SAC, however the numbers presented above are inconsequential in the context of the grey seal reference population and OSPAR III region. Furthermore, grey seal has a large foraging range (up to 448 km reported in Carter *et al.*, 2022) and could therefore move to alternative foraging grounds during piling associated with the Mona Offshore Wind Project and other projects considered in the in-combination assessment. The iPCoD modelling for grey seal also concluded that there is no potential for a long-term effects on this species when all Tier 1 and Tier 2 projects (for which quantitative information was available) were included. With the implementation of required measures, adopted as part of the Mona Offshore Wind Project, impacts on the SAC from the Mona Offshore Wind Project alone will be reduced and therefore reducing the potential for the Mona Offshore Wind Project to contribute to any in combination effect. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pembrokeshire Marine/Sir Benfro Forol SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. As a result, it is concluded beyond reasonable scientific doubt

that there is no risk of an adverse effect on the integrity of the Pembrokeshire Marine/Sir Benfro Forol SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pembrokeshire Marine/Sir Benfro Forol SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment changes in prey availability** - Whilst there may be some potential in-combination effects to fish and shellfish communities, these effects will be highly localised and short term and therefore marine mammals are likely to be able to compensate and move to alternative foraging grounds. In addition, any projects/plans which may act in-combination with the Mona Offshore Wind Project will also implement measures which will further reduce the potential for in-combination effects on prey availability. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Pembrokeshire Marine/Sir Benfro Forol SAC as a result of underwater sound from changes in prey availability with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.21: Integrity matrix for Annex II marine mammals of the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC.

European Site: European Site: Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC Distance to Mona Array Area: 274.8 km Distance to Mona Offshore Cable Corridor and Access Areas: 273.8 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Harbour porpoise *Phocoena phocoena*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project including the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16), it is predicted that there will be no residual risk of injury to harbour porpoise during piling activities associated with the construction phase. Assessments for disturbance due to underwater sound from piling included both EDR approach alongside the unweighted sound threshold value of 143 dB re 1 μPa^2s SEL_{ss}. The range of effect will be localised within the Mona Array Area, with no potential spatial overlap with the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC. Both assessments concluded that there is no significant disturbance of harbour porpoise feature within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is the potential for harbour porpoise to be present within the impact zone of UXO, when tertiary measures adopted as part of the Mona Offshore Wind Project are applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. Disturbance (using TTS as a proxy) from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level. Tertiary measures adopted as part of the Mona Offshore Wind Project (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. The Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC, is located 95.4 km away from the Mona Array Area and 94.4 km away from the Mona Offshore Cable Corridor and Access Areas which is outside the 26 km EDR range for UXO. Therefore with the implementation of a 26 km EDR, there will be no overlap with the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC designated for harbour porpoise and disturbance associated with UXO detonation will not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short term duration and intermittent. There is no adverse effects leading to auditory injury for harbour porpoise associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition to this, given the distance from the Mona Offshore Wind Project to the SAC, it is expected that harbour porpoise will avoid the area of the survey. Noting that pre-construction site surveys will not be undertaken nearby or within this SAC and with harbour porpoise recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected

when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results presented within the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2), indicate that the threshold for PTS was not exceeded for marine mammals for all vessels and vessel activities. As the underwater sound associated with vessels will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for harbour porpoise associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Offshore Cable Corridor and Access Areas, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – the in-combination assessment for underwater sound from piling focusses on disturbance only (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). The unweighted 143 dB re 1 μPa^2s SEL_{ss} threshold approach has not been applied to the assessment of disturbance for harbour porpoise features in-combination with other plans and projects, as this would require the generation of project-specific unweighted 143 dB re 1 μPa^2s SEL_{ss} contours for Tier 1 Projects, which are not publicly available. Using the EDR approaches available in both Mona Offshore Wind Project and the Tier 1 project Awel y Môr, the disturbance footprints associated with both projects in-combination would not result in an overlap with the SAC. This, therefore, would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. The EDR approach was also used to assess disturbance as a result of underwater sound from piling, however the EDRs associated with the Tier 2 projects did not overlap with the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC. The iPCoD modelling for harbour porpoise also concluded that there is low potential for long-term cumulative effects due to cumulative piling when Mona Offshore Wind Project and Tier 1 project were included. This was also concluded when there was no noticeable difference in iPCoD models with the addition of Tier 2 projects (for which quantitative information was available) were included, concluding that sound from piling will not result in long-term population-level effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC during construction phases of the Mona Offshore Wind Project as a result of changes in prey availability.

ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. Using the EDR approaches available in both Mona Offshore Wind Project and Awel y Môr, (as outlined in the Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2), the disturbance footprints associated with both projects in-combination would not overlap with the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC. Therefore, this would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. In order reduce the in-combination impacts of underwater sound from UXO detonation during the Mona Offshore Wind Farm Project in-combination with other projects/plans the Mona Offshore Wind Project has committed to the Underwater Sound Management Strategy (Document Reference J16). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded that there is no risk of an adverse effect on the integrity of the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning

phases of the Mona Offshore Wind Project in-combination with other plan/projects.

v. **In-combination assessment changes in prey availability** - Whilst there may be some potential in-combination effects to fish and shellfish communities, these effects will be highly localised and short term and therefore marine mammals are likely to be able to compensate and move to alternative foraging grounds. In addition, any projects/plans which may act in-combination with the Mona Offshore Wind Project will also implement measures which will further reduce the potential for in-combination effects on prey availability. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC as a result of underwater sound from changes in prey availability with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.22: Integrity matrix for Annex II marine mammals of the Lundy SAC.

European Site: European Site: Lundy SAC Distance to Mona Array Area: 309.5 km Distance to Mona Offshore Cable Corridor and Access Areas: 308.5 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Grey seal *Halicheorus grypus*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project and the implementation of the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that there will be no residual risk of injury to grey seal during piling activities. There was no overlap with the strong disturbance (160 dB re 1 µPa SP_{rms}) contour and the SAC. Grey seal close to the coast could experience mild disturbance but it is unlikely to cause a barrier to movement due to large foraging ranges which could provide alternative grounds during piling. The iPCoD modelling (see Volume 2, Chapter 4: Marine Mammals of the Environmental Statement) predicts that there will be no long-term effects on the seal population due to underwater sound from piling. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Lundy SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is potential for the grey seal feature to be present within the impact zone of UXO when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. It is predicted that there may be measurable changes at an individual level (<6 animals), but this would not manifest to population level effects. Disturbance from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level with high recoverability. Tertiary measures adopted as part of the Mona Offshore Wind Project (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. Therefore, it is predicted that there will not be significant disturbance to the grey seal population (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Lundy SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short-term duration and intermittent. There will be no adverse effects leading to auditory injury for grey seal associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition, pre-construction site surveys will not be undertaken nearby or within this SAC and with grey seal recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Lundy SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) indicate that the maximum range for grey seal for risk of PTS does not exceed the threshold for marine mammals for all vessels and vessel activities. As this underwater sound will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for grey seal associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Cable Corridor, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity and considering the distance to the SAC it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Lundy SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – piling at other projects may result in disturbance of Annex II grey seal features of the SAC, however the numbers presented above are inconsequential in the context of the grey seal reference population and OSPAR III region. Furthermore, grey seal has a large foraging range (up to 448 km reported in Carter *et al.*, 2022) and could therefore move to alternative foraging grounds during piling associated with the Mona Offshore Wind Project and other projects considered in the in-combination assessment. The iPCoD modelling for grey seal also concluded that there is no potential for a long-term effects on this species when all Tier 1 and Tier 2 projects (for which quantitative information was available) were included. With the implementation of required measures adopted as part of the Mona Offshore Wind Project (e.g. MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16)), options will be taken from those outlined in the Underwater Sound Management Strategy (Document Reference J16),which will be outlined in the Underwater Sound Management Strategy (Document Reference J16) impacts on the SAC from the Mona Offshore Wind Project alone will be reduced and therefore reducing the potential for the Mona Offshore Wind Project to contribute to any in combination effect. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Lundy SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled

high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Lundy SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Lundy SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Lundy SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.23: Integrity matrix for Annex II marine mammals of the Isles of Scilly Complex SAC.

