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Morlais Project

Document MOR-RHDHV-DOC-0157: Statement of Common Ground – NRW – Marine Mammals

Applicant: Menter Môn Morlais Limited

Document Reference: PB5034-ES-SoCG-MM

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Revision History			
Date	**Rev.**	**Summary of Changes**	**Issue Purpose**
24/05/19	D0.1	First draft for review by Menter Môn	For comment
12/06/19	D0.2	Draft for approval by Natural Resources Wales	For approval
22/07/19	D1.0	Second draft for review by Menter Môn	For comment
30/07/19	D1.1	Second draft for approval by Menter Môn	For approval
07/07/20	D2.1	Post submission draft for review by Menter Môn	For comment
03/08/20	D2.2	Post submission draft for comment by NRW	For comment
19/11/20	D3.1	Post submission draft for approval by NRW	For comment
27/11/20	F1.0	Final for approval	For approval
30/11/20	F1.1	Final for submission	Final

TABLE OF CONTENTS

TABLE OF TABLES

1. INTRODUCTION

1.1. THE PROJECT

1. The Project is being developed by Menter Môn, the applicant, a not for profit social enterprise company. If consented, the Project will have a generating capacity of up to 240 MW of tidal energy.

2. The Project is located within one of several marine energy demonstration zones located around the United Kingdom (UK) coast, which have been leased out by The Crown Estate to enable the siting of such developments on the seabed. The Project is located within the West Anglesey Demonstration Zone (WADZ), a zone primarily selected for its tidal resource. Menter Môn has been appointed as the manager of the WADZ by The Crown Estate. In this document and the Morlais Application, the WADZ is referred to as the Morlais Demonstration Zone (MDZ).

3. The development of the Project will provide a consented tidal technology demonstration zone, specifically designed for the installation and commercial demonstration of multiple arrays of tidal energy devices. The Project will include permanent communal infrastructure for tidal technology developers which provides a shared route to a local grid connection via nine export cable tails, an onshore landfall substation, and an onshore electrical cable route to a grid connection via a grid connection substation.

4. The Project would be authorised via the following principal consents:

    - A Transport and Works Act Order under the Transport and Works Act 1992; and
    - A Marine Licence under the Marine and Coastal Access Act 2009 (MCAA).

1.2. THE DEVELOPER

5. Development of the MDZ is being led by Menter Môn who have been allocated funding from European Union (EU) Structural Funds prioritised for marine energy in Wales. Menter Môn is a not for profit, third sector social enterprise, delivering socioeconomic development projects across North Wales. Menter Môn's motivation for the Project is to position itself as a community organisation at the centre of renewable innovation, and to establish Anglesey as a marine energy hub, thereby securing maximum added value for the local economy and community.

1.3. PURPOSE OF THIS DOCUMENT

6. Menter Môn is applying a technical working group (TWG) approach to management of key environmental issues for the Morlais Project (hereafter referred to as 'the Project') and associated Transport and Works Act Order (TWAO) application. A small number of TWGs have been established to enable technical discussions with experts from relevant stakeholders and these have informed the development of this Statement of Common Ground (SoCG). This Statement of Common Ground (SoCG) is a 'live' document that has been prepared by Royal HaskoningDHV on behalf of Menter Môn to record the outcomes of technical discussions with NRW regarding marine mammals. It has been prepared in accordance with guidance published by the Planning Inspectorate and available from the Assembly Government's website (Welsh Government, 2019).

7. Paragraph 1 of the Guidance states that SoCG: "*are joint statements made by the appellant/applicant and other parties such as the local planning/relevant authority. The aim of the document is to agree factual information and to provide a commonly understood basis for the appellant/applicant; the local planning / relevant authority and/or other parties."* The SOCG also serves to highlight matters not agreed in order to inform the examination/inquiry process.

8. Menter Môn is submitting SoCG on key technical issues, including ornithology, marine mammals and seascape and landscape visual impact assessment (SLVIA). Although there is no statutory requirement, SoCG are useful tools and their submission is encouraged where a SoCG contributes to an improvement in the quality of the evidence and a reduction in the quantity of material which needs to be considered (Welsh Government, 2019).

9. The aim of this SoCG is to provide a clear position of the state and extent of matters relating to the Project which are agreed and not agreed between Menter Môn and NRW at the time of writing. The SoCG will continue to evolve during the post-application period.

10. The contents of this document and NRW's views are based on pre-consent discussions, and NRW's views and position are therefore subject to change (at least on some aspects).

11. The first draft of the SoCG for marine mammals was provided to NRW by Menter Môn on 12th June 2019 for review and comment. The document has been updated as a result of ongoing discussions between Menter Môn and NRW. Updates are recorded in the "Revision History" table provided on the front page of this document. This revised draft was provided to NRW in November 2020 for approval.

12. Once finalised, the SoCG will be submitted to the Planning Inspectorate as part of the Inquiry process under the Transport and Works Act 1992.

13. This document should be read in conjunction with the relevant technical chapter in the ES; **Chapter 12, Marine Mammals** (**Volume I** of the ES). In addition, the following further information has been submitted during the post submission stage:

    - Underwater Noise Modelling Report (document reference MOR/RHDHV/DOC/0116, submitted 27th March 2020)
    - Marine Mammals Underwater Noise Modelling Note (document reference MOR/RHDHV/DOC/0117, submitted 27th March 2020)
    - Marine Mammals Addition Collision Risk Modelling (CRM) (document reference MOR/RHDHV/DOC/0118, submitted 27th March 2020, and updated on the 22nd October 2020)
    - Marine Mammals Monitoring and Mitigation Options (document reference MOR/RHDHV/DOC/0119, submitted 27th March 2020).
    - Response to ABPmer Comments (document reference ML002 MORRHDHVDOC0127, submitted 22nd May 2020)
    - Response to DAERA Comments (document reference ML005 MORRHDHVDOC0138, submitted 22nd May 2020)

- Further supporting information included in the Response and Signposting Document (document reference MOR/MM/DOC/0011, submitted 22nd May 2020)
- Marine Mammal Revised CRM Signposting Document (document reference MMC368 MOR-RHDHV-DOC-0154, submitted 22nd October 2020)
- Morlais Environmental Statement (ES) Chapter 12_Marine_Mammals, version F4 (document reference MMC365 MOR-RHDHV-DOC-0020, submitted 22nd October 2020)
- Morlais_ES_Appendix 12.2 Additional Collision Risk Assessments, version_F4 (document reference MMC366 MOR-RHDHV-APP-0022, submitted 22nd October 2020)
- Morlais_Information to Support Habitats Regulations Assessment (HRA), version_F4 (document reference MMC367 MOR-RHDHV-DOC-0067, submitted 22nd October 2020)
- Email to NRW: Subject RE: Morlais - NRW marine mammal meeting 27/10/2020, sent 17th November 2020. Content provided in Appendix 1.
- Outline Environmental Mitigation and Monitoring Plan (document reference MOR/RHDHV/DOC/0072 (04), submitted 18th November 2020)

2. PROJECT DESCRIPTION

2.1. OVERVIEW

15. The Project will provide the supporting electrical infrastructure to connect tidal energy converters (TECs) within the MDZ and export the electricity generated to grid. The Project aims to secure a broad consent envelope, which will encompass a range of tidal device types and technologies with the potential to be installed and operated as part of the Project. The final details of all equipment to be installed, including tidal devices, will be confirmed following consent.

16. The Project comprises two development areas, as follows:

- Offshore Development Area: including all intertidal and offshore areas where offshore infrastructure may be placed and encompassing the MDZ (covering an area of 35 km²), and the export cable corridor (covering an area of 4.75 km²).
- Onshore Development Area: including all intertidal and onshore areas where infrastructure may be placed (covering an area of 1 km²).

17. As a pre-consented and grid connected commercial demonstration zone, a number of different tidal devices and array configurations may be deployed at the Project over its 37-year lifetime. Tidal devices would be deployed in multiple arrays within the MDZ, to a maximum installed capacity of 240 MW.

18. The key components of the offshore works associated with the Project include:

- Tidal Devices, TECs and inter-array cables within the MDZ;
- Up to nine export cable tails (shared with onshore components);
- Navigation and environmental monitoring equipment;
- Mooring and foundation structures; and
- Offshore electrical infrastructure, including submerged, floating or surface emergent hubs.

19. The key components of the onshore works associated with the Project include:

- Cable landfall works, including;
  - Up to nine Horizontal Directional Drilling (HDD) ducts or trenched equivalents,
  - Up to nine transition pits or bays, and
  - Up to nine export cable tails (shared with offshore components).
- A landfall substation at Ty-Mawr (hereafter referred to as Landfall Substation);
- A switchgear building at Parc Cybi (hereafter referred to as Switchgear Building);
- A grid connection substation at the existing Orthios Eco-Park to the east of Holyhead (the site of the former Anglesey Aluminium works) (hereafter referred to as Grid Connection Substation); and,

2.1.1.1. Onshore cable route between Landfall Substation, Switchgear Building and Grid Connection Substation).Phasing

- An adaptive management approach is being adopted at Morlais, whereby a first phase of device will be deployed and monitored prior to deployment of further devices. The scale of the first phase is constrained and defined as having a predicted impact of less than 0.7 Bottlenose dolphin collision per year. The number of devices and MW that this corresponds to is subject to review post consent depending on the device type being deployed and its associated collision risk. This will be managed through an Environmental Mitigation and Monitoring Plan (EMMP) which will be a condition of the Marine Licence, in accordance with the outline EMMP (document reference, MOR/RHDHV/DOC/0072 (latest version submitted 18th November 2020). The position of Menter Môn and NRW regarding mitigation and monitoring is discussed in Section 3.

3. RECORD OF CONSULTATION

20. The preparation of this SoCG has been informed by a programme of discussions between Menter Môn and NRW. The relevant meetings are summarised in **Table 3-1** and the outline of topics covered relevant to SoCG discussions for marine mammals are shown in **Table 3-2**.

Table 3-1 Marine Mammals Technical Meeting Details

Meeting / Date / Attendees	Agenda	Documents sent to NRW
TWG First Meeting 27/11/18 NRW	Assessment Approach ▪ Project background ▪ Review of project design envelope ▪ Species, reference populations and management units ▪ Scale of assessment ▪ Density estimates, species parameters and dive profiles ▪ Approach to Collision Risk Modelling (CRM)/Encounter Rate Modelling (ERM) ▪ Appropriate avoidance rates ▪ Use of population modelling ▪ Interim Population Consequences of Disturbance (iPCoD) ▪ Approach to assessment / potential impacts ▪ Cumulative assessment ▪ Phased deployment	▪ 180919 NRW PDE Technical Note ▪ Proposed Approach to Marine Mammal Assessments ▪ Presentation slides: Mammal 1st Tech Meeting_271118
TWG Second Meeting 19/02/19 NRW	Assessment Parameters ▪ Overview of tidal device design envelope ▪ Tidal device parameters ▪ Collision risk models: ERM and CRM ▪ Environmental parameters: water depth and current speed ▪ Marine mammal species: density estimates and reference populations ▪ Marine mammal parameters: body length and width; and dive profiles and parameters ▪ Avoidance rates	▪ Morlais Marine Mammal Technical Report_250119 – draft information / update for NRW ▪ Presentation slides: Morlais Marine Mammal TWG2_190219
TWG Third Meeting 10/05/19 NRW	Summary of Preliminary Assessment Outcomes ▪ Summary of density estimates and reference populations for species and Special Areas of Conservation (SACs) used in the assessment ▪ Overview of assessments for Environmental Statement (ES) and Habitats Regulations Assessment (HRA), including underwater noise, disturbance, barrier effects, changes in prey/habitat loss and collision risk ▪ Population Consequences of Disturbance (PCoD) – update ▪ Proposed approach to monitoring and mitigation	▪ Presentation slides: Morlais Marine Mammal TWG 3rd Meeting 100519 – with initial assessments
TWG Fourth Meeting 06/01/2020	▪ Update on project and application ▪ Understanding key issues in NRW response ▪ Discussion of technical issues from the representations	▪ Presentation slides: Morlais Marine Mammal TWG 4th

