DEML2540 Further information Request

Câr-y-Môr Response

Submitted: 11th December 2025

Prepared by: Beth Marshall

DEML2540 Further Information Request Response

This document contains the following items:

DEML2540 Further Information Request Response

Cover Letter

Clegyr Uchaf

St Davids

Pembrokeshire

SA62 6QN

11th December 2025

Dear Maria,

Thank you for your Further Information Request letter, issued under Regulation 67(4) of the Marine and Coastal Access Act 2009 in relation to Marine Licence Application DEML2540 (the Application). While we note that NRW is satisfied with several aspects of the supporting work, consultees have also raised concerns, principally the assertion that the Application, if granted, would result in "considerable adverse effects" on the visual amenity of the Pembrokeshire Coast National Park. NRW Advisory has further suggested that "the proposals would undermine the purposes of the PCNP".

We welcome the opportunity to respond constructively and provide updated materials and refinements to our earlier submission. Our aim is to demonstrate that we have responded positively where possible, addressing issues raised in a proportionate, practical, and fair way. Cân-y-Môr has been operating trial sites in and around this sensitive area for five years without, to the best of our knowledge, any adverse visual, environmental or community impacts. We hope that the evidence from these existing consents, the purpose and objectives of the expansion sites, and the context in which the original visual material was prepared provide a strong and reasonable basis for a positive determination of the Application.

In considering our response, we have also carefully reviewed the Pembrokeshire Coast National Park Authority's core management plan 2025–2029 and note that the Park has many purposes and statutory duties to fulfil. Our Application supports several of those purposes, particularly in relation to education, community benefit, biodiversity enhancement, and the resilience of coastal livelihoods. We trust that a proportionate and balanced assessment will reflect on the integrity of Cân-y-Môr's activities and the tangible steps our community business is taking to deliver towards the shared goals that we, NRW, PCNPA and others, hold for our coastal communities, our environment and Wales's economy.

Status and Purpose of Cât-y-Môr's Trial Sites

Globally, the seaweed sector is expanding rapidly as wild harvesting reaches its limits. The sector is projected to grow by over USD 11 billion by 2030, at an annual rate of approximately 6%. Demand is being driven not only by food markets but by new applications in nutrient regeneration, carbon sequestration and biobased materials. Responsible, regenerative sea farming is needed to meet this demand. International studies, including long-running research sites in the Faroes, reinforce the established scientific view that regenerative seaweed and shellfish farms can enhance local biodiversity and support wider ecosystem recovery. The Welsh government "recognise(s) the value of an emerging seaweed sector" in Wales, bringing prosperity to coastal areas as well as ecosystem benefits across sea, land and waterways, and further trails are needed to understand how the sector can be scaled appropriately within the Welsh marine environment.

Since NRW first consented to Cât-y-Môr's trial in 2020, the first of its kind in Wales, we have acted in good faith and within the agreed framework. The licenses covered one 3 hectare site and two smaller sites. Those consents were explicitly granted to prove a concept for regenerative seaweed and shellfish farming in this location, a responsibility we have taken seriously, and are proud that our operations and community philosophy have been praised and showcased at the highest levels over the past five years. The Future Generations Commissioner, Derek Walker, remarked: "Having seen the results of some of the work happening in Wales already, I'm excited about the possibility of seaweed being Wales' new superpower."

Now, Cât-y-Môr has generated sufficient research, operational expertise and commercial momentum to secure investment and public funding for a state-of-the-art processing and distribution facility for seaweed, shellfish and biostimulant products. Our new St Davids hub, now partially operational, is supported by an experienced local workforce, vessels and supply chain, and will soon function as an education centre and community shop. Through our work in the community, we have provided 20 year-round jobs, gained over 650 members, and educated over 4,000 children about the importance of the relationship between the sea and the land. Together, these elements form the backbone of Wales's first integrated regenerative sea farming operation, but further work is still required.

The present Application represents the final stage required to complete the project's near-shore development by bringing the other 2 sites up to a similar size that we are already operating at St Justinian's. This phase will allow us to strengthen the R&D, monitoring and nursery functions that are not only essential for our commercial viability, but also for offshore readiness: these near-shore sites provide the safe, accessible environment needed for early-stage testing, troubleshooting and stock development before operations can be responsibly scaled offshore. With this growth, we will be able to create more skilled, year-round jobs, expand our educational and community-facing work, and continue sharing

learnings with research and regulatory bodies: evidence we are currently generating and modelling, and sharing as open-source knowledge for the benefit of Welsh coastal communities.

The only practical and financially realistic place to complete this final nearshore phase is adjacent to the existing infrastructure at St Davids. Moving trial activity elsewhere would not be a neutral choice: it would bring the current programme to an early end, jeopardise livelihoods and undermine the value of the evidence gathered over the past five years.

We therefore propose that NRW treats the Application for its intended purpose: the last required expansion phase to bring the nearshore operation to viability and prove the concept for offshore development. We would be content for the licence to include conditions that reflect this, for example, making clear that any future commercial-scale expansion will be sought only at more offshore locations and will be informed by the ongoing evidence from these nearshore sites.

Visual Impact: Assessment Preparation and Subsequent Refinements

The concerns raised by PCNPA, NRW Advisory and other stakeholders relate primarily to landscape and visual impact, with additional points raised on benthic processes, marine mammals and navigation (on which we now provide further routine clarification within the accompanying technical responses). Since the consultation closed, NRW Advisory has asked that we review our viewpoint selection, address sensitive areas in the design, and minimise visual effects wherever possible.

On visual impact specifically, it may be helpful to note that these matters had already been discussed with PCNPA, prior to preparing our original submission, and it was even indicated that a full VIA might not be required given the existence of existing infrastructure. In that context, and as a small community benefit society, we explained that commissioning a full contractor-led VIA, quoted at £11,000-£25,000, was not viable for us. The visual work was therefore prepared by members of our community, following the agreed approach. The viewpoints and in-house preparation were confirmed as acceptable on 10th February 2025 in an email from Gayle Lister of the PCNPA. In seeking to maintain the integrity and transparency expected of a qualified landscape architect, we depicted every possible buoy for clarity and at larger size for ease of understanding. We now recognise that this may have contributed to some of the concerns raised, and we have now updated the material accordingly.