European Site: European Site: Isles of Scilly Complex SAC Distance to Mona Array Area: 439.3 km Distance to Mona Offshore Cable Corridor and Access Areas: 438.3 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Grey seal *Halicheorus grypus*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project and the implementation of the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that there will be no residual risk of injury to grey seal during piling activities. There was no overlap with the strong disturbance (160 dB re 1 µPa SP_{rms}) contour and the SAC. Grey seal close to the coast could experience mild disturbance but it is unlikely to cause a barrier to movement due to large foraging ranges which could provide alternative grounds during piling. The iPCoD modelling (see Volume 2, Chapter 4: Marine Mammals of the Environmental Statement) predicts that there will be no long-term effects on the seal population due to underwater sound from piling. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly Complex SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is potential for the grey seal feature to be present within the impact zone of UXO when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. It is predicted that there may be measurable changes at an individual level (<1 animals), but this would not manifest to population level effects. Disturbance from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level with high recoverability. Tertiary measures (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. Therefore, it is predicted that there will not be significant disturbance to the grey seal population (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly Complex SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short-term duration and intermittent. There will be no adverse effects leading to auditory injury for grey seal associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition, pre-construction site surveys will not be undertaken nearby or within this SAC and with grey seal recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly Complex SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) indicate that the maximum range for grey seal for risk of PTS does not exceed the threshold for marine mammals for all vessels and vessel activities. As this underwater sound will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for grey seal associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Cable Corridor, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity and considering the distance to the SAC it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly Complex SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – piling at other projects may result in disturbance of Annex II grey seal features of the SAC, however the numbers presented above are inconsequential in the context of the grey seal reference population and OSPAR III region. Furthermore, grey seal has a large foraging range (up to 448 km reported in Carter *et al.*, 2022) and could therefore move to alternative foraging grounds during piling associated with the Mona Offshore Wind Project and other projects considered in the in-combination assessment. The iPCoD modelling for grey seal also concluded that there is no potential for a long-term effects on this species when all Tier 1 and Tier 2 projects (for which quantitative information was available) were included. With the implementation of required measures adopted as part of the Mona Offshore Wind Project (i.e. MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16)), impacts on the SAC from the Mona Offshore Wind Project alone will be reduced and therefore reducing the potential for the Mona Offshore Wind Project to contribute to any in combination effect. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly Complex SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document reference F2.4) identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals

within the impact range in reality is likely to be much lower. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly Complex SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly Complex SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly Complex SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.24: Integrity matrix for Annex II marine mammals of the Rockabill to Dalkey Island SAC.

European Site: European Site: Rockabill to Dalkey Island SAC Distance to Mona Array Area: 126.1 km Distance to Mona Offshore Cable Corridor and Access Areas: 129.3 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Harbour porpoise *Phocoena phocoena*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project including the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16), it is predicted that there will be no residual risk of injury to harbour porpoise during piling activities associated with the construction phase. Assessments for disturbance due to underwater sound from piling included both EDR approach alongside the unweighted sound threshold value of 143 dB re 1 μPa^2s SEL_{ss}. The range of effect will be localised within the Mona Array Area, with no potential spatial overlap with the Rockabill to Dalkey Island SAC. Both assessments concluded that there is no significant disturbance of harbour porpoise feature within the SAC (see HRA Stage 2 ISAA Part 2 – SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Rockabill to Dalkey Island SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation –** Although there is the potential for harbour porpoise to be present within the impact zone of UXO, when tertiary measures adopted as part of the Mona Offshore Wind Project are applied, including the MMMP as an annex of the Underwater sound management strategy (Document Reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. Disturbance (using TTS as a proxy) from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level. Tertiary measures adopted as part of the Mona Offshore Wind Project (including visual and acoustic monitoring, use of an ADD and soft start changes) do contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Rockabill to Dalkey Island SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** – During pre-construction site surveys sonar-based systems have strong directivity and will be of short term duration and intermittent. There is no adverse effects leading to auditory injury for harbour porpoise associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition to this, given the distance from the Mona Offshore Wind Project to the SAC, it is expected that harbour porpoise will avoid the area of the survey. Noting that pre-construction site surveys will not be undertaken nearby or within this SAC and with harbour porpoise recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 – SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Rockabill to Dalkey Island SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results presented within the HRA Stage 2 ISAA Part 2 – SAC assessments, Document Reference E1.2), indicate that the threshold for PTS was not exceeded for marine mammals for all vessels and vessel activities. As the underwater sound associated with vessels will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for harbour porpoise associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Offshore Cable Corridor and Access Areas, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Rockabill to Dalkey Island SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – the in-combination assessment for underwater sound from piling focusses on disturbance only (see HRA Stage 2 ISAA Part 2 – SAC assessments, Document Reference E1.2). The unweighted 143 dB SEL_{ss} threshold approach has not been applied to the assessment of disturbance for harbour porpoise features in-combination with other plans and projects, as this would require the generation of project-specific unweighted 143 dB SEL_{ss} contours for Tier 1 Projects, which are not publicly available. Using the EDR approaches available in both Mona Offshore Wind Project and Awel y Môr, the disturbance footprints associated with both projects in-combination would not result in an overlap with the SAC. This, therefore, would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. The EDR approach was also used to assess disturbance as a result of underwater sound from piling, however the EDRs associated with the Tier 2 projects did not overlap with the Rockabill to Dalkey Island SAC. The iPCoD modelling for harbour porpoise also concluded that there is low potential for long-term cumulative effects due to cumulative piling when Mona Offshore Wind Project and Tier 1 project were included. This was also concluded when there was no noticeable difference in iPCoD models with the addition of Tier 2 projects (whom had quantitative information) was included, concluding that sound from piling will not result in long-term population-level effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Rockabill to Dalkey Island SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** – Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document reference F2.4) identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the

detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. In order reduce the cumulative impacts of underwater sound from UXO detonation during the Mona Offshore Wind Farm Project in-combination with other projects/plans the Mona Offshore Wind Project has committed to the Underwater Sound Management Strategy (Document Reference J16). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Rockabill to Dalkey Island SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** – For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures adopted as part of the Mona Offshore Wind Project such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Rockabill to Dalkey Island SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures adopted as part of the Mona Offshore Wind Project such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Rockabill to Dalkey Island SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.25: Integrity matrix for Annex II marine mammals of the Saltee Islands SAC.

