



# **Awel y Môr Offshore Wind Farm**

## **Category 5: Reports**

### **Report 5.2, Annex 7: Integrity Matrices**

**Date: April 2022**

**Revision: A**

Application Reference: 5.2.7

Pursuant to: APFP Regulation 5(2)(g)



REVISION	DATE	STATUS/ REASON FOR ISSUE	AUTHOR:	CHECKED BY:	APPROVED BY:
A	April 2022	Application	GoBe Consultants	RWE	RWE

[www.awelymor.cymru](http://www.awelymor.cymru)

RWE Renewables UK Swindon Limited  
Windmill Hill Business Park  
Whitehill Way  
Swindon  
Wiltshire SN5 6PB  
T +44 (0)8456 720 090  
[www.rwe.com](http://www.rwe.com)

Registered office:  
RWE Renewables UK Swindon Limited  
Windmill Hill Business Park  
Whitehill Way  
Swindon

# GOBe



## Awel y Môr Offshore Wind Farm Annex 7 Integrity Matrices

Awel y Môr Offshore Wind Farm

Date: April 2022

Revision: 1.0

## Copyright © 2022 GoBe Consultants Ltd

All pre-existing rights reserved.

This document is supplied on and subject to the terms and conditions of the Contractual Agreement relating to this work, under which this document has been supplied.

## Confidentiality

This document is confidential.

All information contained within this document is proprietary to GoBe Consultants Ltd and is disclosed in confidence to the specified parties. Information herein may not be reproduced in whole or in part without the express permission from GoBe Consultants Ltd.

[www.gobeconsultants.com](http://www.gobeconsultants.com)



Revision	Date	Status	Author:	Checked by:	Approved by:
1.0 (External)	April 2022	Issue	BJ	GG	PG

## Contents

1	Integrity Matrix – Potential Impacts .....	7
1.1	Impacts considered within the integrity matrices .....	7
1.2	Matrix Key .....	17
	Matrix 1: Ailsa Craig (UK) SPA .....	18
	Matrix 2: Ailsa Craig (UK) SPA (in-combination) .....	20
	Matrix 3: Anglesey Terns / Morwenoliaid Ynys Mon (UK) SPA.....	22
	Matrix 4: Anglesey Terns / Morwenoliaid Ynys Mon (UK) SPA (in-combination).....	24
	Matrix 5: Anse de Vauville (FR) SAC.....	26
	Matrix 6: Anse de Vauville (FR) SAC (in-combination).....	27
	Matrix 7: Baie de Morlaix (FR) SAC .....	28
	Matrix 8: Baie de Morlaix (FR) SAC (in-combination) .....	29
	Matrix 9: Banc et récifs de Surtainville (FR) SAC.....	30
	Matrix 10: Banc et récifs de Surtainville (FR) SAC (in-combination).....	31
	Matrix 11: Blasket Islands SAC (IE) SAC.....	32
	Matrix 12: Blasket Islands SAC (IE) SAC (in-combination).....	33
	Matrix 13: Bowland Fells (UK) SPA and pSPA .....	34
	Matrix 14: Bowland Fells (UK) SPA and pSPA (in-combination) .....	35
	Matrix 15: Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK) SAC.....	36
	Matrix 16: Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK) SAC (in-combination) ...	37
	Matrix 17: Burry Inlet (UK) Ramsar.....	38
	Matrix 18: Burry Inlet (UK) Ramsar (in-combination).....	39
	Matrix 19: Burry Inlet (UK) SPA.....	40
	Matrix 20: Burry Inlet (UK) SPA (in-combination).....	42
	Matrix 21: Cap d'Erquy-Cap Fréhel (FR) SAC.....	44
	Matrix 22: Cap d'Erquy-Cap Fréhel (FR) SAC (in-combination).....	45
	Matrix 23: Cardigan Bay/ Bae Ceredigion (UK) SAC.....	46
	Matrix 24: Cardigan Bay/ Bae Ceredigion (UK) SAC (in-combination).....	47
	Matrix 25: Chausey (FR) SAC.....	48
	Matrix 26: Chausey (FR) SAC (in-combination).....	49
	Matrix 27: Copeland Islands (UK) SPA .....	50
	Matrix 28: Copeland Islands (UK) SPA (in-combination) .....	51
	Matrix 29: Côte de Granit rose-Sept-Iles (FR) SAC.....	52

Matrix 30: Côte de Granit rose-Sept-Iles (FR) SAC (in-combination).....	53
Matrix 31: Dee Estuary (UK) Ramsar (offshore).....	54
Matrix 32: Dee Estuary (UK) Ramsar (onshore).....	56
Matrix 33: Dee Estuary (UK) Ramsar (in-combination).....	58
Matrix 34: Dee Estuary/ Aber Dyfrdwy (UK) (England/ Wales) SAC .....	60
Matrix 35: Dee Estuary/ Aber Dyfrdwy (UK) (England/ Wales) SAC (in-combination) .....	63
Matrix 36: Dyfi Estuary / Aber Dyfi SPA (UK) SPA.....	65
Matrix 37: Dyfi Estuary / Aber Dyfi SPA (UK) SPA (in-combination) .....	66
Matrix 38: Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island (UK) SPA.....	67
Matrix 39: Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island (UK) SPA (in-combination).....	68
Matrix 40: Grassholm (UK) SPA.....	69
Matrix 41: Grassholm (UK) SPA (in-combination).....	70
Matrix 42: Helvick Head to Ballyquin (IE) SPA .....	71
Matrix 43: Helvick Head to Ballyquin (IE) SPA (in-combination) .....	72
Matrix 44: Howth Head Coast (IE) SPA .....	73
Matrix 45: Howth Head Coast (IE) SPA (in-combination) .....	74
Matrix 46: Ireland’s Eye (IE) SPA.....	75
Matrix 47: Ireland’s Eye (IE) SPA (in-combination).....	77
Matrix 48: Lambay Island (IE) SAC .....	77
Matrix 49: Lambay Island (IE) SAC (in-combination) .....	79
Matrix 50: Lambay Island (IE) SPA .....	80
Matrix 51: Lambay Island (IE) SPA (in-combination).....	82
Matrix 52: Liverpool Bay / Bae Lerpwl (UK) SPA.....	84
Matrix 53: Liverpool Bay / Bae Lerpwl (UK) SPA (in-combination).....	86
Matrix 54: Mers Celtiques - Talus du golfe de Gascogne (FR) SAC.....	88
Matrix 55: Mers Celtiques - Talus du golfe de Gascogne (FR) SAC (in-combination).....	89
Matrix 56: Morecambe Bay and Duddon Estuary (UK) SPA.....	90
Matrix 57: Morecambe Bay and Duddon Estuary (UK) SPA (in-combination).....	91
Matrix 58: Morecambe Bay Ramsar .....	92
Matrix 59: Morecambe Bay Ramsar (in-combination) .....	93
Matrix 60: Nord Bretagne DH (FR) SAC.....	94
Matrix 61: Nord Bretagne DH (FR) SAC (in-combination).....	95
Matrix 62: North Anglesey Marine / Gogledd Môn Forol (UK) SAC.....	96

Matrix 63: North Anglesey Marine / Gogledd Môn Forol (UK) SAC (in-combination).....	97
Matrix 64: North Channel (UK) SAC.....	98
Matrix 65: North Channel (UK) SAC (in-combination) .....	99
Matrix 66: Pembrokeshire Marine (UK) SAC.....	100
Matrix 67: Pembrokeshire Marine (UK) SAC (in-combination).....	101
Matrix 68: Pen Llŷn a`r Sarnau/ Llyn Peninsula and the Sarnau (UK) SAC.....	102
Matrix 69: Pen Llŷn a`r Sarnau/ Llyn Peninsula and the Sarnau (UK) SAC (in-combination)....	103
Matrix 70: Puffin Island (UK) SPA.....	104
Matrix 71: Puffin Island (UK) SPA (in-combination).....	105
Matrix 72: Rathlin Island (UK) SPA.....	106
Matrix 73: Rathlin Island (UK) SPA (in-combination).....	107
Matrix 74: Récifs et landes de la Hague (FR) SAC .....	108
Matrix 75: Récifs et landes de la Hague (FR) SAC (in-combination) .....	109
Matrix 76: Ribble and Alt Estuaries (UK) Ramsar.....	110
Matrix 77: Ribble and Alt Estuaries (UK) Ramsar (in-combination).....	111
Matrix 78: Ribble and Alt Estuaries (UK) SPA.....	112
Matrix 79: Ribble and Alt Estuaries (UK) SPA (in-combination).....	113
Matrix 80: River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC .....	114
Matrix 81: River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC (in-combination).....	116
Matrix 82: Roaringwater Bay and Islands SAC (IE) SAC.....	118
Matrix 83: Roaringwater Bay and Islands SAC (IE) SAC (in-combination).....	119
Matrix 84: Rockabill to Dalkey Island SAC (IE) SAC .....	120
Matrix 85: Rockabill to Dalkey Island SAC (IE) SAC .....	121
Matrix 86: Saltee Islands (Ireland) SAC .....	122
Matrix 87: Saltee Islands (Ireland) SAC (in-combination) .....	123
Matrix 88: Saltee Islands (IE) SPA.....	124
Matrix 89: Saltee Islands (IE) SPA (in-combination).....	126
Matrix 90: Severn Estuary (UK) Ramsar .....	127
Matrix 91: Severn Estuary (UK) Ramsar (in-combination).....	129
Matrix 92: Severn Estuary (UK) SPA.....	131
Matrix 93: Severn Estuary (UK) SPA.....	132
Matrix 94: Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro (UK) SPA.....	133

Matrix 95: Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro (UK) SPA (in-combination).....	136
Matrix 96: The Dee Estuary (UK) SPA (offshore).....	138
Matrix 97: The Dee Estuary (UK) SPA (offshore) (in-combination).....	141
Matrix 98: The Dee Estuary (UK) SPA (onshore).....	144
Matrix 99: The Dee Estuary (UK) SPA (onshore) (in-combination).....	146
Matrix 100: Traeth Lafan / Layan Sands, Conway Bay (UK) SPA.....	148
Matrix 101: Traeth Lafan / Layan Sands, Conway Bay (UK) SPA (in-combination).....	149
Matrix 102: Tregor Goëlo (FR) SAC .....	150
Matrix 103: Tregor Goëlo (FR) SAC (in-combination) .....	151
Matrix 104: West Wales Marine / Gorllewin Cymru Forol (UK) SAC .....	152
Matrix 105: West Wales Marine / Gorllewin Cymru Forol (UK) SAC (in-combination) .....	153
Matrix 106: Wexford Harbour and Slobbs (IE) SPA.....	154
Matrix 107: Wexford Harbour and Slobbs (IE) SPA (in-combination).....	155
Matrix 108: Wicklow Head (IE) SPA .....	156
Matrix 109: Wicklow Head (IE) SPA (in-combination) .....	157
Matrix 110: Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC .....	158
Matrix 111: Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC (in-combination).....	160
2 References .....	162

## Glossary

Term	Definition
AEol	Adverse Effect on Integrity
AyM	Awel Y Môr
ECR	Export Cable Route
LSE	Likely Significant Effect
RIAA	Report to Inform Appropriate Assessment

## 1 Integrity Matrix – Potential Impacts

- 1.1.1 This document has been produced to present a summary of the adverse effect assessments undertaken as part of the Report to Inform Appropriate Assessment (RIAA) to which the current Appendix is appended. This document is primarily for the use of The Planning Inspectorate to help inform their report on relevant HRA matters. The table below presents the Potential impacts upon the European site(s) which are considered within the RIAA. Impacts have been grouped where appropriate for ease of presentation.
- 1.1.2 The designated sites, features and effects assessed here (and where relevant listed below) are limited to those where potential for likely significant effect (LSE) has been identified in the screening matrix (appended to the RIAA as Appendix C). Where no LSE has been identified, there is no need to consider potential for Adverse Effect on Integrity (AEoI).

### 1.1 Impacts considered within the integrity matrices

Designation	Impacts in submission information
Ailsa Craig (UK) SPA	<p><u>Alone:</u></p> <p>Risk of Collision</p> <p>Direct disturbance and displacement</p> <hr/> <p><u>In-combination:</u></p> <p>Risk of Collision</p> <p>Direct disturbance and displacement</p>
Anglesey Terns / Morwenoliaid Ynys Mon (UK) SPA	<p><u>Alone:</u></p> <p>Risk of collision</p> <p>Direct disturbance and displacement</p> <p>Barrier effect</p> <hr/> <p><u>In-combination:</u></p> <p>Risk of collision</p> <p>Direct disturbance and displacement</p> <p>Barrier effect</p>
Anse de Vauville (FR) SAC	<p><u>Alone:</u></p> <p>Underwater noise</p> <hr/> <p><u>In-combination:</u></p> <p>Underwater noise</p>
Baie de Morlaix (FR) SAC	<p><u>Alone:</u></p> <p>Underwater noise</p>

Designation	Impacts in submission information
	<u>In-combination:</u> Underwater noise
Banc et récifs de Surtainville (FR) SAC	<u>Alone:</u> Underwater noise  <u>In-combination:</u> Underwater noise
Blasket Islands SAC (IE) SAC	<u>Alone:</u> Underwater noise  <u>In-combination:</u> Underwater noise
Bowland Fells (UK) SPA and pSPA	<u>Alone:</u> Risk of collision  <u>In-combination:</u> Risk of collision
Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK) SAC	<u>Alone:</u> Underwater noise  <u>In-combination:</u> Underwater noise
Burry Inlet (UK) Ramsar	<u>Alone:</u> Risk of collision on migration  <u>In-combination:</u> Risk of collision on migration
Burry Inlet (UK) SPA	<u>Alone:</u> Risk of collision on migration  <u>In-combination:</u> Risk of collision on migration
Cap d'Erquy-Cap Fréhel (FR) SAC	<u>Alone:</u> Underwater noise  <u>In-combination:</u> Underwater noise

Designation	Impacts in submission information
Cardigan Bay/ Bae Ceredigion (UK) SAC	<p><u>Alone:</u> Underwater noise</p> <hr/> <p><u>In-combination:</u> Underwater noise</p>
Chausey (FR) SAC	<p><u>Alone:</u> Underwater noise</p> <hr/> <p><u>In-combination:</u> Underwater noise</p>
Copeland Islands (UK) SPA	<p><u>Alone:</u> Disturbance and displacement</p> <hr/> <p><u>In-combination:</u> Disturbance and displacement</p>
Côte de Granit rose-Sept-Iles (FR) SAC	<p><u>Alone:</u> Underwater noise</p> <hr/> <p><u>In-combination:</u> Underwater noise</p>
Dee Estuary (UK) Ramsar (offshore)	<p><u>Alone:</u> Physical habitat loss/ disturbance Suspended sediment and deposition Pollution INNS Changes to physical processes EMF</p> <hr/> <p><u>In-combination:</u> Suspended sediment and deposition Pollution INNS Changes to physical processes EMF</p>
Dee Estuary Ramsar (onshore)	<p><u>Alone:</u> Visual and/ or noise disturbance to species</p>

Designation	Impacts in submission information
	<p><u>In-combination:</u></p> <p>Visual and/ or noise disturbance to species</p>
<p>Dee Estuary/ Aber Dyfrdwy (UK) (England/ Wales] SAC</p>	<p><u>Alone:</u></p> <p>Suspended sediment and deposition</p> <p>Pollution</p> <p>INNS</p> <p>Changes to physical processes</p> <p>EMF</p> <p>Underwater noise</p> <hr/> <p><u>In-combination:</u></p> <p>Suspended sediment and deposition</p> <p>Pollution</p> <p>INNS</p> <p>Changes to physical processes</p> <p>EMF</p> <p>Underwater noise</p>
<p>Dyfi Estuary / Aber Dyfi SPA (UK) SPA</p>	<p><u>Alone:</u></p> <p>Risk of collision on migration</p> <hr/> <p><u>In-combination:</u></p> <p>Risk of collision on migration</p>
<p>Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island (UK) SPA</p>	<p><u>Alone:</u></p> <p>Disturbance from vessels</p> <p>Disturbance and displacement</p> <p>Barrier effect</p> <p>Collision risk</p> <hr/> <p><u>In-combination:</u></p> <p>Disturbance from vessels</p> <p>Disturbance and displacement</p>
<p>Grassholm (UK) SPA</p>	<p><u>Alone:</u></p> <p>Risk of collision</p> <p>Direct disturbance and displacement</p>

Designation	Impacts in submission information
	<p><u>In-combination:</u> Direct disturbance and displacement Direct disturbance and displacement</p>
Helvick Head to Ballyquin (IE) SPA	<p><u>Alone:</u> Risk of collision</p> <hr/> <p><u>In-combination:</u> Risk of collision</p>
Howth Head Coast (IE) SPA	<p><u>Alone:</u> Risk of collision</p> <hr/> <p><u>In-combination:</u> Risk of collision</p>
Ireland’s Eye (IE) SPA	<p><u>Alone:</u> Risk of collision Direct disturbance and displacement</p> <hr/> <p><u>In-combination:</u> Risk of collision Direct disturbance and displacement</p>
Lambay Island (IE) SPA	<p><u>Alone:</u> Risk of collision Direct disturbance and displacement</p> <hr/> <p><u>In-combination:</u> Risk of collision Direct disturbance and displacement</p>
Lambay Island (Ireland) SAC	<p><u>Alone:</u> Underwater noise</p> <hr/> <p><u>In-combination:</u> Underwater noise</p>
Liverpool Bay / Bae Lerpwl (UK) SPA	<p><u>Alone:</u> Risk of collision Direct disturbance and displacement Barrier effect</p>