Having prepared the VIA in good faith, we have now also significantly reduced the visual signature of the farms through practical design changes to minimise impact. The accompanying material therefore provides:

- updated buoy numbers and configurations: an 80% reduction to 32 buoys at Carn ar Wig and 84 buoys at Porthlysgi, down from the earlier submission of 150 and 450 buoys respectively;
- a shift towards lighter-coloured grey buoys, selected for their lower visual prominence at maximum 30cm above sea level;
- refined lighting arrangements that continue to meet navigation safety requirements of two lit Trinity House buoys per farm, rather than six. Notably these are a warm yellow colour with intermittent flashes, not permanent cold white lights;
- updated photomontages and aerial charts illustrating these changes against the landscape, with an accurate representation of buoy size

These refinements reduce the already limited visual presence of the farms while keeping the scope of the application unchanged.

Existing Consents and Real-World Context

We feel it important to note that St Justinian's is a thriving working seascape with moorings, commercial boat operations and ongoing maritime activity, and this provides the immediate context in which the farms are experienced. As mentioned, we already hold consents for the existing trial sites, one of which operates at exactly the same size as the larger of the proposed extensions, with monitoring showing minimal environmental impact and, in places, positive effects on biodiversity. We are not aware of community complaints regarding visual or environmental impact, and we believe that the proposed expansions are proportionate within what we, many of us St Davids residents, accept as a sensitive site. We are confident that these real-world outcomes of operations that NRW has already consented to provide a grounded and evidence-based context for assessing the proposed modifications.

Despite the above, and in reviewing the consultation responses, we are concerned that we are being asked to re-establish the acceptability of activity that has already demonstrated it can operate responsibly and without harmful visual impact to the Park or seascape, while enjoying the support of the community, local operators and visitors to St Davids.

In 2022, and after rigorous examination, a Planning and Environment Decisions Wales Inspector allowed our appeal against the decision to limit licence DEML2151 to five years rather than twenty. In doing so, the Inspector made three findings that, in our view, remain directly relevant to our application and are worth repeating:

- By granting a five-year licence, NRW had already accepted that the farm would not inevitably harm the integrity of the SAC, and that there was sufficient evidence to satisfy the precautionary principle for that period.

- Visually, the appeal site was found to be no more intrusive or harmful than the original trial sites, and in some respects less prominent; neither was considered harmful to the appearance of the surrounding area or the SAC.
- The decision was found to be consistent with the Well-being of Future Generations (Wales) Act 2015, contributing to the sustainable development principle.

These findings were made in full knowledge of the National Park context and remain the most detailed, independent scrutiny of our operations to date.

Status of the Seascape Sensitivity Assessment

Our team of working members and volunteers have spent a significant amount of time and money pursuing the Application based on the regulations that were in existence and published at the time. Specifically, at the time of preparing our visual material and during consultation on this application, we were advised by the PCNPA to rely on GLVIA3, as well as established Scottish aquaculture visual methodologies. As mentioned, the PCNPA agreed to our proposed in-house approach, and expressed that "the selected viewpoints are likely to give a reasonable representative view of the proposed development" from both the mainland and from the sea.

However, NRW Advisory say that they have assessed the proposal against the "Pembrokeshire Seascape Sensitivity Assessment and Siting and Design Guidance for Aquaculture" (SSA) and conclude that our viewpoint selection and visualisations "do not conform to standards". It is important to clarify that these documents were mentioned only as "drafts" during the process of consultation.

The SSA document was referenced numerous times in the consultation responses. We are concerned that the Application now appears to have been measured against guidance and standards which were not available to our team during preparation, were not part of the agreed methodology, and were not made public or shared with Cârr-y-Môr in an adopted form until soon after the consultation period closed. It also appears to be being used to introduce additional concerns around location sensitivity to our existing trial sites.

The legal and policy weight of the SSA remains unclear in relation to our Application and sits alongside other adopted plans and policies which give different emphases and priorities on the subject of coastal communities and environmental protection, for example, the 30by30 framework for Wales, published in June 2025, and the UN High Seas Treaty, published in March 2023. We would be open to consultation and collaboration on how to use proportionate guidance that emerges from the SSA for future offshore applications, but we do not believe it should retrospectively recast the decision-making framework used to determine the outcome of this Application, nor any of our existing sites.

Cär-y-Môr's Broader Environmental and Socio-Economic Benefits

Finally, we reflect on the National Trust's conclusion that the submission is the "right development, wrong place", and offer a reality that reflects the wider benefits that regenerative sea farming could bring to Pembrokeshire's coastal communities: communities that the Welsh Government, the County Council and the PCNPA all recognise as highly seasonal. Much of the local employment around St Davids is concentrated into a short summer period, with limited year-round opportunities. This seasonality affects housing, skills retention and long-term community resilience. Regenerative sea farming directly addresses this challenge: it creates stable, skilled, year-round jobs in marine operations, processing, science and education, diversifying coastal livelihoods without adding to peak-season visitor pressure.

This approach directly reflects the ambitions of the Well-being Plan for Pembrokeshire, prepared under the Well-being of Future Generations (Wales) Act 2015: supporting "a prosperous Wales… an innovative, productive, low-carbon society… using resources efficiently and proportionately (including acting on climate change)… which develops a skilled and well educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated to secure decent work."

The Park's own assessments also highlight the risks of "overtourism" and the need to broaden how people experience this landscape. Our own tourism model is deliberately low impact, centred on small groups, school children and community organisations spending meaningful time at the farms and our St Davids facility, learning about marine ecology, climate, food and farming. This form of eco-tourism and education helps people understand our sea as a living resource – an area the Park has identified as under-appreciated relative to the terrestrial landscape. Our activities align with the Park's duties to promote understanding as well as enjoyment, and with wider policy aims to strengthen environmental stewardship and sustainable economic futures.

Regenerative sea farming also contributes to carbon capture and nutrient cycling. We can now share that our early seaweed biostimulant trials with Pembrokeshire farmers indicate the potential for 20–30% reductions in synthetic fertiliser use, demonstrating a practical and locally grounded land-sea nutrient relationship. This emerging integration of marine production and sustainable land management is directly aligned with the area's conservation objectives and with Welsh Government's ambitions for nature-positive aquaculture and farming. Completing the nearshore trial phase therefore supports not only the environmental aims of the National Park, but also the socio-economic resilience of one of Wales's most seasonal coastal regions.