European Site: European Site: Saltee Islands SAC Distance to Mona Array Area: 235.4 km Distance to Mona Offshore Cable Corridor and Access Areas: 234.4 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Grey seal *Halicheorus grypus*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** – With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project and the implementation of the MMMP (outlined in the HRA Stage 2 ISAA Part 2 – SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16), it is predicted that there will be no residual risk of injury to grey seal during piling activities. There was no overlap with the strong disturbance (160 dB re 1 µPa SPL_{rms}) contour and the SAC. Grey seal close to the coast could experience mild disturbance but it is unlikely to cause a barrier to movement due to large foraging ranges which could provide alternative grounds during piling. The iPCoD modelling (see Volume 2, Chapter 4: Marine Mammals of the Environmental Statement) predicts that there will be no long-term effects on the seal population due to underwater sound from piling. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Saltee Islands SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is potential for the grey seal feature to be present within the impact zone of UXO when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. It is predicted that there may be measurable changes at an individual level (<1 animals), but this would not manifest to population level effects. Disturbance from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level with high recoverability. Tertiary measures (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. Therefore, it is predicted that there will not be significant disturbance to the grey seal population (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Saltee Islands SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short-term duration and intermittent. There will be no adverse effects leading to auditory injury for grey seal associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition, pre-construction site surveys will not be undertaken nearby or within this SAC and with grey seal recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Saltee Islands SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) indicate that the maximum range for grey seal for risk of PTS does not exceed the threshold for marine mammals for all vessels and vessel activities. As this underwater sound will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for grey seal associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Cable Corridor, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity and considering the distance to the SAC it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Saltee Islands SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

   i. **In-combination assessment for underwater sound from piling** – piling at other projects may result in disturbance of Annex II grey seal features of the SAC, however the numbers presented above are inconsequential in the context of the grey seal reference population and OSPAR III region. Furthermore, grey seal has a large foraging range (up to 448 km reported in Carter *et al.*, 2022) and could therefore move to alternative foraging grounds during piling associated with the Mona Offshore Wind Project and other projects considered in the in-combination assessment. The iPCoD modelling for grey seal also concluded that there is no potential for a long-term effects on this species when all Tier 1 and Tier 2 projects (for which quantitative information was available) were included. With the implementation of measures adopted as part of the Mona Offshore Wind Project (i.e. MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16)), options will be taken from those outlined in the Underwater Sound Management Strategy (Document Reference J16), impacts on the SAC from the Mona Offshore Wind Project alone will be reduced and therefore reducing the potential for the Mona Offshore Wind Project to contribute to any in combination effect. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Saltee Islands SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

   ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore

impact ranges and number of animals within the impact range in reality is likely to be much lower. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Saltee Islands SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Saltee Islands SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Saltee Islands SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.26: Integrity matrix for Annex II marine mammals of the Roaringwater Bay and Islands SAC.

European Site: European Site: Roaring Water Bay and Islands SAC Distance to Mona Array Area: 448.8 km Distance to Mona Offshore Cable Corridor and Access Areas: 447.8 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Harbour porpoise *Phocoena phocoena*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project including the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that there will be no residual risk of injury to harbour porpoise during piling activities associated with the construction phase. Assessments for disturbance due to underwater sound from piling included both EDR approach alongside the unweighted sound threshold value of 143 dB re 1 μPa^2s SEL_{ss}. The range of effect will be localised within the Mona Array Area, with no potential spatial overlap with the Roaringwater Bay and Islands SAC. Both assessments concluded that there is no significant disturbance of harbour porpoise feature within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Roaringwater Bay and Islands SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is the potential for harbour porpoise to be present within the impact zone of UXO, when tertiary measures is applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. Disturbance (using TTS as a proxy) from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level. Tertiary measures (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Roaringwater Bay and Islands SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short term duration and intermittent. There is no adverse effects leading to auditory injury for harbour porpoise associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition to this, given the distance from the Mona Offshore Wind Project to the SAC, it is expected that harbour porpoise will avoid the area of the survey. Noting that pre-construction site surveys will not be undertaken nearby or within this SAC and with harbour porpoise recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Roaringwater Bay and Islands SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results presented within the HRA Stage 2 ISAA Part 2 - SAC assessments, Document

Reference E1.2), indicate that the threshold for PTS was not exceeded for marine mammals for all vessels and vessel activities. As the underwater sound associated with vessels will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for harbour porpoise associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Offshore Cable Corridor and Access Areas, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Roaringwater Bay and Islands SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

i. **In-combination assessment for underwater sound from piling** – the in-combination assessment for underwater sound from piling focusses on disturbance only (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). The unweighted 143 dB SEL_{ss} contour approach has not been applied to the assessment of disturbance for harbour porpoise features in-combination with other plans and projects, as this would require the generation of project-specific unweighted 143 dB SEL_{ss} contours for Tier 1 Projects, which are not publicly available. Using the EDR approaches available in both Mona Offshore Wind Project and Awel y Môr, the disturbance footprints associated with both projects in-combination would not result in an overlap with the SAC. This, therefore, would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. The EDR approach was also used to assess disturbance as a result of underwater sound from piling, however the EDRs associated with the Tier 2 projects did not overlap with the Roaringwater Bay and Islands SAC. The iPCoD modelling for harbour porpoise also concluded that there is low potential for long-term cumulative effects due to cumulative piling when Mona Offshore Wind Project and Tier 1 project were included. This was also concluded when there was no noticeable difference in iPCoD models with the addition of Tier 2 projects (for which quantitative information was available) were included, concluding that sound from piling will not result in long-term population-level effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Roaringwater Bay and Islands SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project Erebus the assessment used modelled

high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. In order reduce the cumulative impacts of underwater sound from UXO detonation during the Mona Offshore Wind Farm Project in-combination with other projects/plans the Mona Offshore Wind Project has committed to the Underwater Sound Management Strategy (Document Reference J16). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Roaringwater Bay and Islands SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Roaringwater Bay and Islands SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity –** For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Roaringwater Bay and Islands SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.27: Integrity matrix for Annex II marine mammals of the Blasket Islands SAC.

European Site: European Site: Blasket Islands SAC Distance to Mona Array Area: 565.5 km Distance to Mona Offshore Cable Corridor and Access Areas: 564.5 km															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Harbour porpoise *Phocoena phocoena*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project including the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that there will be no residual risk of injury to harbour porpoise during piling activities associated with the construction phase. Assessments for disturbance due to underwater sound from piling included both EDR approach alongside the unweighted sound threshold value of 143 dB re 1 μPa^2s SEL_{ss}. The range of effect will be localised within the Mona Array Area, with no potential spatial overlap with the North Anglesey Marine/Gogledd Môn Forol SAC. Both assessments concluded that there is no significant disturbance of harbour porpoise feature within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Blasket Islands SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation -** Although there is the potential for harbour porpoise to be present within the impact zone of UXO, when tertiary measures are applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. Disturbance (using TTS as a proxy) from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level. Tertiary measures (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Blasket Islands SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short term duration and intermittent. There is no adverse effects leading to auditory injury for harbour porpoise associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition to this, given the distance from the Mona Offshore Wind Project to the SAC, it is expected that harbour porpoise will avoid the area of the survey. Noting that pre-construction site surveys will not be undertaken nearby or within this SAC and with harbour porpoise recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Blasket Islands SAC during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results presented within the HRA Stage 2 ISAA Part 2 - SAC assessments, Document

Reference E1.2), indicate that the threshold for PTS was not exceeded for marine mammals for all vessels and vessel activities. As the underwater sound associated with vessels will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for harbour porpoise associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Offshore Cable Corridor and Access Areas, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Blasket Islands SAC during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

i. **In-combination assessment for underwater sound from piling** – the in-combination assessment for underwater sound from piling focusses on disturbance only (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). The unweighted 143 dB re 1 μPa^2s SEL_{ss} threshold approach has not been applied to the assessment of disturbance for harbour porpoise features in-combination with other plans and projects, as this would require the generation of project-specific unweighted 143 dB re 1 μPa^2s SEL_{ss} contours for Tier 1 Projects, which are not publicly available. Using the EDR approaches available in both Mona Offshore Wind Project and Awel y Môr, the disturbance footprints associated with both projects in-combination would not result in an overlap with the SAC. This, therefore, would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. The EDR approach was also used to assess disturbance as a result of underwater sound from piling, however the EDRs associated with the Tier 2 projects did not overlap with the Blasket Islands SAC. The iPCoD modelling for harbour porpoise also concluded that there is low potential for long-term cumulative effects due to cumulative piling when Mona Offshore Wind Project and Tier 1 project were included. This was also concluded when there was no noticeable difference in iPCoD models with the addition of Tier 2 projects (for which quantitative information was available) were included, concluding that sound from piling will not result in long-term population-level effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Blasket Islands SAC as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-

precautionary and in the case of Project Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. In order reduce the cumulative impacts of underwater sound from UXO detonation during the Mona Offshore Wind Farm Project in-combination with other projects/plans the Mona Offshore Wind Project has committed to the Underwater Sound Management Strategy (Document Reference J16). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Blasket Islands SAC as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from pre-construction site surveys** - For pre-construction site surveys any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Blasket Islands SAC as a result of underwater sound from pre-construction site surveys with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Blasket Islands SAC as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

Table 1.28: Integrity matrix for the 17 French sites for harbour porpoise.