Meeting / Date / Attendees	Agenda	Documents sent to NRW
NRW	▪ Next steps and potential resolutions o Pre-examination – timeline and process for statements of common ground o Future engagement	Meeting 060120 – with initial responses to NRW comments
TWG Fifth Meeting 19/02/2020 NRW	Continuation of post-application discussions around the Marine Mammals sections on the application. ▪ Outline of approach to respond to NRWs key concerns ▪ Summary of the results of the updated modelling ▪ Discussion on next steps with regard to the Environmental Monitoring and Mitigation Plan ▪ Discussion on the approach to the planned underwater noise modelling	▪ Morlais: Updated Collision Risk Modelling Memo
Meeting to discuss EMMP 05/05/2020 NRW	▪ Update from NRW on their current position based on review of the documents submitted on 27/03/20 ▪ Review of NRW comments to date, with focus on: ▪ What is the level of certainty that NRW require that the monitoring and mitigation are deliverable to allow the EMMP to be considered as an Adequate Mitigation Tool for HRA? ▪ What additional information on a monitoring programme is required? How should this be achieved given uncertainty around exact technology type and exact location? ▪ Specific trigger points and project curtailments and the effect and likely success of these. How should Morlais approach this? ▪ How to expand on what is in EMMP with respect to phasing approach, real-time monitoring and monitoring review and feedback mechanisms.	▪ Outlined EMMP (Document: 14_MOR-AEC-DOC-0001). ▪ Note on Marine Mammal Monitoring and Mitigation Options (Document: 19_MOR-RHDHV-DOC-0119). ▪ Collated NRW comments on EMMP_010520.
Meeting to discuss EMMP 19/06/20	▪ Update on process and progress TWA/ML ▪ Recap on the fundamentals of the project phase and mitigations ▪ Understanding the interaction between the EMMP and a consent decision under HRA ▪ Run though NRWL comments from 05/06/2020 letter (NRW-Advisory made it clear that they were not able to discuss the comments made by NRW-Licensing in their letter). ▪ Clarify NRW's involvement in the administration of the EMMP Advisory Group ▪ Discuss how the EMMP provides a mechanism for NRW approval / rejection of deployment scale, management, monitoring and mitigation measures	▪ Outline EMMP revised (Document: 11.MORRHDHVDCO0072 (02))
TWG Sixth Meeting 15/10/20	▪ Determine and agree any responses that NRW do not think have been addressed.	

Meeting / Date / Attendees	Agenda	Documents sent to NRW
	▪ Determine and agree any issues that are still outstanding (e.g. to focus on the main points for the inquiry). ▪ Determine and agree what NRW need to be resolved for the inquiry. ▪ Agree what will be developed post-consent / pre-construction (e.g. so it is clear during the inquiry).	
TWG Seventh Meeting 27/10/20	▪ Underwater noise and how it will be considered in the EMMP ▪ Barrier effects ▪ Sensitivity classification ▪ NRW Guidance ▪ Updated CRM	▪ NRW Agenda Points - draft for 271020

Table 3-2 Statement of Common Ground – Marine Mammals – Natural Resources Wales

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Environmental Impact Assessment (EIA) – Existing environment					
1. Species to be considered in baseline environment	27/11/18 First TWG Meeting	The proposed marine mammal species to be included are: harbour porpoise, bottlenose dolphin, Risso's dolphin, minke whale, grey seal and harbour seal.	NRW agrees with the species proposed for the assessment but advises that common dolphin should also be included.	Agreed	It is agreed by both parties that the species proposed for the assessment are appropriate.
	19/02/19 Second TWG Meeting	Common dolphin was added in the Second Technical Meeting.	NRW agrees with the species proposed for the assessment.		
2. Data sources	27/11/18 First TWG Meeting	SEACAMS data and boat survey data (Natural Power, NP) collected for the project will be used to derive density estimates harbour porpoise. Other data sources and information to be considered in the marine mammal assessments include but are not limited to: Small Cetaceans in the European Atlantic and North Sea (SCANS), Inter-Agency Marine Mammal Working Group (IAMMWG), Joint Cetacean Protocol (JCP), Sea Mammal Research Unit (SMRU) seal-at sea maps, Special Committee on Seals (SCOS), NRW reports.	NRW indicated that the data sources outlined are acceptable, and advised that otherdata should also be included as follows: ▪ NRW will provide details of a grey seal census (pop census) that has been completed and further reports on the seal community. ▪ NRW will also provide details of bottlenose dolphin (BND) monitoring report (2018). This is still draft but can be shared with the most recent data for the population.	Agreed	NRW have provided the reports and these will be incorporated into the marine mammal baseline information.
3. Data sources cut-off	27/11/18 First TWG Meeting	It is agreed that there is a need to use the best data available at time of assessment, but that the assessment cannot wait for data sets to become available in 2019. Consideration of fresh evidence after submission may not be appropriate and has been rejected by independent regulators when proposed for other UK projects. A cut off point for review of further data was agreed as 19/02/19.	NRW advised that assessments may need to be considered again post submission should the revised MUs be published after submission and noted that the density estimates and populations relied upon by the applicant may not be accurate. NRW advise that the applicant should test if new MU population figures (based on SCANS III) fundamentally change the conclusions.	Agreed	It is agreed that when further data on the MU populations is available, the assessments will be updated during post application clarifications and available during inquiry. if required.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	NRW email dated 05/11/12	At the time of writing the ES and Information to Support the HRA, the latest information that was available was used, as agreed with NRW, to determine the reference populations and managements Units (MU). At the time, the SCANS-III data (Hammond *et al*., 2017) only covered part of the Celtic/Irish Seas Management Unit (MU), so the estimate for this area is not representative of the whole MU, as waters to the south and west of Ireland were not included in estimates of abundance for these waters. Therefore, it was deemed appropriate to use this partial MU harbour porpoise abundance in the assessments. With their comments on the SoCG, NRW provided a copy of the draft IAMMWG (2020) Abundance estimates for cetacean Management Units in UK waters, which is not yet officially published.	NRW has shared with Menter Môn the draft Abundance estimates for cetacean Management Units in UK waters	Agreed	We thank NRW for the updated information on the MUs, received on 5th Nov 2020. This updated information will be used for all the further assessments during the development of the detailed EMMP.
4. Harbour porpoise density estimates and reference population	27/11/18 First TWG Meeting	Population estimate from Celtic and Irish Seas (CIS) Management Unit (MU) of 104,695 and density estimate from SEACAMS 2018 of 0.8/km^2 proposed.	NRW noted that 0.8 from SEACAMS appears to be too low and advised that consideration should be given to what densities can be derived from JCP. NRW have a revised abundance estimate for harbour porpoise in the CIS MU which is derived from SCANS-II for and will share this information with the applicant	Agreed	It is agreed by both parties that the reference population and density estimate proposed for the assessment was appropriate at the time. The revised CIS MU estimated based on revised SCANS-II was provided by NRW in response to 1st TWG meeting minutes. However, as this has not yet been published or updated for the other species it was agreed that the
	19/02/19 Second TWG Meeting	SEACAMS' data is considered to be the best available data for the site. This was updated in January 2019. The mid-point of the density range of 0.783 /km^2 will be used. If required the assessment can put in upper and lower estimates, however, it could be included as an example within an Appendix in order to represent the variation.	NRW stated it would be best to use the SCANS II estimates as this is available for all of the species.		

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
					reference populations should be based on IAMMWG (2015) NRW advise that new reference populations will be available imminently for HP and BND and advise the applicant check that the conclusions do not change by using updated reference population estimates. It is agreed that when further data on the MU populations is available, the assessments will be updated for examination.
5. Bottlenose dolphin density estimates and reference population	27/11/18 First TWG Meeting	Population estimate from Irish Seas (IS) MU of 397 and density estimate from SCANS-III Block E of 0.008/km^2 proposed.	NRW does not agree to using the SCANS-III data for density as this gives a particularly low estimate, more suited for offshore bottlenose dolphins than resident populations. NRW advised use of the latest monitoring report for Cardigan Bay BND SAC (2018 in draft) to update these estimates. NRW agreed that the reference population is reasonable and that the number of the Irish Sea area should be used.	Agreed	It is agreed by both parties that the reference population and density estimate proposed for the assessment is appropriate at the time. NRW advise that new reference populations will be available imminently for HP and BND and it may be prudent to check that the conclusions do not change by using
	19/02/19 Second TWG Meeting	In order to determine a more appropriate density estimate the areas of the two SACs were combined with the area covering the MDZ and the maximum number of bottlenose dolphin within that area was	NRW confirmed that if the maximum number of bottlenose dolphins has been used this is sufficient and this estimate is reasonable.		

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		used to provide a density estimate for the area of 0.02/km^2.			updated reference population estimates. It is agreed that when further data on the MU populations is available, the assessments will be updated for examination.
6. Risso's dolphin density estimate and reference population	27/11/18 First TWG Meeting	Population estimate of 1,090 and density estimate of 0.031/km^2 from SCANS-III Block E proposed. There have been no recorded sightings of Risso's dolphins in the project surveys. Very few were recorded in the Irish Sea area during SCANS-III surveys.	NRW advise that further densities can be derived from the JCP. Post-meeting note – NRW conducted a survey off Holyhead deep and recorded Risso's dolphins in the area. Data should be available from SeaWatch Foundation.	Agreed	It is agreed by both parties that the reference population and density estimate proposed for the assessment is appropriate.
	19/02/19 Second TWG Meeting	Updated reference population of 8,794 based on JCP data for the Celtic and Greater North Sea (CGNS) MU.	NRW agree with approach.		
7. Minke whale density estimate and reference population	27/11/18 First TWG Meeting	Population estimate from CGNS MU of 23,528 and density estimate from SCANS-III Block E of 0.017/km^2 to be used.	NRW agreed that the data proposed are the best available.	Agreed	It is agreed by both parties that the reference population and density estimate proposed for the assessment is appropriate.
8. Grey seal density estimate and reference population	27/11/18 First TWG Meeting	Population estimate from grey seal South and West England and Wales MU of 6,000 and density estimate for MDZ from Russell *et al*. (2017) of 0.28/km^2 proposed.	NRW noted that new grey seal data for North Wales pupping sites will be available late in 2019, but this was too late for inclusion in the project EIA at the time. NRW therefore confirmed that the proposed density estimates from Russell *et al*. (2017) is appropriate.	Agreed	It is agreed by both parties that the reference population and density estimate proposed for the