Finding a Path Forward

The consequences of ultimately refusing this application would be profound for our community. It would almost certainly precipitate Cât-y-Môr's insolvency, extinguishing 20 year-round jobs, rendering our new hub redundant, and quashing a programme that has secured public trust, attracted millions in public and private investment, and is embarking upon the conclusion of its near-shore phase. An entire emerging regenerative Welsh industry, six years in the making, would be set back indefinitely.

A suitably conditioned approval, mitigated by NRW's comprehensive powers to intervene should any evidence of harm emerge, would enable us to complete the nearshore trials, without further expansion beyond the proposed envelope. This would be a proportionate way to balance environmental protection with the economic and social viability of a community benefit society that is helping to deliver Welsh and local policy objectives.

We remain committed to working with NRW, the PCNPA, the National Trust and our wider community to ensure that regenerative sea farming in St Davids is both environmentally responsible, socially valuable and economically sustainable. We trust that this additional information will help NRW to reach a balanced determination that recognises the status of these sites as the final nearshore trial and nursery phase before the sector moves offshore.

Please let us know if NRW requires any further clarification.

Sincerely,

Beth Marshall

Marine Biologist

Cât-y-Môr

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Please note that in the short time available for preparing this response, we attempted to meet with both NRW Advisory and PCNPA to discuss updated buoy numbers and configurations. Unfortunately, diaries could not be aligned, and we were asked instead to submit revised figures, with an indication that existing objections would likely stand. In preparing this response, we have therefore provided a comprehensive, integrated set of updates rather than a piecemeal table of changes. Should NRW consider it helpful, we remain fully open to a joint discussion with key consultees once you have had an opportunity to review this material.

1. Visual Impact Overview and Updated Design Information

This section relates to comments raised around the Seascape, Landscape and Visual Impact Assessment (SLVIA) and the anticipated effects of the proposed expansions on the special qualities of the Pembrokeshire Coast National Park (PCNP).

In response to consultation feedback, Cân-y-Môr has refined the physical farm design to significantly reduce the visual prominence of the proposals, and has also reviewed and updated the methodology behind the photomontages and aerial charts. These updates form an essential part of our response.

To help readers navigate the material and understand how the design refinements inform the updated visual representation, the response is presented over two sections and supported by a cross-reference table.

- **Section 1.1** sets out the new specifications for the physical farm designs
- **Section 1.2** introduces the updated visual material, including some aerial charts and all of the photomontages, which are included within the supporting documents.
- **Section 2** provides the structured responses to each of the substantive points raised by consultees, including a dedicated section responding to the National Trust's position on offshore development.

Readers are encouraged to read the revised specifications and view the updated visual material first, as these materially change the visual baseline assumed in the original SLVIA and underpin many of the subsequent responses.

Consultation Issues Cross-Reference Table

For ease of reference, the table below provides a guide to where each consultation concern is addressed within this submission.

Consultee concern/request	**Where it is addressed**
Scale of development and overall visual impact	Section 1.1 (Revised Specifications); Sections 2.3 & 2.4
Distance used for the SLVIA study area	Section 2.1
Viewpoint selection and conformity with standards	Section 2.2 (Viewpoint Selection); Section 2.7 (Use of Standards and Pembrokeshire SSA)
Photomontage accuracy and representativeness	Sections 1.1 & 1.2 (Updated specifications, aerial charts and photomontages); Section 2.5
Duration of development and operational cycles	Section 2.3
Magnitude and significance of effects on LCAs and SCAs	Section 2.4; Section 2.9
Night-time effects and lighting	Section 1.1 (Lighting refinements); Section 2.6
Cumulative visual and seascape effects	Section 2.6
Assertion that impacts cannot be avoided, minimised or mitigated	Section 2.8
National Trust concerns regarding visual/seascape effects	Section 2.9
National Trust expectation around future expansion	Section 2.10

1.1 Revised Farm Design Specifications:

Our proposed farm envelope remains unchanged; however, the surface design and operational layout have been materially refined in direct response to consultee comments. The table below sets out each update to the original submission, followed by further explanation in Section 2.

Original Specification	**Updated Specification**
A maximum of 600 buoys in total, with 450 at Porthlysgi and 150 at Carn Ar Wig, with 7m spacing.	Buoys now set at 25 m spacing, giving 84 at Porthlysgi and 32 at Carn ar Wig (~80% reduction). Operational buoy numbers will often be lower, with additional buoys added only as stock weight increases.
The photomontages showed big, black buoys at 7m spacing.	Cân-y-Môr has now chosen to adopt a new, lighter-grey buoy with a lower surface profile to reduce visual prominence. Revised photomontages show these accurately sized, low-profile buoys at the updated 25 m spacing, resulting in a markedly reduced visual signature, with several viewpoints requiring zoom to distinguish individual floats.
8 Trinity House buoys per farm with white, continuous lights with 4-5NM range (assumed in consultee comments)	Each farm will now have 4 yellow Trinity House buoys, with only 2 lit on the seaward side. Lights flash 0.5 s every 5 s and have a theoretical 2–3 NM offshore range, with negligible landward visibility.
Discrepancy between Figure 11 proposed areas and application proposed areas.	The original Figure 11 incorrectly illustrated the entire licensed seabed area as if it were the area that would be physically farmed. In practice, the farmed footprint is smaller because the longlines must be tensioned within the mooring grid rather than occupying the full licence boundary. Figure 11 has now been updated to show the correct farmed area, accurately reflecting the operational layout within the licensed envelope.
“Existing” views incorrectly had existing farms removed.	The original photomontages had the existing consented farms removed in error. All baseline (“existing”) images have now been restitched to **accurately include the current farms**, ensuring the visual baseline reflects the working seascape.

1.2. Aerial Charts and Photomontages

Photomontages:

Cân-y-Môr has worked with a graphic designer to update and restitch all photomontages (apart from Viewpoint 7, from where no buoys can be seen), using the original viewpoint photography and the revised buoy specifications set out in the table above. Importantly, the earlier iteration of the SLVIA incorrectly showed “existing” views with the current farms photoshopped out, creating an unintentionally pristine baseline. This has now been rectified: all “existing” images include the NRW-consented farms, accurately reflecting the working seascape. During the review, the designer realised that some of the farm outlines had been inaccurately positioned; clarifications on correct placement have now been provided.

We also note that the buoys were incorrectly sized in the original photomontages. It is clear from the updated “existing” images that the proposed buoys could not be bigger than those currently in use at the farm. Moreover, the revised design adopts lighter grey buoy colours and a lower-profile buoy shape, both of which are reflected in the updated and more accurate photomontages.