European Site: 17 French SCI sites (Mers Celtiques - Talus du golfe de Gascogne SCI, Abers - Côte des legends SCI, Ouessant-Molène SCI, Côte de Granit rose-Sept-Iles SCI, Anse de Goulven, dunes de Keremma SCI, Tregor Goëlo SCI, Côtes de Crozon SCI, Chaussée de Sein SCI, Cap Sizun SCI, Récifs du talus du golfe de Gascogne SCI, Anse de Vauville SCI, Cap d'Erquy-Cap Fréhel SCI, Baie de Saint-Brieuc – Est SC, Banc et récifs de Surtainville SCI, Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard SCI, Estuaire de la Rance SCI, Baie du Mont Saint-Michel SCI) Distance to Mona Array Area: See HRA Stage 1 Screening Report (Document Reference E1.4) Distance to Mona Offshore Cable Corridor and Access Areas: See HRA Stage 1 Screening Report (Document Reference E1.4)															
Qualifying features	**Underwater sound from piling**			**Underwater sound from UXO clearance**			**Underwater sound from pre-construction site surveys**			**Underwater sound from vessels and other vessel activities**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Harbour porpoise *Phocoena phocoena*	×a		×a	×b		×b	×c		×c	×d	×d	×d	×e	×e	×e

a. **Injury and disturbance from underwater sound generated from piling** - With the implementation of primary and tertiary measures adopted as part of the Mona Offshore Wind Project including the MMMP (outlined in the HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2) as an annex of the Underwater sound management strategy (Document Reference J16), it is predicted that there will be no residual risk of injury to harbour porpoise during piling activities associated with the construction phase. Assessments for disturbance due to underwater sound from piling included both EDR approach alongside the unweighted sound threshold value of 143 dB re 1 μPa^2s SEL_{ss}. The range of effect will be localised within the Mona Array Area, with no potential spatial overlap with any French SCI. Both assessments concluded that there is no significant disturbance of harbour porpoise feature within the SCIs (see HRA Stage 2 As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the 17 French SCIs during the construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generated from piling.

b. **Injury and disturbance from underwater sound generation from UXO detonation** - Although there is the potential for harbour porpoise to be present within the impact zone of UXO, when tertiary measures adopted as part of the Mona Offshore Wind Project are applied, including the MMMP as an annex of the Underwater sound management strategy (Document reference J16), it is predicted that marine mammals will be deterred from the injury zone, reducing risk of PTS and disturbance. Disturbance (using TTS as a proxy) from the underwater sound generation of UXO detonation is considered to be short term and reversible, with anticipated changes measurable only at individual level. Tertiary measures adopted as part of the Mona Offshore Wind Project (including visual and acoustic monitoring, use of an ADD and soft start changes) does contribute to moving away responses by marine mammals but effects will be in the short term and it is anticipated that features will fully recover. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the 17 French SCIs during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from UXO detonation.

c. **Injury and disturbance from underwater sound from pre-construction site surveys** - During pre-construction site surveys sonar-based systems have strong directivity and will be of short term duration and intermittent. There is no adverse effects leading to auditory injury for harbour porpoise associated with underwater sound from pre-construction site surveys for the Mona Offshore Wind Project. In addition to this, given the distance from the Mona Offshore Wind Project to these SCIs, it is expected that harbour porpoise will avoid the area of the survey. Noting that pre-construction site surveys will not be undertaken nearby or within these SCIs and with harbour porpoise recovering quickly after the surveys have ceased, behavioural disturbance is unlikely to be significant. Therefore, only a small area will be affected when compared to available foraging habitat in the Irish Sea and it will not affect important areas for foraging and reproduction within the SAC (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the 17 French SCIs during construction or decommissioning phases of the Mona Offshore Wind Project as a result of injury and disturbance from underwater sound generation from pre-construction site surveys.

d. **Underwater sound from vessels and other vessel activities** – Sound modelling results presented within the HRA Stage 2 ISAA Part 2 - SAC assessments, Document

Reference E1.2), indicate that the threshold for PTS was not exceeded for marine mammals for all vessels and vessel activities. As the underwater sound associated with vessels will be short term in duration and intermittent, there is no adverse effects leading to auditory injury for harbour porpoise associated with elevated underwater sound due to vessel use and other activities for Mona Offshore Wind Project. Activities and vessel movements will also be restricted to the Mona Array Area and Mona Offshore Cable Corridor and Access Areas, with large vessels producing low frequency sounds, likely following existing shipping routes. With this slight increase in traffic in the Mona Offshore Wind Project vicinity it is unlikely to cause significant behaviour disturbance to marine mammals. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the 17 French SCIs during construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project as a result of underwater sound from vessels and other vessel activities.

e. **In-combination effects:**

i. **In-combination assessment for underwater sound from piling** – the in-combination assessment for underwater sound from piling focusses on disturbance only (see HRA Stage 2 ISAA Part 2 - SAC assessments, Document Reference E1.2). The unweighted 143 dB re 1 μPa^2s SEL_{ss} threshold approach has not been applied to the assessment of disturbance for harbour porpoise features in-combination with other plans and projects, as this would require the generation of project-specific unweighted 143 dB re 1 μPa^2s SEL_{ss} contours for Tier 1 Projects, which are not publicly available. Using the EDR approaches available in both Mona Offshore Wind Project and Tier 1 project Awel y Môr, the disturbance footprints associated with both projects in-combination would not result in an overlap with the SCIs. This, therefore, would not exceed the daily 20% disturbance threshold or the 10% threshold of the relevant area of the site over the season. The EDR approach was also used to assess disturbance as a result of underwater sound from piling, however the EDRs associated with the Tier 2 projects did not overlap with the 17 French SCIs. The iPCoD modelling for harbour porpoise also concluded that there is low potential for long-term cumulative effects due to cumulative piling when Mona Offshore Wind Project and Tier 1 project were included. This was also concluded when there was no noticeable difference in iPCoD models with the addition of Tier 2 projects (for which quantitative information was available) was included, concluding that sound from piling will not result in long-term population-level effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the 17 French SCIs as a result of underwater sound from piling with respect to the construction and decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

ii. **In-combination assessment for underwater sound UXO detonation** - Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document reference F2.4) identified the magnitude of the impact from all projects in terms of PTS is predicted to be of local to regional spatial extent, very short-term duration and intermittent. In line with UXO guidance, assuming standard industry measures applied for each project, it is anticipated that for most species animals would be deterred from the injury zone and therefore the risk of PTS would be reduced. TTS was predicted to be of regional spatial extent, very short-term duration, intermittent and both the impact itself (i.e. risk of injury during the detonation event) and effect of TTS is reversible. In addition, injury ranges identified are also likely to be highly over-precautionary and in the case of Project

Erebus the assessment used modelled high-order UXO clearance which is very unlikely to occur in practice, therefore impact ranges and number of animals within the impact range in reality is likely to be much lower. In order reduce the cumulative impacts of underwater sound from UXO detonation during the Mona Offshore Wind Farm Project in-combination with other projects/plans the Mona Offshore Wind Project has committed to the Underwater Sound Management Strategy (Document Reference J16). As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the 17 French SCIs as a result of underwater sound from UXO detonation with respect to the construction or decommissioning of the Mona Offshore Wind Project in-combination with other plan/projects.

iii. **In-combination assessment for underwater sound from vessels and other vessel activity** – For underwater sound from vessels and other vessel activity any in-combination effects are predicted to have local to regional spatial extent, with medium term duration and to occur intermittently. Any projects/plans which may act in-combination with the Mona Offshore Wind Project will also likely implement measures adopted as part of the Mona Offshore Wind Project such as an MMMP which will further reduce the potential for in-combination underwater sound effects. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the 17 French SCIs as a result of underwater sound from sound from vessels and other vessel activity with respect to the construction, operations and maintenance or decommissioning phases of the Mona Offshore Wind Project in-combination with other plan/projects.

iv. **In-combination assessment changes in prey availability** - Whilst there may be some potential in-combination effects to fish and shellfish communities, these effects will be highly localised and short term and therefore marine mammals are likely to be able to compensate and move to alternative foraging grounds. In addition, any projects/plans which may act in-combination with the Mona Offshore Wind Project will also implement measures which will further reduce the potential for in-combination effects on prey availability. As a result, it is concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the 17 French SCIs as a result of underwater sound from changes in prey availability with respect to the construction of the Mona Offshore Wind Project in-combination with other plan/projects.