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			NRW noted that the grey seal pup count has more than doubled in the most recent North Wales report.		assessment is appropriate.
	19/02/19	Density estimate for grey seal has been reviewed and updated to 0.155/km^2 based on latest seal-at sea maps (Russell *et al*., 2017).	NRW agreed with this approach.		
9. Harbour seal density estimate and reference population	27/11/18 Second TWG Meeting	Population estimate from harbour seal Wales count of 50 and density estimate from Russell *et al.* (2017) of 0.0008/km^2 proposed.	NRW agreed with this approach.	Agreed	It is agreed by both parties that the reference population and density estimate proposed for the assessment is appropriate.
	19/02/19 Second TWG Meeting	It is proposed to use the same values as suggested in the first technical working group meeting.	NRW agreed with this approach.		
10. Common dolphin density estimate and reference population	19/02/19 Second TWG Meeting	No common dolphin were recorded within the SCANS-III survey block E. A density of 0.374/km^2 was recorded for block D to the south of block E. Based on the assumption that common dolphins from block D could also be distributed in block E, density estimate of 0.218 common dolphin per km^2 was derived based on areas of blocks D and E (83,460km^2) and density of 0.374/km^2 recorded for block D. The Morlais development area is located in the CGNS MU. The abundance of common dolphin in the CGNS MU is 56,556.	NRW agreed with this approach.	Agreed	It is agreed by both parties that the reference population and density estimate proposed for the assessment is appropriate.
Impact Assessment					
11. Construction and Installation impacts	27/11/18 First TWG Meeting	Construction and installation impacts include: ▪ Underwater noise and disturbance; ▪ Potential barrier effects from underwater noise; ▪ Potential collision risk with construction vessels;	NRW advised that the assessment needs to consider that the physical presence of vessels may also be a barrier during construction, as well as UW noise effects.	Agreed	All agreed the potential construction and installation impacts to be assessed in the EIA and HRA.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		▪ Potential disturbance at haul out sites e.g. from vessels moving to and from the site and the cable landfall; ▪ Potential changes in water quality e.g. increased suspended sediments, or any accidental release of contaminants; and ▪ Potential changes in prey availability e.g. underwater noise, disturbance, temporary loss of seabed habitat, increased suspended sediment concentrations and sediment re-deposition.	NRW advised that the assessment should demonstrate there will be no physical injury through noise. NRW advised that changes to habitat of marine mammals, prey species and indirect effects to these species needs to be considered. Scottish Government has a web tool for assessing impacts of tidal arrays. NRW advised that the 2015 report by Carol Sparling (Sparling *et al*., 2015) has an assessment matrix. Which should be referred to NRW agrees that those listed should be included and not excluded. This is not necessarily exhaustive, however, and any other impact pathways to be assessed are welcomed, although NRW considers that the key pathways have been identified.		NRW 's advice has been implemented.
12. Operation and Maintenance (O&M) impacts	27/11/18 First TWG Meeting	O&M impacts include: ▪ Underwater noise and disturbance; ▪ Potential collision risk with O&M vessels; ▪ Potential changes in water quality e.g. any accidental release of contaminants; ▪ Potential changes in prey availability e.g. underwater noise, disturbance, loss of seabed habitat, introduction of hard substrate (e.g. foundations, cable and scour protection), changes to water quality and electromagnetic fields (EMF); ▪ Potential EMF effects; ▪ Potential barrier effects;	NRW advised of concerns in respect of that potential for bottlenose dolphin collision with a tidal device The death of one animal would be unacceptable for Cardigan Bay SAC. NRW have advised following a marine mammals meeting on 06/01/20 that the current maximum sustainable mortality for this bottlenose dolphin population, calculated as the Potential Biological Removal is 0.7 animals per year. Any collision therefore of a single animal would exceed this limit, leading to adverse effect on site integrity. CSIP do not undertake seal post-mortem (PM), only cetacean PM. Post consent monitoring may need to widen PM of marine mammals, and potentially use citizen science and reporting to bolster recording of strandings.	Agreed	All agreed the potential O&M impacts to be assessed in the EIA and HRA. NRW's advice has been incorporated. Note, that NRW updated their position to 0.7 bottlenose dolphin, so predicted collision risk should fall below this figure to be able to rule out adverse effect on site integrity. Latest NRW advice (dated 15/10/2020)

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		▪ Potential for entanglement with moorings for devices; and ▪ Collision risk with tidal devices.	NRW agrees that those listed should be included and not excluded. This is not necessarily exhaustive, however, and any other impact pathways to be assessed are welcomed, although NRW considers that the key pathways have been identified.		provided species collision limits for the Morlais project which will be a key component developing the detailed EMMP.
13. Decommissioning	27/11/18 First TWG Meeting	Decommissioning impacts include: ▪ Underwater noise and disturbance; ▪ Possible increased collision risk with vessels; ▪ Potential changes in water quality; and ▪ Potential changes in prey availability.	NRW agrees that those listed should be included and not excluded. This is not necessarily exhaustive, however, and any other impact pathways to be assessed are welcomed, although NRW considers that s the key pathways have been identified.	Agreed	All agreed that decommissioning impacts will be the same or less than construction impacts.
14. Potential cumulative impacts and in-combination effects	27/11/18 First TWG Meeting	Cumulative Impacts and In-combination Effects include: ▪ Underwater noise and disturbance; ▪ Collision risk with tidal devices; ▪ Possible increased collision risk with vessels; and ▪ Potential changes in prey availability. Proposed projects and plans to include are: Wylfa Newydd Power Station; Minesto Holyhead Deep; and Holyhead Port Expansion. This list will be reviewed and updated throughout the EIA and HRA process.	NRW request that loss of feeding habitat and loss of access to habitat be considered in the assessment. Also, to include cumulative and in combination projects from throughout the MU, or provide justification for screening them out. NRW advise that Tidal Lagoon Swansea should be included. NRW agrees that those listed should be included and not excluded. This is not necessarily exhaustive, however, and any other impact pathways to be assessed are welcomed, although NRW considers the key pathways have been identified.	Agreed	All agreed the potential cumulative and in-combination impacts to be assessed in the EIA and HRA are appropriate. NRW suggestions and considerations have been incorporated. Full details of the HRA screening with justification for the projects and plans screened in and out are provided in the HRA report.
	07/07/20	In response to NRW's position on CIA, further details are presented in the information submitted to NRW on 03 July 2020. Projects included in the CIA were reviewed for the Additional Collision Risk Modelling note (dated March 2020).	Our advice to NRW's Marine Licensing Team (shared with the applicant on 18/09/20) detailed our remaining comments on the applicant's CIA. In summary, an updated matrix with full reference to all plans and projects that have been considered within the CIA should be	Ongoing	An updated matrix with full reference to all plans and projects that have been considered within the CIA should be provided. This should be

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			provided. This should be accompanied, as necessary, by an updated CIA addendum. Outstanding topic-specific issues will need to be addressed prior to the CIA being finalised. NRW is satisfied that these are secondary matters that should be capable of being resolved by agreement between both parties during this process, such that they do not propose to give evidence on these issues at the Inquiry.		accompanied, as necessary, by an updated CIA addendum.
15. Impact assessment methodology	27/11/18 First TWG Meeting	Matrix approach proposed to standardise impact assessment, with due reference to recent guidance, including CIEEM (2018) guidance on ecological impact assessment. NRW suggestions and considerations have also been taken into account, with full details of the matrix approach provided in the ES. PVA has been conducted and included as a separate Appendix with the ES chapter.	NRW recommended using the matrix approach used in Sparling *et al*. (2015) to assess the significance of impact. NRW advised that there was a lack of detail presented on the content/structure of the matrices so NRW was unable to advise whether or not these will be acceptable. The definition of receptor sensitivity was not agreed by NRW as it did not fully consider all steps presented in Sparling *et al*. to define sensitivity. NRW requested that the assessment clearly link the impact pathway and magnitude back to the population estimate and assessments (possible use of PCOD, Population Viability Analysis (PVA), Potential Biological Removal (PBR). NRW is satisfied that these are secondary matters that should be capable of being resolved by agreement between both parties during this process, such that they do not propose to give evidence on these issues at the Inquiry.	Not agreed	
	07/07/20	Clarification has been provided in the signposting document submitted to NRW on 20 May 2020 (comments 168 to 171). The summary of the potential impacts on marine mammals provided in ES Table 12-108 takes into account the value and sensitivity combined. For collision risk with operation turbines this has been	NRW's previous advice that 'sensitivity' should be higher than that assigned did not appear to have been considered. NRW is satisfied that these are secondary matters that should be capable of being resolved by agreement between both parties during this	Not agreed	

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		assessed as high for bottlenose dolphin. This is therefore in accordance with comments from NRW Advisory that collision risk for bottlenose dolphin would have 'High' sensitivity.	process, such that they do not propose to give evidence on these issues at the Inquiry.		
Sensitivity classification	Follow-up to Seventh TWG Meeting on 27/10/20	There is no information to provide however further clarification is provided in response to meeting action: As stated in section 12.4.4.2 of ES Chapter 12, all species of marine mammal have been considered to be high value and the value of each species is used, where relevant, to modify the sensitivity of each species. However, as outlined in Section 12.4.4.2, high value and high sensitivity are not necessarily linked. A receptor could be of high value but have a low or negligible physical/ecological sensitivity to an effect. Therefore, the species sensitivity has been taken into account in the assessments. This takes into account the individual receptors capacity to avoid the anticipated impact. In addition, an assessment of each marine mammal species has also been completed based on the sensitivity value of each population within Welsh waters, as defined by Sparling *et al*. (2015), for the assessment of collision risk. The summary of the potential impacts on marine mammals in Table 12-108 of ES Chapter 12 takes into account the value and sensitivity combined. For collision risk with operation turbines this has been assessed as high for bottlenose dolphin and low for all other species, including harbour porpoise. However, if the value and sensitivity combined is assessed as high for harbour porpoise the overall residual impact could change to minor to moderate adverse. However, this would not change the overall outcome of the assessment and the requirements for mitigation and monitoring. Harbour porpoise within the North Anglesey Marine SAC have been taken into account within the Habitats Regulation Assessment and are therefore assessed as a high value species through that process.	NRW stated that the sensitivity of species table has no new information, therefore NRW disagree with the sensitivity assessment made. However, agreed that this is not a major issue, as not raised in their SoC and re-assessments are not required. NRW is satisfied that these are secondary matters that should be capable of being resolved by agreement between both parties during this process, such that they do not propose to give evidence on these issues at the Inquiry.	Not agreed	

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
16. Underwater noise assessment	27/11/18 First TWG Meeting	Potential underwater noise impacts will be determined from a desk-based review and assessment, based on: ▪ The latest information from other tidal projects in the UK and overseas; ▪ Other development projects with similar noise sources and environmental conditions; and ▪ Best available current research. The increase in noise across the whole project will be assessed as linear as devices are added. The proposed approach will include: ▪ Maximum predicted impacts areas, based on the WCS, will be used to estimate the potential number of individuals that could be affected, based on the species density estimates. ▪ The number of individuals of each species that could be affected will be considered as a proportion of appropriate the reference population. ▪ The duration of any underwater noise will be based on the WCS for each type of activity / underwater noise source. All agreed that a post construction monitoring programme should be able to monitor the operational noise and the ambient noise to provide proper context for ongoing phased development. Further details of the proposed underwater noise monitoring are provided in the EMMP.	NRW request that the assessments undertaken present the area of harbour porpoise habitat that could be impacted. Operational noise monitoring will be required for this project and will inform future projects. NRW agreed that this approach is likely to be acceptable. However the assessment presented in the Information to Support HRA was based on information for the PTEC project, which NRW argued was not appropriate for use for the Morlais project. That has now been superseded by the underwater noise modelling undertaken specifically for the Morlais project. The applicant has stated in the further information provided on 17/11/20 and repeated in the Appendix I below "*It is important to note that the underwater noise modelling is indicative and provided as an example only. There is now a commitment in the revised OEMMP that further underwater noise modelling will be conducted for operational turbines and ADDs once details are known of the types, noise source levels and number of devices to be deployed as part of the development of the EMMP post consent*." Without this information NRW cannot currently assess the likelihood of significant impacts from operational underwater noise or ADDs pre-consent, including the potential noise disturbance impact on North Anglesey Marine SAC, and cannot therefore rule out the possibility of adverse effect on site integrity.	Not agreed	Assessments in the Information to Support HRA were presented as percentage of the Gogledd Môn Forol/North Anglesey Marine SAC area.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	10/05/19 Third TWG Meeting	National Oceanic and Atmospheric Administration (NOAA) guidance (NMFS, 2018) does not present specific criteria for disturbance, therefore, Temporary Threshold Shift (TTS) has been used as a proxy for disturbance. Previous studies (e.g. Wylfa Newydd project) the Lucke *et al*. (2009) criteria has been used, however, predicted ranges are similar to the TTS ranges used. A very precautionary approach has been undertaken.	NRW acknowledge that there is not much more information available but will consider whether this is appropriate. NRW considers that disturbance should be more accurately assessed than using TTS as a proxy.	Not Agreed	There is currently no agreed threshold or criteria for the disturbance of marine mammals, therefore a range of different thresholds and criteria were presented in the ES and underwater noise modelling note. Further noise modelling will be conducted for the EMMP, taking into account the latest information, scientific understanding and guidance on thresholds and criteria for assessing disturbance from underwater noise.
	10/05/19 Third TWG Meeting	The assessment is based on arrays rather than individual tidal devices as individual marine mammals would be disturbed by the closest turbine they approach rather than all individual turbines within the array.	NRW advised that multiplication of devices is not accurate and how the assessment arrived at what is termed full deployment needs to be demonstrated. The applicant has explained that a simple linear scaling was used to extrapolate the estimated source noise levels of the devices from existing data, and argues that the new data from Risch *et al* (2020) supports this assumption, but it is not	Not agreed	ES provides details and justification for approach. Further noise modelling will be conducted for the EMMP, taking into account the latest information the types,