For each viewpoint, we provide the following sequence of material:

- **Existing (baseline) view**: new version including existing NRW-consented farms
- **Original proposed farm buoy maximum configuration**: as previously submitted;
- **Updated proposed farm outlines**: showing the corrected site extents;
- **Updated proposed farm buoy maximum configuration**: illustrating the revised, reduced buoy numbers and colours.

The following page shows an example of the newly presented Viewpoint 4 from the DEML2540 Updated Photomontages (HD) document. A higher resolution document can be made available on request.

VP4– Existing (baseline) View

VP4 - Original proposed farm buoy maximum configuration

VP4 – Updated proposed farm outlines

VP4- Updated proposed farm buoy maximum configuration

Aerial Charts:

We have revised relevant aerial charts to reflect the updated specifications and corrected site dimensions; the table below summarises these changes, and the updated figures are provided in the Supporting Documents.

Original Figure	Updated Figure
Original Figure 4 showed Carn Ar Wig with 150 buoys at 7m spacing with white colouration and larger than actual size. The buoys also take up the whole licensed area.	New Figure 4 shows Carn Ar Wig with 32 buoys at 25m spacing with light grey colouration and accurate sizing. The yellow trinity house buoys are on the corners of the licensed area but the buoys do not take up this whole space.
Original Figure 5 showed Porthlysgi with 450 buoys at 7m spacing with white colouration and larger than actual size. The buoys also take up the whole licensed area.	New Figure 5 shows Porthlysgi with 84 buoys at 25m spacing with light grey colouration and accurate sizing. The yellow trinity house buoys are on the corners of the licensed area but the buoys do not take up this whole space.
Original Figure 11 shows both farms with the buoys as described above.	New Figure 11 shows both farms with revised buoys as described above.
Figure 8 shows where the viewpoints were taken from in relation to the current seaweed farm and the trial farms proposed expansions.	This Figure has been included in this response to add context to the locations of the updated photomontages, but has not been revised.

2. Visual and Seascape Effects (Regulation 67(4) Responses)

The sections that follow address each of the specific points raised by consultees under Regulation 67(4), and we include one additional section (2.10) for clarification around the National Trust's expectation around future developments.

Visual Assessment Request: From NRW (Regulation 67(4) letter):

A number of concerns were raised surrounding the visual impact of the proposal and the assessment carried out;

- **Pembrokeshire Coast National Park Authority (PCNPA)** considers the Seascape, Landscape, and Visual Impact Assessment (SLVIA) as presented has not adequately considered and assessed the potential impacts on the special qualities for which the Pembrokeshire Coast National Park (PCNP) has been designated. The PCNPA also questions the assessment such as;
  - the distance used for the selection of the study area,
  - the view points (VP) selection,
  - the lack of consideration of the duration of the development in the assessment of impact,
  - the level of magnitude and significance of impact for some of the Landscape and Seascape Character Areas (LCA and SCA) assessed,
  - the photomontage of some VPs,
  - the lack on night-time assessment or cumulative impact.

On the whole, the PCNPA considers that the proposal will have a significant adverse effect on all the special qualities, LCA and SCA of the PCNP.

- **NRW Advisory (NRW A)** questions the level of assessment presented in the SLVIA, indicating that the VP selection and visualisations do not conform to standards. NRW A has assessed the proposal following the Crown Estate guidance (Pembrokeshire Seascape Sensitivity Assessment and Siting and Design Guidance for Aquaculture) and objects to the proposal on the grounds of the impact this will have on the purposes of the PCNP. In their view, adverse impacts cannot be avoided, minimised, or mitigated due to the particulars of the project and the sensitivities of the site locations and receptors, together with the scale and the spread of development across two separate sites and seascapes of the Pen Dal-Aderyn headland.
- **The National Trust (NT)** as the landowner of VP areas, does not support the development and considers that the proposal will adversely impact a series of LCA and SCAs of their interests.

Overall, all consultees conclude that the proposal will result in considerable adverse effect on the visual amenity of the PCNP. In line with WNMP policies (SOC-06&_07), we request you provide further information in relation to visual assessment in support of your application. This should address the points raised by these consultees and seek to minimise and mitigate as much as possible the impacts. We recommend you contact NRW A and PCNPA directly if you require further clarification on the points raised on their response.

Cârr-y-Môr's response:

2.1 The distance used for the selection of the study area

In their response, PCNPA noted that the SLVIA did not fully set out the reasoning behind the landscape and seascape study area, including the initial 10km ZTV mapping and the use of a more detailed 2km assessment area. Although PCNPA acknowledged that any likely effects are in practice contained within this shorter distance for low-lying buoyed infrastructure, they indicated that this could have been stated more clearly. The section below therefore sets out our methodology and explains why a 1.5-2km study area is proportionate for development of this scale.

Supporting Documents 2 of the SLVIA details how the Zone of Theoretical Visibility (ZTV) was calculated:

> "A Zone of Theoretical Visibility (ZTV) identifies the areas from which the proposed development can theoretically be seen, based on a two-metre eye level. For this project, ZTVs were generated to represent the maximum visibility of the shellfish farm, with an assumed structure height of 300 mm for surface buoys.
>
> The ZTV was calculated across the proposed site, illustrating areas where the proposed farm site buoys of these dimensions may theoretically be visible. It is important to note that the ZTV represents the maximum potential visibility of the infrastructure; the visibility of individual buoys will be significantly reduced.
> ZTVs for this project were created using a digital terrain model derived from the Ordnance Survey Terrain 5 data (obtained in 2024). These analyses were processed in QGIS 3.28 software, reflecting the latest geospatial processing tools. The sea level was standardised to 0 metres above high-water level, using data from the OS Boundary Line dataset. Both earth curvature and atmospheric refraction were accounted for in the ZTV calculations.
> The ZTV does not account for features such as built structures, localised terrain variations, or vegetation. As a result, actual visibility on-site will typically be less extensive than indicated. For marine areas, the ZTV assumes a flat sea surface and does not incorporate the effects of swell or wave patterns on visibility. Atmospheric conditions, such as haze or reduced visibility at greater distances, are also not reflected in the ZTV.
> The ZTV map is illustrated in Figures 7 & 8.
> A three-dimensional Digital Terrain Model (DTM) of the study area was created using gridded Ordnance Survey (OS) 10 m DEM lidar data. This dataset, aligned to the OS National Grid coordinate system, comprises height values (measured in metres above Ordnance Datum, AOD) at 10-metre horizontal grid intervals."