1.2.5 Integrity matrices for offshore ornithological features

Table 1.29: Integrity matrix for offshore ornithological features of the Liverpool Bay/Bae Lerpwl SPA.

European Site: European Site: Liverpool Bay/Bae Lerpwl SPA Distance to Mona Array Area: 15.9 km Distance to Mona Offshore Cable Corridor and Access Areas: 0 km															
European site qualifying feature	**Temporary habitat loss/disturbance and increased SSC**			**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**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**
Red-throated diver *Gavia stellata* (non-breeding)	× a	× a	× a	× b	× b	× b	× c			× d	× d	× d	× e	× e	× e
Little gull *Hydrocoloeus minutus* (non-breeding)	× a	× a	× a	× b	× b	× b	× c			× d	× d	× d	× e	× e	× e
Common scoter *Melanita gretta* (non-breeding)	× a	× a	× a	× b	× b	× b	× c			× d	× d	× d	× e	× e	× e
Waterbird assemblage	× a	× a	× a	× b	× b	× b	× c			× d	× d	× d	× e	× e	× e
Little tern *Sternula albifrons* (breeding)	× a	× a	× a	× b	× b	× b	× c			× d	× d	× d	× e	× e	× e
Common tern *Sterna hirundo* (breeding)	× a	× a	× a	× b	× b	× b	× c			× d	× d	× d	× e	× e	× e

a. **Temporary habitat loss/disturbance and increased SSC** – There is potential for this impact to occur within the Mona Offshore Cable Corridor and Access Areas only. During the construction phase temporary disturbance/loss of the habitat would occur over approximately 1.58 km^2. This is approximately 0.06% of the entire SPA. During the operations and maintenance phase the area disturbed reduces to approximately 0.428 km^2 (0.02% of the SPA). Both red-throated diver and common scoter were widely distributed within the inshore areas of the Liverpool Bay/Bae Lerpwl SPA from baseline surveys and therefore the minute area of temporary habitat loss/disturbance is highly unlikely to present a risk to increased mortality. All impacted individuals will be able to move into adjacent areas over the period of works. Due to the distribution of little gull within Liverpool Bay/Bae Lerpwl SPA there is no potential for any impacts to this qualifying feature due to lack of spatial overlap with all phases of the Mona Offshore Wind Project. Due to the distribution of both red-breasted merganser and great cormorant within Liverpool Bay/Bae Lerpwl SPA (with very nearshore distribution) there is no potential for any impact to this qualifying feature due to lack of spatial overlap with all phases of the Mona Offshore Wind Farm Project. Due to the location of the little tern colony which use Liverpool Bay/Bae Lerpwl SPA is there is no potential for any impact to this qualifying feature due to lack of spatial overlap with all phases of the Mona Offshore Wind Project. Due to the location of the common tern colonies which use Liverpool Bay/Bae Lerpwl SPA is there is no potential for any impact to this qualifying feature due to lack of spatial overlap with all phases of the Mona Offshore Wind Project. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features from this SPA for the Mona Offshore Wind Project alone.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – The construction phase displacement assessment for red-throated diver and common scoter considered up to 0.31 and 12.4 birds, respectively, could be subject to mortality within the Mona Offshore Cable Corridor. The increase in baseline mortality if the maximum number of birds were subject to mortality was up to 0.07% for red-throated diver during the non-breeding period and 0.06% for common scoter. For the great cormorant and red-breasted merganser features of the waterbird assemblage, the construction phase displacement assessment considered up to 0.02 and 0.01 birds, respectively, could be subject to mortality within the Mona Offshore Cable Corridor. This equates to an increase in baseline mortality of 0.01% for red-breasted merganser and <0.01% for great cormorant. The increases in baseline mortality within the Mona Offshore Cable Corridor and Access Areas, would only occur if no mitigation was put in place, but are below a 1% increase in baseline mortality and therefore are expected to be within the natural variability for this SPA. The Applicant has committed to Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17). Measures include a commitment that site induction processes will incorporate the principles of the Wildlife Safe (WiSe) Scheme and a commitment that no cable installation activities will occur in the Liverpool Bay/Bae Lerpwl SPA between 1 November and 31 March. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP. With the mitigation proposed to avoid the winter months, the impact on the designated features would equate to a <0.01% increase in baseline mortality for red-throated diver and common scoter and also a lesser impact for the waterbird assemblage. The increase in vessel movements within the Liverpool Bay/Bae Lerpwl SPA was considered for the operations and maintenance phase,

and it was concluded that the addition of up to six transits a day within the already highly transited area (i.e. to and from port locations) would not increase the impact on common scoter or red-throated diver, with the highest density of birds outwith the transiting areas. The operations and maintenance phase displacement assessment concluded that within the Mona Offshore Cable Corridor and Access Areas the impact during this phase would be no greater than during the construction phase. Due to the distribution of little gull within Liverpool Bay/Bae Lerpwl SPA there is no potential for any impacts to this qualifying feature due to lack of spatial overlap with all phases of the Mona Offshore Wind Project. Due to the location of the little tern colony which use Liverpool Bay/Bae Lerpwl SPA is there is no potential for any impact to this qualifying feature due to lack of spatial overlap with all phases of the Mona Offshore Wind Project. Due to the location of the common tern colonies which use Liverpool Bay/Bae Lerpwl SPA is there is no potential for any impact to this qualifying feature due to lack of spatial overlap with all phases of the Mona Offshore Wind Project. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for all qualifying features from this SPA for the Mona Offshore Wind Project alone.

c. **Changes in prey availability** - There is potential for this impact to occur within the Mona Offshore Cable Corridor and Access Areas during the construction phase only. During the construction phase the impact would result in local displacement of prey species is expected to arise primarily due to increases in SSC from underwater cable laying within the Mona Offshore Cable Corridor and Access Areas. The extent over which the cable laying occurs is minute (up to 0.06% of the SPA when considering a 20 m buffer around 20 km of offshore cable, per cable within the Liverpool Bay/Bae Lerpwl SPA), therefore any species which are present within the area may move to adjacent areas of the SPA during the temporary construction period. Due to the distribution of little gull within the Liverpool Bay/Bae Lerpwl SPA and due to the location of the little tern and common tern colonies which use Liverpool Bay/Bae Lerpwl SPA is there is no potential for any impact to these qualifying features due to lack of spatial overlap with all phases of the Mona Offshore Wind Project. There were no predicted impacts on fish and shellfish receptors considered within the assessment which could indirectly impact the qualifying features of the Liverpool Bay/Bae Lerpwl SPA. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to changes in prey availability for all qualifying features from this SPA for the Mona Offshore Wind Project alone.

d. **Accidental pollution** - There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project 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. It is anticipated that the risk of such events occurring will be further managed by the implementation of measures which will be implemented as part of the Mona Offshore Wind Project which include for the development and adherence to an Offshore EMP that will include a MPCP. Due to the distribution of little gull within the Liverpool Bay/Bae Lerpwl SPA and due to the location of the little tern and common tern colonies which use Liverpool Bay/Bae Lerpwl SPA is there is no potential for any impact to these qualifying features due to lack of spatial overlap with all phases of the Mona Offshore Wind Project. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site

integrity in relation to accidental pollution for all qualifying features from this SPA for the Mona Offshore Wind Project alone.

e. **In-combination effects** - Only disturbance and displacement from airborne sound, and presence of vessels and infrastructure could have an in-combination effect on the red-throated diver and common scoter qualifying features of the Liverpool Bay/Bae Lerpwl SPA. The total predicted mortality was 2.59 red-throated diver, which is an increase in baseline mortality of 0.62%. For common scoter the predicted mortalities was 35.3 birds, which is an increase in baseline mortality of 0.17%. These increases are below a 1% increase in baseline mortality and are therefore expected to be within the natural variability for both species for this SPA. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure risk for all qualifying features from this SPA for the Mona Offshore Wind Project in-combination with other plans and projects.

