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Morlais Project

Document MOR-RHDHV-DOC-0162: Statement of Common Ground – Natural Resources Wales – Other Topics excluding ornithology, marine mammals and seascape, landscape and visual effects

Applicant: Menter Môn Morlais Limited

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Revision History			
Date	Rev.	Summary of Changes	Issue Purpose
05/10/2020	D1.0	First draft for review by Menter Môn	For comment
21/10/2020	D1.1	Updated following NRW, onshore ecology, benthic & fish meetings	For comment
20/11/2020	D2.1	Updated following NRW comments	For approval
27/11/2020	F1.0	Final for NRW approval	For approval
30/11/2020	F1.1	Final for submission	Final

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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).
7. 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 consultation with NRW. It has been prepared in accordance with guidance published by the Planning Inspectorate and available from the Assembly Government's website (Welsh Government, 2019).

8. 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.
9. Menter Môn is submitting SoCG on key technical issues, including ornithology, marine mammals, seascape and landscape visual impact assessment (SLVIA), shipping and navigation. This SoCG covers all other topics within the remit of NRW and should therefore be read in conjunction with the other SOCGs of relevance to NRW.
10. 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).
11. 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 and therefore NRW’s views and position are subject to change (at least on some aspects).
12. The document presents a record of discussions and written submissions between Menter Môn and NRW. Updates will be recorded in the “Revision History” table provided on the front page of this document. This draft is provided to NRW in November 2020 for approval.
13. Once finalised, the SoCG will be submitted to the Planning Inspectorate as part of the Inquiry process under the Transport and Works Act 1992.
14. This document should be read in conjunction with the following relevant technical chapters in:
 - Volume I of the ES:
 - Chapter 7, Metocean Conditions and Coastal Processes;
 - Chapter 8, Marine Water and Sediment Quality;
 - Chapter 9, Benthic and Intertidal Ecology;
 - Chapter 10, Fish and Shellfish Ecology;
 - Chapter 17, Water and Flood Risk;
 - Chapter 18, Ground Conditions and Contamination;
 - Chapter 19, Onshore Ecology;
 - Chapter 22, Air Quality;
 - Volume III of the ES:
 - Appendix 8.1, Water Framework Directive Compliance Assessment
15. In addition, the following further technical information has been submitted during the post submission stage:
 - Metocean Conditions and Coastal Processes:

- HR Wallingford Coastal Processes Modelling report (document reference: MOR-HRW-DOC-0001, submitted 27th March 2020);
- Metocean and Physical Processes ES Supplementary Note (document reference: MOR-RHDHV-DOC-0111, submitted 27th March 2020);
- Metocean and Physical Processes Numerical Modelling Supplementary Note (document reference: MOR-RHDHV-DOC-0112, submitted 27th March 2020);
- Further information on predicted changes to currents (document reference MMC350 MOR-HRW-DOC-0002, submitted 19th October 2020)
- Marine Physical Processes (MPP) Cumulative Impacts Supplementary Note (emailed to NRW 19th November 2020, content provided in Appendix 1)
- Benthic and Intertidal Ecology:
 - Benthic and Intertidal Ecology Issues Response to NRW comments (document reference: MOR-RHDHV-DOC-0113, submitted 27th March 2020);
- Morlais Benthic – Additional Information in Response to the NRW Statement of Case (document reference: MOR-MSP-DOC-004 Further Environmental Information Benthic, Annex 1 habitats, submitted 19th October 2020);
- Fish and Shellfish Ecology:
 - Fish Ecology Issues Response to NRW comments (version 2) (document reference MOR/RHDHV/DOC/0114, submitted 3rd July 2020);
 - Fish Ecology Issues (document reference MOR/RHDHV/DOC/0127a, submitted 22nd May 2020);
 - Additional Fish Ecology Responses (document reference MOR/RHDHV/DOC/0132, submitted 3rd July 2020);
 - Additional Information to Support Habitats Regulations Assessment (migratory fish) (document reference: MOR-MSP-DOC-003, submitted 19th October 2020);
 - Outline Environmental Mitigation and Monitoring Plan (document reference MOR/RHDHV/DOC/0072 (04), submitted 18th November 2020);
- Onshore Ecology:
 - Terrestrial Ecology Assessment Update (document reference: MOR-RHDHV-DOC-0110, submitted 18th September 2020);
 - Cliff Habitat Survey Report (document reference: MOR-BSG-DOC-0001, submitted 18th September 2020);
 - Terrestrial Ecology Assessment Update (document reference: MOR-RHDHV-DOC-0110, submitted 19th October 2020);
- Air Quality:
 - Morlais Air Quality Response (document reference: MOR-RHDHV-DOC-0148, submitted 18/09/2020);
- Water Framework Directive:

- Appendix 8.1 WFD Compliance Assessment Addendum (document reference: MOR-RHDHV-APP-00126a, submitted 18th September 2020);
- Updated figures for Appendix 8.1 Compliance Assessment (document reference: MOR-RHDHV-APP-00126b, submitted 27th March 2020);
- Various topics:
- ML001 Response and signposting to ORML1938 NRW Advisory (document reference: MOR-RHDHV-DOC-0129, submitted May 2020);
- Project Design Envelope (PDE) Matrix;
- CIA Screening matrix (document reference: MOR-RHDHV-DOC-025(3), submitted 3rd July 2020);
- CIA Signposting document (document reference: MOR-RHDHV-DOC-0134, submitted 3rd July 2020);
- Addendum to CIA Chapter (document reference: MOR-RHDHV-DOC-0133, submitted 3rd July 2020);
- Non-technical summary and ES Chapter 27 Summary Addendum (document reference: MOR-RHDHV-DOC-0131, submitted 3rd July 2020);
- Morlais Draft Marine Licence Conditions (document reference MOR-ESI-DOC-0001, submitted 18th September 2020).
- Menter Môn Comments on Responses to TWAO FEI Consultation (MOR-RHDHV-DOC-0146, submitted 18th September 2020).

2. PROJECT DESCRIPTION OVERVIEW

17. 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.
18. 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).
19. 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 will be deployed in multiple arrays within the MDZ, to a maximum installed capacity of 240 MW.
20. An adaptive management approach is being adopted at Morlais, whereby a first phase of devices 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 is discussed in the Ornithology and Marine Mammal SoCGs.
21. 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.
22. 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,
- Onshore cable route between Landfall Substation, Switchgear Building and Grid Connection Substation).

3. RECORD OF CONSULTATION

23. The preparation of this SoCG has been informed by formal consultation as well as 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 are shown in **Sections 3.1** to **3.4** below.

Table 3-1 Technical Meeting Details

Meeting / Date / Attendees	Topic	Agenda	Documents sent to NRW
Physical Processes Technical Working Group. 1 st Technical Meeting Physical Processes – Response [to ES chapter] Discussion / 12.12.2019 / James Orme and Gwenan Mair Owen (Menter Môn), Frank Fortune and David Brew (RHDHV), Christopher Jones, Bryn Jones, Emmer Litt, Eleanor Howlett, Lucie Haines, Nicola Rimington and Jack Egerton (NRW)	Metoccean Conditions and Physical Processes	Discussion of NRW's response to the ES chapter and to identify and agree next steps to move forward and provide further information for the assessment.	Metoccean Conditions and Physical Processes ES chapter
Physical Processes Technical Working Group. 2 nd Technical Meeting / 24.01.2020 / James Orme and Gwenan Mair Owen (Menter Môn), Frank Fortune and David Brew (RHDHV), Juliette Parisi, Graham Siggers, Nigel Bunn and Michiel Knappen (HRW), Christopher Jones, Bryn Jones, Emmer Litt, Jack Egerton and Lucie Haines (NRW)	Metoccean Conditions and Physical Processes	Project update and discussion of HR Wallingford's proposed methodology for modelling physical and sedimentary processes.	Modelling methodology document
Physical Processes Technical Working Group. 3 rd Technical Meeting / 12.03.2020 / James Orme and Gwenan Mair Owen (Menter Môn), Frank Fortune and David Brew (RHDHV), Juliette Parisi, Graham Siggers, Nigel Bunn and Michiel Knappen (HRW), Christopher Jones, Bryn Jones, Emmer Litt, Jack Egerton and Lucie Haines (NRW)	Metoccean Conditions and Physical Processes	Discussion of HR Wallingford's physical and sedimentary processes modelling results.	Coastal Processes Modelling report
Marine Fish Technical Working Group 1 st Technical Meeting / 24.02.2020 / Danial Ellis Evans and James Orme (Menter Môn), Jonny Lewis (MarineSpace), Chris Jones, Bryn Jones, and Rowland Sharp (NRW).	Fish and Shellfish Ecology	Meeting to share and discuss Morlais' initial responses to	

Meeting / Date / Attendees	Topic	Agenda	Documents sent to NRW
		NRW's comments on marine fish	
Marine Fish 2 (Anadromous ¹) 2 nd Technical Working Group / 02/03/2020 / Danial Ellis Evans and James Orme (Menter Môn), Jonny Lewis (MarineSpace), Chris Jones, Joel Rees Jones, and Richard Pearce (NRW).	Fish and Shellfish Ecology	Meeting to share and discuss Morlais' initial responses to NRW's comments on anadromous fish	
Onshore Ecology Technical Working Group. 1st Technical Meeting Onshore Ecology – Response [to ES chapter] Discussion / 13.12.2019 / James Orme (Menter Môn), Frank Fortune and Jen McMillan (RHDHV), Chris Jones, Sally Ellis, Heather Lewis, Patrick Lindley (NRW)	Onshore Ecology	Discussion of NRW's response to the ES chapter and to identify and agree next steps to move forward and provide further information for the assessment.	Onshore Ecology ES chapter
Onshore Ecology Technical Working Group. 2nd Technical Meeting Onshore Ecology – 28.02.2020 / James Orme and Gwenan Mair Owen (Menter Môn), Gordon Campbell, Helen Riley (RHDHV), Chris Jones, Sally Ellis, Patrick Lindley (NRW)	Onshore Ecology	Project update and potential impacts to chough, vegetated seacliffs and Holy Island Coast SAC/SPA/SSSI	PB5034-RHD-ZZ-XX-NT-Z-1000: Updated assessments for terrestrial ecology (excluding chough) in response to comments made on the Environmental Statement by NRW and RSPB: draft for discussion

¹ Anadromous = term for fish that are born in freshwater; migrate to the sea for adult phase and then return to freshwater to spawn.

Meeting / Date / Attendees	Topic	Agenda	Documents sent to NRW
			<p>in meeting schedules 28/2/2020</p> <p>PB5034-RHD-ZZ-XX-NT-Z-1001: Updated assessments for chough in response to design refinement and to comments made on the Environmental Statement by NRW and RSPB: draft for discussion at NRW meeting scheduled for 28/02/2020</p>
Fish Ecology Meeting – 08.10.20	Fish Ecology	Discussion on conclusions of EIA/HRA re: migratory fish and challenges / options for fish collision monitoring	None
Benthic Ecology Meeting – 09.10.20	Benthic Ecology	Discussion on EIA benthic characterisation survey; proposed mitigation; and pre-construction survey	None
Cliff Ecology Meeting (Onshore Ecology) – 09.10.2020 / James Orme and Sarah Livett (Menter Môn), Gordon Campbell (RHDHV), Chris Jones, Sally Ellis (NRW)	Onshore Ecology	Potential impacts to vegetated seacliffs and Holy Island Coast SAC/SPA/SSSI in light of	Updated assessments for terrestrial ecology (excluding chough) in response to comments made on the Environmental

Meeting / Date / Attendees	Topic	Agenda	Documents sent to NRW
		further ES Update.	Statement by NRW and RSPB (version 03)
Benthic Ecology Meeting – 06.11.20	Benthic Ecology	Marine Biodiversity Enhancement Strategy document – objectives and content	ABP and MarineSpace reports (for NRW) related to marine biodiversity enhancement options



3.1. METOCEAN CONDITIONS AND COASTAL PROCESSES

Table 3-2 Statement of Common Ground – Metocean Conditions and Physical Processes

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Environmental Impact Assessment (EIA) – Baseline Environment					
Baseline	Oct 2020	The existing environment has been characterised appropriate in the ES and FEI to allow assessment of the impacts	The baseline characterisation of suspended sediment, sediment regime and morphology have been greatly expanded upon allowing an informed view on construction and operation scenarios.	Agreed	
Impact Assessment Conclusions					
Worst-case Scenarios	Oct 2020	The worst-case scenarios used in the assessment are appropriate and represent the Rochdale Envelope presented in Chapter 4 of the ES. This includes a conservative assessment of the numbers, layout and types of devices within the MDZ	<p>The worst-case wave modelling scenario has considered 60 floating devices in the southern permissible section of the array (which have an increased blockage effect on waves), 310 seabed-mounted devices and associated infrastructure. As advised in previous Technical Working Group (TWG) meetings with the applicant, this will constrain the project's design as this is the worst case that has been assessed for this topic.</p> <p>The clarification of the worst-case scenario for surface emergent devices (MOR/RHDHV/DOC/0143, 1.0, 22/05/20) is accepted. We note that the applicant does not believe a device limit should be a quantitative factor, rather the limit of 30MW per berth and the maximum of 4 berths being available within the southern section of the development zone. NRW's position remains that as long as the worst-case scenario has been assessed, the project is not showing significant environmental changes due to wave interactions over the project area.</p>	Agreed	
Impact Assessment Method	Oct 2020	The impact assessment methodologies used provide an appropriate approach to assessing	A modelling suite of hydrodynamic, wave and sediment modelling has been completed for the	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		potential impacts of the proposed project. In particular, the assessment ran wave, tidal current and sediment transport models to assess the impacts of the worst-case scenarios for each of these parameters	known worst-case scenarios for coastal processes. We are confident that these can now be used to assess the project's impact.		
Zone of Influence	Oct 2020	The total zone of influence of the effects of the devices are presented at both large and small scales to capture all the influence	We are satisfied that, with the modelling carried out, the project's zone of influence has now been assessed and all protected sites where changes in physical processes could be detrimental have been considered.	Agreed	
Cumulative Impact Assessment (CIA)	Oct 2020	The plans and projects considered within the CIA are appropriate and the potential cumulative impacts of each have been adequately assessed and quantified. In particular, the tidal current and sediment transport cumulative effects with Holyhead North disposal site (part of the old Holyhead Deep disposal site) are now negligible impact rather than no pathway to impact (see Appendix 1).	<p>Cumulative impacts with any of the Holyhead port proposals (which includes increased tonnage to Holyhead deep disposal ground) have been assessed as 'no pathway to impact'. We believe the developments and zones of impact are proximal and due to the assessments being based on complex modelling they should consider any inter-relationships from changes in hydrodynamics, waves and sediment pathways.</p> <p>A post-meeting note was made in draft minutes from a Benthic ecology meeting with NRW on 09/10/2020; 'Following consideration of NRW comments the tidal current and sediment transport cumulative effects with Holyhead North is amended and now classified as 'negligible impact' rather than 'no pathway to impact'.</p> <p>NRW advisory have reviewed the Supplementary Note 'PB5034-RHD-ZZ-XX-NT-Z-1008' provided by the applicant dated 18/11/2020. The note refers to the tidal current and sediment transport cumulative effects with Holyhead North disposal site. The applicant has changed the assessment to 'negligible impact' rather than 'no pathway to impact'.</p>	Agreed.	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			We can agree on the assessment of 'negligible impact' based on the information presented.		
Mitigation and Monitoring					
South Stack Sand Bank	Oct 2020	In the updated project design the South Stack sand bank feature will be avoided by all cables, and hence there will be no direct impact on its functioning within the wider system	We welcome that the applicant has avoided any footprint within the South Stack banner bank and therefore any direct impacts to this feature can be discounted. Bespoke sediment modelling has shown sediment pathways to be minimal and localised.	Agreed	
Outline Environmental Mitigation and Monitoring Plan (EMMP)	Oct 2020	Pre- and Post- construction bathymetry surveys and Acoustic Doppler Current Profiling (ADCP) will be undertaken in the vicinity of devices for engineering purposes. Menter Môn would, in principle, be happy to work in collaboration with NRW to explore the potential for these surveys to be used to monitor coastal processes and the potential for collaborating with academic research.	<p>There is currently no monitoring proposed for physical processes within the Outline Environmental Mitigation and Monitoring Plan (EMMP). We would expect a development of this scale to ensure the conclusions of the environmental assessment, which are based on complex modelling, are as predicted. We recommend the applicant proposes an appropriate monitoring plan in agreement with NRW, that will then inform adaptive management requirements thereafter.</p> <p>NRW's advisory position remains that whilst no significant effects have been predicted to protected habitat and species and/or WFD changes in hydromorphology <i>via</i> changes in metocean conditions and physical processes, the assessment was based on complex modelling.</p> <p>NRW advise the results are verified through monitoring with adaptation considered and available if measurable unpredicted negative impacts are observed through agreed trigger thresholds.</p>	Ongoing	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			<p>Modelling of the nature provided can mean that uncertainty and error are apparent and potentially significant in the assessment undertaken. NRW advise that any predictive impact assessment of such a large scale and novel project is duly monitored.</p> <p>NRW advisory are encouraged to see a change in position regarding monitoring of physical changes observed at the site pre and post construction and during operation, which then may be related back to the predictive modelling assessments undertaken. We recommend adaptation be considered and available if measurable unpredicted negative impacts are observed through agreed trigger thresholds.</p> <p>Further discussion is needed with the applicant regarding a formal plan and whether the intention is adequate in scope to address residual uncertainties due to the physical process and hydromorphology impact assessments; which in turn inform other receptor assessments, being based on complex modelling.</p> <p>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.</p>		