Designation	Impacts in submission information
	<p>Operational vessel disturbance</p> <p>Physical loss of and damage to supporting habitat</p> <p>Physical loss of and damage due to seabed preparation during construction</p> <p>Potential physical damage from blockage effects</p> <p>Potential physical damage from changes to physical processes</p> <p>The effect on benthic habitats and fish ecology</p> <p>Smothering</p> <hr/> <p><u>In-combination:</u></p> <p>Displacement effects</p> <p>Physical loss of supporting habitat</p> <p>Smothering</p> <p>Physical damage to supporting habitats</p>
<p>Mers Celtiques - Talus du golfe de Gascogne (FR) SAC</p>	<p><u>Alone:</u></p> <p>Underwater noise</p> <hr/> <p><u>In-combination:</u></p> <p>Underwater noise</p>
<p>Morecambe Bay and Duddon Estuary (UK) SPA</p>	<p><u>Alone:</u></p> <p>Risk of collision</p> <hr/> <p><u>In-combination:</u></p> <p>Risk of collision</p>
<p>Morecambe Bay Ramsar</p>	<p><u>Alone:</u></p> <p>Risk of collision</p> <hr/> <p><u>In-combination:</u></p> <p>Risk of collision</p>
<p>Nord Bretagne DH (FR) SAC</p>	<p><u>Alone:</u></p> <p>Underwater noise</p> <hr/> <p><u>In-combination:</u></p> <p>Underwater noise</p>
<p>North Anglesey Marine / Gogledd Môn Forol (UK) SAC</p>	<p><u>Alone:</u></p> <p>Underwater noise</p>

Designation	Impacts in submission information
	<p><u>In-combination:</u> Underwater noise</p>
<p>North Channel (UK) SAC</p>	<p><u>Alone:</u> Underwater noise</p> <hr/> <p><u>In-combination:</u> Underwater noise</p>
<p>Pembrokeshire Marine SAC</p>	<p><u>Alone:</u> Underwater noise</p> <hr/> <p><u>In-combination:</u> Underwater noise</p>
<p>Pen Llŷn a'r Sarnau/ Lleyrn Peninsula and the Sarnau (UK) SAC</p>	<p><u>Alone:</u> Underwater noise</p> <hr/> <p><u>In-combination:</u> Underwater noise</p>
<p>Puffin Island (UK) SPA</p>	<p><u>Alone:</u> Disturbance from vessel movements Disturbance and displacement Barrier effect Collision risk</p> <hr/> <p><u>In-combination:</u> Disturbance from vessel movements Disturbance and displacement Barrier effect Collision risk</p>
<p>Raithlin Island (UK) SPA</p>	<p><u>Alone:</u> Direct disturbance and displacement</p> <hr/> <p><u>In-combination:</u> Direct disturbance and displacement</p>
<p>Récifs et landes de la Hague (FR) SAC</p>	<p><u>Alone:</u> Underwater noise</p>

Designation	Impacts in submission information
	<u>In-combination:</u> Underwater noise
Ribble and Alt Estuaries (UK) Ramsar	<u>Alone:</u> Risk of collision  <u>In-combination:</u> Risk of collision
Ribble and Alt Estuaries (UK) SPA	<u>Alone:</u> Risk of collision  <u>In-combination:</u> Risk of collision
River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC	<u>Alone:</u> Underwater noise Suspended sediment and deposition Pollution EMF  <u>In-combination:</u> Underwater noise Suspended sediment and deposition Pollution EMF
Roaringwater Bay and Islands SAC (IE) SAC	<u>Alone:</u> Underwater noise  <u>In-combination:</u> Underwater noise
Rockabill to Dalkey Island SAC (IE) SAC	<u>Alone:</u> Underwater noise  <u>In-combination:</u> Underwater noise
Saltee Islands (IE) SPA	<u>Alone:</u> Risk of collision

Designation	Impacts in submission information
	<p><u>In-combination:</u>            Risk of collision            Displacement effects</p>
<p>Saltee Islands (Ireland) SAC</p>	<p><u>Alone:</u>            Underwater noise</p> <hr/> <p><u>In-combination:</u>            Underwater noise</p>
<p>Severn Estuary (UK) Ramsar</p>	<p><u>Alone:</u>            Risk of collision on migration</p> <hr/> <p><u>In-combination:</u>            Risk of collision on migration</p>
<p>Severn Estuary (UK) SPA</p>	<p><u>Alone:</u>            Risk of collision on migration</p> <hr/> <p><u>In-combination:</u>            Risk of collision on migration</p>
<p>Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro (UK) SPA</p>	<p><u>Alone:</u>            Risk of collision            Direct disturbance and displacement</p> <hr/> <p><u>In-combination:</u>            Risk of collision            Direct disturbance and displacement</p>
<p>The Dee Estuary (UK) SPA (offshore)</p>	<p><u>Alone:</u>            Direct disturbance and displacement            Risk of collision            Barrier effect            Suspended sediment and deposition            Pollution            INNS            Changes to physical processes            EMF</p> <hr/> <p><u>In-combination:</u></p>

Designation	Impacts in submission information
	Suspended sediment and deposition Pollution INNS Changes to physical processes EMF
The Dee Estuary (UK) SPA (onshore)	<u>Alone:</u> Visual and/ or noise disturbance to species <u>In-combination:</u> Visual and/ or noise disturbance to species
Traeth Lafan / Layan Sands, Conway Bay (UK) SPA	<u>Alone:</u> Risk of collision on migration <u>In-combination:</u> Risk of collision on migration
Tregor Goëlo (FR) SAC	<u>Alone:</u> Underwater noise <u>In-combination:</u> Underwater noise
West Wales Marine / Gorllewin Cymru Forol (UK) SAC	<u>Alone:</u> Underwater noise <u>In-combination:</u> Underwater noise
Wexford Harbour and Slobs (IE) SPA	<u>Alone:</u> Risk of collision <u>In-combination:</u> Risk of collision
Wicklow Head (IE) SPA	<u>Alone:</u> Risk of collision <u>In-combination:</u> Risk of collision
	<u>Alone:</u>

Designation	Impacts in submission information
Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC	Physical habitat loss/ disturbance Suspended sediment and deposition Pollution INNS Charges to physical processes EMF
	<u>In-combination:</u> Physical habitat loss/ disturbance Suspended sediment and deposition Pollution INNS Charges to physical processes EMF

1.1.1 Evidence for the conclusions reached in the integrity assessments is detailed within the footnotes to the matrices below.

## 1.2 Matrix Key

1.2.1 ✓: Adverse Effect on Integrity **cannot** be excluded

1.2.2 X: Adverse Effect on Integrity **can** be excluded

1.2.3 Lower case letters in the table relate to the evidence supporting the conclusions below.

- C = construction
- O = operation
- D = decommissioning

1.2.4 Where effects were screened out from LSE in the Screening Matrices and are not applicable to a particular feature, these are greyed out.

1.2.5 Note: the distances stated refer to the closest distance to the proposed development including the array, ECR and onshore draft order limits.

### Matrix 1: Ailsa Craig (UK) SPA

Name of European Site: Ailsa Craig (UK) SPA						
Distance to AyM: 209.1 km to array / 217.9 km to ECC / 209.0 km to Onshore Draft Order Limits						
European Site Feature	Adverse Effect on Integrity of AyM (alone)					
	Risk of collision			Direct disturbance and displacement		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D
Lesser black-backed gull (breeding and non-breeding)		Xa				
Kittiwake (breeding and non-breeding)		Xb				
Gannet (breeding and non-breeding)		Xc		Xd	Xe	Xd

#### Evidence Supporting Conclusions:

Xa: Lesser black-backed gull were recorded in trivial numbers (only eight individuals and only seen in a single survey) from the 24 months of survey data within the array area, this species was not proposed to be included within the CRM assessment as predicted mortality would be negligible should CRM be undertaken, adult proportion identified and subsequently apportioned to relevant SPAs. There is, therefore, no potential for an AEoI on the conservation objectives of the lesser black-backed gull feature of Ailsa Craig SPA in relation to collision risk effects from AyM alone.

Xb: A less than 0.1% increase in baseline mortality per annum which is indistinguishable from natural fluctuations in the population and therefore no potential for AEoI to the conservation objectives of the site.

Xc: A less than 0.2% increase in baseline mortality per annum which is indistinguishable from natural fluctuations in the population and therefore no potential for AEoI to the conservation objectives of the site.

Xd: A less than 0.01% increase in baseline mortality per annum which is indistinguishable from natural fluctuations in the population and therefore no potential for AEoI to the conservation objectives of the site.

Xe: A less than 0.02% increase in baseline mortality per annum which is indistinguishable from natural fluctuations in the population and therefore no potential for AEoI to the conservation objectives of the site.

## Matrix 2: Ailsa Craig (UK) SPA (in-combination)

Name of European Site: Ailsa Craig (UK) SPA  
 Distance to AyM: 209.1 km to array / 217.9 km to ECC / 209.0 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (in-combination)					
	Risk of collision			Direct disturbance and displacement		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D
Kittiwake		Xa				
Gannet		Xb			Xc	
Lesser black-backed gull		xd			xd	

### Evidence Supporting Conclusions:

Xa: The contribution that AyM would have in relation to the collision mortality of kittiwake at Ailsa Craig is less than 1 bird each year. There would be no potential for AyM to contribute to any AEoI to the conservation objectives of kittiwake features at the site in relation to potential adverse displacement effects of AyM alone or in-combination. Therefore, with subject to natural change, kittiwake would be maintained as features in the long term at the site.

Xb: A less than 1% increase in baseline mortality per annum which is indistinguishable from natural fluctuations in the population and therefore no potential for AEoI to the conservation objectives of the site.

Xc: Based on the absence of data in relation to OWF within mean-maximum foraging range + 1SD of the site and recognising that the contribution AyM would make to any future in-combination assessment would be small enough to be considered in-consequential alone, there would be no potential for an AEoI on the conservation objectives of gannet features at Ailsa Craig SPA in relation to potential adverse displacement effects of AyM alone or in-combination.

Xd: Less than 0.001 individual mortalities are attributed to this SPA. Assessment alone concluded potential for a trivial and inconsequential level of effect, that would be well within the error margins of the assessment, and therefore no potential for any contribution for an in-combination effect.

### Matrix 3: Anglesey Terns / Morwenoliaid Ynys Mon (UK) SPA

Name of European Site: Anglesey Terns / Morwenoliaid Ynys Mon (UK) SPA  
 Distance to AyM: 15.2 km to array / 19.7 km to ECC / 14.8 km to Onshore Draft Order Limits

European Feature	Site	Adverse Effect on Integrity of AyM (alone)								
		Risk of collision			Direct disturbance and displacement			Barrier effect		
Construction: C Operation: O Decommissioning: D		C	O	D	C	O	D	C	O	D
Common (breeding) tern			Xa						Xa	
Arctic (breeding) tern			Xb						Xb	
Sandwich (breeding) tern			Xc			Xc			Xd	
Roseate (breeding) tern			Xe			Xe			Xe	

**Evidence Supporting Conclusions:**

Xa: As the AyM array area is beyond the mean-max + 1SD foraging range (Woodward et al., 2019) for this species from its closest breeding colony at the SPA, adverse effects can be discounted as there is no pathway for effects. Additionally, on migration, the ‘Broad front’ approach showed that there would be no adverse effect during migration. Consequently, there is no potential for an AEoI on the population conservation objective of the common tern feature of Anglesey Terns SPA in relation to collision risk effects from AyM alone.

Xb: The distance between the closest potential breeding colony to the AyM array area is approximately 40 km. On migration, the 'Broad front' approach showed that there would be no adverse effect during migration. Therefore, combining the modelling and the distance to the site, adverse effects can be discounted as there is no pathway for effects and consequently no potential for an AEol on the conservation objectives of this feature of Anglesey Terns SPA in relation to effects from AyM alone.

Xc: The AyM array area is within the maximum foraging range for this species from its sole breeding colony in Cemlyn Lagoon, however zero sandwich tern were recorded within the array area. Additionally, on migration, the 'Broad front' approach showed that there would be no adverse effect during migration. Therefore, adverse effects can be discounted due to the lack of birds present within the array area and consequently there is no potential for an AEol on the conservation objectives of the sandwich tern feature of Anglesey Terns SPA.

Xd: A peak abundance of 11 individuals were recorded in the array area plus 2 km buffer during the post-breeding migration bio-season and zero were recorded during the breeding bio-season. Therefore, there is no pathway for effect during the breeding bio-season. Consequently, there is no potential for an AEol on the population conservation objective of the sandwich tern feature of Anglesey Terns SPA in relation to barrier effects from AyM alone.

Xe: The distance between the closest potential roseate tern breeding colony at Cemlyn Bay/ Lagoon (noting the three colony locations identified by Miles et al., 2018 are The Skerries, Ynys Feurig and Cemlyn Bay) to the AyM array area is approximately 40 km. As the AyM array area is beyond the mean-max + 1SD foraging range (Woodward et al., 2019) for this species from its closest breeding colony at the SPA, adverse effects can be discounted as there is no pathway for effects and consequently no potential for an AEol on the conservation objectives of the Roseate tern feature of Anglesey Terns SPA in relation to effects from AyM alone.

### Matrix 4: Anglesey Terns / Morwenoliaid Ynys Mon (UK) SPA (in-combination)

Name of European Site: Anglesey Terns / Morwenoliaid Ynys Mon (UK) SPA  
 Distance to AyM: 15.2 km to array / 19.7 km to ECC / 14.8 km to Onshore Draft Order Limits

European Feature	Site	Adverse Effect on Integrity of AyM (alone)								
		Risk of collision			Direct disturbance and displacement			Barrier effect		
Construction: C Operation: O Decommissioning: D		C	O	D	C	O	D	C	O	D
Common (breeding)	tern		Xa						Xa	
Arctic (breeding)	tern		Xa						Xa	
Sandwich (breeding)	tern		Xb			Xb			Xb	
Roseate (breeding)	tern		Xa			Xa			Xa	

#### Evidence Supporting Conclusions:

Xa: As adverse effects have been discounted due to there being no pathway for effects and the results of the 'Broad front' approach, there is consequently no potential for an AEoI from the project alone, it is considered that there are no pathways for effects in-combination and therefore no potential for an AEoI from the project in-combination.

Xb: Zero Sandwich terns were recorded in the array and trivial numbers in the 2 km buffer. Additionally, on migration, the 'Broad front' approach showed that there would be no adverse effect during migration. Assessment alone concluded potential for a trivial and inconsequential level of effect, that would be well within the error margins of the assessment, and therefore no potential for any contribution for an in-combination effect.

### Matrix 5: Anse de Vauville (FR) SAC

Name of European Site: Anse de Vauville (FR) SAC			
Distance to AyM: 434.8 km to array / 419.9 km to ECR / 411.3 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 6: Anse de Vauville (FR) SAC (in-combination)

Name of European Site: Anse de Vauville (FR) SAC			
Distance to AyM: 434.8 km to array / 419.9 km to ECR / 411.3 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 7: Baie de Morlaix (FR) SAC

Name of European Site: Site: Baie de Morlaix (FR) SAC			
Distance to AyM: 512.1 km to array / 502.5 km to ECR / 493.2 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 8: Baie de Morlaix (FR) SAC (in-combination)

Name of European Site: Site: Baie de Morlaix (FR) SAC			
Distance to AyM: 512.1 km to array / 502.5 km to ECR / 493.2 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 9: Banc et récifs de Surtainville (FR) SAC

Name of European Site: Site: Banc et récifs de Surtainville (FR) SAC			
Distance to AyM: 454.5 km to array / 439.7 km to ECR / 431.1 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 10: Banc et récifs de Surtainville (FR) SAC (in-combination)

Name of European Site: Site: Banc et récifs de Surtainville (FR) SAC			
Distance to AyM: 454.5 km to array / 439.7 km to ECR / 431.1 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 11: Basket Islands SAC (IE) SAC

Name of European Site: Site: Basket Islands SAC (IE) SAC			
Distance to AyM: 468.7 km to array / 475.3 km to ECR / 467.9 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 12: Basket Islands SAC (IE) SAC (in-combination)

Name of European Site: Site: Basket Islands SAC (IE) SAC			
Distance to AyM: 468.7 km to array / 475.3 km to ECR / 467.9 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 13: Bowland Fells (UK) SPA and pSPA

Name of European Site: Site: Bowland Fells (UK) SPA and pSPA			
Distance to AyM: 76.8 km to array / 81.3 km to ECC / 80.6 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull (breeding and non-breeding)		Xa	

#### Evidence Supporting Conclusions:

Xa: The potential addition of 0.07 (0-0.3) breeding adult lesser black-backed gull mortalities per annum equates to less than 0.1% increase in baseline mortality for either citation or latest colony count. This increase would be indistinguishable from natural fluctuations in the population. There is, therefore, no potential for an AEoI on the population conservation objective of the lesser black-backed gull feature of Bowland Fells SPA and pSPA in relation to collision risk effects from AyM alone.