Table 1.30: Integrity matrix for offshore ornithological features of the Ribble and Alt Estuaries SPA and Ramsar site.

European Site: European Site: Ribble and Alt Estuaries SPA and Ramsar site Distance to Mona Array Area: 43.6 km Distance to Mona Offshore Cable Corridor: 38.9 km						
European site qualifying feature	**Collison risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**
Lesser black-backed gull		× a			×b	

a. **Collision risk** – Collision risk assessments conducted for lesser black-backed gull showed that annual mortalities were estimated to 0.1 birds from this from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to collision risk for lesser black-backed gull from this SPA for the Mona Offshore Wind Project alone.

b. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for lesser black-backed gull this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to collision risk for lesser black-backed gull from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.31: Integrity matrix for offshore ornithological features of the Irish Sea Front SPA.

European Site: European Site: Irish Sea Front SPA Distance to Mona Array Area: 57.2 km Distance to Mona Offshore Cable Corridor: 60.5 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Manx shearwater		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for Manx shearwater showed that annual mortalities were estimated to be up to six birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of <0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk annual mortalities were estimated to be up to six birds from this SPA from the Mona Offshore Wind Project alone, this equates to an increase in baseline mortality of <0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for Manx shearwater this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.32: Integrity matrix for offshore ornithological features of the Bowland Fells SPA.

European Site: European Site: Bowland Fells SPA Distance to Mona Array Area: 76.9 km Distance to Mona Offshore Cable Corridor: 80.4 km						
European site qualifying feature	**Collison risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**
Lesser black-backed gull		× a			×b	

a. **Collision risk** – Collision risk assessments conducted for lesser black-backed gull showed that annual mortalities were estimated to be 0.1 birds from this from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of <0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to collision risk for lesser black-backed gull from this SPA for the Mona Offshore Wind Project alone.

b. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for lesser black-backed gull this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to collision risk for lesser black-backed gull from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.33: Integrity matrix for offshore ornithological features of the Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA.

European Site: European Site: Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA Distance to Mona Array Area: 99.3 km Distance to Mona Offshore Cable Corridor: 84.7 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Manx shearwater		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for Manx shearwater showed that annual mortalities were estimated to be 0.8 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of 0.02%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.8 birds would be subject to mortality, this equates to an increase in baseline mortality of 0.02%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for Manx shearwater this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.34: Integrity matrix for offshore ornithological features of the Lambay Island SPA.

European Site: European Site: Lambay Island SPA Distance to Mona Array Area: 128.9 km Distance to Mona Offshore Cable Corridor: 132.5 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black-legged kittiwake		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be between 0.15 and 0.34 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of up to 0.04%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.15 to 0.34 birds would be subject to mortality, this equates to an increase in baseline mortality of up to 0.04%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black legged-kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.35: Integrity matrix for offshore ornithological features of the Howth Head Coast SPA.

European Site: European Site: Howth Head Coast SPA Distance to Mona Array Area: 134.4 km Distance to Mona Offshore Cable Corridor: 137.3 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black-legged kittiwake		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be between 0.07 and 0.16 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of up to 0.03%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.07 to 0.16 birds would be subject to mortality, this equates to an increase in baseline mortality of up to 0.03%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black legged-kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.36: Integrity matrix for offshore ornithological features of the Ireland's Eye SPA.

European Site: European Site: Ireland's Eye SPA Distance to Mona Array Area: 134.7 km Distance to Mona Offshore Cable Corridor: 137.7 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black-legged kittiwake		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be between 0.06 and 0.14 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of up to 0.03%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.06 to 0.14 birds would be subject to mortality, this equates to an increase in baseline mortality of up to 0.03%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black legged-kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.37: Integrity matrix for offshore ornithological features of the Copeland Islands SPA.

European Site: European Site: Copeland Islands SPA Distance to Mona Array Area: 136.5 km Distance to Mona Offshore Cable Corridor: 152.0 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Manx shearwater		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for Manx shearwater showed that annual mortalities were estimated to be 0.13 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.13 birds would be subject to mortality, this equates to an increase in baseline mortality of 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for Manx shearwater this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.38: Integrity matrix for offshore ornithological features of the Rathlin Island SPA.

European Site: European Site: Rathlin Island SPA Distance to Mona Array Area: 211.9 km Distance to Mona Offshore Cable Corridor: 228.3 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**CO&M**	**D**
Black-legged kittiwake		× a			× b			× c	
Common guillemot (non-breeding only)		× a						× c	
Razorbill (non-breeding only)		× a						× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3) for black-legged kittiwake. The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be between 0.1 and 0.4 birds from this SPA from the Mona Offshore Wind Project alone. Common guillemot and razorbill were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 2.8 and 0.9 birds was apportioned to this SPA, respectively. This equates to an increase in baseline mortality of up to 0.01% for black-legged kittiwake, 0.03% for common guillemot and 0.03% for razorbill, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone. It is also concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot and razorbill from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.1 to 0.4 black-legged kittiwake would be subject to mortality, this equates to an increase in baseline mortality of 0.01%, which is considered not detectable within the population and within the natural variation of survival. Common guillemot and razorbill are not susceptible to collisions. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake, common guillemot and razorbill this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity for black-legged kittiwake, common guillemot and razorbill from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.39: Integrity matrix for offshore ornithological features of Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA.

European Site: European Site: Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA Distance to Mona Array Area: 221.6 km Distance to Mona Offshore Cable Corridor: 201.1 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**CO&M**	**D**
Manx shearwater		× a			× b			× c	
Common guillemot (non-breeding only)		× a						× c	
Razorbill (non-breeding only)		× a						× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3) for Manx shearwater. The combined assessments conducted for Manx shearwater showed that annual mortalities were estimated to be 4.5 birds from this SPA from the Mona Offshore Wind Project alone. Common guillemot and razorbill were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.5 and 0.3 birds was apportioned to this SPA, respectively. This equates to an increase in baseline mortality of up to <0.01% for Manx shearwater, 0.03% for common guillemot and 0.02% for razorbill, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project alone. It is also concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot and razorbill from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 4.5 Manx shearwater would be subject to mortality, this equates to an increase in baseline mortality of 0.01%, which is considered not detectable within the population and within the natural variation of survival. Common guillemot and razorbill are not susceptible to collisions. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater, common guillemot and razorbill from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for Manx shearwater, common guillemot and razorbill this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity for Manx shearwater, common guillemot and razorbill from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.40: Integrity matrix for offshore ornithological features of the Grassholm SPA.

European Site: European Site: Grassholm SPA Distance to Mona Array Area: 230.3 km Distance to Mona Offshore Cable Corridor: 211.4 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Northern gannet		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for northern gannet showed that annual mortalities were estimated to be 0.5 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for northern gannet from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.5 birds would be subject to mortality, this equates to an increase in baseline mortality of 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for northern gannet from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for northern gannet this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for northern gannet from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.41: Integrity matrix for offshore ornithological features of the Ailsa Craig SPA.