3.2. BENTHIC AND INTERTIDAL ECOLOGY

Table 3-3 Statement of Common Ground – Benthic and Intertidal Ecology

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Environmental Impact Assessment (EIA) – Baseline Environment					
Description of baseline environment	Oct 2020	<p>Baseline description of the benthic and intertidal study area is provided through a literature review and site-specific surveys.</p> <p>Literature review</p> <p>Prior to site-specific surveys, a detailed desk-based study was conducted to support the scope of works, survey design and regional characterisation. The resources used to inform assessment included, but were not limited to:</p> <ul style="list-style-type: none"> • Marine Life Information Network (MarLIN); • Consultation responses; • UK SeaMap data 2010 (McBreen <i>et al.</i>, 2011); • British Geological Survey (BGS) data; and • Published and unpublished literature. <p>Site Survey</p> <p>To characterise the benthic ecology of the offshore site and the surrounding area, and to allow identification of possible Habitats Directive Annex I/II habitats/species, subtidal and intertidal surveys were conducted in August and September 2018. These surveys involved the collection of marine data including high resolution seabed imagery, grab samples, core samples, quadrat data and aerial imagery to</p>	Specific comments provided below.	Ongoing	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>enable the collation of a detailed biotope map of the MDZ.</p> <p>Sampling stations for general seabed classification purposes were spread throughout the survey area to ensure representative coverage of all predicted habitats identified in the review of geophysical data.</p>			
Site survey	Oct 2020	<p>The Morlais (2018) benthic surveys were undertaken in order to characterise the site for EIA purposes, including defining the range and extent of sensitive habitats of conservation importance.</p> <p>A standard approach was taken, in line with EIA characterisation surveys undertaken for other marine energy projects, including Perpetuus Tidal Energy Centre (PTEC), Gywnt y Mor Offshore Wind Farm (OWF) and Burbo Bank Extension OWF.</p> <p>The number of ground-truthing stations sampled (42) was judged by the highly experienced survey contractor (Ocean Ecology Limited (OEL) to be sufficient to identify the spatial distribution of all seabed habitats. The number and location of these stations was based on:</p> <p>(a) an initial diamond grid of stations based on relevant guidance documents;</p> <p>(b) revision of this original grid following an initial interpretation of sidescan sonar (SSS) and multibeam echosounder (MBES) backscatter data that existed in this region. These revisions resulted in additional stations being added and located at potential transitions</p>	NRW considers that the habitat characterisation surveys undertaken to inform the ES are inadequate to enable a sufficiently comprehensive and accurate assessment of the potential effects of the proposal on marine benthic ecology. Therefore, it is not currently possible to assess with certainty the full extent of potential marine benthic habitat loss and/or alteration as a result of the proposal.	Not agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>between substrates, at key areas of development (along the cable corridor and Abraham's Bosom), and within a 1 km buffer zone up- and down-stream of the development; and</p> <p>(c) further review of updated SSS and MBES backscatter data collected in the first phase of the 2018 survey (Partrac, 2018) to sense check the proposed survey design.</p> <p>From the 42 stations sampled, a total of 277 still images were collected along with over 220 minutes of video footage.</p> <p>The data produced from this survey has, in our opinion, achieved this objective. Following consent, a full Annex I reef survey and assessment will be conducted to inform pre-construction and consideration of any micro-siting that may be required to avoid any reef features.</p> <p>See additional comments added below with respect to use of Valued Ecological Receptors (VERs) and how this represented an overly precautionary assessment of habitat loss on Annex I habitats.</p>			
Impact Assessment Conclusions					
Consideration of 'undesigned' qualifying Annex I reef habitat	Oct 2020	<p>The proposed approach was intended to identify and characterise Annex I habitats. This will be applied both to designated and undesignated reef structures.</p> <p>To ensure a worst-case scenario assessment was presented within the Morlais ES, the areas identified as potential Annex I stony, biogenic</p>	NRW consider that the impacts of development or activities on 'undesigned' Annex I reef (including biogenic and bedrock/stony reef) habitat outside SACs should be assessed and adverse effects minimised or mitigated as far as possible.	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>and bedrock reef were grouped into two Valued Ecological Receptor (VER) categories; VER 9 - High energy infralittoral and circalittoral rock/coarse sediment with Annex I stony/bedrock reef; and VER 10 (Circalittoral Sabellaria reefs – Annex I biogenic reefs).</p> <p>The impact assessment undertaken assumed that all the subtidal habitat loss occurred within these 2 VER habitat groups (judged to be the most sensitive to habitat loss). Assumption of all loss in the 2 VER habitat groups is highly conservative but was adopted to purposefully avoid claims that the assessment was attempting to downplay potential impacts on those habitats.</p> <p>In practice, the actual loss of those habitat will be less than assessed by the EIA as some of the habitat loss will instead occur in non-Annex I habitats, i.e. non VER 9 / 10 habitats.</p>			
Assessment of impacts on Annex I habitats	Oct 2020	<p>The benthic survey methodology was designed to identify and characterise Annex I habitats. A standard approach was taken, and in line with EIA characterisation surveys undertaken for other marine energy projects, including Perpetuus Tidal Energy Centre (PTEC), Gwynt y Mor Offshore Wind Farm (OWF) and Burbo Bank Extension OWF.</p> <p>An important point to note is that assessment of potential impacts to Annex I habitats was highly precautionary. The majority of the area within the direct project footprint (2.06 km²) comprises the swept area of any catenary chains/cables possibly required as part of the overall project. In many areas, the movement of these chains/cables will not actually lead to a</p>	<p>Surveys have confirmed that the subtidal environment within and surrounding the MDZ constitutes a complex assortment of subtidal biotope mosaics, including Annex I stony reef, biogenic reef and bedrock reef. These three habitats are protected under the Habitats Directive, the Environment (Wales) Act 2016, and the OSPAR Convention. NRW consider that a lack of data on the distribution of these habitats within the MDZ means that it is not possible to accurately assess the full extent of potential habitat loss and/or alteration as a result of the proposal.</p> <p>Considering the overall 2.23 km² direct footprint of the proposal (excluding indirect</p>	Ongoing	The draft Marine Licence conditions (which are subject to agreement by NRW Permitting Service) will be amended to include commitment to additional mitigation measures, where scope for micro-siting is limited. See below for full details.



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>permanent loss of habitat, rather some temporary disturbance.</p> <p>The actual amount of habitat that will definitely be lost over the project lifetime i.e. areas where foundations / mooring blocks / cable protection etc. will be initially deployed / installed via repowering, is 177,576 m² (0.17 km²). This latter figure equates to 0.42% of the overall OfDA area of 39.75 km².</p> <p>It should also be noted that using the method of grouping certain habitats into VERs, >99% of the OfDA was assigned within the EIA as being either Annex I biogenic reef and/or Annex I stony/cobble reef. Due to this high % of the site being classified as these habitats, the assessment of habitat loss assumed that it all occurred on these habitats.</p> <p>On a practical level, if an even more detailed survey had been undertaken at the EIA characterisation stage, it would likely have resulted in a lower % of the overall site being assigned as these Annex I habitats, resulting in turn in a more realistic, i.e. less precautionary, assessment than was presented in the ES.</p>	<p>localised/microhabitat effects as a result of the device structures) and the limited evidence presented in relation to the assessment of potential impacts on Annex I features and OSPAR/Section 7 habitats, we are currently unable to agree with the assessment downgrading the impact from 'moderate' to 'minor' adverse as a result of post-consent mitigation measures until the results of pre-commencement surveys are available and the feasibility of the micro-siting as a mitigation measure confirmed.</p>		
Mitigation and Monitoring					
Adequacy of micro-siting mitigation	Oct 2020	<p>The applicant commits that, as far as practical from an operational and tidal resource perspective, micro-siting will be used for the TECs and related infrastructure, as well as the cable route. It is expected that this commitment for micro-siting will be included in any future Marine Licence conditions. It is important to note that the ability to micro-site tidal energy converters (TECs) is more limited than for offshore wind farms (OWFs), as TECs must be</p>	<p>The applicant proposes that the baseline characterisation information would be supplemented by a post-consent/pre-construction Annex I reef survey and assessment. There is also an assumption that any outstanding issues, including a commitment to micro-site project infrastructure, would be dealt with via the Marine Licensing process. However, NRW consider that it is not clear where micro-siting would be applied and</p>	Ongoing	<p>Additional mitigation measures will be employed in instances where scope for micro-siting is limited (subject to pre-consent agreement from NRW). Based on discussions with NRW on</p>



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>located where the tidal resource is available. However, as the distribution of reef habitat is patchy, micro-siting is likely to be possible throughout most of the MDZ.</p> <p>Although limitations such as the availability of tidal resource may preclude micro-siting in rare instances, it is expected that the overall effect of the micro-siting mitigation will be sufficient to reduce the significance of impacts on Annex I habitats from moderate to minor adverse. Therefore, the applicant maintains that the impact assessment for this receptor is correct.</p> <p>However, in recognition of NRW's points about needing some form of "secondary" mitigation measure should micro-siting not reduce habitat loss impacts to an acceptable level, an Outline Marine Biodiversity Enhancement Strategy has been produced for review by NRW.</p>	<p>whether it would be implemented for the tidal devices as well as the cable route.</p> <p>The applicant states that: "micro-siting of the cable route would be used to mitigate impacts to these receptors where possible"; however, at the same time the applicant acknowledges that "the ability to micro site Tidal Energy Converters (TECs) is more limited than for Offshore Wind Farms (OWFs)". Due to this limited scope to adjust the placement of the TECs and the potential scale of benthic habitat loss (c. 2.3km²) in relation to the availability of habitat, NRW consider that it is not possible, in the absence of detailed pre-consent habitat surveys, definitively to assess now whether this proposed mitigation would be feasible and effective in avoiding/minimising impact to Annex I/section 7 habitats.</p> <p>Therefore, and in the absence of further pre-consent habitat surveys, we would welcome a commitment to implement biodiversity enhancement measures for project infrastructure, where loss of sensitive habitat features cannot be avoided. This should be demonstrated through the provision of a draft 'Biodiversity Enhancement Strategy' to be approved by NRW prior to consent.</p>		<p>benthic issues (09/10/2020), it is expected that mitigation may include work to investigate biodiversity enhancement of project structures, in particular: TEC foundations; cable protection and anchor / mooring structures (i.e. in accordance with the ongoing EcoStructures project (http://www.ecostructureproject.eu)).</p> <p>This commitment will be captured through addition of the following wording within the proposed draft Marine Licence conditions, subject to agreement by NRW Permitting Service:</p> <p><i>"Where it is not possible to avoid damage/loss of Annex I habitats via micro-siting, then further mitigation via biodiversity enhancement of seabed structures will be investigated and implemented in agreement with NRW".</i></p>



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
					Applicant to provide an outline biodiversity enhancement strategy for NRW's approval prior to consent.
Pre-construction survey requirement	Oct 2020	The Applicant would be happy to accept (and expects) a condition requiring a further full Annex I reef survey and assessment at a higher resolution post-consent/pre-construction within any Marine Licence issued for this project. This will enable the full extent of <i>Sabellaria spinulosa</i> reef to be determined closer to actual installation works and will be used to inform the placing of infrastructure, highlighting areas which should be avoided entirely and areas where micro-siting should be used to minimise impacts on protected habitats. These surveys will be conducted in line with Gubbay (2007) standards.	NRW advise that a pre-commencement condition to undertake pre-construction benthic and intertidal habitat surveys should be included with any consent in order to ensure that the location and extent of benthic and intertidal habitats of conservation importance can be accurately assessed and the feasibility of the proposed micro-siting mitigation confirmed.	Agreed	
Horizontal Directional Drilling (HDD)	Oct 2020	HDD is Menter Môn's preferred option and the secondary option of trenching in the intertidal zone will only be used if HDD is not possible.	Given the presence of Annex 1 habitat features, sub-features and Section 7 habitats in relation to the areas associated with the cable landfall we maintain that HDD would be our preferred option. Should HDD not be achievable as part of the cable landfall options, NRW would expect that any impact on Annex 1 or Section 7 intertidal habitats should be incorporated as part of the biodiversity enhancement strategy.	Agreed	
Invasive non-native species	Oct 2020	The applicant proposes that submission of an Outline Invasive Non-native Species Management Plan(s) to NRW is included as a condition of any future Marine Licence. The contents of this Plan will require approval from	We acknowledge recognition of the need to undertake a biosecurity risk assessment and management plan to mitigate the ingress and spread of marine invasive non-native species (INNS) in relation to the project. However, we	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>NRW prior to commencement of works, and as such this measure is considered adequate to address this concern.</p> <p>Following recent comments from NRW in relation to potential use of Holyhead Port/Marina, and the fact that this location is judged to be a high-risk area for INNS, the Applicant is able to confirm that specific measures related to the risk of INNS from this location will be included in the final INNS Plan to be produced pre-construction (post-consent).</p>	<p>advise that a biosecurity risk assessment and management plan is completed in relation to all development activities, including construction, operation and decommissioning phases. This should also consider potential in-combination effects with other marine licensable developments where an increase in shipping in relation to construction activities may be concentrated around current hotspots for marine INNS e.g. Port of Holyhead and specifically in relation to reducing the risk of spread of <i>Didemnum vexillum</i>.</p>		