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			clear how this was calculated or whether this represents a worst case assumption. The applicant has not explained how the sound emanating from a single rotor is extrapolated to an array of 120 or 620 devices for the large and small rotor turbines respectively. The further information supplied states that 'the dBSea model' was used, but provides no information on how this was calculated, for example what scaling function was used to extrapolate to a full array. It is not possible therefore for NRW to assess whether this extrapolation is a reasonable assumption, or whether it represents a realistic worst case scenario		number and array layout of tidal devices.
	06/01/20 Fourth TWG meeting	Data from other tidal sites show a low level of underwater noise during construction and operation.	NRW stated in their response that there is insufficient information in the shadow HRA on the effects of underwater noise. Noted that some of the previous noise assessments would not be acceptable due to new evidence for development of new noise thresholds. There were three main issues when using information from other sites: ▪ Morlais lies within a SAC where the other sites do not. Site specific noise propagation modelling is required to assess the area of the SAC likely to be disturbed. ▪ Environmental conditions are different and can affect noise propagations ▪ Some of the older assessments were made using old noise threshold criteria Uncertainty also around whether construction noise would be classified as continuous or impulsive.	Not agreed	Underwater noise modelling has since been undertaken for the Morlais site and the information submitted to NRW to address these points.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	27/10/20 Seventh TWG Meeting	Clarification provided to NRW with agenda prior to meeting, outlining that underwater noise from operational turbines has been assessed based on the information currently available and worst-case scenarios, including a range of potential thresholds and criteria for disturbance. Further underwater noise modelling will be conducted once details are known of the types of devices to be deployed. This will include the scenarios required for each phase, including, the maximum potential impact areas for the arrays. The maximum areas of potential disturbance will be assessed to determine the potential for any significant disturbance based on operational tidal device noise levels in different conditions, for individual devices and the array of devices to be deployed, taking into account ambient noise, the different species hearing sensitivities, latest thresholds and criteria and the latest SNCB Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (JNCC *et al*., 2020), Conducting further noise modelling in the detailed EMMP post-consent will allow it to be based on the type of tidal devices and potential noise source levels, so will be a more realistic assessment, compared to what can be conducted now based on the limited information currently available.	Following the meeting on 27/10/20, NRW, as requested, provided clarification on what further information they required (email dated 02/11/20). The applicant submitted an email addressing these points (email dated 17/11/20). A copy is included in Appendix 1. NRW have reviewed the further information provided in the email dated 17/11/20 and will provide formal comments in our submission on the FEI in due course. In summary, NRW understand that the applicant has explained that noise modelling is indicative and not based on actual array scenarios, which have not yet been modelled in detail. There is also insufficient information on the likely impacts from Acoustic Deterrent Devices (ADD). Without this information NRW cannot currently assess the likelihood of significant impacts from operational underwater noise or ADDs pre-consent, including the potential noise disturbance impact on North Anglesey Marine SAC, and cannot therefore rule out the possibility of adverse effect on site integrity. The applicant states that there is now a commitment in the revised oEMMP to conduct further underwater noise modelling post-consent to allow a more realistic assessment based on the likely operational devices and ADDs once more detail is known. NRW understand the constraints, given the lack of information at this stage, and we do agree that further noise modelling using empirical data measured from the project will be very beneficial. However, it is	Not agreed	Further underwater noise modelling and assessments will be conducted during the development of the EMMP.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			not possible to assess the likelihood of significant impacts from underwater noise pre-consent. There is no information on how noise might be reduced or mitigated if the monitoring does show that it is causing a significant impact, so we recommend further consideration is given to this in the oEMMP.		
17. Vessel collision risk	27/11/18 First TWG Meeting	The number of marine mammals that could be at risk of collision with vessels will be assessed based on the number of animals that could be present in the development area(s) including offshore cable corridor and vessel routes. The assessment will take into account a precautionary 5% increase collision risk, in that 5% of	NRW agrees with the approach although it is very precautionary.	Agreed	All agreed with precautionary approach to assessment of vessel collision risk.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		the animals in the areas where there could be increased vessels and vessel movements could be at increased collision risk. Maximum potential number of individuals that could be affected will be based on the relevant species density estimates and considered as a proportion of appropriate the reference populations.			
18. Disturbance to seal haul-out sites	27/11/18 First TWG Meeting	Haul out locations will be identified from relevant reports, publications and data sources and determining the potential for seal haul-out sites at or near the Morlais site and potential vessel routes. Haul out locations will be mapped in relation to the Morlais site and potential for any disturbance at seal haul-out sites assessed for all relevant activities (onshore and offshore) including any vessel movements to and from the site. Areas of potential disturbance will be determined based on type of activity, potential effect (visual/acoustic) and location and sensitivity of seals, including time of year (breeding/moulting). Numbers of seals that could be affected will be estimated based on actual counts at the haul-out sites, if available. Number of animals will then be assessed as a percentage of the relevant reference population and percentage of designated site(s) population that could be affected.	NRW agree with approach. NRW confirmed that the breeding and pupping season for grey seal is Aug-Dec with a peak in Oct-Nov, but this is extending.	Agreed	All agreed with approach to assessment of disturbance to seal haul-out sites.
19. Changes in water quality	27/11/18 First TWG Meeting	The assessment will be based on the maximum potential area that could be affected by any changes to water quality, from any accidental release of contaminants or increased suspended sediment. The maximum potential number of individuals that could be affected will be based on the relevant species density estimates and will be considered as a proportion of appropriate the reference populations.	NRW had no comments.	Agreed	All agreed with approach

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	10/05/19 Third TWG Meeting	No potential impacts from water quality due to hard substrate and energetic environment.	NRW had no comments.	Agreed	All agreed with approach to assessment of EMF effects.
20. EMF effects	27/11/18 First TWG Meeting	There are potential pathways for effects from EMF from the presence of inter-array cables within the site and export cables within the offshore cable corridor during operation. The assessment will be based on the maximum potential area that could be affected by any EMF from cables during operation. The maximum potential number of individuals that could be affected will be based on the relevant species density estimates and will be considered as a proportion of appropriate the reference populations.	NRW agree with approach.	Agreed	All agreed with approach to assessment of EMF effects.
21. Changes in prey availability	27/11/18 First TWG Meeting	The assessment will be based on the maximum potential area for any changes in prey availability. The maximum potential number of individuals that could be affected will be based on the relevant species density estimates and will be considered as a proportion of appropriate the reference populations.	NRW is not in a position to comment yet as the process for assessment is in progress. A review of other studies will feed into this.	Agreed	ES provides details and rationale for the approach to the assessment, with cross to results of relevant assessments from other chapter(s).
		Although not included in the NRW SoC (MDZ/N9), NRW has commented on potential changes to prey availability, as part of the Marine Licence Application ORML1938 (ML001 (FEI)). The following response was provided: Chapter 10 of the ES (MDZ/A25.10) provides assessment on potential impacts on prey species and concluded minor adverse effects for all potential impacts, including collision risk. Further information has also been provided in response to NRW comments on Chapter 10, including effects of particle motion and fish aggregation. As outlined in the	Not included in NRW SoC as a main issue. NRW agree that the devices are unlikely to act as fish aggregating devices to such a degree that could lead to significant changes in prey availability from fish collision. The information provided here however also considers the potential for fish to attract marine mammals, thus impacting marine mammal collision risk. This particular row of the document considers changes to prey availability – the matter of marine mammal collision risk is considered elsewhere in this document.	Agreed	

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		response, although tidal devices may act as Fish Aggregating Devices (FADs), and so could increase the density of fish in the vicinity of the turbine, particularly in the wake and at night (Fraser *et al*., 2018). Any increases in the density of fish may in turn affect the foraging behaviour of larger predators, however this is currently identified as a research gap (Fraser *et al*., 2018). However, it is considered that the scale of any effect to marine predators would be limited. As indicated by the underwater noise modelling and assessments, marine mammals will be able to detect operational devices. Information has also been provided on the monitoring and mitigation to avoid marine mammals getting close enough to be at risk of collision and will be further developed in consultation with NRW." In addition, video footage presented during the OES-Environmental and ORJIP Ocean Energy International Forum on MRE Environmental R&D on the latest in research and monitoring around MRE (marine renewable energy) sites (21-23 April 2020), indicated that when current speeds were high and tidal devices were active that fish species remained close to the seabed around the foundations of the devices, beyond rotor sweep areas. Fish species only moved up in the water column during slack tides, when the turbines were not turning. Therefore, indicating no increased risk of collision to prey species, or marine mammals attracted to any prey aggregations around the tidal devices, as they would be beyond areas of increased collision risk.			
22. Risk of entanglement	27/11/18 First TWG Meeting	The level of risk of entanglement varies with species and will take into account factors include such as body size; flexibility of movement; ability to detect mooring lines and ropes; and feeding ecology of the species.	NRW agree with approach.	Agreed	All agreed with approach to assessment of entanglement effects.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		The parameters for the types of mooring lines that will be considered in the assessment will take into account maximum number of anchor lines; anchor line thickness; anchor line material; anchor line length; and if the lines are taught or loose and moving in the water column.			
	10/05/19 Third TWG Meeting	To date, there have been no recorded instances of marine mammal entanglement from mooring systems of renewable devices or similar mooring lines. As a precautionary approach, the potential magnitude of effect has been based on the on the relative risk assessment for marine mammals and mooring scenarios by Benjamins *et al*. (2014).	NRW requested information on how mooring lines and devices will be checked to ensure there is no snagging of discarded nets, ropes or other debris on the mooring lines which could increase the risk of marine mammal entanglement.	Agreed	ES provides details on regular maintenance operations to ensure no entanglement of discarded nets, ropes or other debris on the mooring lines which could increase the risk of marine mammal entanglement.
23. Barrier effects	27/11/18 First TWG Meeting	Underwater noise during construction and operation, and the physical presence of the tidal arrays and underwater infrastructure, could have the potential to create a barrier effect, preventing movement or migration of marine mammals between important feeding and / or breeding areas, or potentially increasing swimming distances if marine mammals avoid the site and go around it. The assessment of any barrier effects will take account of the maximum potential area of (i) potential noise impacts and (ii) the tidal arrays and underwater infrastructure, in particular the predicted extent towards the coastline. The maximum duration of any barrier effects will also be considered. The maximum potential number of individuals that could be affected will be based on the relevant species density estimates and will be considered as a proportion of appropriate the reference populations.	NRW provided comments on 31/10/19 stating that there was insufficient information provided in the ES to assess barrier effects. Our comments were: The assessment for physical barrier effects from a 240MW deployment (620 devices), has used the development's total footprint area and density of animals in that area to describe the barrier. An assessment of 'barrier effects' requires information on the movements of animals through an area, rather than an area and average measure of density. No information about the potential for animals moving through the site and the potential consequences of stopping that movement or displacing animal movements elsewhere has been provided. Also comments on the underwater noise assessment are relevant here. There is	Ongoing	