European Site: European Site: Ailsa Craig SPA Distance to Mona Array Area: 174.5 km Distance to Mona Offshore Cable Corridor: 190.9 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**CO&M**	**D**
Northern gannet		× a			× b			× c	
Common guillemot (non-breeding only)		× a						× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3) for northern gannet. The combined assessments conducted for northern gannet showed that annual mortalities were estimated to be between 1.4 and 1.7 birds from this SPA from the Mona Offshore Wind Project alone. Common guillemot were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.2 was apportioned to this SPA. This equates to an increase in baseline mortality of up to 0.03% for northern gannet and also 0.03% for common guillemot, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for northern gannet from this SPA for the Mona Offshore Wind Project alone. It is also concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 1.4 to 1.7 northern gannet would be subject to mortality, this equates to an increase in baseline mortality of 0.03%, which is considered not detectable within the population and within the natural variation of survival. Common guillemot is not susceptible to collisions. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for northern gannet from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for northern gannet and common guillemot this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity for northern gannet and common guillemot from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.42: Integrity matrix for offshore ornithological features of the Saltee Islands SPA.

European Site: European Site: Saltee Islands SPA Distance to Mona Array Area: 236.8 km Distance to Mona Offshore Cable Corridor: 228.2 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Northern gannet		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for northern gannet showed that annual mortalities were estimated to be 0.1 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for northern gannet from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.1 birds would be subject to mortality, this equates to an increase in baseline mortality of 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for northern gannet from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for northern gannet this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for northern gannet from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.43: Integrity matrix for offshore ornithological features of the Flamborough and Filey Coast SPA.

European Site: European Site: Flamborough and Filey Coast SPA Distance to Mona Array Area: 242.8 km Distance to Mona Offshore Cable Corridor: 237.7 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black legged-kittiwake (non-breeding season)		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be between 0.1 and 0.6 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of up to <0.01 to 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.1 to 0.6 birds would be subject to mortality, this equates to an increase in baseline mortality of up to 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.44: Integrity matrix for offshore ornithological features of the North Colonsay and Western Cliffs SPA.

European Site: European Site: North Colonsay and Western Cliffs SPA Distance to Mona Array Area: 242.8 km Distance to Mona Offshore Cable Corridor: 237.7 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**CO&M**	**D**
Black-legged kittiwake		× a			× b			× c	
Common guillemot (non-breeding only)		× a						× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3) for black-legged kittiwake. The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be 0.03 to 0.07 birds from this SPA from the Mona Offshore Wind Project alone. Common guillemot were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.4 birds was apportioned to this SPA. This equates to an increase in baseline mortality of up to <0.01 to 0.01% for black-legged kittiwake and 0.03% for common guillemot, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone. It is also concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk –** As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.03 to 0.07 black-legged kittiwake would be to subject mortality, this equates to an increase in baseline mortality of 0.01%, which is considered not detectable within the population and within the natural variation of survival. Common guillemot are not susceptible to collisions. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake and common guillemot this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity for black-legged kittiwake and common guillemot from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.45: Integrity matrix for offshore ornithological features of the Rum SPA.

European Site: European Site: Rum SPA Distance to Mona Array Area: 370.6 km Distance to Mona Offshore Cable Corridor: 390.1 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Manx shearwater		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for Manx shearwater showed that annual mortalities were estimated to be 1.3 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of <0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 1.3 birds would be subject to mortality, this equates to an increase in baseline mortality of <0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for Manx shearwater this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for Manx shearwater from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.46: Integrity matrix for offshore ornithological features of the Fowlsheugh SPA.

European Site: European Site: Fowlsheugh SPA Distance to Mona Array Area: 380.4 km Distance to Mona Offshore Cable Corridor: 379.1 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black legged-kittiwake (non-breeding season)		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be up to 0.1 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of up to <0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.1 would be subject to mortality, this equates to an increase in baseline mortality of up to <0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.47: Integrity matrix for offshore ornithological features of the Mingulay and Berneray SPA.

European Site: European Site: Mingulay and Berneray SPA Distance to Mona Array Area: 413.5 km Distance to Mona Offshore Cable Corridor: 415.8 km						
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**
Common guillemot (non-breeding only)		× a			× b	
Razorbill (non-breeding only)		× a			× b	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Common guillemot and razorbill were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.4 and 0.7 birds was apportioned to this SPA, respectively. This equates to an increase in baseline mortality of 0.02% for common guillemot and 0.03% for razorbill, which is considered not detectable within the population and within the natural variation of survival. On As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot and razorbill from this SPA for the Mona Offshore Wind Project alone.

b. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for common guillemot and razorbill this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot and razorbill from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.48: Integrity matrix for offshore ornithological features of the Isles of Scilly SPA.

European Site: European Site: Isles of Scilly SPA Distance to Mona Array Area: 76.9 km Distance to Mona Offshore Cable Corridor: 80.4 km						
European site qualifying feature	**Collison risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**
Great black-backed gull		× a			×b	

a. **Collision risk** – Collision risk assessments conducted for great black-backed gull showed that annual mortalities were estimated to be 0.06 to 0.4 birds from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of between 0.05% and 0.32%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to collision risk for great black-backed gull from this SPA for the Mona Offshore Wind Project alone.

b. **In-combination effects** – In-combination effects assessments showed that annual mortalities were estimated to be 1.37 to 9.34 birds (depending on the avoidance rate used) from this SPA from all projects in-combination. This equates to an increase in baseline mortality of between 1.09% and 7.4%. A PVA was undertaken to assess the impact on the population which showed that the addition of great black-backed gull collision impacts from cumulative wind farms would reduce the growth rate of the non-breeding/wintering population by 0.001 for avoidance rate of 0.9991 and 0.006 for avoidance rate of 0.9939. The model predicts a positive rate of growth for the population based on growth rates of 1.119 for the non-impacted population, 1.118 per annum when using the 0.9991 avoidance rate and 1.113 per annum when using the 0.9939 avoidance rate after 35 years of operation (between 2030 to 2065). Despite any additional mortality, the population is still expected to continue to grow and is predicted to be larger after 35 years than the currently recorded size. The reduced growth rate of 1.113 (lower confidence interval 1.091, upper confidence interval 1.133) for avoidance rate of 0.9939 and of 1.118 (lower confidence interval 1.097, upper confidence interval 1.139) would not trigger a risk of population decline and would only result in a slight reduction in the growth rate currently seen in the population. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to collision risk for great black-backed gull from this SPA.

Table 1.49: Integrity matrix for offshore ornithological features of the Canna and Sanday SPA.

European Site: European Site: Canna and Sanday SPA Distance to Mona Array Area: 413.6 km Distance to Mona Offshore Cable Corridor: 408.7 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black legged-kittiwake (non-breeding season)		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be 0.1 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of up to 0.02%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.1 birds would be subject to mortality, this equates to an increase in baseline mortality of up to 0.02%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.50: Integrity matrix for offshore ornithological features of the Buchan Ness to Collieston SPA.

European Site: European Site: Buchan Ness to Collieston SPA Distance to Mona Array Area: 431.0 km Distance to Mona Offshore Cable Corridor: 429.8 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black legged-kittiwake (non-breeding season)		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be 0.0 to 0.3 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of <0.01 to 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.0 to 0.3 birds would be subject to mortality, this equates to an increase in baseline mortality of <0.01 to 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.51: Integrity matrix for offshore ornithological features of the Troup, Pennan and Lions Heads SPA.

European Site: European Site: Troup, Pennan and Lions Heads SPA Distance to Mona Array Area: 462.0 km Distance to Mona Offshore Cable Corridor: 461.2 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black legged-kittiwake (non-breeding season)		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be 0.0 to 0.3 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of <0.01 to 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.0 to 0.3 birds would be subject to mortality, this equates to an increase in baseline mortality of <0.01 to 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.52: Integrity matrix for offshore ornithological features of the Shiant Isles SPA.