Matrix 14: Bowland Fells (UK) SPA and pSPA (in-combination)

Name of European Site: Site: Bowland Fells (UK) SPA and pSPA			
Distance to AyM: 76.8 km to array / 81.3 km to ECC / 80.6 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull (breeding and non-breeding)		Xa	

Evidence Supporting Conclusions:

Xa: Less than 0.3 individual mortalities are attributed to this SPA. Assessment alone concluded potential for a trivial and inconsequential level of effect, that would be well within the error margins of the assessment, and therefore no potential for any contribution for an in-combination effect.

### Matrix 15: Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK) SAC

Name of European Site: Site: Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK) SAC  
 Distance to AyM: 195.1 km to Array / 191.6 km to ECR / 182.6 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 16: Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK) SAC (in-combination)

Name of European Site: Site: Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK) SAC			
Distance to AyM: 195.1 km to Array / 191.6 km to ECR / 182.6 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 17: Burry Inlet (UK) Ramsar

Name of European Site: Site: Burry Inlet (UK) Ramsar			
Distance to AyM: 195.7 km to array / 190 km to ECC / 180.6 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Pintail		Xa	
Oystercatcher		Xa	
Knot		Xa	
Redshank		Xa	
Waterbird assemblage		Xa	

#### Evidence Supporting Conclusions:

Xa: The proportion of population that will be in contact with the proposed windfarm is inadequate to impact the population therefore the energy expenditure of birds avoiding the windfarm during their migration is negligible. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects.

### Matrix 18: Burry Inlet (UK) Ramsar (in-combination)

Name of European Site: Site: Burry Inlet (UK) Ramsar			
Distance to AyM: 195.7 km to array / 190 km to ECC / 180.6 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Pintail		Xa	
Oystercatcher		Xa	
Knot		Xa	
Redshank		Xa	
Waterbird assemblage		Xa	

#### Evidence Supporting Conclusions:

Xa: The proportion of population that will be in contact with the proposed windfarm is inadequate to impact the population therefore the energy expenditure of birds avoiding the windfarm during their migration is negligible. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects.

### Matrix 19: Burry Inlet (UK) SPA

Name of European Site: Site: Burry Inlet (UK) SPA

Distance to AyM: 195.7 km to array / 190 km to ECC / 180.6 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Shelduck		Xa	
Wigeon		Xa	
Teal		Xa	
Pintail		Xa	
Shoveler		Xa	
Oystercatcher		Xa	
Grey plover		Xa	
Knot		Xa	
Dunlin		Xa	
Curlew		Xa	
Redshank		Xa	

Turnstone		Xa	
Whimbrel		Xa	
Greenshank		Xa	
Waterbird assemblage		Xa	

Evidence Supporting Conclusions:

Xa: The proportion of population that will be in contact with the proposed windfarm is inadequate to impact the population therefore the energy expenditure of birds avoiding the windfarm during their migration is negligible. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects.

### Matrix 20: Burry Inlet (UK) SPA (in-combination)

Name of European Site: Site: Burry Inlet (UK) SPA  
 Distance to AyM: 195.7 km to array / 190 km to ECC / 180.6 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Shelduck		Xa	
Wigeon		Xa	
Teal		Xa	
Pintail		Xa	
Shoveler		Xa	
Oystercatcher		Xa	
Grey plover		Xa	
Knot		Xa	
Dunlin		Xa	
Curlew		Xa	
Redshank		Xa	

Turnstone		Xa	
Whimbrel		Xa	
Greenshank		Xa	
Waterbird assemblage		Xa	

Evidence Supporting Conclusions:

Xa: Waterbirds may pass through or visit the AyM array area during the non-breeding season and were considered for assessment, but due to a thinning of the potential risk when considering birds from multiple designated sites, the relative impact on a specific SPA or Ramsar population is considered to be inconsequential. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects. Therefore, no migratory waterbirds were screened in for in-combination.

### Matrix 21: Cap d'Erquy-Cap Fréhel (FR) SAC

Name of European Site: Site: Cap d'Erquy-Cap Fréhel (FR) SAC			
Distance to AyM: 511.4 km to array / 498.1 km to ECR / 489.2 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 22: Cap d'Erquy-Cap Fréhel (FR) SAC (in-combination)

Name of European Site: Site: Cap d'Erquy-Cap Fréhel (FR) SAC			
Distance to AyM: 511.4 km to array / 498.1 km to ECR / 489.2 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 23: Cardigan Bay/ Bae Ceredigion (UK) SAC

Name of European Site: Site: Cap d'Erquy-Cap Fréhel (FR) SAC			
Distance to AyM: 63.4 km to array / 64.1 km to ECR / 60.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Grey seal	Xa		Xa
Bottlenose dolphin	Xb		Xb

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

Xb: Modelling showed that there would be a mean difference of 3 individuals between the impacted and unimpacted scenarios over a 6-year period (1 year of impact and 5 years post-impact). Therefore, despite the highly conservative inputs (that 16 dolphins were disturbed on every piling day, and that all disturbance was attributed to the “SAC population”), there were no significant population level consequences predicted by the modelling. Therefore, with respect to piling related disturbance of bottlenose dolphin within the SACs screened in, it is clear that there is, therefore, no potential for an AEoI on the conservation objectives of the bottlenose dolphin feature of all sites screened in for disturbance (underwater noise) from AyM alone.

### Matrix 24: Cardigan Bay/ Bae Ceredigion (UK) SAC (in-combination)

Name of European Site: Site: Cap d'Erquy-Cap Fréhel (FR) SAC			
Distance to AyM: 63.4 km to array / 64.1 km to ECR / 60.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Grey seal	Xa		Xa
Bottlenose dolphin	Xa		Xa

#### Evidence Supporting Conclusions:

Xa: Decommissioning activities at North Hoyle likely to involve cutting, which is unlikely to disturb any species of marine mammal (Volume 2, Chapter 7). Erebus Offshore Wind apportioned no impacts (alone or in-combination) to any of the sites identified within this in-combination assessment, and therefore it can be concluded that there is no in-combination impact to be considered from this project. Piling at Dublin Array anticipated in 2025 (out of the timeframe for in-combination effect with AyM) (Volume 2, Chapter 7). Localised vessel disturbance associated with Arklow Bank Phase 2 and WestWave Demo only (Volume 2, Chapter 7). Therefore, no potential for a significant in-combination effect to arise with respect to disturbance of bottlenose dolphin or grey seal.

### Matrix 25: Chausey (FR) SAC

Name of European Site: Site: Chausey (FR) SAC			
Distance to AyM: 506.2 km to array / 498.1 km to ECR / 483.0 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 26: Chausey (FR) SAC (in-combination)

Name of European Site: Site: Chausey (FR) SAC			
Distance to AyM: 506.2 km to array / 498.1 km to ECR / 483.0 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 27: Copeland Islands (UK) SPA

Name of European Site: Copeland Islands (UK) SPA				
Distance to AyM: 168.9 km to array / 181.0 km to ECC / 200.8 km to Onshore Draft Order Limits				
European Feature	Site	Adverse Effect on Integrity of AyM (in-combination)		
		Disturbance and displacement		
Construction: C Operation: O Decommissioning: D		C	O	D
Manx shearwater		Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: The potential addition of 0.008-0.02 breeding adult Manx shearwater mortalities per annum during O&M and 0.004-0.009 during construction and decommissioning equates to less than 0.1% increase in baseline mortality for either citation or latest colony count. This increase would be indistinguishable from natural fluctuations in the population. There is, therefore, no potential for an AEol on the population conservation objective of the Manx shearwater feature of Copeland Island SPA in relation to displacement effects from AyM alone.

### Matrix 28: Copeland Islands (UK) SPA (in-combination)

Name of European Site: Copeland Islands (UK) SPA				
Distance to AyM: 168.9 km to array / 181.0 km to ECC / 200.8 km to Onshore Draft Order Limits				
European Feature	Site	Adverse Effect on Integrity of AyM (in-combination)		
		Disturbance and displacement		
Construction: C Operation: O Decommissioning: D		C	O	D
Manx shearwater		Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: As adverse effects have been discounted due to there being no pathway for effects and consequently no potential for an AEol from the project alone, it is considered that there is no pathways for effects in-combination and therefore no potential for an AEol from the project in-combination.

### Matrix 29: Côte de Granit rose-Sept-Iles (FR) SAC

Name of European Site: Site: Côte de Granit rose-Sept-Iles (FR) SAC			
Distance to AyM: 486.8 km to array / 476.0 km to ECR / 466.7 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater Noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 30: Côte de Granit rose-Sept-Iles (FR) SAC (in-combination)

Name of European Site: Site: Côte de Granit rose-Sept-Iles (FR) SAC			
Distance to AyM: 486.8 km to array / 476.0 km to ECR / 466.7 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater Noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour Porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 31: Dee Estuary (UK) Ramsar (offshore)

Name of European Site: Dee Estuary (UK) Ramsar (offshore)															
Distance to AyM: 21 km to array / 3.5 km to ECC / 2.2 km to Onshore Draft Order Limits															
European Site Feature	Adverse Effect on Integrity of AyM (alone)														
	Suspended sediment and deposition			Pollution			INNS			Changes to physical processes			EMF		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandbanks which are slightly covered by sea water all the time	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Reefs	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Large shallow inlets and bays	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Submerged or partially submerged sea caves	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Mudflats and sandflats not covered by seawater at low tide	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	

Evidence Supporting Conclusions:

Xa: Given that the predicted deposition rate within the designated sites is < 1 mm, (which is considered to be below the level of natural variation, immeasurable and temporary), there will be no change to the extent, distribution, structure, function or supporting processes for any of the features as a result of suspended sediment and deposition from AyM. The potential for effect during the operation & maintenance and decommissioning phase are expected to be less than that during construction. Given the lack of significance of the effect on all designated features of the SAC and Ramsar and supporting habitats of the SPA, there is, therefore, no potential for an AEoI on the conservation objectives of the sites in relation to suspended sediment and deposition effects from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to the potential for suspended sediment and deposition.

Xb: Given the lack of measurable impact on all features within the sites and the embedded mitigation afforded by the PEMP, there is, therefore, no potential for an AEoI on the conservation objectives of the sites in relation to pollution effects from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to the potential for pollution.

Xc: Given the lack of evidence for any stepping stone effect in the area, the distance between AyM and the designated features, and the embedded mitigation afforded by the best practice guidelines, the PEMP and the biosecurity plan, there is, therefore, no potential for an AEoI on the conservation objectives of the sites in relation to INNS from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to INNS.

Xd: Given the lack of evidence for any connectivity between the Dee Estuary sites and any change in physical processes associated with AyM, there is, therefore, no potential for an AEoI on the conservation objectives of the sites in relation to a change in physical processes from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to a change in physical processes.

Xe: Given the distance between the Dee Estuary sites and AyM and therefore the lack of any direct connectivity to the designated features, together with the lack of significant behavioural change in mobile species, there is, therefore, no potential for an AEoI on the conservation objectives of the sites in relation to EMF from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to EMF.

### Matrix 32: Dee Estuary (UK) Ramsar (onshore)

Name of European Site: Site: Dee Estuary Ramsar (onshore)			
Distance to AyM: 21 km to array / 3.5 km to ECC / 2.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Visual and / or noise disturbance to species		
Construction: C Operation: O Decommissioning: D	C	O	D
Redshank	Xa	Xa	Xa
Shelduck	Xa	Xa	Xa
Teal	Xa	Xa	Xa
Pintail	Xa	Xa	Xa
Oystercatcher	Xa	Xa	Xa
Grey plover	Xa	Xa	Xa
Knot	Xa	Xa	Xa
Dunlin	Xa	Xa	Xa
Black-tailed godwit	Xa	Xa	Xa
Curlew	Xa	Xa	Xa
Bar-tailed godwit	Xa	Xa	Xa

Waterbird assemblage	Xa	Xa	Xa
----------------------	----	----	----

Evidence Supporting Conclusions:

Xa: Based on the distance associated with the onshore and intertidal components of the Project being a significant distance beyond 500m from the Ramsar or areas of functionally linked habitat, it is highly unlikely that construction, operation and maintenance, and to a lesser extent decommissioning activity, will result in the production of visual and/ or noise disturbance to species associated with the SPA and/ or Ramsar site that would result in a significant effect (Cutts, Phelps & Burdon, 2009). Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects. It can therefore be concluded with confidence that adverse effects associated with the ornithological features of Dee Estuary SPA and Ramsar can be discounted as there is no pathway for effects.

Matrix 33: Dee Estuary (UK) Ramsar (in-combination)

Name of European Site: Dee Estuary (UK) Ramsar																		
Distance to AyM: 21 km to array / 3.5 km to ECC / 2.1 km from Onshore Draft Order Limits																		
European Site Feature	Adverse Effect on Integrity of AyM (in-combination)																	
	Suspended sediment and deposition			Pollution			INNS			Changes to physical processes			EMF			Visual and / or noise disturbance to species		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandbanks which are slightly covered by sea water all the time	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe				
Reefs	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe				
Large shallow inlets and bays	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe				
Submerged or partially submerged sea caves	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe				
Mudflats and sandflats not covered by seawater at low tide	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe				
Migratory waterbirds																Xf	Xf	Xf

Evidence Supporting Conclusions:

Xa: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to suspended sediment and deposition from AyM in-combination.

Xb: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to pollution from AyM in-combination.

Xc: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to INNS from AyM in-combination.

Xd: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to changes to physical processes from AyM in-combination.

Xe: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to EMF from AyM in-combination.

Xf: Non-breeding terns or waterbirds may pass through or visit the AyM array area during the non-breeding season and were considered for assessment, but due to a thinning of the potential risk when considering birds from multiple designated sites, the relative impact on a specific SPA or Ramsar population is considered to be inconsequential. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects. Therefore, no migratory terns or waterbirds were screened in for in-combination.

## Matrix 34: Dee Estuary/ Aber Dyfrdwy (UK) (England/ Wales) SAC

Name of European Site: Dee Estuary/ Aber Dyfrdwy (UK) (England/ Wales] SAC  
 Distance to AyM: 21 km to array / 3.5 km to ECR / 2.1 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)																	
	Suspended sediment and deposition			Pollution			INNS			Changes to physical processes			EMF			Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Mudflats and sandflats not covered by seawater at low tide	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc		Xd			Xe				
Salicornia and other annuals colonizing mud and sand	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc		Xd			Xe				
Atlantic salt meadows (Glauco-Puccinellietalia maritima)	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc		Xd			Xe				
Estuaries	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc		Xd			Xe				
Sea lamprey	Xa		Xa	Xb	Xb	Xb								Xe		Xf		Xg
River lamprey	Xa		Xa	Xb	Xb	Xb								Xe		Xf		Xg

Evidence Supporting Conclusions:

Xa: Given the lack of significance of the effect on all designated features of the SAC and Ramsar and supporting habitats of the SPA, there is, therefore, no potential for an AEol on the conservation objectives of the sites in relation to suspended sediment and deposition effects from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to the potential for suspended sediment and deposition.

Xb: Given the lack of measurable impact on all features within the sites and the embedded mitigation afforded by the PEMP, there is, therefore, no potential for an AEol on the conservation objectives of the sites in relation to pollution effects from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to the potential for pollution.

Xc: Given the lack of evidence for any stepping stone effect in the area, the distance between AyM and the designated features, and the embedded mitigation afforded by the best practice guidelines, the PEMP and the biosecurity plan, there is, therefore, no potential for an AEol on the conservation objectives of the sites in relation to INNS from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to INNS.

Xd: Given the lack of evidence for any connectivity between the Dee Estuary sites and any change in physical processes associated with AyM, there is, therefore, no potential for an AEol on the conservation objectives of the sites in relation to a change in physical processes from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to a change in physical processes.

Xe: Given the distance between the Dee Estuary sites and AyM and therefore the lack of any direct connectivity to the designated features, together with the lack of significant behavioural change in mobile species, there is, therefore, no potential for an AEol on the conservation objectives of the sites in relation to EMF from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to EMF.

Xf: Taking into account the distance of the Dee Estuary SAC from the Array (>20 km at its nearest point), the short-term and localised nature of the impact arising during construction, the likelihood of the instinct for migration overriding any potential disturbance effects from noise and no noise from AyM activities entering the SAC, it is not anticipated that underwater noise will have a significant effect on the distribution of lamprey within the sites. Underwater noise will also not result in any mortality or injury of the receptors within the SAC, furthermore, underwater noise from the project will not result in a barrier effect preventing the receptors from accessing the site to breed, there will therefore be no effect on the populations of the receptors within the sites. There is, therefore, no potential for an AEol on the conservation objectives of the river and sea lamprey feature of the Dee Estuary/ Aber Dyfrdwy (UK) SAC in relation to underwater noise from AyM alone.

Xg: Taking into account the distance of the Dee Estuary SAC from the Array (>20 km at its nearest point), the short-term and localised nature of the impact arising during construction, the preference for salmon to remain in coastal waters while migrating, the likelihood of the instinct for migration overriding any potential disturbance effects or migration occurring between noisy activities and no noise from AyM activities entering the River Dee SAC, it is not anticipated that significant impacts in relation to underwater noise effects from piling within the array will occur on Atlantic salmon, with no impacts to the population or distribution of the salmon within the SAC. There is, therefore, no potential for an AEoI on the conservation objectives of the salmon feature of the River Dee SAC in relation to underwater noise from AyM alone and therefore, subject to natural change, this feature will be maintained in the long term in terms of the range, distribution and population of the species.