The figures referenced above show ZTV outputs at 10km, 5km and 2km, following GLVIA3 guidance. The quote received from a professional landscape consultant (which Cârˆy-Môr could not afford at around £11,000–£25,000) assumed a ZTV-based study area of approximately 1.5km. Our in-house work adopted a more conservative starting point, mapping ZTVs out to 10km and then focusing on a 2km area with representative viewpoints within that envelope (see figure 8). Our photographs demonstrate that the farm is not discernible from sea-level viewpoints at around 2km (see original and updated Viewpoint 7), and we therefore consider a 1.5-2km detailed study area to be reasonable in practice.

While we accept that the 2km study area could have been more explicitly stated in the SLVIA, we believe that the area actually assessed is proportionate and appropriate.

2.2 Viewpoint Selection

(Responds to: "the viewpoints (VP) selection" and "VPs do not conform to standards")

The indicative viewpoint list and overall approach for this application were discussed with PCNPA before the SLVIA was prepared. On 10 February 2025, PCNPA (Gayle Lister) confirmed acceptance of an in-house SLVIA approach under GLVIA3, recognising the financial constraints of a community benefit society.

Our team selected viewpoints which were intended to cover as wide a range of situations as is reasonable and necessary to understand the likely significant effects, in line with GLVIA3 section 6.21. These were chosen to represent key stretches of the coast path and other publicly accessible locations, with a mix of distances, elevations and orientations toward the proposed farms, as described in section 6.20.

We recognise that a specialist seascape architect could refine viewpoint selection further. However, within the financial constraints of a small community benefit society, and with PCNPA's prior acceptance of the approach, we consider the chosen viewpoints to be a proportionate, reasonable and adequate basis for understanding worst-case visual effects.

2.3 Consideration of Duration and Operational Cycles

(Responds to: "the lack of consideration of the duration of the development in the assessment of impact")

PCNPA note that the original SLVIA did not fully reflect the temporal nature of the farms, specifically, the way mussel and seaweed production cycles result in large variations in buoy numbers over time. This is an important point and we thank the PCNPA for the opportunity to give further context.

In our endeavours to present the maximum operational envelope for the purposes of this application, the original assessment effectively treated the maximum buoy configuration as if it were present continuously. The updated design and operational realities mean that:

- The revised buoy specifications and configurations already reduce the maximum envelope by ~80%.
- Operational experience at our own sites and other farms (e.g. in southern Ireland) shows that shellfish farmers minimise buoy numbers to reduce strain on structures and keep stock clear of the seabed.
- Mussel spat-fall is highly variable; in many years it is minimal. At least one third of the lines typically carry only spat-collection ropes and therefore require only around one third of the maximum floats we now indicate per line.
    - This bears consideration. In our new buoy configuration, we are proposing a maximum of 8 buoys per line at the smaller Carn ar Wig site. In practice, as few as 3 buoys may be present on this line for long periods of time.
- Mussels have a three-year life cycle. At any one time, only about one line in three would approach the buoy density shown in the original photomontage, and then only for around six months while that line is brought to harvest.
- After harvest, all floats are removed from that line and replaced the following spring with around one third of the original number, restarting the cycle.
- In some years, no seed settles on particular lines. In those cases, the line is removed for maintenance and redeployed the following April with only one third of the floats.

Taken together, these factors mean that the typical surface expression of the farms is both substantially lower and present for a much shorter duration than the original worst-case assessment suggested. GLVIA3 recognises that features whose presence varies over time typically lead to lower magnitude of visual effect, and we consider this to apply here.

While we are not in a position to commission further specialist photomontages to reflect operational norms, we hope that the clarified operational detail above enables NRW and PCNPA to factor duration and variability more accurately into assessments of magnitude and significance. As a small community benefit society, we remain willing to work with NRW and PCNPA to agree on any proportionate, targeted supplementary information that would genuinely assist their decision-making, within the limits of our resources.

2.4 Magnitude and Significance of Effects on LCAs and SCAs

(Responds to: "the level of magnitude and significance of impact for some of the LCA and SCA assessed")

PCNPA and NRW Advisory have expressed concern that the scale and spread of the proposed farms would lead to significant adverse effects on the relevant LCAs and SCAs. As a

small community benefit society working in a highly sensitive environment, we take these concerns seriously. However, when the updated design, true operational patterns, and five years of monitored real-world evidence are considered together, we believe that the magnitude and significance of effects have been overstated. Our position is that:

- Our design refinements portray a substantially different and much lower visual baseline from that assumed in the original SLVIA.
    - Buoy numbers reduced by ~80% (32 at Carn ar Wig; 84 at Porthlysgi).
    - Buoys will be a light grey colour, and will be carefully chosen for their low profile and minimal contrast (max. ~30 cm above sea level).
    - Increased 25m spacing between buoys improves visual porosity and reduces perceived surface density.
    - Lighting reduced to only two lit Trinity House buoys per site, each with low-intensity flashing yellow lights which meet safety requirements while minimising landward effects (see section 2.6 for details).
    - Figure 11 corrected to show the correct dimensions of 2 ha at Carn ar Wig and 3 ha at Porthlysgi.
- The visual presence experienced by receptors for the majority of the time is a fraction of the worst-case envelope.
    - Only a minority of lines carry higher buoy loads at any given time, and only for limited periods within the three-year mussel cycle.
    - Typical buoy numbers and densities are therefore substantially lower than the earlier “worst-case” diagrams.
    - See section 2.3 for more details
- Night-time effects have been substantially reduced
    - The updated lighting configuration materially lowers night-time visibility and addresses concerns raised by PCNPA and Cadw regarding potential effects on dark-sky character.
    - A detailed explanation of the revised lighting regime and its implications is provided in Section 2.6, and should demonstrate why any effect on the setting of PE295 Castell Heinif would be minimal.
- Beyond theoretical modelling, five years of real-world evidence demonstrates how sites are actually experienced in practice.
    - The existing NRW-consented farms, including the 3-hectare St Justinian’s farm which is identical in scale to the proposed Porthlysgi site, provides the most robust insight into likely effects:
        - No visual objections or complaints have been raised over five years.
        - The 2022 PEDW Inspector found the 3ha site not intrusive, not harmful, and consistent with the special qualities of the National Park.
        - The new sites sit within the same LCAs and SCAs now under discussion.