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			insufficient information to assess the likely impact footprint of disturbance from operational noise. NRW is satisfied that these are secondary matters that should be capable of being resolved by agreement between both parties during this process, such that they do not propose to give evidence on these issues at the Inquiry.		
	10/05/19 Third TWG Meeting	The assessment for any barrier effects from physical presence of tidal arrays and infrastructure has been based on indicative spacings and potential area of the tidal arrays	NRW requested further information on how this was assessed. NRW is satisfied that these are secondary matters that should be capable of being resolved by agreement between both parties during this process, such that they do not propose to give evidence on these issues at the Inquiry.	Ongoing	ES provides details on spacings and size of devices used in the assessment of potential physical barrier effects.
	27/10/20 Seventh TWG Meeting	Information provided to NRW with agenda prior to meeting, outlining that the known movements of marine mammals are outlined in section 12.5 of ES Chapter 12 (MDZ/A25.12) and relevant information provided in section 8.3 of the HRA (MDZ/A27.11). For bottlenose dolphin, there is a possible seasonal shift in abundance, with movements from Cardigan Bay in the summer, to Anglesey and the north coast of Wales in the winter. The pattern of this potential seasonal shift suggests that individuals would travel past or in the near vicinity of the Morlais project. However, the site-specific surveys sighted very few bottlenose dolphin in the Morlais site. The spacings between individual turbines would be a minimum of 70m for seabed mounted devices, and a minimum of 150m for floating devices, leaving a wide space which marine mammals would be able to move between, indicating that the project would not cause a barrier to movement. In addition, as marine mammals are wide-ranging species, and are able to move	The assessment did provide detail on spacing and potential area of array. However NRW do not agree that the issue of barrier effects has been resolved. NRW responded to this in more detail in their advice to NRW's Marine Licensing team dated 18/09/20. No additional information about the potential for animals moving through the site and the potential consequences of stopping that movement or displacing animal movements elsewhere has been provided. The deployment of 240MW (620 devices) may cause a physical barrier; the assessment has utilised the development's total footprint area and density of animals in that area to describe the barrier. However, NRW advise that an assessment of 'barrier effects' requires information on the movements of animals through an area, rather than an area and average measure of density.	Ongoing	The potential for any barrier effects will be assessed during development of the EMMP, taking into account the type, number, array layout and underwater noise of tidal turbines.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		around any potential barrier, it is not expected that any individuals would have their movements in the area restricted, due to the area that would still remain open to them given the project location in open sea. As such, the impact assessment for barrier effects (provided in Sections 12.6.3.4 and 12.6.4.10 of ES Chapter 12 (MDZ/A25.12)) focuses on determining the number of marine mammals that may alter their movements, rather than those that would be affected by any barrier to their movement. The additional underwater noise modelling as outlined above, indicates that there is unlikely to be significant disturbance as a result of underwater noise during construction and from operational turbines, therefore there is unlikely to be any barrier effects or displacement from the site as a result of underwater noise or the physical presence of the turbines. Prior to deployment the array layout will take into account the potential for any barrier effects as a result of underwater noise from operational tidal turbines and the use of any ADDs. This will be developed as part on the EMMP.	NRW is satisfied that these are secondary matters that should be capable of being resolved by agreement between both parties during this process, such that they do not propose to give evidence on these issues at the Inquiry.		
Modelling					
24. Collision risk models	27/11/18 First TWG Meeting	Both Encounter Rate Modelling (ERM) and Collision Risk Modelling (CRM) will be undertaken, using the Scottish National Heritage (SNH) spreadsheets and guidance (SNH, 2016). If / where necessary, these will be modified to take into account the different kinds of turbines.	NRW agree with this approach.	Agreed	It was agreed by both parties that the proposed assessment methodology is appropriate.
	19/02/19 Second TWG Meeting	Difference in the models and the parameters used result in different results for different devices and scenarios.			

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		Therefore, the collision risk assessments will be conducted using both the ERM and CRM for all marine mammal species.			
25. Tidal device parameters	27/11/18 First TWG Meeting	Potential tidal devices for the marine mammal encounter and collision risk assessment have been grouped based on: ▪ Different rotor diameters, including related parameters for number of rotors per device, rotor width, blade chord width and rotation speed; and ▪ Position of in the water column of the rotors. The different 'indicative' device types are based on the worst-case parameters for all the different types of devices within each group (e.g. not actual device type but envelope of parameters to cover all potential parameters).	NRW agrees with this approach, if the rationale can be clearly presented.	Agreed	It was agreed by both parties that the methodology is acceptable.
	19/02/19 Second TWG Meeting	Reviewing and refining the tidal design envelope to cover the types of devices that could be deployed. Currently looking at nine tidal device scenarios / envelopes for marine mammals: ▪ large floating turbines ▪ small floating turbines ▪ floating spar ▪ seabed mounted ▪ surface	NRW agrees with this approach, if the rationale can be clearly presented.	Agreed	It was agreed by both parties that the methodology is acceptable.
26. Environmental parameters	19/02/19 Second TWG Meeting	Water depths across the site range from approximately 30-50m. For deployment of arrays, the MDZ may be spilt into a series of zones, with water depth varying in the different zones, for example:	NRW agrees with this approach, noting that worst cases should be considered, and the worst case may not be the fastest current for some speed limiting devices.	Agreed	It was agreed by both parties that the methodology is acceptable.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		▪ Across the majority of zones the water depth is generally 30-35m; ▪ Across some zones water depths are mainly 30-40m, with some deeper areas of 40-45m. Assessments based on average water depth where device will be deployed. Water depths, locations and position in the water column will be considered for the different types of tidal devices that could be deployed. Current speed will vary throughout the tidal cycle. The assessment, where possible, will take into account: ▪ Different current speeds in tidal cycle (current analysis all based on mean speed). ▪ How current speed affects the rotation speed (rpm) of the different devices (e.g. some run at relatively constant speed and others vary with current speed).			
27. Marine mammal size parameters	27/11/18 First TWG Meeting	The following lengths and body widths are proposed: ▪ Harbour porpoise – 1.48m and 0.32 m; ▪ Bottlenose dolphin – 2.57 m and 0.64 m; ▪ Risso's dolphin – NA; ▪ Minke whale – 8.8 m and 2.2 m; ▪ Grey seal – 1.86 m and 0.42 m; and ▪ Harbour seal – 1.41 m and 0.43 m. There is currently no or limited suitable data for Risso's dolphins, so the proposed approach is to use bottlenose dolphin as a proxy. Appendix 12.2 with ES presents the rationale for the values used and data sources used, including Welsh stranding records	NRW suggested there may be available data for Risso's from UK stranding data and that there is evidence that the harbour porpoise stranded around Wales are slightly larger than the values proposed.	Agreed	All available data was used to determine marine mammal size parameters. If further data is available these parameters will be reviewed for any further collision risk modelling during the development of the EMMP.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	19/02/19 Second TWG Meeting	Technical note issued to NRW, outlining the parameters to be used in the collision risk assessments (25/01/2019). Different marine mammal parameters for body length and width have been reviewed from a range of different sources, including UK and Welsh strandings data. This data is currently being further reviewed and refined to determine the parameters to be used in the collision risk assessments. If required, additional assessments can also be conducted and presented in an Appendix to take into account any variations in the parameters for each species, such as maximum, mean or median, and minimum values. ES presents the rationale for the values used, where possible and relevant, the values used have been taken from the SNH (2016) guidance, so they are consistent with other studies. An examination of minimum, mean and maximum values is presented in Appendix 12.2 of the ES.	NRW states that minimum values should also include neonates. NRW considers that the evidence is not clear on whether the UK figures included the Welsh figures and should be clarified NRW would need to see the rationale for values used and recommend using CSIP stranding data.		
28. Marine mammal swim speeds and dive times	27/11/18 First TWG Meeting	The following mean swim speed (a), mean dive time (b) and mean surface times (b) are proposed: ▪ Harbour porpoise – 1.4 m/s (a), 26.2 s (b), 3.9 s (c); ▪ Bottlenose dolphin – 1.7 m/s (a), 25.8 s (b), 3.7s (c); ▪ Risso's dolphin – NA; ▪ Minke whale – 2.1 m/s (a), 87 s (b), 3.5 s (c); ▪ Grey seal – 1.8 m/s (a), 297 s (b), 165 s (c); and ▪ Harbour seal – 1.8 m/s (a), 180s (b), 39.5 s (c).	The use of maximum, minimum and average values for parameters should be explored to determine the worst-case for the assessments.	Agreed	ES presents the rationale for the values used, for the values and data sources used, where possible and relevant, the values used have been taken from the SNH (2016) guidance, so they are consistent with other studies.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		There is currently no or limited suitable data for Risso's dolphins, so the proposed approach is to use bottlenose dolphin as a proxy.			
29. Avoidance rates	27/11/18 First TWG Meeting	Avoidance rates of 0%, 50%, 90%, 95%, 98% and 99% will be considered for all species during the assessment. However, it is initially proposed that the assessment of the potential impacts and effects is based on the following avoidance rates: ▪ Harbour porpoise – 98% ▪ Bottlenose dolphin – 98% ▪ Risso's dolphin – 98% ▪ Minke whale – 95-98% ▪ Grey seal – 98% ▪ Harbour seal – 98%	NRW suggested that 0% avoidance is not probable but useful for context. Seals have a higher probability of habituation to a noise source than cetaceans and reiterated that there is no evidence for how dolphins respond to Acoustic Deterrent Devices (ADDs). NRW request that range of avoidance rates are presented and follow these through the modelling to show theoretical impacts. NRW advised that the full range of avoidance rates presented as a technical note or as an appendix should be provided. NRW will provide further advice on the acceptable levels of mortality for marine mammal species	Agreed	Both parties agreed with proposed approach.
	19/02/19 Second TWG Meeting	The approach will be revised to use the 98% avoidance rates for all species in the assessments, with the range of avoidance rates of 0%, 50%, 90%, 95%, 98% and 99% presented in an Appendix.	NRW agree with approach and confirmed it that the ranges should be provided in the appendices.	Agreed	Both parties agreed with proposed approach.
30. Potential level of effects for collision risk – cetaceans / pinnipeds	27/11/18 First TWG Meeting	Population effect levels from Collision Risk in marine mammal species are proposed as follows: ▪ High (>1% of reference population); ▪ Medium (0.1% - 1% of reference population); ▪ Low (0.01% - 01% of reference population); and ▪ Negligible (<0.01% of reference population). The reference populations will be reviewed using the up to date data.	NRW advised that the HRA should use the population numbers provided in Special Area of Conservation (SAC) official designation documentation, not necessarily the most up to date information. The Habitats Regulation 35 document is the conservation objective document and the one used to determine the health of the site. NRW note that the collision risk calculations would require the most up to date information, but the resulting numbers would need to be	Agreed	Both parties agreed with proposed approach.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			compared against the values presented in the SAC documentation/conservation objectives, i.e. the number when the site was designated or what is presented in the Conservation Objectives.		
	19/02/19 Second TWG Meeting	Eversheds legal advice is that the most up to date population numbers available should be used. Bottlenose dolphin threshold reduced to <1 individual following last meeting. This will therefore be the determining factor in the number and types of devices that could be deployed in a phased approach.	NRW agrees with approach but advises that the number in the site notification is used as the comparison point.	Agreed	Both parties agreed with proposed approach.
	Following Sixth TWG Meeting on 15/10/20	The recent NRW species collision limits for the Morlais project have been included in the OEMMP. Development of detailed EMMP will involve updated collision risk assessments prior to deployment, based on the latest information and tidal device parameters, to demonstrate that these thresholds will not be exceeded. Monitoring will be used to determine if these limits are being approached and if further mitigation is required. For example, if a fatal collision does occur for one cetacean species then the mitigation measures will need to be reviewed and further mitigation implemented following the tiered approach.	Following a meeting with NRW on 15 October 2020, NRW provided 'advice on adaptive management of the risk of collision impacts on protected marine mammal species in Welsh waters from the Morlais Project' (MDZ/F15.3). This advice, in addition to outlining NRW's requirements in relation to adaptive management, monitoring and mitigation, also provides marine mammal species maximum collision limits: • Harbour porpoise = 3 per year • Grey seal = 5 per year • Bottlenose dolphin = 2 over 3 years • Common dolphin = 5 per year • Risso's dolphin = 1 per year • Minke whale = 1 per year • All other cetacean species = 1 per year As outlined by NRW (MDZ/F15.3), '*these limits do not represent the point at which mitigating*	Agreed	NRW Species Collision Limits incorporated as key component of EMMMP.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			action should first occur; they represent the point at which any further impact must be fully mitigated to the extent that there should be no further risk to the species from the device'.		
31. Population modelling	27/11/18 First TWG Meeting	It is proposed to use the interim Population Consequences of Disturbance (iPCoD) model to assess any potential population impacts from collision risk with the tidal arrays at Morlais.	NRW agrees with approach.	Agreed	Both parties agreed with proposed approach.
	10/05/19 Third TWG Meeting	Currently not able to use PCoD for the ES and HRA assessments as planned as there is a bug in the latest version. MM suggest that when the issues have been fixed PCoD can be used as part of the ongoing development of the monitoring and mitigation plan. If it is fixed sooner then it will be included in ES and HRA assessments.	NRW requested that other population models should be reviewed as they have concerns regarding the high predicted numbers for full deployment	Agreed	It has been agreed (meeting on 06/01/20) that further population modelling is not required.
32. CRM/ERM Results	10/05/19 Third TWG Meeting	Worst-case parameters have been used to define the Project Design Envelope (PDE) in terms of the device parameters. It should be acknowledged that the assessment is highly precautionary. The scenarios assessed are (i) 30MW of each device category and (ii) 240MW for the full build scenario. It is currently proposed that the Morlais tidal arrays would be installed in phases. The first phase could be 40MW of tidal devices, with up to 30MW for each type of device category; however, the deployment of 40MW of tidal devices may take several years to build out. Therefore, the 40MW deployment can be viewed as staged, for the purposes of assessment, with the opportunity for review at appropriate increments. An approach based on deployment, monitoring and adaptive management, with review at appropriate increments that can be directly related to collision risk to marine mammals, especially bottlenose dolphin, in	22/05/19 NRW follow-up letter to Menter Môn: NRW advises that further consideration is given to an initial test phase of deployment of the scale provided in the Third TWG Meeting presentation, subject to NRW being satisfied with the predicted collision risk figures for the other cetacean and seal species. A smaller test phase with reduced collision risk for cetacean and seal species could potentially offer a solution to allow progress if sufficient monitoring was put in place via an adaptive management plan to inform whether relevant Marine Licence conditions could be discharged before further devices were deployed.	Agreed	Taking into account the recommendation from NRW, the assessments in the ES and HRA have been based on scenario options where the collision risk, without mitigation, would be less than one bottlenose dolphin per year. The EMMP will outline the proposed monitoring and mitigation for the phased deployment. The mitigation and monitoring plan to reduce the collision