### Matrix 35: Dee Estuary/ Aber Dyfrdwy (UK) (England/ Wales) SAC (in-combination)

Name of European Site: Dee Estuary/ Aber Dyfrdwy (UK) (England/ Wales] SAC  
 Distance to AyM: 21 km to array / 3.5 km to ECR / 2.1 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (in-combination)																	
	Suspended sediment and deposition			Pollution			INNS			Changes to physical processes			EMF			Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Mudflats and sandflats not covered by seawater at low tide	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc		Xd				Xe			
Salicornia and other annuals colonizing mud and sand	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc		Xd				Xe			
Atlantic salt meadows (Glaucopuccinellietalia maritima)	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc		Xd				Xe			
Estuaries	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc		Xd				Xe			
Sea lamprey	Xa		Xa	Xb	Xb	Xb									Xe		Xf	Xf
River lamprey	Xa		Xa	Xb	Xb	Xb									Xe		Xf	Xf

#### Evidence Supporting Conclusions:

Xa: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to suspended sediment and deposition from AyM in-combination.

Xb: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to pollution from AyM in-combination.

Xc: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to INNS from AyM in-combination.

Xd: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to changes to physical processes from AyM in-combination.

Xe: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to EMF from AyM in-combination.

Xf: The conclusions for AyM alone were for a lack effect for all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to underwater noise from AyM in-combination.

### Matrix 36: Dyfi Estuary / Aber Dyfi SPA (UK) SPA

Name of European Site: Dyfi Estuary / Aber Dyfi SPA (UK) SPA			
Distance to AyM: 95.2 km to array / 90.0 km to ECC / 80.7 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Greenland white-fronted goose		Xa	

#### Evidence Supporting Conclusions:

Xa: Less than 1% of the UK population pass through AyM array area annually. Therefore, no AEol is likely for this species. Additionally, GPS tracking data from birds tagged at Dyfi Estuary show migration routes between breeding locations in Greenland and their wintering location at Dyfi Estuary SPA (WWT & RSPB Wales, 2020). All migratory movements occur along the west Wales coast in a north western direction as it is the shortest route to migration stop over sites in Mull and the Outer Hebrides. No GPS routes were found to the east of Bangor. Therefore, there is no evidence of connectivity between Dyfi Estuary SPA and Awel y Môr.

### Matrix 37: Dyfi Estuary / Aber Dyfi SPA (UK) SPA (in-combination)

Name of European Site: Dyfi Estuary / Aber Dyfi SPA (UK) SPA			
Distance to AyM: 95.2 km to array / 90.0 km to ECC / 80.7 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
<b>Construction: C</b> <b>Operation: O</b> <b>Decommissioning: D</b>	C	O	D
Greenland white-fronted goose		Xa	

#### Evidence Supporting Conclusions:

Xa: Waterbirds may pass through or visit the AyM array area during the non-breeding season and were considered for assessment, but due to a thinning of the potential risk when considering birds from multiple designated sites, the relative impact on a specific SPA or Ramsar population is considered to be inconsequential. Additionally, the Migro-path collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects. Therefore, no migratory waterbirds were screened in for in-combination.

### Matrix 38: Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island (UK) SPA

Name of European Site: Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island (UK) SPA														
Distance to AyM: 88.5 km to array / 91.7 km to ECC / 88.1 km to Onshore Draft Order Limits														
European Feature	Site	Adverse Effect on Integrity of AyM (in-combination)												
		Disturbance from vessels			Disturbance and Displacement			Barrier effect			Collision Risk			
Construction: C	Operation: O	Decommissioning: D	C	O	D	C	O	D	C	O	D	C	O	D
Manx shearwater	Xa		Xa		Xb		Xb				Xc			

#### Evidence Supporting Conclusions:

Xa: Manx shearwater has relatively low vulnerability to vessel movement disturbance associated with construction and decommissioning activity (Furness et al., 2013). Based on the low vulnerability of Manx shearwater to vessel movements, and the spatial and temporal coverage of construction activities being short term, intermittent and temporary and being limited to low frequencies of vessel, there is no potential for an AEol on the conservation objectives of the Manx shearwater feature of the SPAs from AyM alone or in-combination with other plans or projects.

Xb: Manx shearwater to have very low vulnerability to displacement with offshore wind turbines Bradbury et al. (2014). This very low likelihood of sensitivity to displacement also infers a highly unlikely chance of barrier effects for commuting Manx shearwater associated with the SPAs. Furthermore, site specific digital aerial survey data recorded very low numbers of Manx shearwater within the offshore array area of the proposed AyM site. Therefore, in relation to disturbance and displacement effects and barrier effects, there is no potential for an AEol on the conservation objectives of the Manx shearwater feature of the SPAs from AyM alone or in-combination with other plans or projects

Xc: Manx shearwater have very low vulnerability to collision risk with offshore wind turbines (Bradbury et al., 2014, Furness et al., 2013) due to their low flight heights. Furthermore, typically very small numbers of Manx shearwater were recorded within the AyM array area during site specific digital aerial surveys. Therefore, in relation to collision risk effects, there is no potential for an AEol on the conservation objectives of the Manx shearwater feature of the SPAs from AyM alone with other plans or projects.

### Matrix 39: Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island (UK) SPA (in-combination)

Name of European Site: Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island (UK) SPA  
 Distance to AyM: 88.5 km to array / 91.7 km to ECC / 88.1 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (in-combination)					
	Disturbance from vessels			Disturbance and Displacement		
Construction: C Operation: O Decommissioning: D	C	O	D	C	C	C
Manx shearwater	Xa		Xa		Xb	

#### Evidence Supporting Conclusions:

Xa: No other plans or projects considered in-combination with AyM for Manx shearwater assessed and apportioned impacts to these SPAs. This is due to many projects within the Manx shearwater BDMPS Western waters plus Channel and off the eastern coast of Ireland (and in close proximity to all SPAs listed above) not yet having produced PEIR (or equivalent documentation) and as a result no potential impact to Manx shearwater has yet been quantified.

Xb: The potential total of 0.3 breeding adult Manx shearwater mortalities during O&M at Aberdaron Coast and Bardsey Island SPA per annum equates to less than 1% increase in baseline mortality for either citation or latest colony count. This increase would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the population conservation objectives of the Manx shearwater feature at Aberdaron Coast and Bardsey Island SPA in relation to potential adverse effects from the O&M phase of AyM in-combination with other plans and projects. Therefore, subject to natural change, Manx shearwater would be maintained as a feature in the long term.

## Matrix 40: Grassholm (UK) SPA

Name of European Site: Grassholm (UK) SPA						
Distance to AyM: 217.6 km to array / 219.4 km to ECC / 214.1 km to Onshore Draft Order Limits						
European Site Feature	Adverse Effect on Integrity of AyM (alone)					
	Risk of Collision			Direct Disturbance and Displacement		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D
Gannet (breeding)		Xa		Xb	Xc	Xb

### Evidence Supporting Conclusions:

Xa: The potential increase of less than 0.1% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the gannet feature at Grassholm SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, gannet would be maintained as a feature in the long term.

Xb: The potential increase of less than 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the gannet feature at Grassholm SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, gannet would be maintained as a feature in the long term.

Xc: The potential increase of less than 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the gannet feature at Grassholm SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, gannet would be maintained as a feature in the long term.

### Matrix 41: Grassholm (UK) SPA (in-combination)

Name of European Site: Grassholm (UK) SPA						
Distance to AyM: 217.6 km to array / 219.4 km to ECC / 214.1 km to Onshore Draft Order Limits						
European Site Feature	Adverse Effect on Integrity of AyM (in-combination)					
	Risk of Collision			Direct Disturbance and Displacement		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D
Gannet (breeding)				Xa	Xa	Xb

#### Evidence Supporting Conclusions:

Xa: Based on the absence of data in relation to OWF within mean-maximum foraging range + 1SD of the site and recognising that the contribution AyM would make to any future in-combination assessment would be small enough to be considered in-consequential alone, there would be no potential for an AEoI on the conservation objectives of gannet features at the site in relation to potential adverse displacement effects of AyM alone or in-combination.

### Matrix 42: Helvick Head to Ballyquin (IE) SPA

Name of European Site: Helvick Head to Ballyquin (IE) SPA			
Distance to AyM: 291.9 km to array / 297.1 km to ECC / 291.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Kittiwake		Xa	

#### Evidence Supporting Conclusions:

Xa: Helvick Head to Ballyquin SPA was initially screened into assessment as the AyM array area is within the mean-max + 1SD foraging range (Woodward et al., 2019) of kittiwake from the marine boundary of the SPA. However, further investigation of specific kittiwake colony locations within the SPA indicate that the colonies are outside of mean-maximum foraging range +1SD of the AyM array area. Therefore, there is no connectivity between the kittiwake feature of Helvick Head to Ballyquin SPA during the breeding season. Therefore, adverse effects can be discounted as there is no pathway for effects. Consequently, there is no potential for an AEol on the conservation objectives of the kittiwake feature of Helvick Head to Ballyquin SPA in relation to collision risk effects from AyM alone.

Matrix 43: Helvick Head to Ballyquin (IE) SPA (in-combination)

Name of European Site: Helvick Head to Ballyquin (IE) SPA			
Distance to AyM: 291.9 km to array / 297.1 km to ECC / 291.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Kittiwake		Xa	

Evidence Supporting Conclusions:

Xa: For the Kittiwake receptor at this site, the conclusion for AyM alone was for no LSE due to a lack of a pathway. There is, therefore, no potential for AyM to contribute to any in-combination effects at this site.

Matrix 44: Howth Head Coast (IE) SPA

Name of European Site: Howth Head Coast (IE) SPA			
Distance to AyM: 145.0 km to array / 152.5 km to ECC / 151.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Kittiwake (breeding)		Xa	

Evidence Supporting Conclusions:

Xa: The potential increase of less than 0.1% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the kittiwake feature at Howth Head Coast SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr alone. Therefore, with subject to natural change, kittiwake would be maintained as a feature in the long term.

### Matrix 45: Howth Head Coast (IE) SPA (in-combination)

Name of European Site: Howth Head Coast (IE) SPA			
Distance to AyM: 145.0 km to array / 152.5 km to ECC / 151.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (in-combination)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Kittiwake (breeding)		Xa	

#### Evidence Supporting Conclusions:

Xa: The contribution that AyM would have in relation to the collision mortality of kittiwake at Howth Head Coast is less than 1 bird each year. Based on the absence of data in relation to OWF within mean-maximum foraging range + 1SD of the site screened in for assessment and recognising that the contribution AyM would make to any future in-combination assessment would be small enough to be considered in-consequential alone, there would be no potential for AyM to contribute to any AEoI to the conservation objectives of kittiwake features at the site in relation to potential adverse displacement effects of AyM alone or in-combination.

### Matrix 46: Ireland’s Eye (IE) SPA

Name of European Site: Ireland’s Eye (IE) SPA						
Distance to AyM: 145.8 km to array / 153.3 km to ECC / 144.7 km to Onshore Draft Order Limits						
European Site Feature	Adverse Effect on Integrity of AyM (alone)					
	Risk of Collision			Direct Disturbance and Displacement		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D
Kittiwake (breeding)		Xa				
Guillemot (breeding)				Xb	Xc	Xb
Razorbill (breeding)				Xd	Xe	Xd

#### Evidence Supporting Conclusions:

Xa: The potential increase of less than 0.1% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the kittiwake feature at Ireland’s Eye (IE) SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr alone. Therefore, with subject to natural change, kittiwake would be maintained as a feature in the long term.

Xb: The potential increase of less than 0.02% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the guillemot feature at Ireland’s Eye SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, guillemot would be maintained as a feature in the long term.

Xc: The potential increase of less than 0.03% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the guillemot feature at Ireland's Eye SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr alone. Therefore, with subject to natural change, guillemot would be maintained as a feature in the long term.

Xd: The potential increase of less than 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the razorbill feature at Ireland's Eye SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, razorbill would be maintained as a feature in the long term.

Xe: The potential increase of less than 0.02% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the razorbill feature at Ireland's Eye SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr alone. Therefore, with subject to natural change, razorbill would be maintained as a feature in the long term.

### Matrix 47: Ireland's Eye (IE) SPA (in-combination)

Name of European Site: Ireland's Eye (IE) SPA						
Distance to AyM: 145.8 km to array / 153.3 km to ECC / 144.7 km to Onshore Draft Order Limits						
European Site Feature	Adverse Effect on Integrity of AyM (in-combination)					
	Risk of Collision			Direct Disturbance and Displacement		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D
Kittiwake (breeding)		Xa				
Guillemot (breeding)				Xb	Xc	Xb
Razorbill (breeding)				Xd	Xe	Xd

#### Evidence Supporting Conclusions:

Xa: The contribution that AyM would have in relation to the collision mortality of kittiwake at the site is less than 1 bird each year. based on the absence of data in relation to OWF within mean-maximum foraging range + 1SD of the site and recognising that the contribution AyM would make to any future in-combination assessment would be small enough to be considered in-consequential alone, there would be no potential for AyM to contribute to any AEol to the conservation objectives of kittiwake features at the site in relation to potential adverse displacement effects of AyM alone or in-combination.

Xb: Based on the absence of data in relation to OWF within mean-maximum foraging range + 1SD of the site and recognising that the contribution AyM would make to any future in-combination assessment would be small enough to be considered in-consequential alone, there would be no potential for an AEol on the conservation objectives of auk features at the site in relation to potential adverse displacement effects of AyM alone or in-combination.

### Matrix 48: Lambay Island (IE) SAC

Name of European Site: Lambay Island (Ireland)  
 Distance to AyM: 141.2 km to array / 149.1 km to ECR / 140.3 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
<b>Construction: C</b> <b>Operation: O</b> <b>Decommissioning: D</b>	C	O	D
Grey seal	Xa	Xa	Xa

Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 49: Lambay Island (IE) SAC (in-combination)

Name of European Site: Lambay Island (Ireland)			
Distance to AyM: 141.2 km to array / 149.1 km to ECR / 140.3 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Grey seal	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: Decommissioning activities at North Hoyle likely to involve cutting, which is unlikely to disturb any species of marine mammal (Volume 2, Chapter 7). Erebus Offshore Wind apportioned no impacts (alone or in-combination) to any of the sites identified within this in-combination assessment, and therefore it can be concluded that there is no in-combination impact to be considered from this project. Piling at Dublin Array anticipated in 2025 (out of the timeframe for in-combination effect with AyM) (Volume 2, Chapter 7). Localised vessel disturbance associated with Arklow Bank Phase 2 and WestWave Demo only (Volume 2, Chapter 7). Therefore, no potential for a significant in-combination effect to arise with respect to disturbance of grey seal.

### Matrix 50: Lambay Island (IE) SPA

Name of European Site: Lambay Island (IE) SPA  
 Distance to AyM: 141.2 km to array / 149.1 km to ECC / 140.3 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)					
	Risk of Collision			Direct Disturbance and Displacement		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D
Kittiwake (breeding)		Xa				
Lesser black-backed gull (breeding)		Xb				
Guillemot (breeding)				Xc	Xd	Xc
Razorbill (breeding)				Xe	Xe	Xe
Puffin (breeding)				Xf	Xf	Xf

#### Evidence Supporting Conclusions:

Xa: The potential increase of less than 0.1% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the kittiwake feature at Lambay Island (IE) SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr alone. Therefore, with subject to natural change, kittiwake would be maintained as a feature in the long term.

Xb: Lesser black-backed gull were recorded in trivial numbers ((only eight individuals and only seen in a single survey) from the 24 months of survey data within the array area, this species was not proposed to be included within the CRM assessment as predicted mortality would be negligible should CRM be undertaken, adult proportion identified and subsequently apportioned to relevant SPAs. There is, therefore, no potential for an AEol on the conservation objectives of the lesser black-backed gull feature of Lambay Island SPA in relation to collision risk effects from AyM alone.

Xc: The potential increase of less than 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the guillemot feature at Lambay Island SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, guillemot would be maintained as a feature in the long term.

Xd: The potential increase of less than 0.1% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the guillemot feature at Lambay Island SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, guillemot would be maintained as a feature in the long term.

Xe: The potential increase of less than 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the razorbill feature at Lambay Island SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, razorbill would be maintained as a feature in the long term.

Xf: The potential increase of less than 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the puffin feature at Lambay Island SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, puffin would be maintained as a feature in the long term.

### Matrix 51: Lambay Island (IE) SPA (in-combination)

Name of European Site: Lambay Island (IE) SPA  
 Distance to AyM: 141.2 km to array / 149.1 km to ECC / 140.3 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)					
	Risk of Collision			Direct Disturbance and Displacement		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D
Kittiwake (breeding)		Xa			Xb	
Lesser black-backed gull (breeding)		Xc				
Guillemot (breeding)				Xd	Xd	Xd
Razorbill (breeding)				Xd	Xd	Xd
Puffin (breeding)				Xd	Xd	Xd

#### Evidence Supporting Conclusions:

Xa: The potential increase of less than 0.1% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the kittiwake feature at Lambay Island (IE) SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr alone. Therefore, with subject to natural change, kittiwake would be maintained as a feature in the long term.