- The actual baseline is a working seascape, not an untouched one.
    - Consultee assessments appear to assume a near-pristine baseline. We note that the original SLVIA photomontages inadvertently omitted the existing consented Câr-y-Môr farms, resulting in visualisations that appeared to show a completely undeveloped seascape. This unintentionally reinforced an impression of an untouched baseline that does not reflect reality. The updated photomontages submitted with this response now correctly show the presence of the existing farm infrastructure,
    - In terms of the LCAs and SCAs in question, these combine dramatic coastal landforms with an already active marine environment. As detailed in SCA17 of the Pembrokeshire Coast Supplementary Planning Guide, the St Justinian's area is experienced by local people and visitors as a "busy and colourful little harbour" – this forms the true visual and experiential baseline against which change must be assessed. As well as RNLI lifeboats, RIB tours, fishing vessels, there is a steady stream of offshore tanker activity visible from the coastal path.
    - Updated photomontages show that the farms sit low in the water, adding only low-profile, light-coloured buoys close to the water surface, with no noise, wash or emissions.
    - Topography further reduces visibility: the farms sit below the cliffs, and sea-state variation means buoys appear intermittently, not continuously, along short stretches of the coast path.

Taking together the design refinements, the true operational patterns, the existing five-year evidence base, and the working seascape context, we consider that the magnitude of visual change is far lower than implied by consultee assessments, and the significance of effects does not equate to harm to landscape or seascape character.

2.5 Photomontage Accuracy and Limitations

(Responds to: "the photomontage of some VPs")

Having prepared the VIA in good faith, we recognise that the in-house photomontages used in the original SLVIA have contributed to concern:

- They were produced using low-cost software and limited community resources, which constrained how accurately we could represent scale and buoy colour.
- They were based on the initial maximum buoy numbers, not the revised design and typical operational conditions shown in section 1.1.
- Buoy sizes were misrepresented: now that we have included the original photos containing the existing farms, it is clear that the buoys could not be the size they

were shown to be. See section 1.1 for more information, and note that the current buoys are bigger, black and closely connected rather than grey as proposed.

- The original photomontages inadvertently omitted the existing Câr-y-Môr farms, giving the impression of a completely undeveloped baseline. This has now been corrected in section 1.1.
- The photographs were taken in flat, calm, bright conditions, which occur only a small proportion of the year; typical sea states, swell and surface texture in Ramsey Sound constantly change the visibility of buoys, particularly from elevated positions.
- The farms sit below the cliffs, while the coast path rises and falls along an undulating headland, meaning buoys would be in view only for short stretches, rather than continuously.

In hindsight, the original photomontages overstate both buoy numbers and their visual prominence. We accept that a full VIA prepared by specialist seascape architects would provide a more robust visual baseline, but the quoted cost (around £11,000-£25,000) has been prohibitive for a community benefit society at this stage. We include in our response updated aerial charts and photomontages using the corrected buoy numbers and specifications.

2.6 Night-Time Effects and Cumulative Impact

(Responds to: "the lack of night-time assessment or cumulative impact")

We acknowledge that a formal night-time visual assessment was not included in the original SLVIA. However, the assumptions in the PCNPA comments do not reflect the actual navigation-lighting configuration proposed for the farms, and most comments do not take into account the existing navigation and vessel lighting already present in the area (including tankers). PCNPA's concerns were based on an assumption that each Trinity House buoy would carry a white flashing light with a nominal range of 4 miles, leading to an impression of widespread night-time light scatter which is not representative of the intended design.

The actual lighting configuration is much more limited:

- Each farm will have four Trinity House marker buoys, of which only two per farm will carry a flashing yellow navigation light (not 8 lit buoys per farm, and 16 across both farms as stated in the SLVIA). The remaining two buoys per farm will be unlit and therefore not visible at night. We have confirmed this setup with Trinity House.
- The lanterns typically used on these 'special marks' (for example, Sabik M660-type lights) are very low intensity (around 2.5 W). They are designed to give a faint, recognisable cue offshore, not to be bright or clearly visible from land.

    - International experience supports this. In Scotland, for example, the Northern Lighthouse Board has in some cases recommended even lower-range lanterns such as the Sabik M550 (1 nautical mile) for sensitive dark-sky coastlines. This demonstrates that very low-intensity navigation lighting can be used safely without affecting the dark-sky character of coastal environments.
- They will be yellow (not white) to further reduce impacts on land and will flash quickly, once every 5 seconds, instead of being a solid source of light.
- The stated visibility range of 2–3 nautical miles is a theoretical maximum under clear, dark, offshore conditions. Any land-based light (house lights, street lighting, vehicle lights, mobile phones) markedly reduces visibility from the shore.
- The lanterns have a narrow vertical divergence (~8° at 50% intensity), meaning they are primarily visible to vessels at sea level, not observers on elevated coastal paths.
- A short reference video (timestamps 09:20–10:10) can be viewed in this link, showing a Trinity House-approved lit buoy of the type typically used on special marks. This footage illustrates the extremely low-key light signature and the degree to which these lights blend into the marine environment at night.

The immediate and wider seascape already contains multiple night-time light sources:

- The area already includes the new lifeboat station, located prominently at the level of the coast path. This is illuminated when manned.
- There are also night-time lifeboat launches and training manoeuvres, tour boat operations during the main season, and several fishing vessels that operate at night with navigation and deck lights.
- In St Brides Bay, large tankers are often anchored. These are brightly lit at night and clearly visible from much of the coast path along the south side of the peninsula, and from the road from St Davids to Roch.

Against this backdrop, we believe that two low-intensity yellow lights per farm represent a negligible addition and will not materially change the night-time character or dark-sky experience of the area. The vertical divergence mentioned above means that someone standing on an elevated coastal path or cliff would be outside the main beam of the lantern. As a result, they would see little or no direct light, whereas vessels on the water, aligned with the horizontal beam, would see the lantern clearly.

As to proportionality and cumulative effects, in the original SLVIA we judged that, given the small number of lit buoys and their offshore orientation, the assessment of lighting effects within sections 5.25, 5.27 and 5.29 was proportionate. Cumulative seascape, landscape and visual effects were referenced in sections 2.33–2.35, but we accept they were not elaborated in detail. The updated configuration reduces the effects even more.