European Site: European Site: Shiant Isles SPA Distance to Mona Array Area: 472.7 km Distance to Mona Offshore Cable Corridor: 492.5 km						
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**
Razorbill (non-breeding only)		× a			× b	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Razorbill were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.3 birds was apportioned to this SPA. This equates to an increase in baseline mortality of 0.03% for razorbill, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for razorbill from this SPA for the Mona Offshore Wind Project alone.

b. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for razorbill this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for razorbill from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.53: Integrity matrix for offshore ornithological features of the East Caithness Cliffs SPA.

European Site: European Site: East Caithness Cliffs SPA Distance to Mona Array Area: 498.8 km Distance to Mona Offshore Cable Corridor: 499.4 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black legged-kittiwake (non-breeding season)		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be 0.1 to 0.7 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of <0.01 to 0.01%, which is considered not detectable within the population and within the natural variation of survival As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.1 to 0.7 birds would be subject to mortality, this equates to an increase in baseline mortality of <0.01 to 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.54: Integrity matrix for offshore ornithological features of the Handa SPA.

European Site: European Site: Handa SPA Distance to Mona Array Area: 510.5 km Distance to Mona Offshore Cable Corridor: 530.6 km						
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**
Common guillemot (non-breeding only)		× a			× b	
Razorbill (non-breeding only)		× a			× b	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Common guillemot and razorbill were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 1.2 and 0.3 birds was apportioned to this SPA, respectively. This equates to an increase in baseline mortality of 0.03% for common guillemot and 0.03% for razorbill, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot and razorbill from this SPA for the Mona Offshore Wind Project alone.

b. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for common guillemot and razorbill this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot and razorbill from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.55: Integrity matrix for offshore ornithological features of the St Kilda SPA.

European Site: European Site: St Kilda SPA Distance to Mona Array Area: 519.2 km Distance to Mona Offshore Cable Corridor: 537.2 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**CO&M**	**D**
Northern gannet		× a			× b			× c	
Common guillemot (non-breeding only)		× a						× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3) for northern gannet. The combined assessments conducted for northern gannet showed that annual mortalities were estimated to be 0.3 birds from this SPA from the Mona Offshore Wind Project alone. Common guillemot were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.5 birds was apportioned to this SPA. This equates to an increase in baseline mortality of <0.01 for northern gannet and 0.03% for common guillemot, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for northern gannet from this SPA for the Mona Offshore Wind Project alone. It is also considered that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk –** As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.3 northern gannet would be to subject mortality, this equates to an increase in baseline mortality of <0.01%, which is considered not detectable within the population and within the natural variation of survival. Common guillemot are not susceptible to collisions. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for northern gannet from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for northern gannet and common guillemot this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity for northern gannet and common guillemot from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.56: Integrity matrix for offshore ornithological features of the Cape Wrath SPA.

European Site: European Site: Cape Wrath SPA Distance to Mona Array Area: 532.8 km Distance to Mona Offshore Cable Corridor: 553.4 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**CO&M**	**D**
Black-legged kittiwake (non-breeding only)		× a			× b			× c	
Common guillemot (non-breeding only)		× a						× c	
Razorbill (non-breeding only)		× a						× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3) for black-legged kittiwake. The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be between 0.1 and 0.6 birds from this SPA from the Mona Offshore Wind Project alone. Common guillemot were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.8 birds was apportioned to this SPA. Razorbill were also assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.1 birds was apportioned to this SPA. This equates to an increase in baseline mortality of <0.01 to 0.02% for black-legged kittiwake, 0.02% for common guillemot and 0.02% for razorbill, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone. It is also concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot and razorbill from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk –** As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.1 to 0.6 black-legged kittiwake would be subject to mortality, this equates to an increase in baseline mortality of 0.02%, which is considered not detectable within the population and within the natural variation of survival. Common guillemot and razorbill are not susceptible to collisions. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake, common guillemot and razorbill this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity for black-legged kittiwake, common guillemot and razorbill from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.57: Integrity matrix for offshore ornithological features of the Flannan Isles SPA.

European Site: European Site: Flannan Isles SPA Distance to Mona Array Area: 540.6 km Distance to Mona Offshore Cable Corridor: 559.8 km						
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**
Common guillemot (non-breeding only)		× a			× b	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Common guillemot were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.3 birds was apportioned to this SPA, respectively. This equates to an increase in baseline mortality of 0.03% for common guillemot, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot and razorbill from this SPA for the Mona Offshore Wind Project alone.

b. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for common guillemot this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.58: Integrity matrix for offshore ornithological features of the North Caithness Cliffs SPA.

European Site: European Site: North Caithness Cliffs SPA Distance to Mona Array Area: 548.2 km Distance to Mona Offshore Cable Corridor: 549.0 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black legged-kittiwake (non-breeding season)		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be 0.1 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of up to <0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated 0.1 birds would be subject to mortality, this equates to an increase in baseline mortality of <0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.59: Integrity matrix for offshore ornithological features of the Sule Skerry and Sule Stack SPA.

European Site: European Site: Sule Skerry and Sule Stack SPA Distance to Mona Array Area: 601.6 km Distance to Mona Offshore Cable Corridor: 599.2 km						
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**
Common guillemot (non-breeding only)		× a			× b	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Common guillemot were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.3 birds was apportioned to this SPA, respectively. This equates to an increase in baseline mortality of 0.03% for common guillemot, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot and razorbill from this SPA for the Mona Offshore Wind Project alone.

b. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for common guillemot this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.60: Integrity matrix for offshore ornithological features of the North Rona and Sula Sgeir SPA.

European Site: European Site: North Rona and Sula Sgeir SPA Distance to Mona Array Area: 616.9 km Distance to Mona Offshore Cable Corridor: 618.2 km						
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**
Common guillemot (non-breeding only)		× a			× b	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Common guillemot were assessed against disturbance and displacement during the non-breeding season only, an annual mortality of 0.2 birds was apportioned to this SPA, respectively. This equates to an increase in baseline mortality of 0.03% for common guillemot, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot and razorbill from this SPA for the Mona Offshore Wind Project alone.

b. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for common guillemot this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for common guillemot from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.

Table 1.61: Integrity matrix for offshore ornithological features of the West Westray SPA.

European Site: European Site: West Westray SPA Distance to Mona Array Area: 630.7 km Distance to Mona Offshore Cable Corridor: 629.5 km									
European site qualifying feature	**Disturbance and displacement from airborne sound and presence of vessels and infrastructure**			**Collision risk**			**In-combination effects**		
	C	**O&M**	**D**	**C**	**O&M**	**D**	**C**	**O&M**	**D**
Black legged-kittiwake (non-breeding season)		× a			× b			× c	

a. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Disturbance and displacement and collision risk were presented together within the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3). The combined assessments conducted for black-legged kittiwake showed that annual mortalities were estimated to be 0.1 and 0.3 birds from this SPA from the Mona Offshore Wind Project alone. This equates to an increase in baseline mortality of <0.01 to 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

b. **Collision risk** – As stated for the combined assessment of disturbance and displacement and collision risk an estimated <0.1 to 0.3 birds would be subject to mortality, this equates to an increase in baseline mortality of up to <0.01 to 0.01%, which is considered not detectable within the population and within the natural variation of survival. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project alone.

c. **In-combination effects** – As the impact from the Mona Offshore Wind Farm alone is predicted to result in a <0.05% increase in baseline mortality for black-legged kittiwake this is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment. As a result, it is concluded beyond reasonable scientific doubt that there is no potential for adverse effect on site integrity in relation to combined disturbance and displacement from airborne sound and presence of vessels and infrastructure and collision risk for black-legged kittiwake from this SPA for the Mona Offshore Wind Project in-combination with other plans/projects.