Xb: The potential contribution of less than >0 individuals would not contribute significantly and would therefore have no potential for an AEoI on the conservation objectives of the kittiwake feature at Lambay Island (IE) SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr in-combination. Therefore, with subject to natural change, kittiwake would be maintained as a feature in the long term.

Xc: Less than 0.01 individual mortalities are attributed to this SPA. Assessment alone concluded potential for a trivial and inconsequential level of effect, that would be well within the error margins of the assessment, and therefore no potential for any contribution for an in-combination effect.

Xd: The potential contribution of less than >0 individuals would not contribute significantly and would therefore have no potential for an AEoI on the conservation objectives of the feature at Lambay Island (IE) SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr in-combination. Therefore, with subject to natural change, the feature would be maintained as a feature in the long term.

## Matrix 52: Liverpool Bay / Bae Lerpwl (UK) SPA

Name of European Site: Liverpool Bay / Bae Lerpwl (UK) SPA  
 Distance to AyM: 0.1 km to array / 0.0 km to ECC / 0.0 km to Onshore Draft Order Limits

European Feature	Site	Adverse Effect on Integrity of AyM (alone)								
		Risk of Collision			Direct Disturbance and Displacement			Barrier Effect		
Construction: C Operation: O Decommissioning: D		C	O	D	C	O	D	C	O	D
Red-throated diver (non-breeding)					Xa	Xa	Xa		Xb	
Common scoter (non-breeding)					Xc	Xc	Xc		Xd	
Red-breasted merganser (non-breeding)					Xe	Xe	Xe		Xf	
Little gull (non-breeding)			Xg							

### Evidence Supporting Conclusions:

Xa: A potential less than 0.1% increase in baseline mortality per annum which is indistinguishable from natural fluctuations in the population and therefore no potential for AEoI to the conservation objectives of the site.

Xb: The GyM monitoring report (APEM, 2019) subsequently provided no evidence which suggested barrier effect to red-throated diver. The same report also recorded red-throated diver within the array area of the operational wind-farm at similar densities recorded prior to construction of the project, which suggests that site specific evidence does not support a barrier effect for this species.

Xc: A potential less than 0.1% increase in baseline mortality per annum which is indistinguishable from natural fluctuations in the population and therefore no potential for AEol to the conservation objectives of the site.

Xd: The GyM monitoring report (APEM, 2019) subsequently provided no evidence which suggested barrier effect to common scoter. The same report also recorded common scoter within the array area of the operational windfarm at similar densities recorded prior to construction of the project, which suggests that site specific evidence does not support a barrier effect for this species. Additional, flight direction analysis (APEM, 2019) found no evidence of flight direction change between the pre and post construction monitoring at GyM. Therefore, there would be no potential for an AEol to the conservation objectives of the common scoter feature at Liverpool Bay SPA in relation to potential adverse barrier effects from the O&M phase of AyM alone.

Xe The Red-breasted merganser is a non-breeding waterbird assemblage feature of the Liverpool Bay SPA. Red-breasted merganser were found by Dierschke et al., (2016) to be attracted to OWFs with post-construction monitoring at operational OWF. The species is therefore highly unlikely to be displaced from AyM. Therefore, adverse effects can be discounted as there is no pathway for effect and consequently no potential for an AEol on the conservation objectives of the Red-breasted merganser feature of Liverpool Bay SPA in relation to displacement effects from AyM alone.

Xf: The GyM monitoring report (APEM, 2019) subsequently provided no evidence which suggested barrier effect to red-breasted merganser. The same report also recorded red-breasted merganser within the array area of the operational wind farm at similar densities recorded prior to construction of the project, which suggests that site specific evidence does not support a barrier effect for this species. Therefore, there would be no potential for an AEol to the conservation objectives of the red-breasted merganser feature at Liverpool Bay SPA in relation to potential adverse barrier effects from the O&M phase of AyM alone.

Xg: Little gull has moderate vulnerability to collision risk with turbines (Bradbury et al., 2014), therefore, based on the close proximity of the SPA to the Project site, this feature was screened into Stage 2 of the assessment. Site specific surveys, details in Annex 4.4.1, recorded no little gulls in the array or 4km buffer zone during any season. There is, therefore, no pathway of effect and consequently no potential for an AEol on the conservation objectives of the little gull feature of Liverpool Bay SPA in relation to collision risk effects from AyM alone.

### Matrix 53: Liverpool Bay / Bae Lerpwl (UK) SPA (in-combination)

Name of European Site: Liverpool Bay / Bae Lerpwl (UK) SPA  
 Distance to AyM: 0.1 km to array / 0.0 km to ECC / 0.0 km to Onshore Draft Order Limits

European Feature	Site	Adverse Effect on Integrity of AyM (in-combination)											
		Displacement Effects			Physical loss of supporting habitat			Smothering			Physical damage to supporting habitats		
Construction: C Operation: O Decommissioning: D		C	O	D	C	O	D	C	O	D	C	O	D
Red-throated diver (non-breeding)		Xa	Xa	Xa									
Common scoter (non-breeding)		Xa	Xa	Xa									
Red-breasted merganser		Xb	Xb	Xb									
Little Gull		Xc	Xc	Xc									
Common Tern		Xd	Xd	Xd									
Little Tern		Xd	Xd	Xd									
Supporting Habitats					Xe	Xe	Xe	Xf	Xf	Xf	Xg	Xg	Xg

#### Evidence Supporting Conclusions:

Xa: A potential less than 1% increase in baseline mortality per annum which is indistinguishable from natural fluctuations in the population and therefore no potential for AEol to the conservation objectives of the site.

Xb: No quantitative assessment could be made for this impact relating to operation vessel movements, therefore a qualitative alone assessment was undertaken. Additionally, there was no information from other projects available for an in-combination assessment to be undertaken. For remaining disturbance effects, it is considered that there is no pathway for effect so no AEoI.

Xc: No little gull recorded by site specific survey data therefore no pathway for effect determined, therefore no AEoI.

Xd: Non-breeding terns may pass through or visit the AyM array area during the non-breeding season and were considered for assessment, but due to a thinning of the potential risk when considering birds from multiple designated sites, the relative impact on a specific SPA or Ramsar population is considered to be inconsequential. Additionally, on migration, the 'Broad front' approach showed that there would be no adverse effect during migration. Therefore, no migratory terns were screened in for in-combination.

Xe: Given the conclusions for AyM alone, being highly localised and small scale with no significant effect on supporting habitats, together with the lack of any apparent significant effects resulting from the construction of both Gwynt y Mor and Rhyl Flats on the wider benthos, there is, therefore, no potential for an AEoI on the conservation objectives of the supporting habitats of the Liverpool Bay SPA in relation to habitat loss from AyM in-combination

Xf: The conclusions for AyM alone were for a temporary, short term and affect, extending to a very small proportion of habitat across the SPA with no significant effect on supporting habitats. For projects in-combination, all are in operation with the potential for sediment release to be highly limited and localised. With respect to the aggregate sites, the associated HRA concluded no LSE for all sites. There is, therefore, no potential for an AEoI on the conservation objectives of the supporting habitats of the Liverpool Bay SPA in relation to smothering from AyM in-combination

Xg: The conclusions for AyM alone were for a temporary and localised affect, extending to a very small proportion of habitat across the SPA with no significant effect on supporting habitats. For projects in-combination, all are in operation with the potential for physical damage being highly limited and localised. With respect to the aggregate sites, the associated HRA concluded no LSE for all sites. There is, therefore, no potential for an AEoI on the conservation objectives of the supporting habitats of the Liverpool Bay SPA in relation to physical damage from AyM in-combination

## Matrix 54: Mers Celtiques - Talus du golfe de Gascogne (FR) SAC

Name of European Site: Mers Celtiques - Talus du golfe de Gascogne (FR) SAC  
 Distance to AyM: 505.3 km to array / 502.3 km to ECR / 493.3 to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
<b>Construction: C</b> <b>Operation: O</b> <b>Decommissioning: D</b>	C	O	D
Harbour porpoise	Xa	Xa	Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 55: Mers Celtiques - Talus du golfe de Gascogne (FR) SAC (in-combination)

Name of European Site: Mers Celtiques - Talus du golfe de Gascogne (FR) SAC			
Distance to AyM: 505.3 km to array / 502.3 km to ECR / 493.3 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 56: Morecambe Bay and Duddon Estuary (UK) SPA

Name of European Site: Morecambe Bay and Duddon Estuary (UK) SPA			
Distance to AyM: 58.7 km to array / 65.3 km to ECC / 58.7 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull (breeding and non-breeding)		Xa	
Herring gull (breeding and non-breeding)		Xb	

### Evidence Supporting Conclusions:

Xa: Lesser black-backed gull were recorded in trivial numbers (only eight individuals and only seen in a single survey) from the 24 months of survey data within the array area and therefore this species was not proposed to be included within the CRM assessment as predicted mortality would be negligible should CRM be undertaken, adult proportion identified and subsequently apportioned to relevant SPAs. There is, therefore, no potential for an AEoI on the conservation objectives of the lesser black-backed gull feature of Morecambe Bay and Duddon Estuary SPA in relation to collision risk effects from AyM alone.

Xb: A potential less than 0.1% increase in baseline mortality per annum which is indistinguishable from natural fluctuations in the population. Additionally, on migration, the 'Broad front' approach showed that there would be no adverse effect during migration. Therefore, there is no potential for AEoI to the conservation objectives of the site.

### Matrix 57: Morecambe Bay and Duddon Estuary (UK) SPA (in-combination)

Name of European Site: Morecambe Bay and Duddon Estuary (UK) SPA			
Distance to AyM: 58.7 km to array / 65.3 km to ECC / 58.7 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (in-combination)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull		Xa	
Great black-backed gull		Xb	
Herring gull (breeding and non-breeding)		Xc	

#### Evidence Supporting Conclusions:

Xa: Less than 0.01 individual mortalities are attributed to this SPA. Assessment alone concluded potential for a trivial and inconsequential level of effect, that would be well within the error margins of the assessment, and therefore no potential for any contribution for an in-combination effect.

Xb: No pathway for effect is considered and therefore not considered in-combination.

Xc: A small number of individuals have been apportioned to Morecambe Bay and Duddon Estuary SPA (less than half a bird) and tracking data does not suggest connectivity, therefore the contribution by AyM to an in-combination impact of Herring gull at Morecambe Bay and Duddon Estuary SPA is inconsequential. Additionally, on migration, the 'Broad front' approach showed that there would be no adverse effect during migration. Subsequently, there would be no potential for an AEoI on the conservation objectives of herring gull features at the above sites in relation to potential adverse displacement effects of AyM alone or in-combination.

## Matrix 58: Morecambe Bay Ramsar

Name of European Site: Morecambe Bay Ramsar			
Distance to AyM: 58.7 km to array / 65.3 km to ECC / 58.7 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull (breeding and non-breeding)		Xa	
Herring gull (breeding and non-breeding)		Xb	

### Evidence Supporting Conclusions:

Xa: Lesser black-backed gull were recorded in trivial numbers ((only eight individuals and only seen in a single survey) from the 24 months of survey data within the array area and therefore this species was not proposed to be included within the CRM assessment as predicted mortality would be negligible should CRM be undertaken, adult proportion identified and subsequently apportioned to relevant SPAs. There is, therefore, no potential for an AEol on the conservation objectives of the lesser black-backed gull feature of Morecambe Bay Ramsar in relation to collision risk effects from AyM alone.

Xb: A potential less than 0.1% increase in baseline mortality per annum which is indistinguishable from natural fluctuations in the population. Additionally, on migration, the 'Broad front' approach showed that there would be no adverse effect during migration. Therefore, there is no potential for AEol to the conservation objectives of the site.

Matrix 59: Morecambe Bay Ramsar (in-combination)

Name of European Site: Morecambe Bay Ramsar			
Distance to AyM: 58.7 km to array / 65.3 km to ECC / 58.7 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (in-combination)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Herring gull (breeding and non-breeding)		Xa	
Lesser black-backed gull		Xb	

Evidence Supporting Conclusions:

Xa: A small numbers of individuals have been apportioned to Morecambe Bay Ramsar (less than half a bird) and tracking data does not suggest connectivity, therefore the contribution by AyM to an in-combination impact of Herring gull at Morecambe Bay Ramsar is in-consequential. Additionally, on migration, the ‘Broad front’ approach showed that there would be no adverse effect during migration. Subsequently, there would be no potential for an AEoI on the conservation objectives of herring gull features at the above sites in relation to potential adverse displacement effects of AyM alone or in-combination.

Xb: Less than 0.01 individual mortalities are attributed to this SPA. Assessment alone concluded potential for a trivial and inconsequential level of effect, that would be well within the error margins of the assessment, and therefore no potential for any contribution for an in-combination effect.

### Matrix 60: Nord Bretagne DH (FR) SAC

Name of European Site: Nord Bretagne DH (FR) SAC			
Distance to AyM: 412.3 km to array / 400.4 km to ECR / 391.3 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 61: Nord Bretagne DH (FR) SAC (in-combination)

Name of European Site: Nord Bretagne DH (FR) SAC			
Distance to AyM: 412.3 km to array / 400.4 km to ECR / 391.3 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 62: North Anglesey Marine / Gogledd Môn Forol (UK) SAC

Name of European Site: North Anglesey Marine / Gogledd Môn Forol (UK) SAC			
Distance to AyM: 23.5 km to Array / 30.8 km to ECR / 22.6 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 63: North Anglesey Marine / Gogledd Môn Forol (UK) SAC (in-combination)

Name of European Site: North Anglesey Marine / Gogledd Môn Forol (UK) SAC			
Distance to AyM: 23.5 km to Array / 30.8 km to ECR / 22.6 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 64: North Channel (UK) SAC

Name of European Site: North Channel (UK) SAC			
Distance to AyM: 112.4 km to array / 123 km to ECR / 112.2 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 65: North Channel (UK) SAC (in-combination)

Name of European Site: North Channel (UK) SAC			
Distance to AyM: 112.4 km to array / 123 km to ECR / 112.2 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 66: Pembrokeshire Marine (UK) SAC

Name of European Site: Pembrokeshire Marine SAC			
Distance to AyM: 189.7 km to array / 191.3 km to ECR / 185.1 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Grey seal	Xa		Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential of impact is addressed through a combination of assessment and mitigation, enabling a conclusion of no AEoI in all cases. No potential for AEoI to the supporting habitat and processes relevant to prey were found. Therefore, the conclusion is of no AEoI with respect to underwater noise at all relevant stages of the project.

### Matrix 67: Pembrokeshire Marine (UK) SAC (in-combination)

Name of European Site: Pembrokeshire Marine SAC			
Distance to AyM: 189.7 km to array / 191.3 km to ECR / 185.1 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Grey seal	Xa		Xa

#### Evidence Supporting Conclusions:

Xa: Decommissioning activities at North Hoyle likely to involve cutting, which is unlikely to disturb any species of marine mammal (Volume 2, Chapter 7). Erebus Offshore Wind apportioned no impacts (alone or in-combination) to any of the sites identified within this in-combination assessment, and therefore it can be concluded that there is no in-combination impact to be considered from this project. Piling at Dublin Array anticipated in 2025 (out of the timeframe for in-combination effect with AyM) (Volume 2, Chapter 7). Localised vessel disturbance associated with Arklow Bank Phase 2 and WestWave Demo only (Volume 2, Chapter 7). Therefore, no potential for a significant in-combination effect to arise with respect to disturbance of grey seal.

## Matrix 68: Pen Llŷn a`r Sarnau/ Lleyn Peninsula and the Sarnau (UK) SAC

Name of European Site: Pen Llŷn a`r Sarnau/ Lleyn Peninsula and the Sarnau (UK) SAC			
Distance to AyM: 55.2 km to array / 53.7 km to ECR / 47.4 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Grey seal	Xa		Xa
Bottlenose dolphin	Xa		Xa

### Evidence Supporting Conclusions:

1.2.6 Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

Xb: Modelling showed that there would be a mean difference of 3 individuals between the impacted and unimpacted scenarios over a 6-year period (1 year of impact and 5 years post-impact). Therefore, despite the highly conservative inputs (that 16 dolphins were disturbed on every piling day, and that all disturbance was attributed to the “SAC population”), there were no significant population level consequences predicted by the modelling. Therefore, with respect to piling related disturbance of bottlenose dolphin within the SACs screened in, it is clear that there is, therefore, no potential for an AEoI on the conservation objectives of the bottlenose dolphin feature of all sites screened in for disturbance (underwater noise) from AyM alone.

### Matrix 69: Pen Llŷn a'r Sarnau/ Lleyen Peninsula and the Sarnau (UK) SAC (in-combination)

Name of European Site: Pen Llŷn a'r Sarnau/ Lleyen Peninsula and the Sarnau (UK) SAC			
Distance to AyM: 55.2 km to array / 53.7 km to ECR / 47.4 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Grey seal	Xa		Xa
Bottlenose dolphin	Xb		Xb

#### Evidence Supporting Conclusions:

Xa: Decommissioning activities at North Hoyle likely to involve cutting, which is unlikely to disturb any species of marine mammal (Volume 2, Chapter 7). Erebus Offshore Wind apportioned no impacts (alone or in-combination) to any of the sites identified within this in-combination assessment, and therefore it can be concluded that there is no in-combination impact to be considered from this project. Piling at Dublin Array anticipated in 2025 (out of the timeframe for in-combination effect with AyM) (Volume 2, Chapter 7). Localised vessel disturbance associated with Arklow Bank Phase 2 and WestWave Demo only (Volume 2, Chapter 7). Therefore, no potential for a significant in-combination effect to arise with respect to disturbance of bottlenose dolphin or grey seal.