3.3. FISH AND SHELLFISH ECOLOGY

Table 3-4 Statement of Common Ground - Fish and Shellfish Ecology

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Environmental Impact Assessment (EIA) – Baseline Environment					
Species to be considered in baseline environment, and data sources.	Oct 2020	<p>The presence of spawning and nursery grounds for different fish and shellfish species local to the MDZ were identified using the following sources: Pawson and Robson (1996), Coull <i>et al.</i> (1998), Ellis <i>et al.</i> (2012), and Aires <i>et al.</i> (2014).</p> <p>A 'long list' of all potential species in the study area was created based on Ellis <i>et al.</i> (2002) and the Horizon Nuclear Power report (HNP, 2018) and then refined to a 'short list' that only included species with preferences for habitat that can be found within the MDZ (based on depth and sediment type). The list was further refined by only including species of nature conservation, key life stages and/or commercial importance.</p>	NRW note Menter Môn's position on the baseline environment and consider it sufficient for the purposes of undertaking the EIA for the project.	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>Four species of pelagic fish were identified as part of the 'eastern inshore assemblage' of the Irish Sea by Ellis <i>et al.</i> (2002). These were sprat <i>Sprattus sprattus</i>, Atlantic herring <i>Clupea harengus</i>, Atlantic mackerel <i>Scomber scombrus</i> and horse mackerel <i>Trachurus trachurus</i>.</p> <p>Of these species, sprat is not of conservation or commercial importance and the species was not considered further.</p> <p>The long list of shellfish species found in the area was determined from Pierce <i>et al.</i> (2005), landings data from ICES Rectangle 35E5, consultation with local fishermen, the scoping document (Royal HaskoningDHV, 2018), and the HNP (2018a) report. The long list was then narrowed down to species for which the MDZ presents suitable habitat, followed by those which are of nature conservation, commercial, or key life stage importance.</p> <p>Migratory fish species were included in the assessment of baseline environment if any part of their known migratory pathway overlaps with the Project site.</p>			
Impact Assessment Conclusions					
Electro-magnetic effects (EFSs) on edible crabs	Oct 2020	<p>Impacts of EMFs on fish are assessed in the ES and no significant impacts are predicted.</p> <p>Further evidence in support of this conclusion was provided in the Further Environmental Information (FEI) document (ref: MOR/RHDHV/DOC/0114) submitted to in response to NRW comments (dated 31/10/2019).</p>	The FEI provided for electro-magnetic effects on edible crabs is sufficient to allow impact assessment.	Agreed	
Particle effects on fish and invertebrates	Oct 2020	Impacts of particle motion on fish and invertebrates are assessed in the ES and no significant impacts are predicted.	The FEI provided for particle effects on fish and invertebrates is sufficient to allow impact	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		Further evidence in support of this conclusion was provided in the Further Environmental Information (FEI) document (ref: MOR/RHDHV/DOC/0114) submitted to in response to NRW comments (dated 31/10/2019).	assessment.		
Fish Aggregating Devices (FADs) on fish and shellfish larvae	Oct 2020	Potential for floating devices to act as fish aggregating devices (FADs) and cause impacts through increased fish, shellfish and predator numbers is assessed in the Further Environmental Information (FEI) document (ref: MOR/RHDHV/DOC/0114) submitted in response to NRW comments (dated 31/10/2019). It is predicted that there will be no significant impacts from this.	The FEI provided for Fish Aggregating Devices on fish and shellfish larvae is sufficient to allow impact assessment.	Agreed	
Larvae and turbulence	Oct 2020	The effects on larvae from turbulence associated with the increased wake surrounding the proposed devices numbers is assessed in the Further Environmental Information (FEI) document (ref: MOR/RHDHV/DOC/0114) submitted to in response to NRW comments (dated 31/10/2019). It is predicted that these turbulence effects will not cause significant impacts.	The FEI provided for turbulence effects is sufficient to allow impact assessment.	Agreed	
Underwater noise	Oct 2020	Site-specific underwater noise modelling has been undertaken following NRW comments dated 13/05/2020. The assessment is based on risk to the most sensitive fish hearing group, which is considered the worst-case scenario. All predicted effects were below this threshold, and it is concluded that subsea acoustic emissions will not result in significant impacts on fish populations.	Addressed in the revised 'Fish Ecology Issues: Responses to NRW comments' document (MOR/RHDHV/DOC/0114, D2.0, 03/07/20).	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Collision risk	Oct 2020	<p>The absence of available information on collision risk between Atlantic salmon and project infrastructure, which was discussed further in stakeholder meetings between Menter Mon (the Applicant), MarineSpace (EIA consultants) and NRW fish technical officers.</p> <p>Consideration of desk-based collision estimates produced in support of the MeyGen tidal energy project in the Pentland Firth, Scotland have been summarised in the Further Environmental Information (FEI) document (ref: MOR-RHDHV-DOC-0114). However, it is noted that a lack of available and relevant data on salmonid migration around the Welsh coastline precluded delivery of robust, evidence-based collision risk modelling for this region.</p> <p>Given that the proposed project will not create a permanent barrier to migration, and the majority of the water column in and around the MDZ will remain available for fish movement, it is considered that there is limited justification for requiring such detailed risk modelling.</p> <p>An effective assessment of collision would require a coordinated approach between developer and NRW to collate relevant information on migratory fish populations and pathways. These are key topics that relate to overall fisheries management, which the Applicant notes is the remit of NRW. This further highlights the need for a coordinated approach to the issue. Menter Môn would, in principle, be happy to work in collaboration with NRW and other organisations to further develop ideas as to how best explore this issue.</p>	<p>The Applicant acknowledges that migratory fish, including salmon, are likely to pass through the development area and therefore will be at risk of collision with deployed devices. This risk can be assumed to be highest for fish from the nearest SAC site of Afon Gwyrfa i Llyn Cwellyn.</p> <p>As stocks of Atlantic salmon are at a historic low, NRW considers that any additional anthropogenic loss of salmon could constitute a likely significant adverse effect. As a result, based on the information presented, NRW could not conclude that the proposal would not have an adverse effect on site integrity.</p> <p>Given the risk of collision we advised that migratory fish are included in the oEMMP (MOR-RHDHV-DOC-0072(03), F5.0, 03/07/20), which should include outline plans for monitoring collision and interaction of fish with devices.</p> <p>On 20 October 2020, the applicant submitted a document entitled 'Additional Information to Support Morlais Habitats Regulations Assessment (migratory fish)' (Ref: MOR-MSP-DOC-003). In this document the applicant recognises the significant risk of collision and provides additional information for a Habitats Regulations Assessment (Stage 2: Appropriate Assessment) to be carried out.</p> <p>Based on the further information submitted by the applicant NRW can agree that the proposal will not cause adverse effects on site integrity on sites designated for Annex II migratory fish.</p>	Agreed	The Applicant commits to undertaking a level of monitoring that is intended to provide evidence to support the conclusions determined in the Project ES and Report to inform Appropriate Assessment.



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>The Morlais outline EMMP (oEMMP) has been amended and submitted on 2nd November 2020 to include requirement that video footage collected for assessment of interactions between marine mammals/seabirds and TECs will also be reviewed and analysed to identify if they also contain potential information on behaviour of migratory fish.</p> <p>The objectives of this analysis will be to (a) detect any migratory fish in proximity of the TEC devices; (b) describe any observed avoidance behaviour; (c) identify any interactions between turbine blades and migratory fish, and (d) where possible determine the consequence of any collisions, should any occur.</p> <p>The Applicant commits to make all data collected during monitoring available for use by researchers with the aim of supporting develop this broader understanding of interactions between TECs and migratory fish.</p> <p>The Applicant also recognises the need to develop a more strategic approach to developing the understanding of potential interactions between migratory fish and tidal energy projects. It is proposed that the Applicant works with NRW to investigate how strategic-level work, including potential tagging studies of migratory fish within Welsh coastal waters, similar to that done by Marine Scotland Science, could be started in Wales.</p>	<p>The applicant submitted an updated oEMMP dated 02/11/20, which includes migratory fish. While NRW are in broad agreement with the updated document, we wish to see all of the commitments agreed in our meeting of the 08/10/2020 and referred to in the adjacent Actions column included. These include the potential for tagging of migratory fish, and the wider commitment to work strategically to address evidence gaps, which are not reflected fully in the oEMMP as it stands. Our full comments on the oEMMP will be provided in our formal response to PINS regarding the latest round of additional environmental information.</p>		



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Impacts to freshwater pearl mussel	Oct 2020	The Applicant considers that the potential significance of impacts to freshwater pearl mussel (FWPM) is in parallel with impacts to Atlantic salmon. As minor adverse effects are predicted for Atlantic salmon, it is expected that the effects on FWPM will not exceed minor adverse. This conclusion applies to FWPM equally as an environmental receptor and as a designated feature of SACs in the region.	Addressed in the revised 'Fish Ecology Issues: Responses to NRW comments' document (MOR/RHDHV/DOC/0114, D2.0, 03/07/20).	Agreed	

3.4. ONSHORE ECOLOGY

Table 3-5 Statement of Common Ground – Onshore Ecology

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Environmental Impact Assessment (EIA) – Baseline Environment					
Habitats and species to be considered in baseline environment, and data sources.	Comments from NRW on first draft of ecology note MOR-RHDHV-DOC-0110, provided 19/03/2020	<p>Baseline environment was determined by desk based assessment (including review of aerial photographs and maps, review of designated sites and details from Cofnod (the local biological record centre for North Wales).</p> <p>A number of dedicated field surveys were also undertaken by experienced ecologists:</p> <ul style="list-style-type: none"> Initial Phase 1 habitat Survey (using the Joint Nature Conservation Committee (JNCC) Phase 1 habitat survey methodology (JNCC, 2010); Habitat Suitability Index (HIS) assessment for great crested newt (using methodology described in Oldham et al. 2000); 	<p>NRW requested that the existing vegetation in the location of Options A, B and C be surveyed to determine a baseline. NRW suggested a Phase II National Vegetation Classification (NVC) Survey (by NRW approved contractors with relevant qualifications and experience in surveying vertical cliff face vegetation). NRW recommended that the NVC survey should extend at least 20m from the cliff top inland and should finish at break of slope on the seaward side and that fixed point photographs should be used as part of the survey procedure.</p> <p>In order to make an assessment of the impacts of the proposal NRW advised that a botanical survey utilising roped-access to the cliff face should be carried out by a suitably-qualified botanist as NRW did not consider that the use of</p>	Agreed	Further pre construction ecology surveys (including for invasive non native species (INNS), protected or notable species / habitats) will be undertaken post consent prior to construction works to confirm presence of these species / habitats at time of construction. NRW will be consulted on methodology and results, and any further



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<ul style="list-style-type: none"> eDNA survey for great crested newt (using methodology described in Williams, 2013; Biggs et al., 2014) Extended phase 1 Habitat Survey (JNCC, 2010); and Badger Survey (Neal & Cheeseman, 1998). <p>Following responses from NRW (19/03/2020) requesting an NVC survey, a botanical survey of cliff vegetation was undertaken in June 2020 following methods described in Rodwell et al. (2000) to understand the species and habitats present and to advise on further micro-siting. The survey scope was discussed and agreed with NRW as outlined in the survey report (Document reference MOR-BSG-DOC-001). With regards to potential route options (A,B,C) Options B and C were discounted prior to application due to significant areas of fractured rockface (B) and access restrictions for construction machinery / proximity to only public right of way to beach (C). Both Options B and C would also require impacting a larger section of cliff and vegetation than Option A. A is the most stable area for pinning the cables to.</p> <p>A pre-construction survey for invasive non-native species and for notable plant species <i>Allium ampeloprasum</i> and small-flowered catchfly <i>Silene gallica</i> will be undertaken prior to construction, with mitigation for these species detailed in the Invasive Species Management Plan (see below) and EAP, including eradication of invasive prior to works, and protective measures for areas of notable plant species.</p>	<p>a drone alone would give adequate resolution to identify small specimens of rare plants. It was stipulated that the survey should include photography of the cliff face to give an idea of density of the plant growth.</p> <p>NRW also requested the botanical survey identify the extent of <i>Allium ampeloprasum</i> alongside the road near SH217816 and the small-flowered catchfly <i>Silene gallica</i> and also to note any INNS - <i>Crocodymia</i> and <i>Hebe</i> species are both present to the east of the preferred route A.</p> <p>NRW acknowledge the Botanical survey was carried out along corridor route A.</p> <p>Any INNS present in the development zone should be killed/removed prior to construction.</p> <p>NRW acknowledges the commitment to undertaking a pre-construction survey for notable plants and INNS.</p>		mitigation required (eradication of INNS, further micro-siting etc)
Impact Assessment Conclusions					



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Invasive non native species	Response by NRW to ES – provided 31/10/2019 / Response to ML additional application documents – 18/09/2020 / NRW Proof of Evidence – 02/11/2020	<p>Document reference MOR-RHDHV-DOC-0110 provides updated mitigation to consider the known knotweed stands at the site and any INNS subsequently recorded, including measures to prevent spread. It also includes specific mention of management of <i>Oxalis articulata</i>, recorded during the Botanical (NVC) survey of the cliff.</p> <p>Document reference MOR-RHDHV-DOC-0110 now specifically mentions that management of invasive species will take place prior to works. This includes confirmation that eradication will occur in advance of works. Details for this mitigation will be included in the Invasive Species Management Plan, drafted post-consent and secured through planning condition.</p>	<p>ES Chapter 19 Onshore Ecology, F3.0 July 2019, (Document reference MMC071 MOR-RHDHV-DOC-0037) Paragraph 348 mentions a pre-construction survey of INNS and then states that an INNS management plan specific to knotweed will be produced. NRW Advisory recommended that the INNS management plan should address any INNS found during the survey, not just knotweed.</p> <p>ES Chapter 19 Onshore Ecology, F3.0 July 2019, (Document reference MMC071 MOR-RHDHV-DOC-0037), Paragraph 349: NRW Advisory recommended that the treatment of known knotweed stands in or adjacent to the development zone during the season before work commences would be good practice. Since the works involve excavation of a trench and possible dispersal of root material there is a significant risk of spreading knotweed during the construction and/or operational phase. NRW made the applicant aware that it is an offence to spread knotweed and must adopt robust policies and good working practices to address this.</p> <p>We welcome the commitment in Section 7.1.2 of the Terrestrial Ecology Assessment Update (4) MMC0353 MORRHDHV-DOC-0110 to produce an Invasive Species Management Plan and to manage INNS identified during the project within 10m of the onshore development area prior to the start of the construction phase. This plan should cover not just those species listed on Schedule 9 of the Wildlife and Countryside Act, 1981, but any invasive species found on site.</p>	Agreed	Preconstruction survey for INNS to be undertaken, and management plan to be produced.