If NRW considers it necessary, we would be willing to prepare a short, proportionate night-time visual note and an updated cumulative commentary using the correct lighting configuration.

2.7 Use of Standards and Pembrokeshire SSA

(Responds to: "VP selection and visualisations do not conform to standards" and NRW A's use of SSA)

NRW Advisory say that they have assessed the proposal against the "Pembrokeshire Seascape Sensitivity Assessment and Siting and Design Guidance for Aquaculture" (SSA) and conclude that our viewpoint selection and visualisations "do not conform to standards".

Cân-y-Môr's position is that:

- The SLVIA was prepared before the SSA was published.
- From the outset, we were advised to:
    - use GLVIA3 as the core landscape and seascape assessment framework;
    - apply standard ZTV and viewpoint selection methods; and
    - draw on established Scottish aquaculture LVIA practice and land-based visual methodologies.
- PCNPA explicitly accepted the principle of an in-house SLVIA under GLVIA3, recognising the financial constraints of a community benefit society.
- The SSA was expressed as being in draft form, not publicly available, and not referenced to us as the applicable standard during preparation or consultation. We only received the "final" version 17 days after the representation period had closed.

We are therefore unclear about the status and weight of the SSA in this specific determination and are concerned about the process integrity of retrospectively applying a draft guidance document to this application and to the existing, already consented farms. We would welcome clarification from NRW Marine Licensing as to how the SSA is to be interpreted in future alongside adopted policy and plan documents.

We would be open to consultation and collaboration on how to use proportionate guidance that emerges from the SSA for future offshore applications, but we do not believe it should retrospectively recast the decision-making framework used to determine the preparation and outcome of this Application, nor any of our existing sites.

2.8 "Adverse impacts cannot be avoided, minimised or mitigated"

NRW Advisory's view is that adverse impacts "cannot be avoided, minimised or mitigated". We believe this does not reflect the evidence available or the refinements made, and remain committed to working openly and proportionately with NRW to ensure that this low-impact,

community-led operation continues to function responsibly, aligned with its environmental responsibilities and the purposes of the National Park.

We have set out elsewhere in this submission the evidence of five years of responsible, low-impact operation, the successful functioning of an existing farm of identical scale, and the positive social, environmental and educational contributions that our community business already brings to the area. In 2022, an independent assessor found that a 3ha farm would not impact the purposes of many of the same LCA and SCAs. Building on that experience, the updated proposals now go further in reducing visual and operational presence.

What we now provide is an example of a summary Avoid-Minimise-Mitigate framework, to show that the proposal is both manageable and controllable, and that effects can be prevented, reduced and monitored in line with policy expectations. If desired, we can provide a more detailed document to this effect.

Avoid

- A substantially reduced effective surface footprint;
- An ~80% reduction in buoy numbers compared with the earlier submission;
- Use of small, light-coloured buoys (maximum ~30 cm above sea level) to avoid visual prominence.

Minimise

- Limited lighting: only two low-intensity Trinity House lights per site, meeting safety requirements without affecting dark-sky conditions;
- Buoy layouts and densities designed for operational reality rather than theoretical maximums;
- Seasonal and biological cycles that naturally keep surface gear to a minimum.

Mitigate

- Corrected and clarified visual information;
- Ongoing monitoring commitments across environmental, operational and visual aspects;
- A willingness to supply further proportionate assessment or make operational adjustments should evidence require it;
- Full recognition that NRW retains powers to vary, suspend or revoke licences if harm emerges.

2.9 National Trust's Position on Visual and Seascape Effects

NRW notes that the National Trust, as landowner of key viewpoint areas, does not support the development and considers that it will adversely impact a series of LCAs and SCAs in its care.

Cân-y-Môr recognises the National Trust's responsibility for managing highly valued seascapes and viewpoints along the St Davids Peninsula. We take seriously their concern that the proposals may affect several LCAs and SCAs within their stewardship. However, the following contextual points must be emphasised.

1. NRW has already consented a farm of identical scale in the same LCAs/SCAs, with five years of monitored, complaint-free operation.

One of our existing NRW-licensed trial farms at St Justinian's is the same size as the larger of the proposed expansions and lies within the same landscape/seascape character areas now under discussion. Over five years, that site has generated no community visual complaints, and in 2022 a Planning and Environment Decisions Wales Inspector found the farm to be *non-intrusive, non-harmful and consistent with the special qualities of the National Park*. This is the most robust independent evidence available for assessing likely effects on these LCAs/SCAs.

2. The existing landscape character is already a busy working seascape, particularly in the tourist season:

- Three lifeboat stations, with regular training launches and manoeuvres.
- Around six boat-tour companies, operating 12 RIBs between April and October and carrying thousands of visitors through Ramsey Sound and around Ramsey Island.
- Hundreds of visitors landing on Ramsey Island daily in season.
- The Bitches rapids attracting large numbers of canoeists each year, plus paddleboarders and recreational anglers.
- Local day boats and larger fishing vessels operating within a 5-mile radius, including at night.

This context does not diminish the beauty of the area, but it does mean the seascape is far from empty or untouched. It is a dynamic, living coastline, as outlined in SCA17 of the Pembrokeshire Coast Supplementary Planning Guide, and the National Park increasingly recognises this working heritage within its Management Plan and regenerative tourism ambitions.

Against this backdrop:

- The proposed additional static buoys (32 at Carn ar Wig and 84 at Porthlysgi, with only a proportion visible at any time due to the operational cycles described earlier) are small in scale, and produce no noise, wash or emissions.

- By excluding routine vessel passage through their footprint, the farms effectively create small “no-go” sanctuaries for marine life within a busy marine corridor. Over the last five years, the trial farms have increased local biodiversity and provided quieter spaces for seals and seabirds amidst high surrounding activity.
- The farms sit low in the water and are visually dwarfed by the surrounding cliffs.

Operationally:

- Our 4-tonne flat-bottomed work barge with 240 hp, and 17-foot aluminium tender, are slow-moving and relatively quiet compared with the RIBs with twin outboards delivering around 500 hp and the 32-tonne Tamar Class lifeboat with twin Caterpillar diesel engines delivering around 2000 hp, as well as other fishing and leisure vessels in the area.
- We typically visit the farms a couple of days per week; once on site, we tie up, switch off engines, and work quietly on the lines.
- We are currently undertaking a UKRI-funded feasibility study into converting our main engines and crane to electric power, with the aim of further reducing noise and emissions.