## Matrix 70: Puffin Island (UK) SPA

Name of European Site: Puffin Island (UK) SPA												
Distance to AyM: 17.3 km to array / 21.3 km to ECC / 17.03 km to Onshore Draft Order Limits												
European Site Feature	Adverse Effect on Integrity of AyM (alone)											
	Disturbance from vessel movements			Disturbance and displacement			Barrier effect			Collision risk		
Construction: C	C	O	D	C	O	D	C	O	D	C	O	D
Operation: O												
Decommissioning: D												
Cormorant	Xa		Xa		Xb			Xb			Xc	

### Evidence Supporting Conclusions:

Xa: Cormorant has relatively low vulnerability to vessel movement disturbance associated with construction and decommissioning activity (Fließbach et al., 2019). Based on the low vulnerability of cormorant to vessel movements, and the spatial and temporal coverage of construction activities being short term, intermittent and temporary and being limited to low frequencies of vessel, there is no potential for an AEol on the conservation objectives of the cormorant feature of Ynys Seiriol/ Puffin Island SPA from AyM alone or in-combination with other plans or projects.

Xb: There is no evidence to suggest that this species is sensitive to displacement related impacts during operation. The very low likelihood of sensitivity to displacement also infers a highly unlikely chance of barrier effects for commuting cormorants associated with the SPA. Furthermore, site specific digital aerial survey data recorded very low numbers of cormorant within the offshore array area of the proposed AyM site. Therefore, in relation to disturbance and displacement effects and barrier effects, there is no potential for an AEol on the conservation objectives of the cormorant feature of Puffin Island SPA from AyM alone or in-combination with other plans or projects.

Xc: Cormorant have low vulnerability to collision risk with offshore wind turbines (Bradbury et al., 2014, Furness et al., 2013) due to their low flight heights. Despite evidence (Dierschke et al., 2016) suggesting cormorant are strongly attracted to OWF, their low flight height suggest no pathway for effect. Furthermore, very small numbers of cormorant were recorded within the AyM array area during site specific digital aerial surveys. Additionally, on migration, the 'Broad front' approach showed that there would be no adverse effect during migration. Therefore, in relation to collision risk effects, there is no potential for an AEol on the conservation objectives of the cormorant feature of Puffin Island SPA from Awel y Môr alone with other plans or projects.

Matrix 71: Puffin Island (UK) SPA (in-combination)

Name of European Site: Puffin Island (UK) SPA												
Distance to AyM: 17.3 km to array / 21.3 km to ECC / 17.03 km to Onshore Draft Order Limits												
European Site Feature	Adverse Effect on Integrity of AyM (alone)											
	Disturbance from vessel movements			Disturbance and displacement			Barrier effect			Collision risk		
Construction: C	C	O	D	C	O	D	C	O	D	C	O	D
Operation: O												
Decommissioning: D												
Cormorant	Xa		Xa		Xb			Xb			Xc	

Evidence Supporting Conclusions:

Xa: For the Cormorant receptor at this site, the conclusion for AyM alone was for no LSE. There is, therefore, no potential for AyM to contribute to any in-combination effects at this site.

## Matrix 72: Rathlin Island (UK) SPA

Name of European Site: Raithlin Island (UK) SPA			
Distance to AyM: 246.9 km to array / 257.4 km to ECC / 246.8 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Direct disturbance and displacement		
<b>Construction: C</b> <b>Operation: O</b> <b>Decommissioning: D</b>	C	O	D
Puffin	Xa	Xb	Xa

### Evidence Supporting Conclusions:

Xa: The potential increase of 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the puffin feature at Rathlin Island (UK) SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, puffin would be maintained as a feature in the long term.

Xb: The potential increase of 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the puffin feature at Lambay Island (IE) SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr alone. Therefore, with subject to natural change, puffin would be maintained as a feature in the long term.

Matrix 73: Rathlin Island (UK) SPA (in-combination)

Name of European Site: Raithlin Island (UK) SPA			
Distance to AyM: 246.9 km to array / 257.4 km to ECC / 246.8 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (in-combination)		
	Direct disturbance and displacement		
Construction: C Operation: O Decommissioning: D	C	O	D
Puffin	Xa		Xa

Evidence Supporting Conclusions:

Xa: The potential increase of 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the puffin feature at Rathlin Island SPA in relation to potential adverse displacement effects from the construction and decommissioning phases of Awel y Môr alone. Therefore, with subject to natural change, puffin would be maintained as a feature in the long term.

## Matrix 74: Récifs et landes de la Hague (FR) SAC

Name of European Site: Récifs et landes de la Hague (FR) SAC			
Distance to AyM: 425.9 km to array / 410.9 km to ECR / 402.3 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 75: Récifs et landes de la Hague (FR) SAC (in-combination)

Name of European Site: Récifs et landes de la Hague (FR) SAC			
Distance to AyM: 425.9 km to array / 410.9 km to ECR / 402.3 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

Matrix 76: Ribble and Alt Estuaries (UK) Ramsar

Name of European Site: Ribble and Alt Estuaries (UK) Ramsar			
Distance to AyM: 30.8 km to array / 29.6 km to ECC / 28.8 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull (breeding and non-breeding)		Xa	

Evidence Supporting Conclusions:

Xa: The potential addition of 0.05 (0-0.19) breeding adult lesser black-backed gull mortalities per annum equates to less than 0.1% increase in baseline mortality for either citation or latest colony count. This increase would be indistinguishable from natural fluctuations in the population. There is, therefore, no potential for an AEoI on the population conservation objective of the lesser black-backed gull feature of Ribble and Alt Estuaries and Ramsar in relation to collision risk effects from AyM alone.

Matrix 77: Ribble and Alt Estuaries (UK) Ramsar (in-combination)

Name of European Site: Ribble and Alt Estuaries (UK) Ramsar			
Distance to AyM: 30.8 km to array / 29.6 km to ECC / 28.8 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull (breeding and non-breeding)		Xa	

Evidence Supporting Conclusions:

Xa: Less than 0.2 individual mortalities are attributed to this Ramsar. Assessment alone concluded potential for a trivial and inconsequential level of effect, that would be well within the error margins of the assessment, and therefore no potential for any contribution for an in-combination effect.

### Matrix 78: Ribble and Alt Estuaries (UK) SPA

Name of European Site: Ribble and Alt Estuaries (UK) SPA			
Distance to AyM: 30.8 km to array / 29.6 km to ECC / 28.8 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull (breeding and non-breeding)		Xa	

#### Evidence Supporting Conclusions:

Xa: The potential addition of 0.05 (0-0.19) breeding adult lesser black-backed gull mortalities per annum equates to less than 0.1% increase in baseline mortality for either citation or latest colony count. This increase would be indistinguishable from natural fluctuations in the population. There is, therefore, no potential for an AEoI on the population conservation objective of the lesser black-backed gull feature of Ribble and Alt Estuaries SPA in relation to collision risk effects from AyM alone.

Matrix 79: Ribble and Alt Estuaries (UK) SPA (in-combination)

Name of European Site: Ribble and Alt Estuaries (UK) SPA			
Distance to AyM: 30.8 km to array / 29.6 km to ECC / 28.8 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull (breeding and non-breeding)		Xa	

Evidence Supporting Conclusions:

Xa: Less than 0.2 individual mortalities are attributed to this SPA. Assessment alone concluded potential for a trivial and inconsequential level of effect, that would be well within the error margins of the assessment, and therefore no potential for any meaningful contribution for an in-combination effect.

## Matrix 80: River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC

Name of European Site: River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC													
Distance to AyM: 46.1 km to Array / 27.7 km to ECR / 26.1 km to Onshore Draft Order Limits													
European Feature	Site	Adverse Effect on Integrity of AyM (alone)											
		Underwater noise			Suspended sediment and deposition			Pollution			EMF		
Construction: C Operation: O Decommissioning: D		C	O	D	C	O	D	C	O	D	C	O	D
Atlantic salmon		Xa		Xa	Xc		Xc	Xd	Xd	Xd		Xe	
Sea lamprey		Xb		Xb	Xc		Xc	Xd	Xd	Xd		Xe	
River lamprey		Xb		Xb	Xc		Xc	Xd	Xd	Xd		Xe	

### Evidence Supporting Conclusions:

Xa: Taking into account the distance from the Array (>20 km at its nearest point), the short-term and localised nature of the impact arising during construction, the preference for salmon to remain in coastal waters while migrating, the likelihood of the instinct for migration overriding any potential disturbance effects or migration occurring between noisy activities and no noise from AyM activities entering the River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC, it is not anticipated that significant impacts in relation to underwater noise effects from piling within the array will occur on Atlantic salmon, with no impacts to the population or distribution of the salmon within the SAC. There is, therefore, no potential for an AEol on the conservation objectives of the salmon feature of the River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC in relation to underwater noise from AyM alone and therefore, subject to natural change, this feature will be maintained in the long term in terms of the range, distribution and population of the species.

Xb: Taking into account the distance from the Array (>20 km at its nearest point), the short-term and localised nature of the impact arising during construction, the likelihood of the instinct for migration overriding any potential disturbance effects from noise and no noise from AyM activities entering the River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC, it is not anticipated that underwater noise will have a significant effect on the distribution of lamprey within the sites. Underwater noise will also not result in any mortality or injury of the receptors within the SACs, furthermore, underwater noise from the project will not result in a barrier effect preventing the receptors from accessing the site to breed, there will therefore be no effect on the populations of the receptors within the sites. There is, therefore, no potential for an AEol on the conservation objectives of the river and sea lamprey feature of the Dee Estuary/ Aber Dyfrdwy (UK) SAC and the River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC in relation to underwater noise from AyM alone and therefore, subject to natural change, these features will be maintained in the long term in terms of the range, distribution and population of the species within the site.

Xc: Taking into account the wide distribution of the migratory fish species across the Dee Estuary/ Aber Dyfrdwy (UK) SAC and the River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC, and the short-term and localised nature of the impact arising during construction and decommissioning, it is not anticipated that significant impacts in relation to SSC effects will occur on Annex II migratory species. There is, therefore, no potential for an AEol on the conservation objectives of the site in relation to suspended sediment and deposition effects from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to the potential for suspended sediment and deposition.

Xd: Given the low background levels of contaminants in sediment that may be disturbed, lack of significant connectivity between such sediment and the entrance to the SACs (the estuary mouth) and the embedded mitigation afforded by the PEMP, there is, therefore, no potential for an AEol on the conservation objectives of the sites in relation to pollution effects from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to the potential for pollution.

Xe: Whilst migratory fish (including salmonids) are known to be able to detect EMFs (e.g. Tricas & Gill, 2011), studies to date at offshore wind farms and around cables (Hvidt et al., 2004; MMO, 2014) have not recorded any broadscale changes to behaviour or distribution of fish species. Even where studies have shown reactions in migratory fish to EMFs, these reactions have not been sufficient to be considered to be causing a barrier to migration or severe enough to result in any interruption to migration (Westerberg, 2000; Ohman et al., 2007). Implementation of standard mitigation, such as cable burial/protection, will ensure that these species are not exposed to the highest EMFs, further ensuring that significant impacts to this feature do not arise (Table 3). There is, therefore, no potential for an AEol on the conservation objectives of the sites in relation to EMF from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to EMF.

### Matrix 81: River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC (in-combination)

Name of European Site: River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC													
Distance to AyM: 46.1 km to Array / 27.7 km to ECR / 26.1 km to Onshore Draft Order Limits													
European Feature	Site	Adverse Effect on Integrity of AyM (in-combination)											
		Underwater noise			Suspended sediment and deposition			Pollution			EMF		
Construction: C Operation: O Decommissioning: D		C	O	D	C	O	D	C	O	D	C	O	D
Atlantic salmon		Xa		Xa	Xb		Xb	Xc	Xc	Xc		Xd	
Sea lamprey		Xa		Xa	Xb		Xb	Xc	Xc	Xc		Xd	
River lamprey		Xa		Xa	Xb		Xb	Xc	Xc	Xc		Xd	

#### Evidence Supporting Conclusions:

Xa: The conclusions for AyM alone were for a lack of significant effect for all designated migratory fish features of the SACs, with underwater noise impacts not predicted to have any impact on migratory behaviour and so no impacts on the populations or distribution of the designated features within the sites. There are no other relevant projects which have been screened into the in-combination assessment and as such there is no potential for an in-combination effect. There is, therefore, no potential for an AEol on the conservation objectives of the designated features of the Dee Estuary / Aber Dyfrdwy (UK) SAC or River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC in relation to underwater noise from AyM in-combination and therefore will not prevent the restoration of the features within the sites with respect to the potential for underwater noise.

Xb: The conclusions for AyM alone were for a lack of significant effect for all designated features of the SAC, with the potential for deposition of sediment being so small as to be immeasurable and within natural variation. It would be insufficient to result in any change to the distribution or population for any of the features as a result of suspended sediment and deposition from AyM. Therefore, AyM cannot contribute in any meaningful way to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEol on the conservation objectives of the designated features of the Dee Estuary / Aber Dyfrdwy (UK) SAC or River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC in relation to suspended sediment and deposition from AyM in-combination and therefore will not prevent the restoration of the features within the sites with respect to the potential for suspended sediment and deposition.

Xc: The conclusions for AyM alone were for a lack of any measurable effect between deposition and the designated features which, together with the PEMP (Table 3) to mitigate any risk of pollution incidents combined to result in not AEol. It is expected that all projects in-combination would be required to have a PEMP (or similar documentation) should there be a risk of a pollution incident. Therefore, there is no potential for any in-combination effect. There is, therefore, no potential for an AEol on the conservation objectives of the designated features of the Dee Estuary / Aber Dyfrdwy (UK) SAC or River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC in relation to pollution from AyM in-combination and therefore will not prevent the restoration of the features within the sites with respect to the potential for pollution.

Xd: The conclusions for AyM alone were for a lack of significant effect for all designated features of the SAC, with the expected low-level EMFs produced by AyM, burial of the cables increasing the distance between the cable and the receptor and the existing evidence demonstrating that EMFs from wind farm cabling does not lead to any changes in abundances or distributions of fish (e.g. MMO, 2014) combining to result in no AEol. Numerous reviews have identified that power cables in general do not result in any significant effects to fish (e.g. Tricas and Gill, 2011), and even those studies which identified a reaction in fish from EMF, noted that these reactions were not expected to impact on migration (Westerberg, 2000; Ohman et al., 2007) and will not result in changes to the populations of the sites or the distribution of the fish within the site. Therefore, there is no potential for any in-combination effect. There is, therefore, no potential for an AEol on the conservation objectives of the designated features of the Dee Estuary / Aber Dyfrdwy (UK) SAC or River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC in relation to pollution from AyM in-combination and therefore will not prevent the restoration of the features within the sites with respect to the potential for EMF.

## Matrix 82: Roaringwater Bay and Islands SAC (IE) SAC

Name of European Site: Roaringwater Bay and Islands SAC (IE) SAC			
Distance to AyM: 430.9 km to array / 436.4 km to ECR / 430.1 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 83: Roaringwater Bay and Islands SAC (IE) SAC (in-combination)

Name of European Site: Roaringwater Bay and Islands SAC (IE) SAC			
Distance to AyM: 430.9 km to array / 436.4 km to ECR / 430.1 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 84: Rockabill to Dalkey Island SAC (IE) SAC

Name of European Site: Rockabill to Dalkey Island SAC (IE) SAC			
Distance to AyM: 139.8 km to array / 147.8 km to ECR / 139.0 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 85: Rockabill to Dalkey Island SAC (IE) SAC

Name of European Site: Rockabill to Dalkey Island SAC (IE) SAC			
Distance to AyM: 139.8 km to array / 147.8 km to ECR / 139.0 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 86: Saltee Islands (Ireland) SAC

Name of European Site: Saltee Islands (Ireland)			
Distance to AyM: 226.8 km to array / 231.3 km to ECR / 226.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Grey seal	Xa		Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 87: Saltee Islands (Ireland) SAC (in-combination)

Name of European Site: Saltee Islands (Ireland)			
Distance to AyM: 226.8 km to array / 231.3 km to ECR / 226.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Grey seal	Xa		Xa

#### Evidence Supporting Conclusions:

Xa: Decommissioning activities at North Hoyle likely to involve cutting, which is unlikely to disturb any species of marine mammal (Volume 2, Chapter 7). Erebus Offshore Wind apportioned no impacts (alone or in-combination) to any of the sites identified within this in-combination assessment, and therefore it can be concluded that there is no in-combination impact to be considered from this project. Piling at Dublin Array anticipated in 2025 (out of the timeframe for in-combination effect with AyM) (Volume 2, Chapter 7). Localised vessel disturbance associated with Arklow Bank Phase 2 and WestWave Demo only (Volume 2, Chapter 7). Therefore, no potential for a significant in-combination effect to arise with respect to disturbance of grey seal.