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		that no more than one bottlenose dolphin would be at risk.			risk of marine mammals with operational turbines will be developed in the pre-construction period so that it can be based upon best available information, methodologies, industry best practice, latest scientific understanding, current guidance and detailed project design. The approach would be based on deployment, monitoring and adaptive management, with regular reviews of the installation at appropriate deployment increments directly related to collision risk to marine mammals, specifically bottlenose dolphin, to ensure that no more than one bottlenose dolphin per year could be theoretically at risk of collision. NRW advise that it is important to also highlight the potential collision risk of harbour

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
					porpoise given the MDZ is within the NAM porpoise SAC.
	06/01/20 Fourth TWG meeting	Morlais expressed concern with the proposal of reducing the first phase. 16MW was already seen as a reduction as Wales want to be industry leaders and in order to reduce the LCOE of tidal energy, a substantial project is required. Whilst Morlais agreed that there are uncertainties surrounding the data, the modelling was conservative and included worst cases and assumptions.	NRW expressed their concern in relying solely on a quantitative approach in assessing mortality rates due to the uncertainties involved. NRW recommend that a risk-minimisation approach is adopted where a reduced first phase is undertaken, and comprehensive monitoring is conducted. NRW emphasised that they do not have a threshold for what would be considered an acceptable level of consent. Stated that they are under the impression that the 16MW scenario is not adequately risk averse. NRW explained that whilst running CRM and ERM is beneficial, the uncertainties around the data do not make it risk averse enough. Additional information provided by NRW following the fourth TWG meeting determined that, updated Potential Biological Removal (PBR) calculations for the bottlenose dolphin population of Cardigan Bay, 0.7 would be considered by NRW to be the limit of anthropogenic mortality, which would be considered to be a significant adverse effect on the population.	Ongoing	Further modelling has been undertaken and presented to NRW, outlining various scenarios under 16MW, ranging in scale and device type, and to determine the likely first phase of development considering NRWs updated PBR calculations for the bottlenose dolphin population. Due to the readiness of some developers, it is likely that only one type of device will be deployed in the first phase, and therefore a scenario that included several device types would be unlikely to happen. The purpose of the additional modelling was to determine the level of development possible under the updated PBR calculations for bottlenose dolphin for each device type, as
	06/01/20 Fourth TWG meeting	The figure of 620 devices is the absolute maximum number that would be deployed, although it is considered unrealistic to occur, as the 240MW limit of the project means that only the smallest of devices could be deployed. The number of devices does not correlate positively to severity of impact. Worst-case scenarios are based on certain combinations of device types that are more likely to be impactful.	NRW stated confusion over the use of 258 devices as the worst-case scenario for 240MW of capacity with a maximum limit of 620 devices in the application.	Ongoing	

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					the first phase of deployment. Further modelling was also undertaken for the potential for 620 devices to be deployed
	19/02/20 Fifth TWG Meeting	Collision risk modelling has been updated to show the first phase of deployment within the 0.7 bottlenose dolphin mortality threshold. These results were used to model the same first phase scenario for all species	NRW consider that the proposal to deploy, in the first phase of the development, the maximum number of devices achievable based on this predicted collision estimate of 0.7 bottlenose dolphins at 98% avoidance rate, places an over-reliance on the outputs of the modelling. NRW does not consider this to be appropriate and maintains that there remains a credible risk that unsustainable mortality of marine mammal Annex II and Annex IV species could occur from the first phase alone. NRW considers that reducing the scale of the first phase array such that it would fall below a predicted collision risk of 0.7 for bottlenose dolphin at 98% avoidance rate, and suitably reducing the scale of subsequent phases, would considerably reduce the risk. Due to the uncertainties in the modelled outputs, it is not possible to prescribe what this level of reduction should be, but a reduction in scale would add precaution and allow discussion to progress on a pragmatic solution to achieving an initial test phase that would minimise risk whilst accounting for uncertainty. NRW made this position clear at the Technical Working Group meeting held on 6 January 2020.	Ongoing	Full updated modelling results were provided to NRW, taking into account the revised first phase scenario. There is a commitment from the project to ensure adequate and effective mitigation and monitoring will be implemented through the EMMP. An outline EMMP has been provided and will be developed post consent.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	Following Seventh TWG Meeting on 27/10/20	The OEMMP has been revised (MOR/RHDHV/DOC/0072 (04) dated November 2020) and incorporates the current species collision limits for marine mammals and the Collision Decision Framework as provided by NRW Advice on adaptive management of the risk of collision impacts on protected marine mammal species in Welsh waters from the Morlais Project (MDZ/F15.3), and includes, but is not limited to, the following commitments: • The commitment not to operate devices until it has been demonstrated and agreed in writing that marine mammal movements and collisions can be detected. • Ensuring the risk to marine mammal species would be within the NRW maximum collision limit for each marine mammal species. • The implementation of adaptive management measures, following any collision, to ensure that the risk of further collisions is reduced, which will be agreed and demonstrated prior to any tidal device operation. This will include demonstrating a rapid response to any detected collisions. • Prior to any tidal device operation, the mitigation is proven to be effective and will be adapted in response to any increasing risk of causing adverse effect. • If mitigation is not effective in preventing collisions, a failsafe will be included to ultimately prevent an adverse effect from occurring. Such a failsafe is likely to be a ceasing of operations for tidal device.	The applicant presents a first phase based on 0.7 bottlenose dolphins (at 98% avoidance) rated per MW. NRW maintain that there is an over reliance on the model outputs to define the scale of the first phase of this project. The revised collision risk document does not adequately address the significant uncertainty around these estimates. When collision risk across the range of different avoidance rates is considered, the true uncertainty surrounding the estimates of risk is clear. It is still not clear what the proposed first phase is, in terms of device types and number of devices. The revised oEMMP has been significantly improved, and now incorporates NRW's advice on adaptive management (NRW, 2020). We strongly advocate the adaptive management approach now described in this revised oEMMP, and advise that, provided the commitments made in this document can be secured, the adverse effects predicted by the project can be avoided.	Ongoing	Revised OEMMP outlines commitments to safeguard marine mammals. This will further develop during the development of the detailed EMMP.
Habitats Regulations Assessment (HRA)					

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
33. Harbour porpoise	27/11/18 First TWG Meeting	European Designated Sites to be considered for harbour porpoise are: ▪ Gogledd Môn Forol / North Anglesey Marine Site of Community Importance (SAC); ▪ Gorllewin Cymru Forol / West Wales Marine SAC; ▪ Dynesfeydd Môr Hafren / Bristol Channel Approaches SAC; ▪ North Channel SCI; and Rockabill to Dalkey Island SAC (Ireland).	NRW noted that in addition to the sites listed in the discussion paper, there are further sites within the MU that are not covered in the list and are within the jurisdiction of other administrations. For example, 15 SACs have harbour porpoise listed as part of their designation within the MU.	Agreed	Full details of the justification for the sites screened in and out are provided in the HRA. The assessments in the HRA have been based on the SAC sites screened in for bottlenose dolphin, harbour porpoise, grey seal and harbour seal. However, as the assessment have been based on the reference populations for the relevant MUs and OSPAR region, consideration has also been given to other sites within these areas.
34. Bottlenose dolphin	27/11/18 First TWG Meeting	European Designated Sites to be considered for bottlenose dolphin are: ▪ Llŷn Peninsula and the Sarnau SAC / Pen Llyn a'r Sarnau SAC; and ▪ Bae Ceredigion / Cardigan Bay SAC.	No comments.		
35. Grey seal	27/11/18 First TWG Meeting	European Designated Sites to be considered for grey seal are: ▪ Llŷn Peninsula and the Sarnau SAC / Pen Llyn a'r Sarnau; ▪ Bae Ceredigion / Cardigan Bay SAC; ▪ Sir Benfro Forol / Pembrokeshire Marine SAC; ▪ The Maidens SAC (Northern Island); ▪ Lambay Island SAC (Ireland); and ▪ Saltee Islands SAC (Ireland).	NRW note that there are 21 sites for grey seal in this MU. The ones listed are the most appropriate ones. Closest sites and the sites with the largest population (Pembrokeshire) should be included in the assessment.		
36. Harbour seal	27/11/18 First TWG Meeting	European Designated Sites to be considered for harbour seal are: ▪ Murlough SAC (Northern Ireland); ▪ Strangford Lough SAC (Northern Ireland); and ▪ Lambay Island SAC (Ireland).	NRW note there are 19 sites for harbour seal in the MU. There are no Welsh sites so NRW have no further comment.		

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37. All species	10/05/19 Third TWG Meeting	The full list of sites within the MUs and OSPAR region were reviewed in the HRA screening. During this assessment, some of those have not been screened in for a Likely Significant Effect (LSE). HRA results demonstrate, with mitigation measures in place, no adverse effect on site integrity	NRW wish to ensure that other SACs, such as harbour porpoise from French sites and sites from the west coast of Ireland, are included.	Agreed	As outlined above, the assessments in the HRA have been based on the SAC sites screened in for bottlenose dolphin, harbour porpoise, grey seal and harbour seal. However, as the assessments have also been based on the reference population for the harbour porpoise MU, bottlenose dolphin MU and OSPAR region for grey and harbour seal, consideration is therefore also given to other SAC sites within these areas.
38. All Species	22/05/19 NRW (CAS-84017-M9P0) follow-up letter to Menter Môn:		NRW wish to reiterate the advice from our EIA Scoping Opinion (paragraph 0.6 of Scoping opinion SC1804, issued on 11/07/18) that, without wishing to prejudice the HRA or consenting processes, should it not be possible to identify a package of measures that would avoid or mitigate the effects of the proposal and avoid adverse effects on the integrity of European protected sites it may be necessary to consider the proposal under Regulation 64 of the Conservation of Habitats and Species Regulations ("IROPI"). NRW recommend that these matters are discussed with the Planning Inspectorate/Welsh Government prior to submission.	Not agreed	As previously outlined, the EMMP will outline the proposed monitoring and mitigation for the phased deployment. The approach would be based on deployment, monitoring and adaptive management, with regular reviews of the installation at appropriate deployment increments