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			The Invasive Species Management Plan should also include the operational phase in addition to the construction phase. Seeds or other propagules may be brought on site during maintenance works or routine operations on any part of the system, including the J-tubes and the substation. Risks are low, but impacts could be significant if a new invasive species were introduced to the designated sites.		
Holy Island Coast SSSI/SPA/SAC habitat loss	Comments from NRW on second draft of ecology note MOR-RHDHV-DOC-0110, provided 13/05/2020 / Response to ML additional application documents – 18/09/2020 / NRW Proof of Evidence – 02/11/2020	<p>We do not consider the proposed project to cause a significantly adverse impact on the SSSI or an adverse effect on the integrity (AEIOI) on the basis it is a small-scale impact with no change to the form and function of the designated features of the SAC. This is further discussed in Section 6 and 9 of document reference MOR-RHDHV-DOC-0110.</p> <p>Additional site selection work has undergone following the results of the botanical cliff survey report (document reference MOR-BSG-DOC-001) to further reduce the footprint of works on the vegetated cliff feature and methodology has been reviewed to remove the need to disturb the cliff feature during maintenance activities.</p> <p>We have assessed on the worst case that the vegetation will be impacted within the entire footprint for the duration of the project but is anticipated to recover over time following decommissioning of the cables and associated infrastructure on the cliffs.</p> <p>Noted NRW position that compensation is still required for a small percentage impact to Annex I SAC habitat – MM position remains that this is a de minimis effect (see above) and habitat enhancement will be delivered through commitments to biodiversity net gain.</p>	<p>The assessment (MOR-RHDHV-DOC-0110, provided 13/05/2020) concludes that 0.046% of the designated SAC Annex 1 habitat feature will be affected by the worst-case scenario (of securing the cables to the cliff face using J-tubes secured by rock bolts), including the working zone at each side and refers to this as a de minimis impact. NRW disagree that the impact will be de minimis. Compensation will be necessary, even for this small percentage impact.</p> <p>We note that the potential for permanent loss of the Annex I habitat from the SAC associated with the worst-case scenario has been reduced to a small percentage of the vegetated sea cliff habitat as a whole. However, this still represents a loss of Annex I habitat from the site. We consider this to be a significant loss when considered as a proportion of the crevice- and-ledge and maritime therophyte vegetation element of the Annex I habitat represented on the site.</p>	Not agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Construction methodology	Response by NRW to ES – provided 31/10/2019 / Response to ML additional application documents – 18/09/2020	Methodology updated in Section 5 and assessment updated in Section 6 of document reference MOR-RHDHV-DOC-0110 to provide greater clarity. The J-tubes and rock bolts will be robustly designed accounting for the exposed environment. Both high yield and stainless steel are seen as providing a robust option for the rock bolts. We therefore would not expect replacement or maintenance works to be required for well in excess of 4 years following installation (i.e. design life is well in excess of 4 years).	Although there is a preference expressed for Horizontal Directional Drilling (HDD) there relatively little information provided about the alternative trenching method and what there was, was inconsistent. NRW requested clarity on the working method. Section 5.2.1 of the Terrestrial Ecology Assessment update (MOR-RHDHV-DOC0110, F1.0, 26/03/20) states that rock bolts would typically be made of high-yield steel or stainless steel, but at an increased cost. We advised that durability should be the overriding concern in order to avoid having to re-bolt the J-tubes during the life of the project in order to protect the cliff habitat from unnecessary maintenance works.	Agreed	
Decommissioning	Response by NRW to ES – provided 31/10/2019	Assessment updated in Section 6 of document reference MOR-RHDHV-DOC-0110 includes for decommissioning activities	Previously there was no mention of the J-tubes which, if used, would presumably be removed and be part of the decommissioning plan referred to. Further clarification was sought on this. NRW welcome the commitment to apply the same mitigation during decommissioning as that proposed to be applied during construction.	Agreed	
Site selection	Comments from NRW on first draft of ecology note MOR-RHDHV-DOC-0110, provided 19/03/2020	The project engineers (Black & Veatch) determined that Option A has the greatest stability for allowing the engineering of pinning the cables to cliff. Options B and C were discounted prior to application due to significant areas of fractured rockface (B) and access restrictions for construction machinery / proximity to only public right of way to beach (C). Both Options B and C would also require impacting a larger section of cliff and vegetation than Option A. A is the most stable area for pinning the cables to.	NRW sought clarity over the reasons why Option A has been selected over Options B and C, as from Figure 1 it appears that a larger area of vegetated vertical sea cliff would be affected compared to Option C and to a lesser extent Option B. We would value seeing the process and reasons as to why Options B and C have been ruled out. NRW acknowledge the explanation provided.	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>A figure (Figure 1) has been provided with Version 2 of the Terrestrial Ecology Assessment Update (document reference MOR-RHDHV-DOC-0110) showing the location of the drawpits with respect to the habitat surrounding the SAC/SSSI. The drawpits are not located within the vegetated sea cliff habitat, although in the current design two drawpits are located within the unimproved grassland habitat landward of the cliff. This habitat has been confirmed through the Botanical (NVC) Survey to not be part of the Annex 1 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts habitat.</p> <p>There is flexibility to microsite these draw pits during construction to ensure that they remain outside the unimproved neutral grassland, the location of which is indicated in Figure 1 of the Terrestrial Ecology Assessment Update (version 04) (document reference MOR-RHDHV-DOC-0110).</p>	<p>Two of the proposed draw pits are located within unimproved neutral grassland. This is a valuable supporting habitat without which the designated habitats would be poorer.</p> <p>The botanical survey indicates that the unimproved neutral grassland is species rich and supports numerous maritime species. Therefore, if micro-siting is possible for the draw pits then it should be carried out.</p>	Agreed	
Storage of materials and equipment	<p>Response by NRW to ES – provided 31/10/2019</p> <p>/ Response to ML additional application documents – 18/09/2020</p>	<p>Section 5 of document reference MOR-RHDHV-DOC-0110 includes no storage in the designated site boundary.</p> <p>Short sections of the trench will be opened up at a time and backfilled before moving on and therefore the stockpile areas are deemed to be appropriate.</p>	<p>ES Chapter 19 Onshore Ecology, F3.0 July 2019, (Document reference MMC071 MOR-RHDHV-DOC-0037), Table 19-16: Landfall options refer to removal of 900m³ of material for HDD or 8,800m³ for trenching. NRW Advisory sought clarification on where this would be stored. If the trench is 10m wide x 550m long soil storage will require a very large area which has not, to our knowledge, been identified. This could have impacts on protected habitats and species such as chough.</p> <p>Materials and plant should be stored outside the designated sites' boundary. There should be no need for storage within the designated sites.</p> <p>The Terrestrial Ecology Assessment update (MORRHDHV-DOC-0110, F1.0, 26/03/20) stated that Drawing 2 (Ref: 122938-BVL-Z0-</p>	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			<p>00DRZ-00003) now shows stockpile areas. However, we remained concerned that these may not be adequate unless only very small sections of trench are to be opened at any time.</p> <p>It is now proposed to install the cables in trenches in sections; back filling each section as cables are installed replacing the top soil / turf as soon as practicable to reduce the time turf is stored set out in the Terrestrial Ecology Assessment Update (4) MOR-RHDHV-DOC-0110).</p> <p>There is also a commitment to employ an Ecological Clerk of Works (ECoW) who will work with the contractor to ensure work areas are micro-sited into the least sensitive habitat.</p>		
	Response to ML additional application documents – 18/09/2020	Seeding would not be undertaken with non-native seed, and such provisions can be included within the EAP, to be agreed post-consent.	Section 6.1.2 of the Terrestrial Ecology Assessment update (MOR-RHDHV-DOC0110, F1.0, 26/03/20) referred to seeding of stockpiles of soil in order to prevent dust/run off. NRW stated that the SAC/SSSI should not be seeded with any non-native seeds which could be washed or blown into the SAC/SSSI and become established. NRW recommended that any non-native grass used for this purpose should be a sterile hybrid to prevent production of seed which could spread.	Agreed	
Construction dust from installation activities on the cliff	Comments from NRW on first draft of ecology note MOR-RHDHV-DOC-0110,	The scale and difficulty of the work favours using lightweight drilling equipment that adopts air as the flushing medium. It will likely be percussive drilling methods that are used with air flush, which will produce dust.	NRW requested that an assessment of potential impacts on cliff vegetation from the dust from drilling be carried out. Including an assessment of lubricants if these are required for the drilling.	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	provided 19/03/2020 / NRW Proof of Evidence 02/11/2020	<p>Percussive drilling will not be detrimental to the cliff face and should produce a neat round hole. It will probably produce dust and cuttings some of which may be blown away whilst some may fall by gravity rather like sand. Dust extraction equipment will be used during construction (see below), to minimise the risk of dust release during drilling works (See Section 5 of document reference MOR-RHDHV-DOC-0110).</p> <p>Although dust extraction measures will be in place, to further minimise the risk to sensitive habitats from residual dust generated by the works, a Dust Management Plan (DMP, see below) will be prepared which will include monitoring and control measures to be adhered to during construction . As described in version 04 of the Terrestrial Ecology Assessment Update (document reference MOR-RHDHV-DOC-0110), these will include:</p> <ul style="list-style-type: none"> - Commitment to use drilling equipment fitted or in conjunction with suitable dust suppression techniques; - Details of dust monitoring - for works on the cliff on for dust generating activities within the wider project – undertaken during construction, and remedial measures employed should agreed thresholds be breached; - Restriction of weather conditions when dust generating activities on the cliff face are acceptable (i.e. during damp days). <p>Full details of the measures which will be included in the DMP are provided in version 04 of the Terrestrial Ecology Assessment Update (document reference MOR-RHDHV-DOC-0110).</p>	<p>In order to install up to 9 rock bolts (1 per J-tube) we understand that approximately 2.2m³ of rock would have to be drilled out. This could cause significant dust with the potential to smother plants downslope/downwind of the drilling site. The applicant previously stated that dust extraction may be possible, but that this would depend on the contractor. We did not consider this an adequate approach: if the detailed vegetation survey revealed species which could be vulnerable to dust, we advised that such species would need to be protected during drilling works. Should percussive drilling not be possible an assessment of the impacts of lubricants would be required.</p> <p>A dust management plan and a pollution control plan have now been proposed. NRW previously did not consider that sufficient detail had been provided about which measures were considered feasible, in this difficult working environment, to give confidence that there would be no impact on these Annex I habitats from dust. Further information has been provided in the Terrestrial Ecology Assessment Update (4) MMC0353 MORRHDHV-DOC-0110 relating to what will be considered within the Dust Management Plan (“DMP”), Code of Construction Practice MOR/RHDHV/DOC/0076 and the Pollution Prevention Management Plan (“PPMP”) MOR/RHDHV/DOC/0077. With these measures implemented the residual risk of adverse indirect effects to the Annex I vegetated sea cliff habitat would be lower. There should be agreement between the applicant and NRW of measures to be included within these documents, secured by planning condition.</p>		



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Dust from general onshore construction activities	Comments from NRW on second draft of ecology note MOR-RHDHV-DOC-0110, provided 13/05/2020 / NRW Proof of Evidence – 21/11/2020	Within the ES, risk of dust impacts to ecological receptors, including the SAC, were assessed to be high during earthworks, low during construction activities and medium from track out from Heavy Goods Vehicles (HGV) movements, as set out in Section 6 of doc MOR-RHDHV-DOC-0110. Mitigation measures are proposed within Chapter 22 Air Quality of the ES which are anticipated to reduce these impacts down to a non-significant level. These measures will also be captured within the DMP (see below).	There is a risk of indirect effects on both the Annex I vegetated sea cliff and European dry heath habitats through aerial deposition of dust during the construction phase for both the HDD option and the cable and trench option. This should be prevented by a robust pollution prevention management plan. A dust management plan and a pollution control plan have now been proposed. NRW previously did not consider that sufficient detail had been provided about which measures were considered feasible, in this difficult working environment, to give confidence that there would be no impact on these Annex I habitats from dust. Further information has been provided in the Terrestrial Ecology Assessment Update (4) MMC0353 MORRHDHV-DOC-0110 relating to what will be considered within the Dust Management Plan (“DMP”), Code of Construction Practice MOR/RHDHV/DOC/0076 and the Pollution Prevention Management Plan (“PPMP”) MOR/RHDHV/DOC/0077. There should be agreement between the applicant and NRW of measures to be included within these documents, secured by planning condition. With these measures implemented the residual risk of adverse indirect effects to the Annex I vegetated sea cliff habitat would be lower.	Agreed	
Overall dust impacts	Comments from NRW on second draft of ecology note MOR-RHDHV-DOC-0110,	Further information has been submitted to NRW in July 2020 providing the results of the Botanical Survey of Cliff Vegetation, which identifies the location and distribution of qualifying features of the SSSI/SAC within the area surrounding the works. The assessment presented in Chapter 22 Air Quality of the ES notes that construction activities on the cliff face are dust generating activities, and that these will	We considered that impacts of dust had not been adequately assessed due to a) an apparent lack of acceptance that drilling will cause significant dust and b) a lack of knowledge of what vegetation is present on the development route; therefore, we could not be certain of the conclusion that impacts are likely to be low. In order to address this, we	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	provided 13/05/2020	require construction mitigation measures to be in place to minimise the potential effects upon the SSSI/SAC. These are proposed to be captured in a Dust Management Plan (DMP) developed once a contractor has been appointed produced post-consent. Document reference MOR-RHDHV-DOC-0110 has been updated (Section 6) to provide further information as to the potential measures which could be included in the DMP. This includes details of dust suppression techniques, dust monitoring during construction, remedial measures in the events of dust release. It includes measures applicable to dust sensitive receptors on the cliff and within other areas of the SSSI/SAC (e.g. lowland heath).	suggested that dust deposition outside the boundary of the works be subject to a condition that it must not exceed a specified level considered to be a nuisance in residential areas. This could be controlled via a dust management plan. Further information has been provided in the Terrestrial Ecology Assessment Update (4) MMC0353 MORRHDHV-DOC-0110 relating to what will be considered within the Dust Management Plan ("DMP"), Code of Construction Practice MOR/RHDHV/DOC/0076 and the Pollution Prevention Management Plan ("PPMP") MOR/RHDHV/DOC/0077. With these measures implemented the residual risk of adverse indirect effects to the Annex I vegetated sea cliff habitat would be lower. There should be agreement between the applicant and NRW of measures to be included within these documents, secured by planning condition.		
Indirect effects to cliff and heathland vegetation – sediment laden run off	Response to additional ML application documents – 18/09/2020 / NRW Proof of Evidence – 02/11/2020	Section 6 of document reference MOR-RHDHV-DOC-0110 provides mitigation in the form of control measures for the sediment laden run-off to minimise the pathway of an impact. The measures proposed are intended to reduce the risk of pollutant release down to negligible levels, giving rise to impacts which are non - significant in EIA terms. The impact assessment was initially conducted assuming that sensitive plant species could potentially be present within the cliff adjacent to the clifftop works, under a precautionary approach. The findings of the Botanical Survey of Cliff Vegetation undertaken in July 2020 show that particularly rare or notable species have not been identified immediately adjacent to the clifftop works. Habitats which constitute the Annex I habitat 1230	There is a risk of indirect effects on both the Annex I vegetated sea cliff and European dry heath habitats through run-off of contaminants or sediment laden water during the construction phase for both the HDD option and the cable and trench option. The Annex I vegetated sea cliff vegetation would also be vulnerable to raised nutrient levels or smothering by silty run-off arising from excavated spoil or muddy conditions in the working area. Impacts could also arise from changes to the natural flow of water down the cliff face. This should be prevented by robust pollution prevention and a drainage management plan A drainage management plan and a pollution control plan have been proposed. Further	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>Vegetated sea cliffs of the Atlantic and Baltic coasts (i.e. MC1, MC5 and MC8) are present across the cliff, however these habitats are separated from the clifftop works by a strip of blackthorn-dominated scrub habitat.</p> <p>We disagree with the residual low risk, once the PPMP is in place.</p> <p>The draw-pits are located within neutral grassland outside the SAC boundary. The Botanical Survey identified it as a species-rich grassland showing evidence of some limited improvement, and most closely associated with NVC community MG1 (<i>Arrhenatherum elatius</i> grassland). As a worst case, it has been classified as unimproved grassland for the purposes of the Terrestrial Ecology Assessment Update (v04).</p>	<p>information has also since been provided in the Terrestrial Ecology Assessment Update (4) MMC0353 MORRHDHV-DOC-0110 relating to what will be considered within the Code of Construction Practice MOR/RHDHV/DOC/0076 and the Pollution Prevention Management Plan ("PPMP") MOR/RHDHV/DOC/0077. With these measures implemented the residual risk of adverse indirect effects to the Annex I vegetated sea cliff habitat would be lower. There should be agreement between the applicant and NRW of measures to be included within these documents, secured by planning condition.</p>		
Consistency of the PDE across documents	Comments from NRW on second draft of ecology note MOR-RHDHV-DOC-0110, provided 13/05/2020 / Response to additional ML application documents – 18/09/2020	<p>ES Chapter 4 represents the Project Description that was assessed in the ES.</p> <p>Further information has been submitted to NRW in July 2020 providing information on the latest refined design and mitigation (document reference MOR-RHDHV-DOC-0135).</p>	<p>We welcome the changes made to the revised PDE matrix spreadsheet, making it more consistent with the other supporting documents.</p>	Agreed	
Conservation Objectives	Comments from NRW on second	Document reference MOR-RHDHV-DOC-0110 has been updated to include reference to the SAC Management Plan.	Section 9 of the Terrestrial Ecology Assessment Update and the Information to Support an HRA, regarding conservation objectives for the SAC,	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	draft of ecology note MOR-RHDHV-DOC-0110, provided 13/05/2020		has not referred to the SAC management plan so should be updated with reference to this document. NRW acknowledge this has now been addressed.		
Interactions with seascape / landscape assessment	Comments from NRW on second draft of ecology note MOR-RHDHV-DOC-0110, provided 13/05/2020	The pre-construction vegetation survey will inform the development of the screening proposals to be included in the Landscape Management Plan. The Landscape Management Plan will be secured by condition of the TWAO and must be approved by the Planning Authority.	The Seascape, Landscape and Visual Impact Assessment Response document refers to planting to screen J-tubes where they rise 2m above the cliff edge. This may not be compatible with the vegetated sea cliff feature of the Holy Island Coast SAC, where low-growing grasses and dwarf shrubs such as heather or herbaceous plants would be more appropriate. The pre-construction vegetation survey of this area should be completed before any plans are made regarding appropriate planting. A photomontage may help to inform the requirements for screening.	Agreed	
Mitigation and Monitoring					
Approach to mitigation		All mitigation measures are outlined in version 04 of the Terrestrial Ecology Assessment Update (Document reference MOR-RHDHV-DOC-0110). Key areas of mitigation include: <ol style="list-style-type: none"> 1) Micrositing <ol style="list-style-type: none"> a) To avoid heath habitat of the SAC; b) To cross the SAC at as narrow a section as possible, taking into account engineering/technical limitations regarding cliff stability; c) To microsite the cables through the least vegetated section of designated cliff; 	Detailed positions on mitigation are provided below.	See below	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<ul style="list-style-type: none"> d) To microsite onshore works away from sensitive areas; 2) Refinement of design <ul style="list-style-type: none"> a) To reduce the footprint of construction and operation works; b) To install and decommission by hand to allow for care and further micrositeing; c) To minimise direct impacts onto the cliff through bolting of cables; d) To minimise impacts through refined maintenance regime; e) To cross sensitive linear features (hedgerows and cloddiau) through trenchless crossings 3) Implementation of plans and control measures including <ul style="list-style-type: none"> a) Dust Management Plan; b) Pollution Prevention Management Plan; c) Construction Phase Plan; d) Soil Management Plan; e) Turf Management Plan; f) Ecological Action Plan (including for habitat restoration and management of invasive species); g) Management of stockpiles and construction activities to mitigate sediment laden run-off; and h) Supervision of works in ecologically sensitive areas by an EcoW. 			