## Matrix 88: Saltee Islands (IE) SPA

Name of European Site: Saltee Islands (IE) SPA  
 Distance to AyM: 233.2 km to array / 237.7 km to ECC / 232.6 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
<b>Construction: C</b> <b>Operation: O</b> <b>Decommissioning: D</b>	C	O	D
Lesser black-backed gull (breeding and non-breeding)		Xa	
Kittiwake (breeding)		Xb	
Puffin	Xc	Xc	Xc

### Evidence Supporting Conclusions:

Xa: Lesser black-backed gull were recorded in trivial numbers ((only eight individuals and only seen in a single survey) from the 24 months of survey data within the array area, so this species was not proposed to be included within the CRM assessment as predicted mortality would be negligible should CRM be undertaken, adult proportion identified and subsequently apportioned to relevant SPAs. There is, therefore, no potential for an AEol on the conservation objectives of the lesser black-backed gull feature of Saltee Islands SPA in relation to collision risk effects from AyM alone

Xb: The potential increase of less than 0.1% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the kittiwake feature at Saltee Islands (IE) SPA in relation to potential adverse displacement effects from the construction and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, kittiwake would be maintained as a feature in the long term.

Xc: The potential increase of less than 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the puffin feature at Saltee Islands (IE) SPA in relation to potential adverse displacement effects from the construction, operation and maintenance and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, puffin would be maintained as a feature in the long term.

### Matrix 89: Saltee Islands (IE) SPA (in-combination)

Name of European Site: Saltee Islands (IE) SPA							
Distance to AyM: 233.2 km to array / 237.7 km to ECC / 232.6 km to Onshore Draft Order Limits							
European Feature	Site	Adverse Effect on Integrity of AyM (in-combination)					
		Risk of collision			Displacement Effects		
Construction: C Operation: O Decommissioning: D		C	O	D	C	O	D
Kittiwake (breeding)			Xa				
Puffin					Xb	Xb	Xb
Lesser black-backed gull			Xc				

#### Evidence Supporting Conclusions:

Xa: Based on the absence of data in relation to OWF within mean-maximum foraging range + 1SD of the site and recognising that the contribution AyM would make to any future in-combination assessment would be small enough to be considered in-consequential alone, there would be no potential for AyM to contribute to any AEol to the conservation objectives of kittiwake features at the site in relation to potential adverse displacement effects of AyM alone or in-combination. Therefore, with subject to natural change, kittiwake would be maintained as features in the long term at the site.

Xb: Puffin increase in baseline mortality is <1%. Therefore, there is no potential for an AEol on the population conservation objectives of the puffin features at Saltee Islands SPA in relation to potential adverse effects from the O&M phase of AyM in-combination with other plans and projects. Therefore, subject to natural change, puffin would be maintained as a feature in the long term.

Xc: Less than 0.001 individual mortalities are attributed to this SPA. Assessment alone concluded potential for a trivial and inconsequential level of effect, that would be well within the error margins of the assessment, and therefore no potential for any contribution for an in-combination effect.

## Matrix 90: Severn Estuary (UK) Ramsar

Name of European Site: Site: Severn Estuary (UK) Ramsar  
 Distance to AyM: 204.7 km to array / 187.3 km to ECC / 179.5 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Bewick's swan		Xa	
Gadwall		Xa	
Greater white-fronted goose		Xa	
Redshank		Xa	
Shelduck		Xa	
Teal		Xa	
Pintail		Xa	
Ringed plover		Xa	
Dunlin		Xa	
Waterbird assemblage		Xa	

#### Evidence Supporting Conclusions:

Xa: The proportion of population that will be in contact with the proposed windfarm is inadequate to impact the population therefore the energy expenditure of birds avoiding the windfarm during their migration is negligible. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects.

### Matrix 91: Severn Estuary (UK) Ramsar (in-combination)

Name of European Site: Site: Severn Estuary (UK) Ramsar  
 Distance to AyM: 204.7 km to array / 187.3 km to ECC / 179.5 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Bewick's swan		Xa	
Gadwall		Xa	
Greater white-fronted goose		Xa	
Redshank		Xa	
Shelduck		Xa	
Teal		Xa	
Pintail		Xa	
Ringed plover		Xa	
Dunlin		Xa	
Waterbird assemblage		Xa	

Evidence Supporting Conclusions:

Xa: The proportion of population that will be in contact with the proposed windfarm is inadequate to impact the population therefore the energy expenditure of birds avoiding the windfarm during their migration is negligible. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects.

## Matrix 92: Severn Estuary (UK) SPA

Name of European Site: Site: Severn Estuary (UK) SPA  
 Distance to AyM: 204.7 km to array / 187.3 km to ECC / 179.5 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Bewick's swan		Xa	
Gadwall		Xa	
Greater white-fronted goose		Xa	
Redshank		Xa	
Shelduck		Xa	
Dunlin		Xa	
Waterbird assemblage		Xa	

### Evidence Supporting Conclusions:

Xa: The proportion of population that will be in contact with the proposed windfarm is inadequate to impact the population therefore the energy expenditure of birds avoiding the windfarm during their migration is negligible. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects.

### Matrix 93: Severn Estuary (UK) SPA

Name of European Site: Site: Severn Estuary (UK) SPA  
 Distance to AyM: 204.7 km to array / 187.3 km to ECC / 179.5 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Bewick's swan		Xa	
Gadwall		Xa	
Greater white-fronted goose		Xa	
Redshank		Xa	
Shelduck		Xa	
Dunlin		Xa	
Waterbird assemblage		Xa	

#### Evidence Supporting Conclusions:

Xa: The proportion of population that will be in contact with the proposed windfarm is inadequate to impact the population therefore the energy expenditure of birds avoiding the windfarm during their migration is negligible. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects.

Matrix 94: Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro (UK) SPA

Name of European Site: Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro (UK) SPA  
 Distance to AyM: 207.9 km to array / 209.3 km to ECC / 202.5 km to Onshore Draft Order Limits

European Feature	Site	Adverse Effect on Integrity of AyM (alone)					
		Risk of collision			Direct disturbance and displacement		
Construction: C Operation: O Decommissioning: D		C	O	D	C	O	D
Kittiwake (breeding and non-breeding)			Xa				
Lesser black-backed gull (breeding and non-breeding)			Xb				
Manx shearwater					Xd	Xe	Xd
Storm Petrel			Xc		Xf	Xg	Xf
Puffin (breeding)					Xh	Xh	Xh

Evidence Supporting Conclusions:

Xa: The potential increase of less than 0.1% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the kittiwake feature at Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro (UK) SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr alone. Therefore, with subject to natural change, kittiwake would be maintained as a feature in the long term.

Xb: The colony specific maximum foraging range of tracked lesser black-backed gull breeding at Skomer, Skokholm and the Seas off Pembrokeshire SPA is 151 km (Woodward et al., 2019). As the Awel y Môr array area is beyond the maximum foraging range for this species from this SPA, adverse effects can be discounted as there is no pathway for effects. Consequently, there is no potential for an AEoI on the conservation objectives of the lesser black-backed gull feature of Skomer, Skokholm and the Seas off Pembrokeshire SPA in relation to displacement effects from AyM alone.

Xc: storm petrel have low vulnerability to collision risk with offshore wind turbines (Bradbury et al., 2014, Furness et al., 2013) due to their low flight heights. Furthermore, no storm petrel were recorded within the AyM array area during site specific digital aerial surveys. Therefore, in relation to collision risk effects, there is no potential for an AEoI on the conservation objectives of the storm petrel feature of Skomer, Skokholm and the Seas off Pembrokeshire SPA from AyM alone with other plans or projects.

Xd: Manx shearwater has relatively low vulnerability to vessel movement disturbance associated with construction and decommissioning activity (Furness et al., 2013). Based on the low vulnerability of Manx shearwater to vessel movements, and the spatial and temporal coverage of construction activities being short term, intermittent and temporary and being limited to low frequencies of vessel, there is no potential for an AEoI on the conservation objectives of the Manx shearwater feature of the SPAs from AyM alone or in-combination with other plans or projects.

Xe: Manx shearwater has relatively low vulnerability to vessel movement disturbance associated with construction and decommissioning activity (Furness et al., 2013). Based on the low vulnerability of storm petrel to vessel movements, and the spatial and temporal coverage of construction activities being short term, intermittent and temporary and being limited to low frequencies of vessel, there is no potential for an AEoI on the conservation objectives of the storm petrel feature of Skomer, Skokholm and the Seas off Pembrokeshire SPA from AyM alone or in-combination with other plans or projects

Xf: Storm petrel has relatively low vulnerability to vessel movement disturbance associated with construction and decommissioning activity (Furness et al., 2013). Based on the low vulnerability of storm petrel to vessel movements, and the spatial and temporal coverage of construction activities being short term, intermittent and temporary and being limited to low frequencies of vessel, there is no potential for an AEoI on the conservation objectives of the storm petrel feature of Skomer, Skokholm and the Seas off Pembrokeshire SPA from AyM alone or in-combination with other plans or projects.

Xg: Storm petrels to have very low vulnerability to displacement with offshore wind turbines (Bradbury et al. (2014)). This very low likelihood of sensitivity to displacement also infers a highly unlikely chance of barrier effects for commuting storm petrels associated with the SPA. Furthermore, site specific digital aerial survey data recorded extremely low numbers of storm petrel within the offshore area of the proposed AyM site. Therefore, in relation to disturbance and displacement effects and barrier effects, there is no potential for an AEoI on the conservation objectives of the storm petrel feature of Skomer, Skokholm and the Seas off Pembrokeshire SPA from AyM alone or in-combination with other plans or projects.

Xh: The potential increase of less than 0.01% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the puffin feature at Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro (UK) SPA in relation to potential adverse displacement effects from the construction, operation and maintenance and decommissioning phase of Awel y Môr alone. Therefore, with subject to natural change, puffin would be maintained as a feature in the long term.

Matrix 95: Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro (UK) SPA (in-combination)

Name of European Site: Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro (UK) SPA  
 Distance to AyM: 207.9 km to array / 209.3 km to ECC / 202.5 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (in-combination)					
	Risk of collision			Direct disturbance and displacement		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D
Kittiwake		Xa				
Puffin (breeding)				Xb	Xb	Xb
Lesser black-backed gull		Xc				
Guillemot				Xd	Xd	Xd
Razorbill				Xd	Xd	Xd
Manx Shearwater				Xd	Xd	Xd
Storm Petrel		Xe		Xd	Xd	Xd

Evidence Supporting Conclusions:

Xa: Based on the absence of data in relation to OWF within mean-maximum foraging range + 1SD of the site screened in for assessment and recognising that the contribution AyM would make to any future in-combination assessment would be small enough to be considered in-consequential alone, there would be no potential for AyM to contribute to any AEol to the conservation objectives of kittiwake features at the site in relation to potential adverse displacement effects of AyM alone or in-combination. Therefore, with subject to natural change, kittiwake would be maintained as features in the long term at the site.

Xb: Based on the absence of data in relation to OWF within mean-maximum foraging range + 1SD of the site and recognising that the contribution AyM would make to any future in-combination assessment would be small enough to be considered in-consequential alone, there would be no potential for an AEol on the conservation objectives of auk features at the site in relation to potential adverse displacement effects of AyM alone or in-combination.

Xc: No lesser black-backed gull recorded by site specific survey data in the non-breeding season therefore no pathway for effect determined.

Xd: The potential contribution of less than >0 individuals would not contribute significantly and would therefore have no potential for an AEol on the conservation objectives of the feature at Lambay Island (IE) SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr in-combination. Therefore, with subject to natural change, the feature would be maintained as a feature in the long term.

Xe: No pathway for effect is considered and therefore not considered in-combination.

Matrix 96: The Dee Estuary (UK) SPA (offshore)

Name of European Site: Dee Estuary Ramsar (offshore)  
 Distance to AyM: 21 km to array / 3.5 km to ECC / 2.2 km to Onshore Draft Order Limits

European Feature	Site	Adverse Effect on Integrity of AyM (alone)																							
		Direct disturbance and displacement			Risk of collision			Barrier effect			Suspended sediment and deposition			Pollution			INNS			Changes to physical processes			EMF		
Construction: C Operation: O Decommissioning: D		C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern			Xa			Xb			Xc																
Mudflats and sandflats not covered by seawater at low tide											Xd	Xd	Xd	Xe	Xe	Xe	Xf	Xf	Xf	Xg	Xg	Xg	Xh	Xh	Xh
Salicornia and other annuals colonizing mud and sand											Xd	Xd	Xd	Xe	Xe	Xe	Xf	Xf	Xf	Xg	Xg	Xg	Xh	Xh	Xh
Atlantic salt meadows (Glaucopuccinellietalia maritimae)											Xd	Xd	Xd	Xe	Xe	Xe	Xf	Xf	Xf	Xg	Xg	Xg	Xh	Xh	Xh

#### Evidence Supporting Conclusions:

Xa: Zero birds were recorded within the array area, which suggests birds are unlikely to forage in the offshore waters where the array is located. Displacement effects during migration are also likely to be of less significance than during the breeding season. The costs of one-off avoidances during migration are trivial, accounting for less than 1.75% of available energy reserves (Speakman et al., 2009). There is, therefore, no potential for an AEoI on the conservation objectives of the Sandwich tern feature of Dee Estuary SPA in relation to disturbance and displacement effects from AyM alone.

Xb: Zero Sandwich tern were recorded within the proposed AyM array area during the site-specific aerial digital surveys. As a result, no collision risk modelling was undertaken for the project as the result would be zero collisions. There is, therefore, no potential for an AEoI on the conservation objectives of the Sandwich tern feature of Dee Estuary SPA in relation to collision risk effects from AyM alone. Additionally, on migration, the 'Broad front' approach showed that there would be no adverse effect during migration.

Xc: All flight directions of Sandwich tern recorded by aerial digital surveys during the post-breeding migration bio-season observe birds travelling east and west along the north Wales coast. Zero birds recorded within the array area suggests birds are unlikely to forage in the offshore waters beyond the AyM array area. Therefore, there is no evidence to suggest that a barrier effect would occur. Barrier effects during migration are also likely to be of less significance than during the breeding season. The costs of one-off avoidances during migration are trivial, accounting for less than 1.75% of available energy reserves (Speakman et al., 2009). There is, therefore, no potential for an AEoI on the conservation objectives of the Sandwich tern feature of Dee Estuary SPA in relation to barrier effects from AyM alone.

Xd: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to suspended sediment and deposition from AyM in-combination.

Xe: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to pollution from AyM in-combination.

Xf: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to INNS from AyM in-combination.

Xg: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to changes to physical processes from AyM in-combination.

Xh: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of site in relation to EMF from AyM in-combination.

## Matrix 97: The Dee Estuary (UK) SPA (offshore) (in-combination)

Name of European Site: Dee Estuary Ramsar (offshore)																
Distance to AyM: 21 km to array / 3.5 km to ECC / 2.2 km to Onshore Draft Order Limits																
European Feature	Site	Adverse Effect on Integrity of AyM (in-combination)														
		Suspended sediment and deposition			Pollution			INNS			Changes to physical processes			EMF		
Construction: C	Operation: O	D	C	O	D	C	O	D	C	O	D	C	O	D	D	
Mudflats and sandflats not covered by seawater at low tide		Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	Xe	Xe	Xe
Salicornia and other annuals colonizing mud and sand		Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	Xe	Xe	Xe
Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )		Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	Xe	Xe	Xe
Sandwich tern		Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf
Common tern		Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf

Litte tern	Xf														
Waterbird assemblage	Xf														

### Evidence Supporting Conclusions:

Xa: The conclusions for AyM alone were for a lack of significant effect for all designated features, with the potential for deposition of sediment being so small as to be immeasurable and within natural variation. It would be insufficient to result in any change to the distribution or population for any of the features as a result of suspended sediment and deposition from AyM. Therefore, AyM cannot contribute in any meaningful way to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEol on the conservation objectives of the designated features of the site in relation to suspended sediment and deposition from AyM in-combination and therefore will not prevent the restoration of the features within the sites with respect to the potential for suspended sediment and deposition.

Xb: The conclusions for AyM alone were for a lack of any measurable effect between deposition and the designated features which, together with the PEMP (Table 3) to mitigate any risk of pollution incidents combined to result in not AEol. It is expected that all projects in-combination would be required to have a PEMP (or similar documentation) should there be a risk of a pollution incident. Therefore, there is no potential for any in-combination effect. and no potential for an AEol on the conservation objectives of the designated features of the Dee Estuary SAC and Ramsar or supporting habitats of the Dee Estuary SPA in relation to pollution from AyM in-combination

Xc: The conclusion of no AEol for AyM alone is based on a lack of evidence for any stepping stone effect in the area resulting from the presence of OWF, the distance between AyM and the designated features and the embedded mitigation afforded by the PEMP and biosecurity plan. That lack of evidence is at least partly informed by monitoring at several of the projects included in-combination and therefore applies equally to the in-combination assessment. Together with the distance between the SAC, SPA or Ramsar boundary and most of the in-combination projects, and the expectation that all projects in-combination would be required to have a PEMP (or similar documentation) should there be a risk of INNS, informs the conclusion of no potential for any in-combination effect. There is, therefore, no potential for an AEol on the conservation objectives of the designated features of Dee Estuary SAC and Ramsar or supporting habitats of the Dee Estuary SPA in relation to INNS from AyM in-combination.