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			NRW consider that the IROPI test follows necessarily from our Proof of Evidence on marine mammals and we will address this in our opening statement.		directly related to collision risk to marine mammals, specifically bottlenose dolphin, to ensure that no more than 0.7 bottlenose dolphin per year could be theoretically at risk of collision. Menter Môn is committed to using effective, proven and appropriate mitigation methods based on the latest scientific evidence. Therefore, is confident that the proposed package of measures in the EMMP would avoid or mitigate the effects and avoid adverse effects on the integrity of European protected sites. Menter Môn plan to discuss with the Planning Inspectorate/Welsh Government prior to submission.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	Following Seventh TWG Meeting on 27/10/20	As outlined above, with the commitments and incorporation of the latest NRW advice (MDZ/F15.3) in the revised OEMMP (MOR/RHDHV/DOC/0072 (04) dated November 2020), there is unlikely to be the potential to have an adverse effect on marine mammal species listed in Annex II and Annex IV of the Habitats Directive. This includes harbour porpoise from the North Anglesey Marine / Gogledd Môn Forol Special Area of Conservation (SAC) and other species of marine mammals, including those with demonstrated connectivity to other SACs. The draft Marine Licence Conditions (MDZ/I4, Condition 36) will secure this and ensure NRW must be satisfied that there will be no AEOI: *"NRW must not approve any DEMMP unless it is satisfied that it provides such mitigation as is necessary to avoid adversely affecting the integrity of a European Site (as defined in The Conservation of Habitats and Species Regulations 2017 or The Conservation of Offshore Marine Habitats and Species Regulations 2017) to the extent that marine mammals or diving birds are a protected feature of that European Site".*	The revised oEMMP has been significantly improved, and now incorporates NRW's advice on adaptive management. We advocate the adaptive management approach now described in this revised oEMMP, and advise that, provided the commitments made in this document can be secured, the adverse effects predicted by the project can be avoided. However, NRW advise that there are some serious technical challenges which will need to be addressed in order to deliver the commitments laid out in the revised oEMMP. Please note that the draft Marine Licence conditions are subject to agreement by NRW Permitting Service.	Ongoing	Commitments in the revised OEMMP (MOR/RHDHV/DOC/0072 (04) dated November 2020) to ensure the risk to marine mammal species would be within the NRW maximum collision limit for each marine mammal species and that if a fatal collision does occur for one cetacean species then the mitigation measures will need to be reviewed and further mitigation implemented following the tiered approach in the detailed EMMP.
Mitigation and Management					
39. Monitoring of potential noise impacts / Mitigation of collision risk	27/11/18 First TWG Meeting	The potential use of ADDs as mitigation was discussed. It was noted that although they are effective against seals and there is evidence that they are also effective for harbour porpoise, there is no direct evidence of efficacy of ADD for dolphin species.	NRW noted that it is important to consider the potential for collisions between devices and marine mammals, and to do so we need to monitor close range behaviour around devices without deterrence. NRW is mindful that introducing sound that is designed to exclude marine mammals (ADD) can also cause negative effects, so careful consideration of effective monitoring is important.	Not agreed	The proposed approach would be to only activate ADDs when marine mammals come too close to operational turbines and there could be the potential risk of collision. The requirement for the

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
					ADDs will be monitored and reviewed as part of the adaptive monitoring, mitigation and management plan, as outlined in the EMMMP. The underwater noise and potential disturbance from ADDs has been assessed in the ES. In addition, the proposed underwater noise monitoring would assess the potential effective area of the ADDs.
	10/05/19 Third TWG Meeting	As a precautionary approach, the assessment has been based on an average disturbance range from an ADD of 1km has been assumed for all species. Based on indicative worst case for maximum number of arrays / groups of tidal devices for 240MW deployment, up to 40 ADDs could be required. Realistic duration of ADD activation could be 10 –20 minutes.	NRW suggested that disturbance range should be increased slightly to be precautious as type of ADD is not known at this point. NRW requested further detail on type and number of devices.	Not agreed	Disturbance ranges have been reviewed within the ES and will be assessed as part of the ongoing monitoring and mitigation plan. Further clarification will be provided within the development of the mitigation and monitoring plan and when the types of devices to be deployed are known.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	27/10/20 Seventh TWG Meeting	Information provided to NRW with agenda prior to meeting included clarification on underwater noise from ADDs.		Ongoing	The use of ADDs as mitigation and the potential for any significant disturbance will be assessed during the development of the EMMP.
	Follow up to Seventh TWG Meeting 27/10/20	Following the meeting on 27/10/20, NRW, as requested, provided clarification on what further information they required (email dated 02/11/20). Response addressing these points has been sent (email dated 17/11/20), including further information on the use and potential impacts of ADDs.	In summary: There is no information on how the ADD array will be configured and used, which ADDs would be used, how this might affect noise propagation, how ADDs might be triggered in response to marine mammals, or how disturbance from up to 40 ADDs would extrapolate across the array. In the new information received, the applicant has presented a worst-case assessment of up to 40 ADDs based on a 1km disturbance range for each ADD. This contradicts the information given in the Underwater Noise Modelling Report (MOR/RHDHV/DOC/0116, F1.0, 25/03/20) where an assessment is made based on a disturbance range of 840m. Published evidence from field trials estimates a disturbance range for the Lofitech ADD as 7.5km for harbour porpoise. NRW advise that this is the best available evidence for the effectiveness of this ADD and assessments should be made based on this disturbance range.		
40. Deployment, monitoring and adaptive management plan	10/05/19 Third TWG Meeting	The deployment, monitoring and adaptive management plan will be developed in the pre-construction period and based upon best available information, methodologies, industry best practice, latest scientific understanding, current guidance and detailed project design.	NRW cannot be fully confident that the proposed mitigation will be effective. As such we may not be able to conclude that significant adverse effects on the integrity of European protected sites could be ruled out without reasonable scientific doubt or that the project would not be	Not agreed	Developing the monitoring and mitigation plan in the pre-construction period will allow for a detailed review and assessment of the

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			detrimental to the favourable conservation status of European Protected Species.		most effective and appropriate mitigation methods at that time, based on the latest scientific evidence. Menter Môn is committed to using effective, proven and appropriate mitigation methods based on the latest scientific evidence.
	06/01/20 Fourth TWG meeting	It is too early in the process to confirm the various methods of monitoring that might be implemented due to their dependence on technology types and sizes. The main variable would be how the monitoring technologies would be used on the devices rather than which technologies, as most technologies could work with most devices. It would be likely that active and passive sonar would be applicable to all and infra-red techniques would be more applicable to floating devices. There cannot be a clear indication on the monitoring techniques until deployment (array sizes and type) is clear.	NRW emphasised the uncertainties around monitoring capabilities and the importance of having able methods of collision detection and measuring avoidance rates. PINS, based on NRW's prior experience with Wylfa Newydd, could request more detail from the EMMP prior to decision on consent (i.e. during hearing / inquiry). NRW enquired about the type of monitoring techniques that would be appropriate for each device type. NRW suggested that an option should be added to the EMMP that states the intention of removing a device if it is shown to have recorded collisions.	Not agreed	There is a commitment from the project to ensure adequate and effective mitigation and monitoring will be implemented through the EMMP. An outline EMMP has been provided and will be developed post consent and agreed prior to deployment.
	Following Seventh TWG Meeting on 27/10/20	As outlined above, with the commitments and incorporation of the latest NRW advice (MDZ/F15.3) in the revised OEMMP (MOR/RHDHV/DOC/0072 (04) dated November 2020), there is unlikely to be the potential to have an adverse effect on marine mammal species listed in Annex II and Annex IV of the Habitats Directive. This includes harbour porpoise from the North Anglesey Marine / Gogledd Môn Forol Special Area of Conservation (SAC) and	The revised oEMMP has been significantly improved, and now incorporates NRW's advice on adaptive management (NRW, 2020). We strongly advocate the adaptive management approach now described in this revised oEMMP, and advise that, provided the commitments made in this document can be secured, the adverse effects predicted by the project can be avoided.	Ongoing	Commitments in the revised OEMMP (MOR/RHDHV/DOC/0072 (04) dated November 2020) to ensure the risk to marine mammal species would be within the NRW

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		other species of marine mammals, including those with demonstrated connectivity to other SACs. The draft Marine Licence Conditions (MDZ/I4, Condition 36) will secure this and ensure NRW must be satisfied that there will be no AEOI: *"NRW must not approve any DEMMP unless it is satisfied that it provides such mitigation as is necessary to avoid adversely affecting the integrity of a European Site (as defined in The Conservation of Habitats and Species Regulations 2017 or The Conservation of Offshore Marine Habitats and Species Regulations 2017) to the extent that marine mammals or diving birds are a protected feature of that European Site".*	There remain some serious technical challenges which will need to be addressed in order to deliver the commitments laid out in the revised oEMMP. The ability to effectively detect, identify and track marine mammals moving around operational devices is entirely untested on many of the device types described in the Project Design Envelope. Furthermore, the ability of the monitoring to automatically trigger deterrents such as acoustic deterrent devices, while theoretically possible, is untested. The monitoring and mitigation will therefore need substantial development to provide the confidence necessary to rule out AEOSI. Please note that the draft Marine Licence conditions are subject to agreement by NRW Permitting Service.		maximum collision limit for each marine mammal species and that if a fatal collision does occur for one cetacean species then the mitigation measures will need to be reviewed and further mitigation implemented following the tiered approach in the detailed EMMP.
41. MMMPs	10/05/19 Third TWG Meeting	A Marine Mammal Mitigation Protocol (MMMPs) will be prepared for construction activities were there could be the risk of auditory injury (PTS).	NRW agree with approach.	Agreed	Both parties agreed with proposed approach.
42. Embedded Mitigation	10/05/19 Third TWG Meeting	Menter Môn has committed to several techniques and engineering designs/modifications inherent as part of the project, during the pre-application phase, in order to avoid a number of impacts or reduce impacts as far as possible. This includes not including several types of devices, restrictions on the position in the water column for some devices and maximum potential number of devices due to the initial collision risk assessments.	NRW agree with approach.	Agreed	Both parties agreed with proposed approach.
43. Phased approach to installation	27/11/18 First TWG Meeting	A phased approach to installation could be considered to allow monitoring of behaviour and also mitigation of collision risk. The aim will be to answer clear questions about animal behaviour and pathways	NRW flagged that potential for bottlenose dolphin collision with a tidal device is the biggest concern/limit to consent. The death of one animal per year (now updated to 0.7 individuals) would likely be deemed unacceptable /	Not agreed	As outlined above, taking into account the recommendation from NRW, the assessments in the ES

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		for impacts, indicated by the impact assessment and thus inform subsequent phases of deployment.	biologically unsustainable for Cardigan Bay SAC. 22/05/19 NRW follow-up letter to Menter Môn: NRW recommends that further consideration is given to an initial test phase of deployment of the scale provided in the Third TWG Meeting presentation, subject to NRW being satisfied with the predicted collision risk figures for the other cetacean and seal species.		and HRA have been based on scenario options where the collision risk, without mitigation, would be less than 0.7 bottlenose dolphin per year. The approach would be based on deployment, monitoring and adaptive management, with regular reviews of the installation at appropriate deployment increments directly related to collision risk to marine mammals, specifically bottlenose dolphin, to ensure that no more than 0.7 bottlenose dolphin per year could be theoretically at risk of collision. NRW advise that it is important to also highlight the potential collision risk of harbour porpoise given the MDZ is within the NAM porpoise SAC.
	05/05/20	An outline EMMP has been submitted and will developed post-consent and prior to deployment. The EMMP will ensure adequate and effective mitigation	NRW explained that they still cannot currently rule out 'no adverse effect' for bottlenose	Not agreed	There is a commitment from the project to ensure adequate and

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	EMMP Meeting	and monitoring, that will be agreed prior to the first deployment. The EMMP would be a live and iterative document before and during the phased deployment. The EMMP will be legally secured by way of condition on the Marine Licence.	dolphin, harbour porpoise and grey seal, due to the uncertainties.		effective mitigation and monitoring will be implemented through the EMMP. An outline EMMP has been provided and will be developed post consent and agreed prior to deployment.
	19/06/20 EMMP Meeting	EMMP has been updated, this includes expansion of the proposed phasing approach, adaptive management approach & mitigation; information on the proposed a tiering system for the mitigations in a hierarchy; outline of trigger points expanded under wide field, medium field, near field and potential collision levels; and more details on the EMMP management flowchart.	The revised outline EMMP shared prior to this meeting was the first time NRW have had sight of this version, therefore they were not in a position to provide detailed comments.	Not agreed	NRW to share their flowchart with Morlais when ready.
	Following Seventh TWG Meeting on 27/10/20	The revised OEMMP (MOR/RHDHV/DOC/0072 (04) dated November 2020) outlines the approach that will ensure that the first phase (Phase 1) of deployment will be defined by the PBR for bottlenose dolphin and the species collision limits provided by NRW (MDZ/F15.3), this includes the recommended Collision Decision Framework to ensure no significant impact on marine mammals or adverse effect on any designated sites with marine mammals as a qualifying feature. Monitoring at Morlais would provide a unique opportunity to collect information on how marine mammals behave around an array of multiple devices, compared to most studies which have involved only one device. This will be very important in addressing data gaps, improving our understanding of the potential risk from multiple devices and how this can be used to remove some of the uncertainty associated with collision risk modelling. Therefore, it	NRW are encouraged to see that the revised oEMMP incorporates our recent advice on adaptive management (NRW, 2020) and we are pleased that Menter Môn have found it useful. NRW advise that the proposed project could potentially cause adverse effect on site integrity for several Special Areas of Conservation (SACs) and could be detrimental to populations of European Protected Species (EPS) through mortality caused by marine mammals colliding with operating devices. We consider that a suitable adaptive management plan could in principle enable a conclusion of no Adverse Effect on Site Integrity (AEOSI). We advise that the revised oEMMP, which includes adaptive management proposals, now gives increased confidence that, provided the commitments made in this document can be secured, adverse effects from collision can be minimised and	Ongoing	Phased approach will be assessed and determined during the development on the EMMP, based on the latest information, scientific understating and guidance.