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Lighting	Response by NRW to ES – provided 31/10/2019	Mitigation updated in Section 7.1 of document reference MOR-RHDHV-DOC-0110 includes guidance for lighting	We questioned whether the level of permanent lighting at the substations (110 Lux) was low enough.	Agreed	
Hedgerow and Cloddiau	Response by NRW to ES – provided 31/10/2019	Mitigation updated in Section 7.1 of document reference MOR-RHDHV-DOC-0110 to use trenchless crossings for cloddiau and any sensitive / important hedgerows	<p>We advised that further work to reduce the impact on hedgerow and cloddiau due to their removal was made - possibly using HDD at these locations. NRW would expect that if the removal of any hedgerow or cloddiau cannot be avoided, a licenced ecologist or Environmental Clerk of Works (ECoW) should be on site to provide the necessary expertise. The qualifications, licencing and contact details for this person should be forwarded to the discharging authority and NRW as early as possible. NRW would expect this person to be the main point of contact for all ecological matters during this work.</p> <p>NRW acknowledge the commitment made to using trenchless methods to cross cloddiau or sensitive hedgerows and to reinstate hedgerows where these are disturbed to the same or higher quality using native species as set out in section 7.1 of the Terrestrial Ecology Assessment V4.</p> <p>NRW welcomes the commitment to employing an ecological clerk of works.</p>	Agreed	
Ecological Clerk of Works	Response by NRW to ES – provided 31/10/2019	Mitigation updated in Section 7.1 of document reference MOR-RHDHV-DOC-0110 includes for EcoW details to be sent to NRW	NRW requested that details of the ecological clerk of works, along with their qualifications, licencing and contact details should be forwarded to the discharging authority and NRW as early as possible. NRW Advisory would expect this person to be the main point of contact for all ecological matters during this work.	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			NRW acknowledges the commitment by the applicant to provide EcoW details.		
Maintenance activities	Comments from NRW on first draft of ecology note MOR-RHDHV-DOC-0110, provided 19/03/2020 / NRW Proof of Evidence – 02/11/2020	<p>The Terrestrial Ecology Assessment Update (version 04) (Document reference MOR-RHDHV-DOC-0110) states that mitigation has already been implemented, in the form of micro-siting, reduction of footprint and adaptation of methodology. A potential Biodiversity Net Gain Initiative is discussed under residual impact and in Section 8 of the Terrestrial Ecology Assessment Update (version 04) (Document reference MOR-RHDHV-DOC-0110).</p> <p>Further details provided in the Terrestrial Ecology Assessment Update (version 04) (Document reference MOR-RHDHV-DOC-0110) state a commitment for maintenance access to be via hand holds affixed to the J-Tubes, with no disturbance of the cliff or associated vegetation to take place during maintenance.</p>	<p>Under the secondary option, i.e. trenching, beyond the measures already made to avoid and minimise direct impacts upon the SAC/SSSI features through micro-siting, reduction of footprint and adaptation of methods to be used during construction, no further mitigation is considered to be successful upon the sea cliff habitat due to ongoing disturbance through 5 yearly maintenance activities.</p> <p>New information has been provided within the Ecology Assessment Update (4) MMC0353 MOR-RHDHV-DOC-0110) relating to maintenance of the cables and J-tubes during the operational phase. The applicant has provided an updated methodology for the maintenance of the J-tubes and integral cables attached to the cliff face, using a crane at the top of the cliff to support a lowered platform from which work will be carried out in order to minimise interaction with the cliff face. With this further information NRW now accepts that the risks of impacts from maintenance activities during the operational phase within the SAC would be minor adverse</p>	Agreed	
Habitat restoration	Response by NRW to ES – provided 31/10/2019 / NRW Proof of Evidence – 02/11/2020	Assessment updated in Section 6 of the Terrestrial Ecology Assessment Update (version 04) Document reference MOR-RHDHV-DOC-0110. Biodiversity net gain is discussed in Section 8 of document reference MOR-RHDHV-DOC-0110.	ES Chapter 19 Onshore Ecology, F3.0 July 2019, (Document reference MMC071 MOR-RHDHV-DOC-0037), Paragraphs 220-224 appear to assume that loss of habitat can be compensated for elsewhere, although this is not explicitly stated. The proposed Habitat Management Plan proposals appear to be similar to other proposals that NRW Advisory has seen but given the nature of the sea cliff	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			<p>habitat likely to be lost it is difficult to see how new habitat could be created.</p> <p>NRW Advisory also has significant concerns about the suggested ease of reinstatement of disturbed vegetation, including vegetated sea cliff habitat, in such a challenging environment.</p> <p>The mosaic of vegetation and bare rock on the cliff face, as described in the botanical survey at the location identified for potential cabling, is an example of good quality Annex I Vegetated sea cliff habitat of high conservation value. The survey report (Miller 2020) identifies rock crevice vegetation, maritime therophyte vegetation and maritime grassland communities on the cliff face, in mosaic with bare rock.</p> <p>NRW does not consider that it would be possible to create like-for-like habitat to compensate for the loss of Annex I vegetated sea cliff habitat. If alternative locations for the cables are not considered feasible, NRW considers that some degree of compensation could potentially be achieved through enhanced management of areas of clifftop habitat to restore areas of improved grassland along the top to maritime grassland, unimproved or semi-improved neutral grassland and heath.</p> <p>The details relating to location, long term management and methods would be subject to agreement with NRW.</p>		



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	Comments from NRW on first draft of ecology note MOR-RHDHV-DOC-0110, provided 19/03/2020	<p>Further information has been submitted to NRW in July 2020 (for the ML application) providing information on additional mitigation (document reference MOR-RHDHV-DOC-0135).</p> <p>Habitat restoration is proposed in Section 6 of document reference MOR-RHDHV-DOC-0110. Any replanting will comprise species suitable to the area, particularly near the boundary of the SAC.</p> <p>Reseeding will be agreed in advance with NRW.</p>	<p>Neutral grassland at the top of the cliff was mapped as heathland by CCW's phase 1 surveyors in the past. It may be a heath/grassland mosaic and, if so, restoration to heath rather than grassland would be preferred.</p> <p>Any replanting should comprise species suitable to the area, particularly near the boundary of the SAC.</p> <p>NRW recommends that seeds should be collected in late summer and in some areas it may be preferable to reseed using material "Rytecced" from local heathland.</p> <p>NRW does not consider that it would be possible to create like-for-like habitat to compensate for the loss of Annex I vegetated sea cliff habitat. If alternative locations for the cables are not considered feasible, NRW consider that some degree of compensation could potentially be achieved through enhanced management of areas of clifftop habitat. Given that it is not like-for-like replacement and the likelihood that some of the habitat enhancement may not be successful in this hostile environment, NRW believe that a greater area than that to be lost should be allocated for enhancement. NRW would welcome further discussions with the applicant about this.</p> <p>The applicant proposes to restore the scrub/grassland mosaic habitat at the top of the cliff within the boundary of the SAC/SSSI and the Onshore Development Area with heath species to support restoration of the heath habitat in this area, subject to agreement with NRW. Restoration of this small area alone is not considered to be adequate because</p>	Ongoing	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			although it would benefit from management it is unimproved habitat of value.		
	Comments from NRW on second draft of ecology note MOR-RHDHV-DOC-0110, provided 13/05/2020	<p>Heath habitat restoration is proposed within the maritime grassland / scrub mosaic habitat where the boundary of the Onshore Development Area overlaps the SAC/SSSI. Grassland outwith the boundary of the SAC/SSSI is currently managed by mowing and will be restored using the methodology outlined in the Turf Management Plan. Further details are provided in Section 6 of document reference MOR-RHDHV-DOC-0110.</p> <p>A nursery will be commissioned and this is committed to in Section 7 of document reference MOR-RHDHV-DOC-0110.</p>	<p>NRW welcomed the commitment in the Terrestrial Ecology Assessment Update to restore "agreed areas" to grassland or heathland as appropriate using locally-sourced seed/vegetation. However, we were unable to locate a plan of these "agreed areas". NRW noted that the subsequent section on turf management appears to propose a different method to restore damaged areas, but we presume that this would apply across the wider development site. Clarification is required on this.</p> <p>NRW noted the Terrestrial Ecology Assessment Update's commitment to use native species of local provenance for reinstatement. NRW advised that a nursery is commissioned to grow this material specially for the project as local provenance stock is unlikely to be widely available.</p> <p>NRW welcomes the commitment to commission a nursery to grow plant material of local</p>	Agreed	Turf Management Plan to be developed, in consultation with NRW



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			provenance for restoration of cliff top habitats as set out in the Terrestrial Ecology Assessment Update (4) MMC0353 MOR-RHDHV-DOC-01		
	Comments from NRW on second draft of ecology note MOR-RHDHV-DOC-0110, provided 13/05/2020	Works on the cliff will be undertaken by hand to minimise impacts and will be supervised by a suitably qualified ECoW. Further details are provided in Section 6 of document reference MOR-RHDHV-DOC-0110	<p>The Terrestrial Ecology Assessment Update's reference to habitat recovery being possible assumes that there will still be a source of propagules. However, during the construction/installation phase vegetation and pockets of soil with seeds may be lost from the cliffs. If this is the case, recovery could take a considerable time. Mitigation to reduce this loss should therefore be considered as part of the Method Statement.</p> <p>New information has been provided within the Ecology Assessment Update (4) MMC0353 MOR-RHDHV-DOC-0110) relating to maintenance of the cables and J-tubes during the operational phase. The applicant has provided an updated methodology for the maintenance of the J-tubes and integral cables attached to the cliff face, using a crane at the top of the cliff to support a lowered platform from which work will be carried out in order to minimise interaction with the cliff face. NRW believes that this would decrease the risk of loss of soil, seeds and propagules.</p>	Agreed	
	Response to ML additional application documents – 18/09/2020 / NRW Proof	The Applicant is intending to enter into a biodiversity net gain initiative in consultation with NRW post-consent. This would involve habitat enhancement on the cliff top through restoration of some areas of improved or semi-improved grassland along the top of the cliff, as suggested by NRW. This activity is	The applicant proposes to micro-site the J-tubes on the cliff to minimise the impact on the cliff vegetation. The Botanical Survey confirmed that it is unlikely that the loss of the Annex I vegetated sea cliff habitat can be avoided if cabling were attached to the cliff face. At best, micro-siting would minimise rather than avoid	Ongoing	Outline biodiversity enhancement proposals to be agreed between both parties prior to consent.