Xd: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC or Ramsar and supporting habitats of the SPA. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist.

Xe: The conclusions for AyM alone were for a lack of direct connectivity between the effect and all designated features of the SAC and Ramsar and supporting habitats of the SPA, with a lack of any significant behavioural change in mobile species. Given that project monitoring has revealed no significant effect on the benthos from the projects included in-combination, it is concluded that there can be no significant in-combination effect on mobile species between AyM and the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist.

Xf: Non-breeding terns or waterbirds may pass through or visit the AyM array area during the non-breeding season and were considered for assessment, but due to a thinning of the potential risk when considering birds from multiple designated sites, the relative impact on a specific SPA or Ramsar population is considered to be inconsequential. Additionally, the Migropath and 'Broad front' collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects. Therefore, no migratory terns or waterbirds were screened in for in-combination.

### Matrix 98: The Dee Estuary (UK) SPA (onshore)

Name of European Site: Site: The Dee Estuary (UK) SPA (onshore)  
 Distance to AyM: 21 km to array / 3.5 km to ECC / 2.2 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Visual and / or noise disturbance to species		
Construction: C Operation: O Decommissioning: D	C	O	D
Little tern	Xa	Xa	Xa
Sandwich tern	Xa	Xa	Xa
Bar-tailed godwit	Xa	Xa	Xa
Redshank	Xa	Xa	Xa
Shelduck	Xa	Xa	Xa
Teal	Xa	Xa	Xa
Pintail	Xa	Xa	Xa
Oystercatcher	Xa	Xa	Xa
Grey plover	Xa	Xa	Xa
Knot	Xa	Xa	Xa
Dunlin	Xa	Xa	Xa

Black-tailed godwit	Xa	Xa	Xa
Curlew	Xa	Xa	Xa
Waterbird Assemblage	Xa	Xa	Xa

Evidence Supporting Conclusions:

Xa: The Dee Estuary SPA was screened into assessment based on its proximity to the onshore and offshore ornithological designated features based on 0.05km range to AyM onshore boundary and 0.08km range to AyM to the offshore boundary (Screening Report and Update to Screening Appendix). Subsequent refinements to the onshore cable corridor mean the project is now 2.1km distant and therefore beyond the relevant screening range applied in the Screening Report (Innogy, 2020a). Based on the distance associated with the onshore and intertidal components of the Project being a significant distance beyond areas of functionally linked habitat (Volume 3, chapter 5; Onshore Biodiversity and Nature Conservation), it is highly unlikely that construction, operation and maintenance, and to a lesser extent decommissioning activity, will result in the production of visual and/ or noise disturbance to species associated with the SPA site that would result in a significant effect (Cutts, Phelps & Burdon, 2009). It can therefore be concluded with confidence that adverse effects associated with the ornithological features of Dee Estuary SPA can be discounted as there is no pathway for effects and consequently no potential for AEol to the conservation objectives of the ornithology features of Dee Estuary SPA in relation to visual and/ or noise disturbance effects from AyM alone.

### Matrix 99: The Dee Estuary (UK) SPA (onshore) (in-combination)

Name of European Site: Site: The Dee Estuary (UK) SPA (onshore)

Distance to AyM: 21 km to array / 3.5 km to ECC / 2.2 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Visual and / or noise disturbance to species		
Construction: C Operation: O Decommissioning: D	C	O	D
Little tern	Xa	Xa	Xa
Sandwich tern	Xa	Xa	Xa
Bar-tailed godwit	Xa	Xa	Xa
Redshank	Xa	Xa	Xa
Shelduck	Xa	Xa	Xa
Teal	Xa	Xa	Xa
Pintail	Xa	Xa	Xa
Oystercatcher	Xa	Xa	Xa
Grey plover	Xa	Xa	Xa
Knot	Xa	Xa	Xa
Dunlin	Xa	Xa	Xa

Black-tailed godwit	Xa	Xa	Xa
Curlew	Xa	Xa	Xa
Waterbird Assemblage	Xa	Xa	Xa

Evidence Supporting Conclusions:

Xa: Non-breeding terns or waterbirds may pass through or visit the AyM array area during the non-breeding season and were considered for assessment, but due to a thinning of the potential risk when considering birds from multiple designated sites, the relative impact on a specific SPA or Ramsar population is considered to be inconsequential. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects. Therefore, no migratory terns or waterbirds were screened in for in-combination.

Matrix 100: Traeth Lafan / Layan Sands, Conway Bay (UK) SPA

Name of European Site: Site: Traeth Lafan / Layan Sands, Conway Bay (UK) SPA  
 Distance to AyM: 21.3 km to array / 22.8 km to ECC / 21.3 km to Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Oystercatcher		Xa	

Evidence Supporting Conclusions:

Xa: The proportion of population that will be in contact with the proposed windfarm is inadequate to impact the population, the energy expenditure of birds avoiding the windfarm during their migration is negligible, therefore will not cause any detrimental effects, and significant distance from SPA/Ramsar reduces significance of effect.

### Matrix 101: Traeth Lafan / Layan Sands, Conway Bay (UK) SPA (in-combination)

Name of European Site: Site: Traeth Lafan / Layan Sands, Conway Bay (UK) SPA			
Distance to AyM: 21.3 km to array / 22.8 km to ECC / 21.3 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision on migration		
Construction: C Operation: O Decommissioning: D	C	O	D
Oystercatcher		Xa	

#### Evidence Supporting Conclusions:

Xa: Waterbirds may pass through or visit the AyM array area during the non-breeding season and were considered for assessment, but due to a thinning of the potential risk when considering birds from multiple designated sites, the relative impact on a specific SPA or Ramsar population is considered to be inconsequential. Additionally, the Migropath collision risk screening/assessment showed that there would be no adverse effect for this species and therefore will not cause any detrimental effects. Therefore, no migratory waterbirds were screened in for in-combination.

## Matrix 102: Tregor Goëlo (FR) SAC

Name of European Site: Site: Tregor Goëlo (FR) SAC			
Distance to AyM: 486.8 km to array / 476.0 km to ECR / 466.7 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 103: Tregor Goëlo (FR) SAC (in-combination)

Name of European Site: Site: Tregor Goëlo (FR) SAC			
Distance to AyM: 486.8 km to array / 476.0 km to ECR / 466.7 to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 104: West Wales Marine / Gorllewin Cymru Forol (UK) SAC

Name of European Site: West Wales Marine / Gorllewin Cymru Forol (UK) SAC			
Distance to AyM: 72.2 km to array / 75.7 km to ECR / 71.7 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

### Matrix 105: West Wales Marine / Gorllewin Cymru Forol (UK) SAC (in-combination)

Name of European Site: West Wales Marine / Gorllewin Cymru Forol (UK) SAC			
Distance to AyM: 72.2 km to array / 75.7 km to ECR / 71.7 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Underwater noise		
Construction: C Operation: O Decommissioning: D	C	O	D
Harbour porpoise	Xa	Xa	Xa

#### Evidence Supporting Conclusions:

Xa: For underwater noise, the assessment considers noise from a variety of sources and is considered through both PTS onset and disturbance. All impacts are considered on a worst-case basis and according to the approach required by SNCBs. The potential for impact is addressed through mitigation, enabling a conclusion of no AEoI in all cases. Therefore, the conclusion is of no AEoI with respect to underwater noise at all stages of the project (construction, operation & maintenance and decommissioning).

## Matrix 106: Wexford Harbour and Slobs (IE) SPA

Name of European Site: Wexford Harbour and Slobs (IE) SPA			
Distance to AyM: 206.2 km to array / 211.0 km to ECC / 205.5 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull		Xa	

### Evidence Supporting Conclusions:

Xa: Wexford Harbour and Slobs SPA was initially screened into assessment as the AyM array area is within the mean-max + 1SD foraging range (Woodward et al., 2019) of lesser black-backed gull from the marine boundary of the SPA. However, further investigation of SPA supporting information (such as the Site Synopsis (National Parks & Wildlife Service, 2011) shows that the lesser black-backed gull feature of the SPA is a non-breeding feature. As mean-maximum foraging ranges are only applicable to birds during the breeding season (Woodward et al., 2019), they cannot be applied to non-breeding features of an SPA. As a result, there is no connectivity between the lesser black-backed gull feature of Wexford Harbour and Slobs SPA during the breeding season. Therefore, adverse effects can be discounted as there is no pathway for effects.

For the Kittiwake receptor at this site, the conclusion for AyM alone was for no LSE due to a lack of a pathway. There is, therefore, no potential for AyM to contribute to any in-combination effects at this site.

Matrix 107: Wexford Harbour and Slobs (IE) SPA (in-combination)

Name of European Site: Wexford Harbour and Slobs (IE) SPA			
Distance to AyM: 206.2 km to array / 211.0 km to ECC / 205.5 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Lesser black-backed gull		Xa	

Evidence Supporting Conclusions:

Xa: For the Lesser black-backed receptor at this site, the conclusion for AyM alone was for no LSE due to a lack of a pathway. There is, therefore, no potential for AyM to contribute to any in-combination effects at this site.

Matrix 108: Wicklow Head (IE) SPA

Name of European Site: Wicklow Head (IE) SPA			
Distance to AyM: 152.0 km to array / 158.3 km to ECC / 151.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (alone)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Kittiwake (breeding)		Xa	

Evidence Supporting Conclusions:

Xa: The potential increase of 0.1% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEoI on the conservation objectives of the kittiwake feature at Wicklow Head SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr alone. Therefore, with subject to natural change, kittiwake would be maintained as a feature in the long term.

Matrix 109: Wicklow Head (IE) SPA (in-combination)

Name of European Site: Wicklow Head (IE) SPA			
Distance to AyM: 152.0 km to array / 158.3 km to ECC / 151.2 km to Onshore Draft Order Limits			
European Site Feature	Adverse Effect on Integrity of AyM (in-combination)		
	Risk of collision		
Construction: C Operation: O Decommissioning: D	C	O	D
Kittiwake (breeding)		Xa	

Evidence Supporting Conclusions:

Xa: The potential increase of less than 1% in baseline mortality would be indistinguishable from natural fluctuations in the population and therefore, there would be no potential for an AEol on the conservation objectives of the kittiwake feature at Wicklow Head SPA in relation to potential adverse displacement effects from the operation and maintenance phase of Awel y Môr alone. Therefore, with subject to natural change, kittiwake would be maintained as a feature in the long term.

## Matrix 110: Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC

Name of European Site: Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC  
 Distance to AyM: 6.1 km to Array, ECR and Onshore Draft Order Limits

European Site Feature	Adverse Effect on Integrity of AyM (alone)														
	Suspended sediment and deposition			Pollution			INNS			Changes to physical processes			EMF		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandbanks which are slightly covered by sea water all the time	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Reefs	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Large shallow inlets and bays	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Submerged or partially submerged sea caves	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Mudflats and sandflats not covered by seawater at low tide	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd			

### Evidence Supporting Conclusions:

Xa: Given the lack of connectivity between the effect (suspended sediment and deposition) and not just the boundary of the SAC but all designated features of the SAC, there is, therefore, no potential for an AEoI on the conservation objectives of the site in relation to suspended sediment and deposition effects from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to the potential for suspended sediment and deposition.

Xb: Given the low background levels of contaminants in sediment that may be disturbed, lack of connectivity between such sediment and all features within the SAC and the embedded mitigation afforded by the PEMP, there is, therefore, no potential for an AEoI on the conservation objectives of the site in relation to pollution effects from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to the potential for pollution.

Xc: Given the lack of evidence for any stepping stone effect in the area, the distance between AyM and the designated features, and the embedded mitigation afforded by the best practice guidelines, the PEMP and the biosecurity plan, there is, therefore, no potential for an AEoI on the conservation objectives of the sites in relation to INNS from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to INNS.

Xd: Given the lack of evidence for any connectivity between the Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC and any change in physical processes associated with AyM, there is, therefore, no potential for an AEoI on the conservation objectives of the site in relation to a change in physical processes from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to a change in physical processes.

Xe: Given the distance between the Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC and AyM and therefore the lack of any direct connectivity to the designated features, together with the lack of significant behavioural change in mobile species, there is, therefore, no potential for an AEoI on the conservation objectives of the site in relation to EMF from AyM alone and therefore, subject to natural change, all features will be maintained in the long term with respect to EMF.

## Matrix 111: Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC (in-combination)

Name of European Site: Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC															
Distance to AyM: 6.1 km to Array, ECR and Onshore Draft Order Limits															
European Site Feature	Adverse Effect on Integrity of AyM (in-combination)														
	Suspended sediment and deposition			Pollution			INNS			Changes to physical processes			EMF		
Construction: C Operation: O Decommissioning: D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandbanks which are slightly covered by sea water all the time	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Reefs	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Large shallow inlets and bays	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Submerged or partially submerged sea caves	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd		Xe	
Mudflats and sandflats not covered by seawater at low tide	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd			

### Evidence Supporting Conclusions:

Xa: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEoI on the conservation objectives of the designated features of the Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC in relation to suspended sediment and deposition from AyM in-combination.

Xb: The conclusions for AyM alone were for a lack of connectivity between suspended sediments and the designated features together with the PEMP to mitigate any risk of pollution incidents. It is expected that all projects in-combination would be required to have a PEMP (or similar documentation) should there be a risk of a pollution incident. Therefore, there is no potential for any in-combination effect.

Xc: The conclusion of no AEol for AyM alone is based on a lack of evidence of any such effect in the area resulting from the presence of OWF, the distance between AyM and the designated features and the embedded mitigation afforded by the PEMP. That lack of evidence is at least partly informed by monitoring at several of the projects included in-combination and therefore applies equally to the in-combination assessment. Together with the greater distance between the SAC boundary and most of the in-combination projects, and the expectation that all projects in-combination would be required to have a PEMP (or similar documentation) should there be a risk of INNS, informs the conclusion of no potential for any in-combination effect.

Xd: The conclusions for AyM alone were for a lack of connectivity between the effect and all designated features of the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist. There is, therefore, no potential for an AEol on the conservation objectives of the designated features of the Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay (UK) SAC in relation to a change in physical processes from AyM in-combination.

Xe: The conclusions for AyM alone were for a lack of direct connectivity between the effect and all designated features of the SAC, with a lack of any significant behavioural change in mobile species. Given that none of the cabling associated with projects in-combination falls between AyM cabling and the SAC, there can be no in-combination effect on mobile species between AyM and the SAC. Therefore, AyM cannot contribute to any in-combination effect, if indeed any exist.

## 2 References

- APEM (2019). Gwynt y Môr Offshore Wind Farm Post-construction Aerial Surveys Annual Report 2018/2019 (APEM Ref P00002798). APEM Ltd., Stockport.
- Bradbury, G., Trinder, M., Furness, B., Banks, A.N., Caldwell, R.W. & Hume, D. 2014. Mapping seabird sensitivity to offshore wind farms. *PloS one*, 9, e106366.
- Cutts, N., Phelps, A. & Burdon, D. 2009. Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Report to Humber Industrial Nature Conservation Association, Waterside, Lincs, UK.
- Dierschke, V., Furness, R.W., Garthe, S. 2016. Seabirds and offshore wind farms in European waters: Avoidance and attraction. *Biological Conservation*, 202, 59-68.
- Furness, R.W., Wade, H.M. & Masden, E.A. 2013. Assessing vulnerability of marine bird populations to offshore wind farms. *Journal of Environmental Management*, 119, 56-66.
- Hvidt, C. B., Bech, M., & Klausrup, M. (2004). Monitoring programme-status report 2003. Fish at the cable trace. Nysted offshore wind farm at Rødsand. Bioconsult.
- MMO. (2014). Review of post-consent offshore wind farm monitoring data associated with licence conditions. A report produced for the Marine Management Organisation, pp 194. MMO Project No: 1031. ISBN: 978-1-909452-24-4.
- National Parks & Wildlife Service. 2011. Site Synopsis: Wexford Harbour and Slob SPA. Accessed: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004076.pdf>
- Ohman, M. C., Sigra, P. & Westerberg, H. (2007). Offshore windmills and the effects of electromagnetic fields on fish. *Ambio* 36, 630–633.
- Tricas, T., and Gill, A. (2011). Effects of EMFs from Undersea Power Cables on Elasmobranchs and Other Marine Species. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region, Camarillo, CA. OCS Study BOEMRE 2011-09.
- Westerberg, H. (2000). Effect of HVDC cables on eel orientation. Pages 70-76 in *Technische Eingriffe in marine Lebensräume*. Bundesamtes für Naturschutz, Germany.
- Woodward, I. et al. (2019) Desk-based revision of seabird foraging ranges used for HRA screening. BTO research report number 724. Thetford.

# GOBe

GoBe Consultants Ltd  
Suites B2 & C2, Higher Mill  
Higher Mill Lane  
Buckfastleigh  
Devon  
TQ11 0EN

GoBe Consultants Ltd  
5/2 Merchant's House  
7 West George Street  
Glasgow  
Scotland  
G2 1BA

[www.gobeconsultants.com](http://www.gobeconsultants.com)