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		is important that the scale of the Morlais first phase is sufficient in order to ensure adequate data is collected to inform the next phase of deployment and other tidal projects.	potentially avoided. We are continuing to advise the applicant as they develop this document.		

4. REFERENCES

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APPENDIX 1

Following the meeting on 27/10/20, NRW, as requested, provided clarification on what further information they required (email dated 02/11/20). These were:

In our most recent marine mammals technical meeting you queried what further information NRW Advisory required to be able to make an assessment of the operational phase underwater noise impacts for marine mammals. This information is summarised below and further detail is included in our advice to NRW's Marine Licensing Team that was shared on 18/9/20 (see paragraphs 68 – 80 of the attached document).

- *The source of the operational noise characteristics for the noise modelling is not identified or adequately explained.*
- *The assumption that the sound level of a large rotor device can be obtained by scaling up from a small rotor device is not supported by evidence.*
- *It has not been explained how the sound emanating from a single rotor is extrapolated to an array of 120 or 620 devices for the large and small rotor turbines respectively.*
- *It has not been explained how the use of two noise levels from a small and large rotor source adequately considers the multiple different device types within the PDE.*
- *We query the choice of a 142dB noise disturbance threshold as it may not be the most appropriate threshold to use. We suggest that the 120dB range is also presented to allow assessment and comparison.*
- *Noise modelling is presented as noise plots, but the associated data are not presented. No estimate is given of what the maximum noise disturbance range would be for an array of either small or large turbines. However, the noise model plots appear to show that disturbance at a threshold of 120dB could range to approximately 17km from the centre of the array (based on Figure 4-10 of Underwater Noise Modelling Report MOR/RHDHV/DOC/0116, F1.0, 25/03/20.)*
- *There is no information on how the ADD array will be configured and used, which ADDs would be used, how this might affect noise propagation, how ADDs might be triggered in response to marine mammals, or how disturbance from up to 40 ADDs would extrapolate across the array.*
- *An estimate of the disturbance range from operational turbine noise and ADDs is necessary to calculate the area of the likely noise disturbance 'footprint' within North Anglesey Marine SAC in order to assess the significance of this impact.*

Response addressing these points has been sent (email dated 17/11/20):

- *The source of the operational noise characteristics for the noise modelling is not identified or adequately explained*.
    - The outline details source of the operational noise characteristics for the noise modelling are given in section 3.1.4 of the Underwater Noise Modelling Report

(document: MMC320 MOR-RHDHV-DOC-0116, submitted 27th March 2020). References for these inputs were not given as the measurements were not formally published or publicly available. The data was from Subacoustech's database which included (i) an assessment of tidal current turbine noise (11m rotor, 350kW) at Lynmouth site and predicted impact of underwater noise at Strangford Lough; and (ii) measurement and assessment of underwater noise from the Openhydro tidal turbine device (250kW) at the EMEC facility, Orkney. However, it is important to note that the underwater noise modelling was indicative and was conducted post-submission in response to NRW request. There is now a commitment in the revised OEMMP that further underwater noise modelling will be conducted for operational turbines once details are known of the types, noise source levels and number of devices to be deployed as part of the development of the EMMP post consent.

- *The assumption that the sound level of a large rotor device can be obtained by scaling up from a small rotor device is not supported by evidence.*
    - The assumption that the sound level of a large rotor device can be obtained by scaling up from a small rotor device is a worst case assumption based on Subacoustech data, with a simple line drawn between source levels of Subacoustech measurements of tidal turbines from Lynmouth and Orkney (references above) in order to extrapolate expected noise levels for Morlais. Subacoustech had insufficient data to produce a more refined model, but this would produce precautionary noise levels. Subacoustech have recently become aware of Risch *et al*. (2020) which presents measured noise levels for a 1.5 MW, 18m rotor diameter turbine. This is slightly smaller than the large turbine design at Morlais [24 m dual rotor, output TBC] but much more similar than the earlier data from smaller designs. Risch *et al*. (2020) measured 138 dB SPL at ~60m. For the slightly larger turbines, we modelled 140-145 dB at 60 m. Thus, the projection appears reasonable.
        - D Risch, N van Geel, D Gillespie, B Wilson (2020). Characterisation of underwater operational sound of a tidal stream turbine. J. Acoust. Soc. Am. 147 (4), 2547 (2020); doi: 10.1121/10.0001124. https://asa.scitation.org/doi/pdf/10.1121/10.0001124

- *It has not been explained how the sound emanating from a single rotor is extrapolated to an array of 120 or 620 devices for the large and small rotor turbines respectively.*
    - The calculation of the noise levels from multi-device arrays uses a dedicated feature of the dBSea model (full documentation is at the dBSea website, dbsea.co.uk). Using this, the interaction of the complex sound field between multiple locations is calculated automatically.

- *It has not been explained how the use of two noise levels from a small and large rotor source adequately considers the multiple different device types within the PDE.*

    - The underwater noise modelling is indicative and provided as an example only. Further underwater noise modelling will be conducted once details are known of the types of devices to be deployed as part of the development of the EMMP post-consent, this will include the scenarios required for each phase, including, where required, the use of noise levels from different devices for multiple device scenarios.

- *We query the choice of a 142dB noise disturbance threshold as it may not be the most appropriate threshold to use. We suggest that the 120dB range is also presented to allow assessment and comparison.*

    - Underwater noise modelling results have been presented for both potential disturbance thresholds. However, as outlined above, further underwater noise modelling will be conducted once details are known of the types of devices to be deployed as part of the development of the EMMP post-consent. This modelling and assessments will be conducted based on the latest and agreed thresholds and criteria.

- *Noise modelling is presented as noise plots, but the associated data are not presented. No estimate is given of what the maximum noise disturbance range would be for an array of either small or large turbines. However, the noise model plots appear to show that disturbance at a threshold of 120dB could range to approximately 17km from the centre of the array (based on Figure 4-10 of Underwater Noise Modelling Report MOR/RHDHV/DOC/0116, F1.0, 25/03/20.)*

    - As outlined in section 4.2.3 Underwater Noise Modelling Report (document: MMC320 MOR-RHDHV-DOC-0116, submitted 27th March 2020), ranges for cumulative impact have not been calculated as there are multiple source locations, and no possible ‘start’ location for any receptor for exposure calculation. In respect of prediction of a distance to a 120 dB, we would have to decide what reference point to use – for example, a point in an array: an end of an array or the centre. This would take some time to complete. Therefore, as the underwater noise modelling is indicative and not based on actual array scenarios, this has not yet been modelled in detail. However, as outlined above, further underwater noise modelling will be conducted once details are known of the types of devices to be deployed as part of the development of the EMMP, this will include the scenarios required for each phase, including, the maximum potential impact areas for the arrays. The maximum areas of potential disturbance will be assessed to determine the potential for any significant disturbance based on operational tidal device noise levels in different conditions, for individual devices and the array of devices to be deployed, taking into account ambient noise, the different species hearing sensitivities and the latest

SNCB Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (JNCC *et al*., 2020).

- JNCC, Department of Agriculture, Environment and Rural Affairs (DAERA) and Natural England (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland). June 2020.

- *There is no information on how the ADD array will be configured and used, which ADDs would be used, how this might affect noise propagation, how ADDs might be triggered in response to marine mammals, or how disturbance from up to 40 ADDs would extrapolate across the array.*
- *An estimate of the disturbance range from operational turbine noise and ADDs is necessary to calculate the area of the likely noise disturbance 'footprint' within North Anglesey Marine SAC in order to assess the significance of this impact.*

  - Underwater noise from Acoustic Deterrent Devices (ADDs) has been based on the worst-case scenario, to provide information on the effectiveness of ADDs and that they will be audible to marine mammals above ambient noise levels.
    The use of ADDs will be considered as the final EMMP is developed post consent, in consultation with NRW. It is important to note that, ADDs would only be activated if marine mammals were in close proximity and there is a potential risk of collision. The type(s) and number of ADDs to be deployed would be based on the latest technology and information to ensure adequate and effective mitigation. Activation of the ADDs and disturbance range of the ADDs would be determined to ensure the marine mammal is beyond the range of potential collision risk, but without causing any significant disturbance or increased collision risk with other devices. ADDs would only be activated for very short periods and intermittently. There would be no long term ADD activation over a wide area. Developing the EMMP pre-construction will allow the latest technology and information to be taken into account, including lessons learned from other projects and how to develop the most effective deployment of ADDs for the Morlais site, based on the types and layout of the tidal devices for each phased deployment.

  - There is now a commitment in the revised OEMMP, that the underwater noise from ADDs will be reviewed as part of the ongoing development of the EMMP when details on the types and numbers of ADDs to be deployed are available post consent.

  - Information on how the ADDs will be configured in an array, as outlined above, will be determined in the development of the EMMP. The options for triggering the ADDs are being researched and developed, however, we are confident that this can be done in a reliable and effective way.

Up to 40 ADDs was provided as an indicative example, however, the EMMP will determine the number of location of ADDs to ensure adequate coverage of the site and effective mitigation based on the type of ADD(s) and the noise levels and potential disturbance range of the ADDs.

Worst-case assessment of up to 40 ADDs was provide in the ES, based on 1km disturbance range for each ADD with no overlap, although unlikely 40 ADDs (up to 125.6km^2) would be activated at the same time.

In the Information to Support HRA up to 10 ADDs was assessed as a worst-case for the maximum number of ADDs that could be activated at the same time. The assessment for 10 ADDs (31.4km^2) indicates potential disturbance of up to 1% of the Gogledd Môn Forol/North Anglesey Marine SAC (3,249km^2), with a seasonal average of up to 1% (based on 183 days in summer season). If multiplied up for 40 ADDs (up to 125.6km^2) this would be up to 3.8% of the North Anglesey Marine SAC area, with a seasonal average of up to 4%. Therefore, the potential disturbance of harbour porpoise in the North Anglesey Marine SAC would not exceed the current SNCB guidance for significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (JNCC *et al*., 2020), of: 20% of the relevant area of the site in any given day, or an average of 10% of the relevant area of the site over a season.

Underwater noise from operational turbines has been assessed based on the information currently available and worst-case scenarios. It is important to note that the underwater noise modelling is indicative and provided as an example only. There is now a commitment in the revised OEMMP that further underwater noise modelling will be conducted for operational turbines and ADDs once details are known of the types, noise source levels and number of devices to be deployed as part of the development of the EMMP post consent. The potential for any significant disturbance will be assessed in the EMMP, based on operational tidal device and ADD noise levels in different conditions, for individual devices and the array of devices to be deployed, taking into account ambient noise, the different species hearing sensitivities and the latest SNCB Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (JNCC *et al*., 2020). Conducting further noise modelling in the EMMP post-consent will allow it to be based on the type of tidal devices and potential noise source levels, so will be a more realistic assessment, compared to what can be conducted now based on the limited information currently available.

The undersigned agree to the provisions within this SOCG

Signed	A. Winterton
Printed Name	Andrea Winterton
Position	Marine Services Manager
On behalf of	Natural Resources Wales
Date	30/11/20

Signed	J. Learmonth
Printed Name	Jennifer Learmonth
Position	Principal Marine Mammal Consultant
On behalf of	Royal HaskoningDHV supporting Menter Môn
Date	30/11/20