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
	of Evidence – 02/11/2020	intended to be undertaken post-consent and plans to be included in the EAP.	<p>damage to the Annex I vegetated sea cliff habitat.</p> <p>NRW does not consider that it would be possible to create like-for-like habitat to compensate for the loss of Annex I vegetated sea cliff habitat. If alternative locations for the cables are not considered feasible, NRW consider that some degree of compensation could potentially be achieved through enhanced management of areas of clifftop habitat. Given that it is not like-for-like replacement and the likelihood that some of the habitat enhancement may not be successful in this hostile environment, NRW consider that a greater area than that to be lost should be allocated for enhancement.</p> <p>We note the statement in the Terrestrial Ecology Assessment update that works to undertake biodiversity net gain would be reliant on both survey and consultation with NRW and would welcome engagement in such discussions.</p>		

3.5. AIR QUALITY

Table 3-6 Statement of Common Ground – Air Quality

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Environmental Impact Assessment (EIA) – Baseline Environment					
Available information	ES Chapter – 16/09/2020	The most up-to-date information available from the Isle of Anglesey County Council and the North Wales Combined Authority on air quality, dust deposition monitoring and background pollutant concentrations has been used to inform the baseline environment.	No comment	No comment	
Impact Assessment Conclusions					



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Vessels should be included in impact assessment	FEI TWAO Response – 18/09/20	Offshore emissions from vessel activity were scoped out of the assessment based on the limited potential for significant air quality effects; this was agreed by the Planning Inspectorate in the scoping opinion. However further information is provided in the Air Quality Response (document MMC188 MOR-RHDHV-DOC-0148, submitted 18 th September 2020)	We note that the applicant's Air Quality Response document (ref. MMC-188 MOR-RHDHV-DOC-0148, v.F1.0, 18/09/20) confirms that offshore emissions from vessel activity were scoped out of the EIA based on the limited potential for significant air quality effects, and that this was agreed by the Planning Inspectorate in their scoping opinion. We acknowledge the further details provided about this and consider that no likely significant effect (LSE) can be assumed from this aspect.	Agreed	
In-combination assessment	FEI TWAO Response – 18/09/20	<p>The cumulative impact assessment undertaken in Chapter 22 of the ES provided quantification of the number of traffic movements anticipated to be generated by the Project, in addition to in-combination traffic flows generated by other small-scale plans and projects. These traffic flows were found to be significantly below the appropriate screening criteria (1,000 vehicles per day or 200 Heavy Duty Vehicles (HDVs) per day). As such, significant impacts are unlikely to occur, and a detailed assessment was not required.</p> <p>With regards to industrial and agricultural emission sources, the proposed biomass facility at Holyhead Eco Park was the only industrial source of emissions identified; whilst an outline planning application was consented for this project in 2016, it is understood that the project is currently on hold. As such, there may not be any temporal overlap, however, if they were to overlap, due to its size the facility would require an Environmental Permit to operate, and it would be required to meet specified emission limits to prevent significant impacts to receptors.</p> <p>The assessment therefore considered the in-combination impact of traffic flows which were found</p>	Considering the Wealden case and the Dutch Nitrogen European Court of Justice rulings regarding in-combination air quality assessment, we note that the applicant has explained that the predicted traffic flows will be significantly below the screening criteria and therefore no LSE are predicted (ref. MMC-188 MOR-RHDHV-DOC-0148, v.F1.0, 18/09/20). The applicant also confirms that there are no other major projects that are anticipated to increase traffic flows to result in the screening criteria being exceeded. The Holyhead Eco Park biomass facility, although granted permission, is currently on hold so there is no predicted overlap with the MDZ at present. The applicant confirms that if they were to overlap, the biomass facility would require an Environmental Permit to operate and would be required to meet specified emission limits to prevent significant impacts to receptors. We currently have no further comment to make on in-combination air quality impacts.	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		to be sufficiently low in magnitude as to not require further detailed assessment. Emissions from other sources are not anticipated to have a significant in-combination impact at ecological receptors. This information is provided in the Air Quality Response (document MMC188 MOR-RHDHV-DOC-0148, submitted 18 th September 2020)			
Mitigation and Monitoring					
Mitigation	ES chapter – 16/09/2019	A suite of best-practice mitigation measures has been identified including dust minimisation and suppression methods. Impacts during construction and operation of the proposed development are therefore not significant.	No comment.	Agreed	

3.6. WATER FRAMEWORK DIRECTIVE

Table 3-8 Statement of Common Ground – WFD

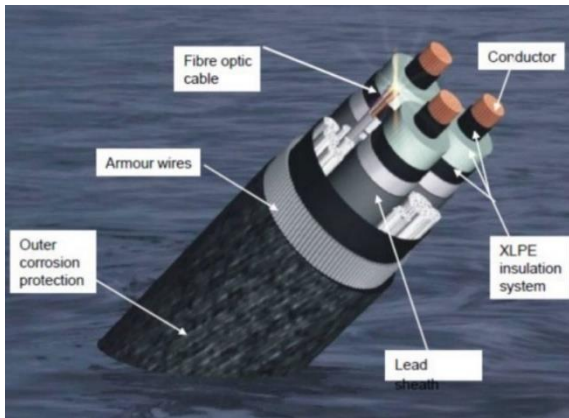
Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Compliance Assessment					
Assessment methodology	07/09/2020	The risk of impacts from the proposed project upon Water Framework Directive (WFD) receptors has been assessed in accordance with requirements of the Directive. It is concluded that the proposal will not cause deterioration in status of any WFD water body, nor jeopardise any water body from achieving the targets set out under the WFD.	A revised Water Framework Directive (WFD) compliance assessment has been provided, which incorporates the outputs from the hydrodynamic modelling and addresses concerns raised by NRW. We can confirm that the assessment of potential effects of the project on the status and objectives of the WFD is adequate	Agreed	
Assessment conclusions	07/09/2020	The WFD assessment is supported by updated hydrodynamic modelling data outputs in order to support assessment of construction operations on WFD water bodies.	Robust hydrodynamic, wave and sediment transport models have now been provided. The outputs of the additional hydrodynamic modelling demonstrate that the potential effects on the hydromorphology of the Caernarfon Bay North	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
			waterbody from the placement of physical structures are significantly below the threshold which would trigger concern of a risk to the current status of the waterbody. We are satisfied that the modelling and assessment that underpins this have now been sufficiently completed and evidenced.		
Receptor identification	07/09/2020	The WFD assessment considers impacts in terms of risk to deterioration/prevention of attainment of the WFD objectives and impacts to the WFD elements.	The revised WFD compliance assessment has correctly considered all WFD surface waterbodies within the potential zone of influence of the project and has provided the required context. It is apparent that the guidance documents provided to the applicant intended to support the WFD compliance assessment process have been followed.	Agreed	
Zone of influence	07/09/2020	The WFD assessment considers all water bodies within an appropriate zone of influence based on outcomes from hydrodynamic modelling.	Based on the FEI, which includes the HR Wallingford Coastal processes modelling report and the Metocean and Physical Processes Numerical Modelling Supplementary Note, we are satisfied that the project's zone of influence has been adequately defined and evidenced.	Agreed	
Changes in suspended sediment concentration	07/09/2020	The WFD assessment is informed from hydrodynamic modelling outputs, including modelled changes to sediment transport and deposition caused by changes in tidal flow or wave regime. No significant change in sediment deposition is concluded for all WFD water bodies considered in the assessment.	There appears to be no assessment of the long-term impacts on suspended sediment concentrations (SSC) as a result of an array of operational devices within Table 1.1 of the WFD compliance assessment. However, we note the discussion about this in the Metocean and Physical Processes ES Supplementary note (section 3.2, p. 1) and agree that the currents will remain fast enough to keep the sediment in suspension.	Agreed	
Decommissioning	07/09/2020	The WFD assessment concludes that decommissioning effects from the proposed works will not cause deterioration in status of any WFD water body, nor jeopardise any water body from achieving the targets set out under the WFD.	Decommissioning effects have now been considered within the revised WFD compliance assessment. While the information provided is limited, we agree that these are not expected to pose a risk to the status or objectives of the Caernarfon Bay North WFD waterbody.	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Cable content specifications	07/09/2020	<p>Details of cabling specifications has not yet been confirmed. However, cables will be industry standard, and similar to cables widely used on other offshore renewables developments (see diagram below). Based on evidence from installation of similar cables at other developments, these are not considered to pose a risk to the environment through chemical contamination.</p> <p>Up to nine export cables will be installed between the MDZ and the landfall. The size of the cables will be dependent on a number of factors. The required conductor size will be primarily determined by the necessary current carrying capacity, which is influenced by transmission voltage, installation conditions (e.g. buried, in a duct etc.), ambient temperature, phase spacing and arrangement, as well as the proximity of other cables.</p> <p>Medium voltage (MV) subsea power cables of the type used for offshore projects are generally built up with three single-cores (three phases), with a cross-section of between 50 to 500 mm², surrounded by filling material and covered by armouring, in addition to low voltage (LV) cables and multiple optical fibre elements for control and communications.</p> <p>Cable armour is typically made of one layer of round 5 to 6 mm thick steel wire armour. Alternatively, flat strands may be used though these may not offer as much force protection. Where cable protection is a particular concern or where the integrity of the cable under pulling stresses is a concern, a second layer, or more, of armour may be added.</p>	<p>As we had previously received no clarification as to what the cabling would contain and whether it would be a risk to the environment, we could not agree with the conclusions in the WFD compliance assessment around release of chemicals.</p> <p>We are now satisfied with the additional information provided about the cable contents and the conclusions in the WFD compliance assessment around the accidental release of chemicals.</p>	Agreed	

Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>Armour will delay the onset of cable abrasion, as well as increasing cable strength against pulling forces. This will improve cable survivability where it is exposed to mobile seabed material, currents and wave action, and, where it is potentially exposed (or part exposed) to bottom fishing activity. Armour will also assist with protection from anchor damage; however, heavy strikes will still likely result in failures.</p> 			
Accidental chemical contamination	07/09/2020	<p>The risk to WFD water bodies from chemical contamination due to accidental spills while working at sea is considered to be negligible.</p> <p>The liquid inventory for the Project indicates that chemicals including oil, grease and hydraulic fluid could be accidentally released/leaked from Project components. Other sources of potential chemicals include drilling fluids from any drilled pin-piles and also from HDD works at landfall.</p> <p>If any such substances were accidentally released/leaked, quantities would likely be small</p>	<p>In addition to cabling, the risk of accidental spills, e.g. through working at sea, had not been considered.</p> <p>We are now satisfied with the additional information provided in the updated WFD compliance assessment around the accidental release of chemicals.</p>	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>due to relatively small amounts being present in individual devices. Due to the dynamic nature of the tidal and wave regime in and around the MDZ, lateral and vertical dispersion rates of any spilled substances would be expected to be high. The magnitude of this potential effect is considered to be low, as it is not anticipated to significantly affect local water quality and would also be temporary in nature (established controls would prevent further spillage/leakage once an event was detected).</p> <p>Any such incident may impact benthic or fish and shellfish communities through toxic contamination or smothering. However, best practice measures will be adhered to avoid release of chemical contaminants into the marine environment. The Outline Pollution Prevention and Management Plan (Document MOR/RHDHV/DOC/0077) will cover all offshore licensed activities. Adherence to this plan will minimise the chance of spill events, and detail contingency measures that must be followed in the event that a spill does occur, allowing appropriate containment and control.</p> <p>It is expected that any chemical that is released into the marine environment would rapidly disperse into the water column. As such, any effect would not qualify as 'non-temporary' under the WFD assessment criteria. An infrequent, small, localised contamination event within the marine environment is likely to affect a negligible proportion of the respective water body, and therefore is not expected to pose a risk to the chemical status of the respective water body.</p>			



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
Cumulative/ in-combination assessment	07/09/2020	<p>Assessment of Minesto's Holyhead Deep project was not included in the WFD cumulative/in-combination assessment because the development has progressed to operational stage in the period between draft of the ES Chapter 26 (Cumulative, Transboundary and In-Combination Impact Assessment) and the updated WFD Cumulative/In-Combination Assessment. However, to maintain consistency between the assessments, the WFD Cumulative/In-Combination Assessment has been amended (submitted 18th September 2020) to include the following text:</p> <p><i>Minesto's Holyhead Deep project will be an 80 MW installation of tidal energy devices, delivered in a phased manner, and located a short distance due west of the MDZ Project. The predicted impacts of Minesto's Holyhead Deep project on coastal processes have been assessed as being not significant in their own right (Minesto, 2016), and this conclusion is considered equally valid when both projects are considered in combination.</i></p> <p><i>Based upon the geographical configuration of the Minesto Project Development Area (PDA) with respect to the MDZ Project, there is no possibility of changes in tidal flow interacting between projects, due to the alignment of flood and ebb flows off the coast of Anglesey (i.e. the two projects are not upstream/downstream of each other).</i></p> <p><i>Similarly, any (minor) sediment plumes arising from construction from either project will not coalesce because of:</i></p> <p><i>(i) the alignment of principal tidal flows; and</i></p>	We note and welcome that the Minesto project has now been included in the assessment of cumulative effects for the updated WFD compliance assessment.	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>(ii) likely different construction programmes (note that phase 1 of the Holyhead Deep project is already installed).</p> <p>The predicted impacts of Minesto's Holyhead Deep project on coastal processes have been assessed as being not significant in their own right (Minesto, 2016), and this conclusion is considered equally valid when both projects are considered in combination.</p>			
Mitigation and Monitoring					
Beddmanarch Bay designated shellfish water		The impact assessment incorporates embedded mitigation including a Surface Water Drainage Strategy which will avoid pollution to marine water quality. This will be secured in the Transport and Works Act Order.	The Beddmanarch Bay designated shellfish water (SFW) is close to the Aluminium works where terrestrial works would take place and polluted surface runoff could occur and affect marine water quality. We are now satisfied with the clarification provided regarding how this is addressed in the WFD Compliance Assessment addendum.	Agreed	
Holyhead Strait waterbody		<p>Surface water runoff of suspended sediment and contaminants will be mitigated through development of a Construction Method Statement (CMS) and Code of Construction Practice (CoCP, in accordance with the Outline COCP, document MOR/RHDHV/DOC/0076). Specific measures to control sediment supply that will be captured within the CMS include:</p> <ul style="list-style-type: none"> • Subsoil exposure will be minimised, and strips of undisturbed vegetation will be retained on the edge of the working area where possible; • On-site retention of sediment will be maximised by routing all drainage through the site drainage system; • The drainage system will include measures to intercept sediment runoff at source. Suitable filters will be used to remove sediment from any 	We are satisfied with how the potential increases in suspended sediment and contaminants will be mitigated in relation to surface water runoff to the Holyhead Strait waterbody (Table 1.9 of the WFD compliance assessment).	Agreed	



Issue	Date	Menter Môn position	NRW position	Status	Actions (if required)
		<p>water discharged into the surface drainage network;</p> <ul style="list-style-type: none"> • Additional measures will be included in parts of the working area that are in proximity to surface drainage channels; and • Soil and sediment accumulation on road surfaces will be minimised as reasonably practicable by cleaning the wheels of vehicles leaving site and, where required, clearance of the road surface. Traffic movement would be restricted to minimise the potential for surface disturbance. <p>Following construction and engineering design work, a surface water drainage system will be developed as part of a Sustainable Drainage System (SuDS). The detail of this is included in Document MOR/RHDHV/DOC/0076, Outline COCP</p>			

4. REFERENCES

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APPENDIX I CUMULATIVE IMPACTS

1 INTRODUCTION

Following Natural Resources Wales (NRW) review of previously submitted further environmental information and representation received during the Morlais Tidal Array (ORML1938) consultation period, NRW has requested further information under the Marine Licence determination process, as outlined in a Request for Further Information letter dated 14th October 2020. This supplementary note provides an updated cumulative impact assessment for coastal processes based on the following request from NRW:

Further information has recently been submitted in relation to the Holyhead Port Expansion marine licence application (ref; CML1931) and is available on our public register. Additional consideration should be given within the cumulative impact assessment to the potential inter-relationships with the Holyhead Port proposal from changes in hydrodynamics, waves and sediment pathways.

The above request asks for further information on potential cumulative impacts to tidal currents, waves and sediment transport pathways with the Holyhead Port Expansion project. The additional information provided for the Holyhead Port Expansion marine licence application is specific to the sediment transport regime and changes caused by amendments to the dredging and disposal regimes. Hence, the cumulative impact assessment for tidal currents and waves with Holyhead Port Expansion remains unchanged from the originally submitted Morlais Environmental Statement (ES) and any subsequent response to comments sent to NRW. The same applies to the cumulative impact assessment for sediment transport for dredging for Holyhead Port Expansion. In all these cases, the coastal processes impacts due to construction and operation of Holyhead Port Expansion are within Holyhead Harbour and at the proposed port, and are remote from the activities at the Morlais Offshore Development Area. Hence, there will be no overlap of the potential effects to tidal currents, waves and sediment transport.

This supplementary note focusses on the cumulative impact on sediment transport pathways at the Morlais Demonstration Zone (the Project) and disposal of sediment at the Holyhead North disposal site as part of the Holyhead Port Expansion.

2 MORLAIS DEMONSTRATION ZONE SEDIMENT TRANSPORT MODELLING RESULTS

The results of the Project sediment transport modelling by HR Wallingford (document reference MOR-HRW-DOC-0001) and an associated Numerical Modelling Supplementary Note (document reference MOR-RHDHV-DOC-0112) were submitted to NRW dated 27th March 2020 and are reproduced below.

Changes in the sediment transport regime (both bedload sediment transport and suspended sediment transport) will arise as an indirect effect, consequent upon changes in the tidal and/or wave regimes caused by tidal devices, their foundations and cable protection. To investigate this issue, numerical modelling has been used to determine the changes in sediment transport rates and the resulting evolution of the sea bed arising from the worst-case scenario (HR Wallingford, (2020).

For the purposes of the impact assessment, the results of the sediment transport modelling are presented as changes to the residual transport of the total load (bedload and suspended load combined) (the average of all the transport over the time of the simulation) (Figure 2.1). The results are also presented as erosion/deposition to show predicted changes in sea bed levels and scaled up to change over a year (Figure 2.2).

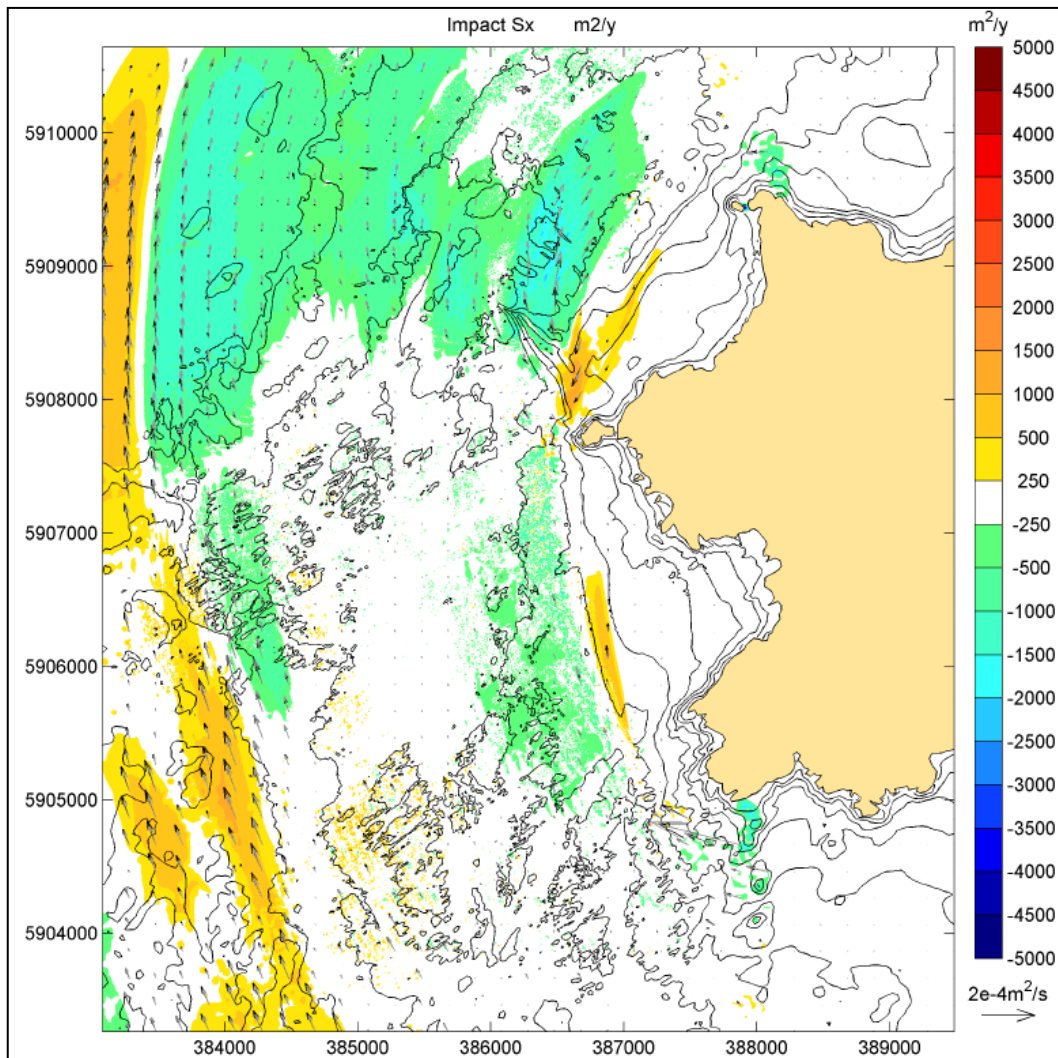


Figure 2.1. Changes in yearly averaged residual sediment transport due to the Project (HR Wallingford, 2020)

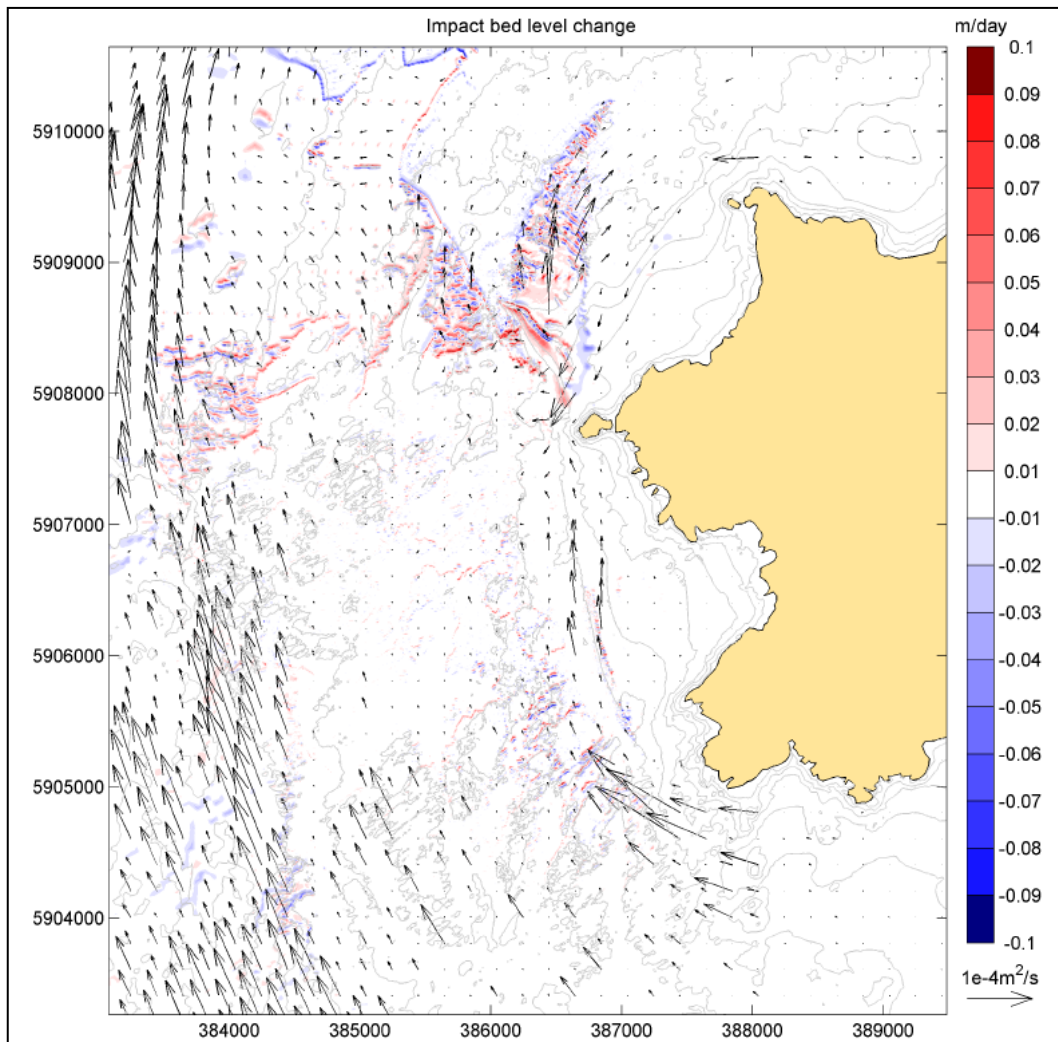


Figure 2.2. Changes in bed level change due to the Project (HR Wallingford, 2020)

Figure 2.1 shows the changes in yearly averaged residual sediment transport due to the Project. Comparing these predictions with the baseline residual transport shows that they are less than 10-20% of the baseline residual transport. The drag of the devices, which would reduce the tidal current velocities in the array results in a predicted reduction in the sediment transport rates. Transport rates over the sand waves offshore from Gogarth Bay are predicted to be 10-20% lower with the devices in place. This means that the migration rates of the sand waves, which is currently about 30m/year (measured using bathymetry comparisons) would reduce by about 5m/year, which would be within the natural variation of the measured migration rates.

Offshore from the array, the predicted flow velocities are higher, and the resulting residual transport rate is also predicted to be higher. An increase in residual transport rate is also predicted to occur north of South Stack at the periphery of Gogarth Bay, and towards South Stack, but there is a predicted reduction in residual transport away from South Stack further offshore. This means that the circulation of sediment to and from South Stack sand bank would change; the residual transport away from the offshore tip is predicted to reduce whilst the return residual transport to the nearshore part of the bank is predicted to increase. This could lead to a reconfiguration of the bank with the offshore tip potentially moving slightly north. However, the volume of sediment that is moving towards the bank (a gain of about 2,000m³ per spring-neap cycle) is very small compared to the volume of the bank (850,000m³), and so the size of the bank is unlikely to change significantly in the long-term. This would also be within the natural variation of the position of the bank.

The main bed level changes are predicted to occur north of South Stack in the vicinity of the sand bank and the associated sand waves to its north (Figure 2.2). The bed level changes predict a re-shaping of the bank and sand waves, where they would be adapting their shapes to a form driven by the altered tidal currents. The

magnitude of these changes is like the observed natural changes defined by the comparison of historic bathymetries (HR Wallingford, 2020).

3 HOLYHEAD PORT EXPANSION SEDIMENT TRANSPORT MODELLING RESULTS FOR SEDIMENT DISPOSAL AT HOLYHEAD NORTH

The results of the Holyhead Port Expansion sediment transport modelling using increased volumes of sediment disposal at the Holyhead North disposal site and a reduced disposal time were presented in the Holyhead Port Expansion ES addendum dated 30th September 2020 (Royal HaskoningDHV, 2020) and are reproduced below. These results supersede those in the original ES and are used in this supplementary note to re-assess the cumulative impacts with the Project (Section 4).

Increase in suspended sediment concentrations as a result of disposal activities

Results from the sediment plume dispersion modelling showed that peak suspended sediment concentration values above 300mg/l would occur when the sediment is released from the hopper within a very localised area (Figure 3.1, Figure 3.2 and Figure 3.3). Increased suspended sediment concentrations are predicted to occur predominantly within the area of the disposal site. Predicted maximum suspended sediment concentrations near to the sea bed of up to 50mg/l do extend up to 2km beyond the boundary of the site.

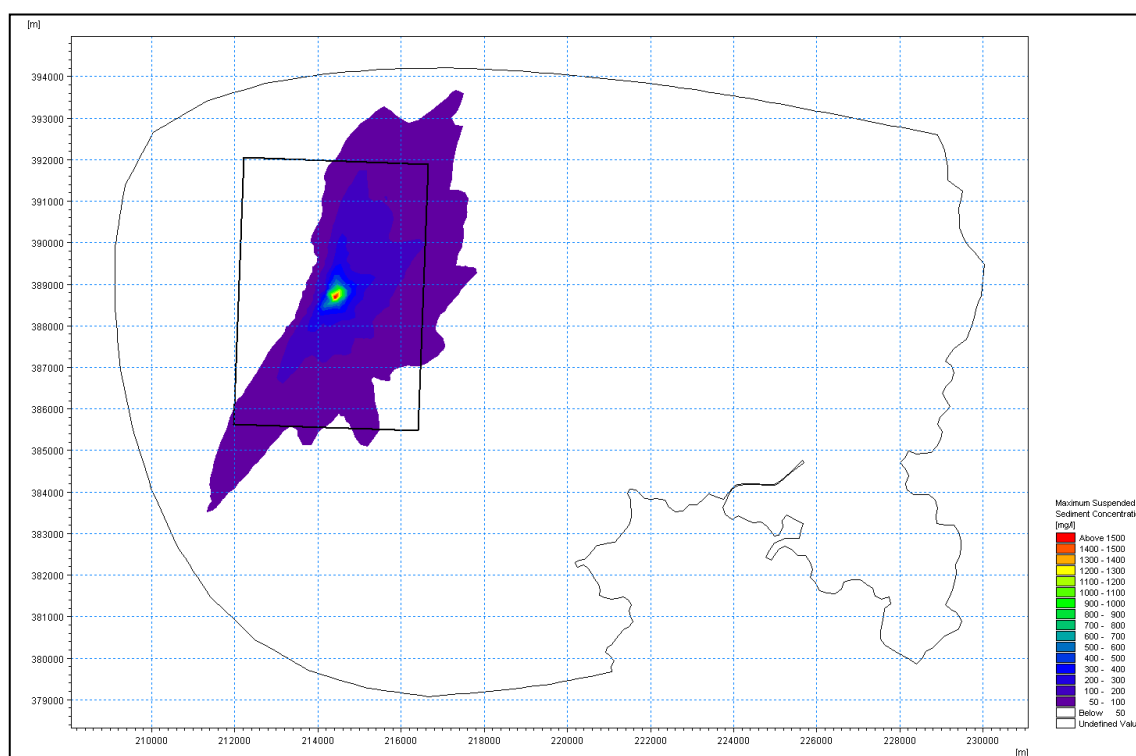


Figure 3.1 Maximum predicted suspended sediment concentrations for the bottom (bed) layer at the offshore disposal site.

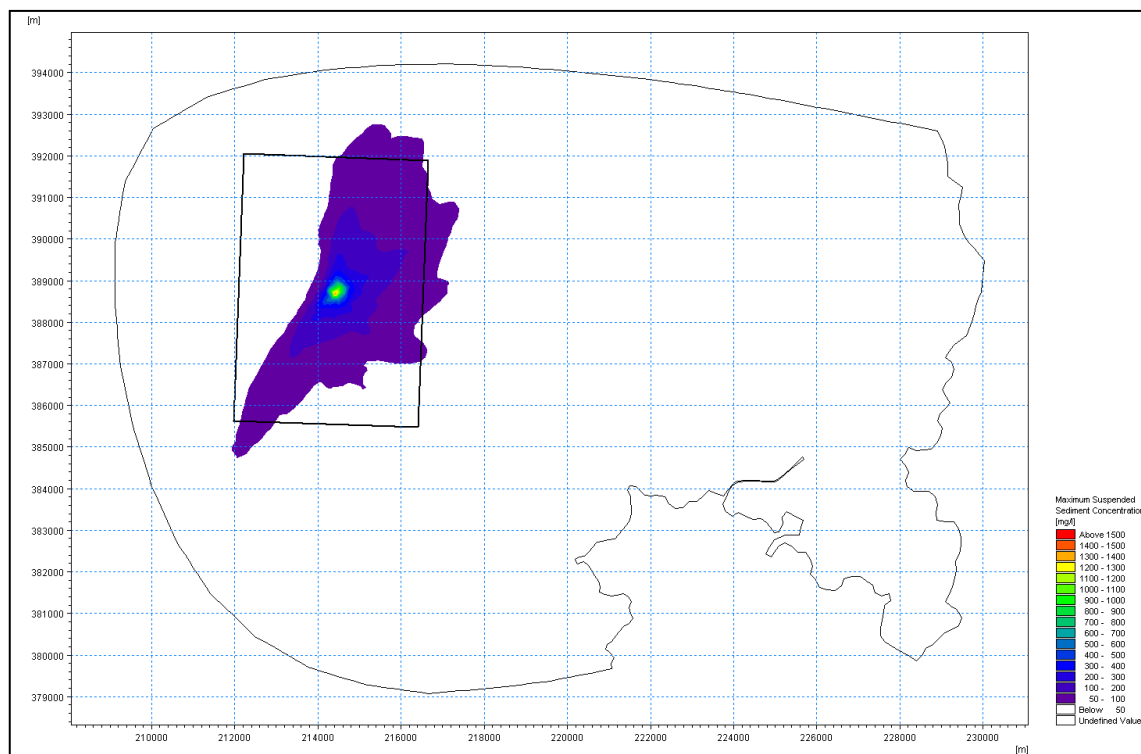


Figure 3.2 Maximum predicted suspended sediment concentrations for the mid layer at the offshore disposal site.

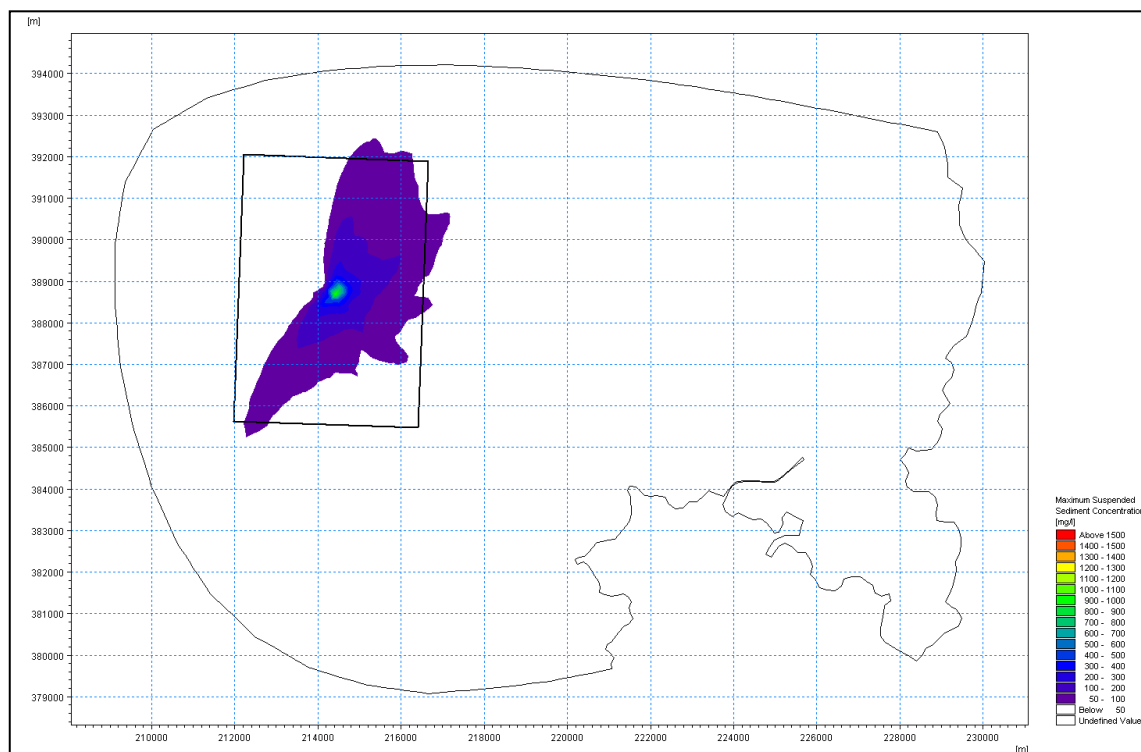


Figure 3.3 Maximum predicted suspended sediment concentrations for the surface layer at the offshore disposal site.

Disposal will occur over a period of approximately 15 weeks and will be non-continuous, and so suspended sediment concentrations are predicted to disperse to within background levels between each disposal event. Time series plots have been produced to illustrate the dissipation of suspended sediment concentrations following the cessation of dredging and disposal activities. These are presented in Figure 3.4 and show that at

the disposal site suspended sediment concentrations migrate to the south of the disposal site over time and dissipate to within background levels about 150 minutes after disposal.

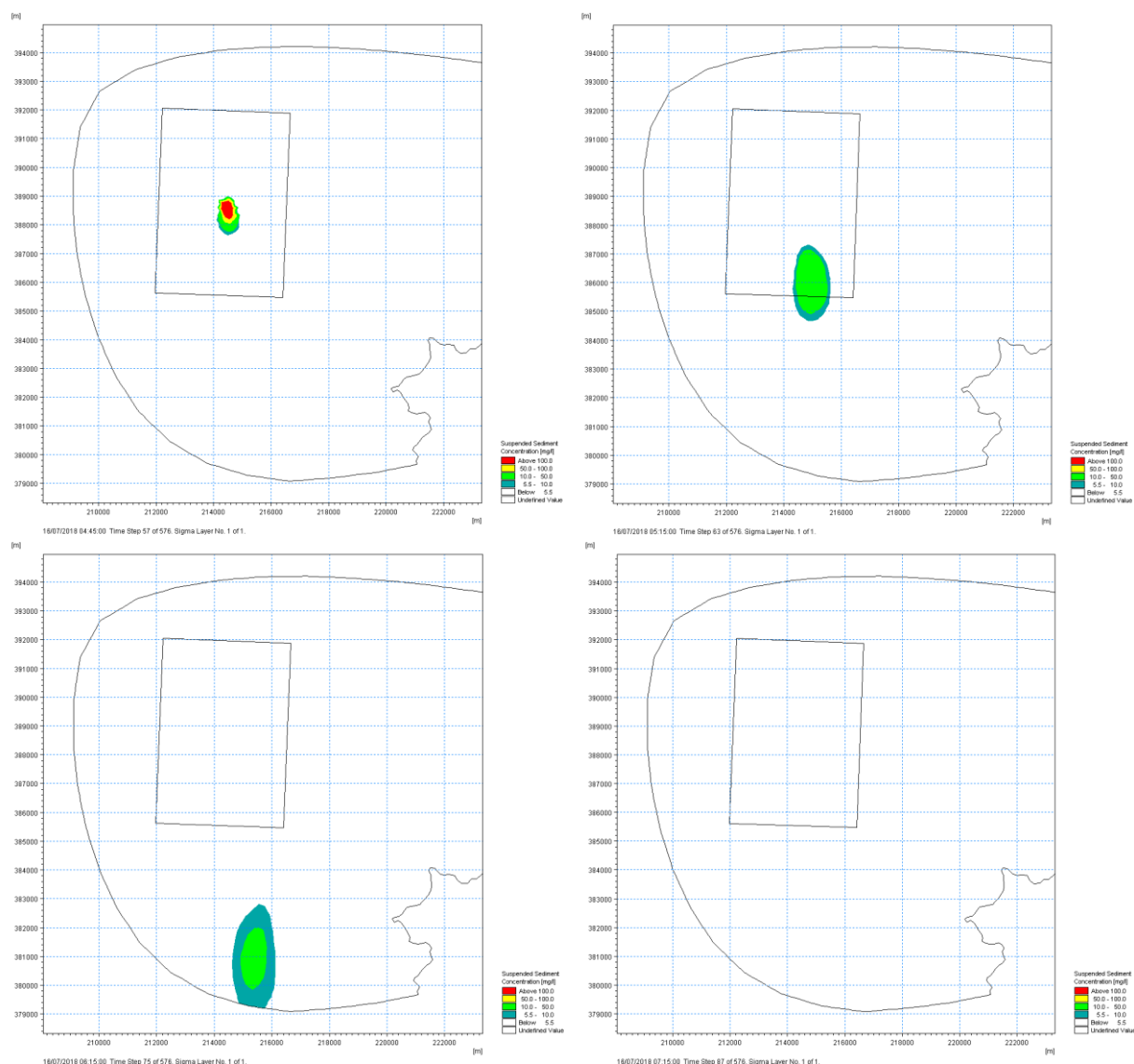


Figure 3.4 Time series plots showing the dissipation of SSC in the mid-layer within Holyhead North once dredging has ceased (top left), 30 mins after last release (top right), 90 minutes after last release (bottom left) and 150 minutes after last release (bottom right)

Changes in sea-bed level due to disposal of dredge arisings at Holyhead North

Figure 3.5 describes the predicted changes in sea-bed elevation at Holyhead North disposal site due to disposal. The results show that any predicted increase in bed thickness is within the boundary of the disposal site. It should be noted that the area predicted to be affected (6.5km²) is significantly less than that presented in the ES (22km²). This is a result of the more accurate 3D modelling used, including increased model mesh size at the disposal site and the reduced dredging programme.

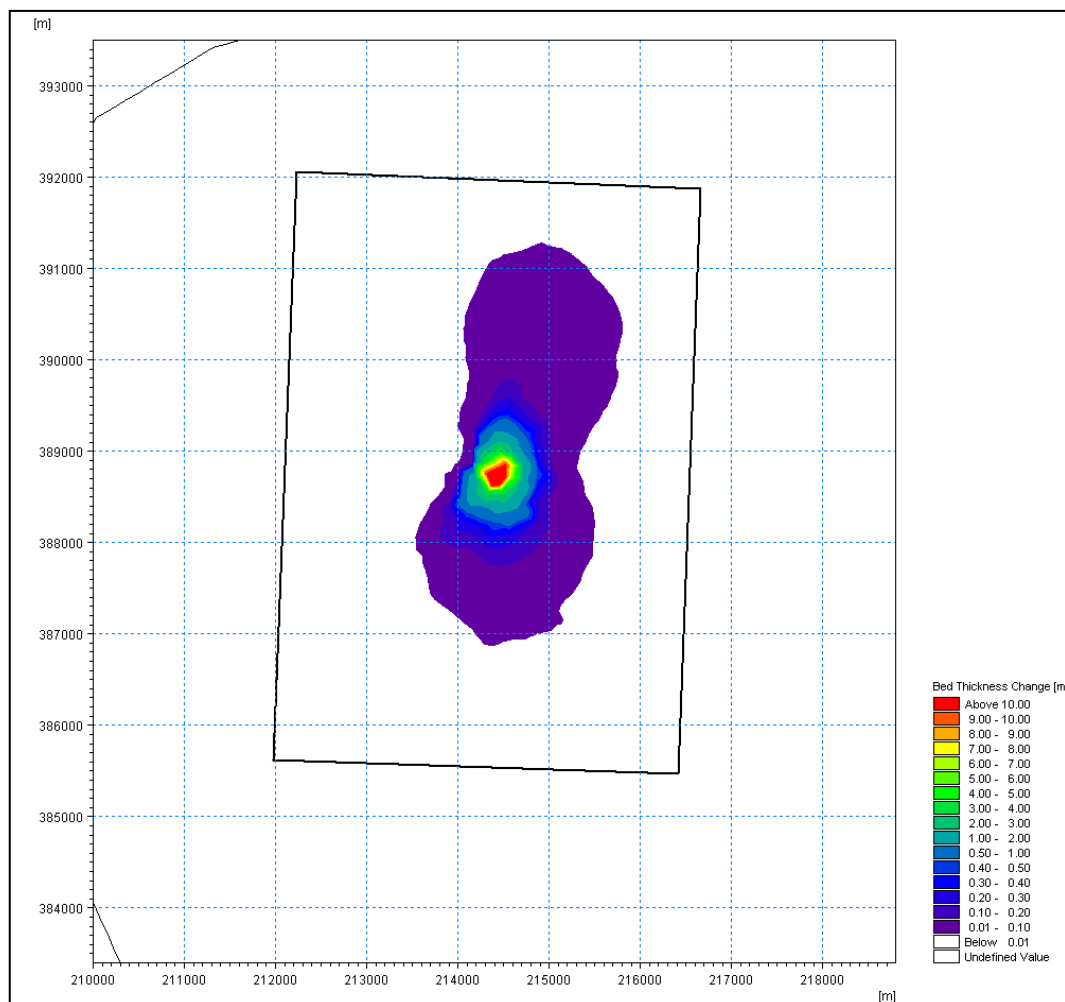


Figure 3.5 Predicted changes in sea bed elevation due to deposition from the plume created by disposal of dredged sediments.

4 CUMULATIVE IMPACTS

According to the Morlais sediment transport modelling of HR Wallingford (2020), the predicted changes in residual sediment transport and bed level at the Project occur within the immediate vicinity of the array area and there are no changes predicted in the wider area (Figure 2.1 and Figure 2.2). The sediment plume dispersion modelling of sediment disposal at the Holyhead North disposal site predicts that the geographical distribution of the plume and particularly the resulting bed level change would be contained almost totally within the boundary of the disposal site (Figure 3.1, Figure 3.2, Figure 3.3 and Figure 3.5). The footprints of the effects of the two activities are adjacent to each other (the Holyhead North footprint of effect is to the west of the Project footprint) with little overlap from a sediment transport perspective. Hence, the sediment transport pathways cumulative impact is **negligible impact** as a worst case scenario.

Also, given that the suspended sediment concentrations at Holyhead North are predicted to disperse to within background levels between each disposal event (Figure 3.4), there would be little potential for cumulative impacts with the Project.

5 REFERENCES

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Royal HaskoningDHV. 2020. Holyhead Port Expansion Environmental Statement Addendum. Report to Stena Line Ports Limited, September 2020. Document reference PB6108-RHD-ZZ-XX-RP-Z-0001.

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	G. Keenan
Printed Name	Gemma Keenan
Position	Principal Consultant/Project Manager
On behalf of	Royal HaskoningDHV, supporting Menter Môn
Date	30/11/20