We recognise that perceptions of tranquillity are subjective. However, we believe that, in the specific context of St Justinian’s and Ramsey Sound, the farms add limited additional visual or acoustic disturbance relative to existing activity, and even create localised biodiversity “oases” which enhance the very wildlife experiences that visitors value.

We would welcome further dialogue with NT and PCNPA on interpretive signage or joint educational initiatives so that visitors better understand the ecological role and low-impact nature of the farms.

2.10 National Trust: Concerns around Future Expansion

From the NT response: “It was always envisaged that any future expansion of aquaculture in this area would be away from sensitive areas of the landscape and seascape; the applicants had indicated that their expansion plans were to be in the more industrialised area of the coast.”

CârˑyˑMôr Response

We understand and share the National Trust’s view that any substantial aquaculture expansion should be directed toward offshore locations. Our long-term strategy fully aligns with this principle. The near-shore development proposed in this application is not expansion for expansion’s sake, but the final stage of essential enabling infrastructure required to make our operation and our offshore plans viable.

We have already identified two potential offshore farms, one in St Brides Bay and one north of Fishguard, both several kilometres offshore and effectively invisible from land. Over the past two years, our community engagement team, working alongside WWF Cymru, has undertaken early social-licensing work with local communities and harbour authorities and will continue this engagement before any formal applications are made. As a community business, maintaining strong local support through open dialogue, collaboration with local fishermen, and active stewardship of the marine environment is central to our model.

Offshore farms can only operate successfully if supported by accessible near-shore infrastructure that can:

- produce juvenile seaweed and shellfish stock for offshore deployment;
- provide safe and accessible training grounds for crews before they work fully offshore;
- enable equipment testing and refinement in realistic but manageable conditions; and
- host education, stakeholder visits and regulatory engagement, which are not practicable 45 minutes offshore.

These functions are essential components of offshore readiness and cannot be carried out from offshore sites alone.

The selected offshore sites were chosen because they are close enough to be serviced safely and efficiently from our existing base near St Davids. To function, they require a skilled local workforce trained in conditions similar to those offshore. We have spent more than five years developing that workforce and the community support needed to enable a regenerative marine sector.

Many Welsh coastal communities face the same challenges seen in rural Scotland: seasonal employment, depopulation, declining maritime skills and limited year-round economic opportunities. Scotland has addressed these challenges by leaning into aquaculture, integrating low-impact marine farming even within remote and protected seascapes. As a result, the sector now provides thousands of jobs and underpins the resilience of coastal communities. Wales has similar natural marine resources, but the capacity to use them sustainably is at risk if the remaining skills base is not supported. Our near-shore sites are critical to developing and maintaining these skills while enabling a responsible, community-led offshore sector.

Food production must also remain within Grade A classified waters, which the Sound uniquely provides in this region. This classification is essential for safe, direct-to-consumer seaweed and shellfish products and supports income diversification for fishermen who already work along this coastline.

Relocating the near-shore farms at this stage would require repeating years of community engagement, workforce development, consenting, environmental baseline monitoring, and product testing. This would delay offshore development by at least six years and would likely result in Cân-y-Môr's insolvency, putting at risk the existing workforce, community support, and several million pounds of public and private investment.

This Application does not represent open-ended expansion. It is the final enabling step required to deliver Wales's first community-led offshore seaweed and shellfish farms. Offshore development will only succeed with near-shore infrastructure of the type proposed here, and the St Davids Peninsula remains the only practical and socially supported location for that infrastructure.

3. Benthic Environment, Monitoring and Biosecurity (Regulation 67(4) Responses)

This section relates to responses around Benthic Environment, Monitoring and Biosecurity. Additional responses have also been noted from NRW Advisory on the genetic diversity of cultured seaweed.

Benthic Request: From NRW Regulation 67 (4) Letter

We consider further information/clarification is required to address the following comments raised by NRW A;

- **NRW A** requests further clarification on whether trigger points have been selected to avoid potential impacts on the Large Shallow Inlets and Bays and Reef features. NRW A suggests the submission of a periodic monitoring review report which captures mitigation measures such as rotation of infrastructure.
- NRW A requests evidence in support of the statement made in Environmental information to inform HRA, that current farms placed for 5 years have not resulted in detritus accumulation or smothering.
- NRW A requests the inclusion in the Aquaculture Environmental Management Plan of regular monitoring and maintenance of infrastructure to avoid marine littering.
- Further information is requested by NRW A on the control of pathogens and biosecurity measures.

Cârr-y-Môr Response:

We recognise NRW Advisory's request for further clarification regarding potential benthic impacts, trigger points, infrastructure maintenance, litter prevention, and the management of pathogens and genetic diversity. We welcome the opportunity to provide reassurance based on five years of on-site evidence and to clarify how we will avoid, minimise and mitigate risks going forward.

In summary:

- Five years of monitoring show no benthic harm to date
    - Cârr-y-Môr has already completed five years of monitoring at the two existing trial farm sites, supported by professional marine ecologist Jon Moore, who has previously undertaken surveys for NRW.
    - The 61-page Baseline Benthic Habitat Survey (submitted with the original application and approved by NRW officers) and subsequent observations show:
        - no detritus accumulation beneath the current farms;

        - no evidence of smothering of sediment or rocky substrates; and
        - baseline conditions at the proposed new sites are comparable to those under the existing farms.

- The farms are located in a highly energetic, well-flushed setting
    - Ramsey Sound has tidal currents of up to 6 knots and a tidal range of around 5.5 m, giving strong, continuous flushing.
    - Carn ar Wig experiences continuous 1–3 knot currents; Porthlysgi's open southerly aspect receives significant swell for much of the year, repeatedly burying and uncovering anchors and preventing persistent deposition.
    - These conditions are consistent with international evidence that regenerative seaweed and shellfish farms in highly flushed systems have negligible benthic impact.

- We already conduct robust monitoring and agree to trigger-based mitigation
    - We already use drop-down video, divers and underwater drones to assess seabed condition and infrastructure.
    - We commit to adding the two proposed sites to our existing annual benthic monitoring programme (with reporting by Jon Moore); agreeing clear trigger points with NRW (e.g. signs of smothering or detritus accumulation) which would prompt stock rotation, temporary gear relocation or changes in harvesting; and reporting these findings through a periodic monitoring review.

- Strengthened AEMP and litter prevention
    - The Aquaculture Environmental Management Plan has been revised to include regular inspection and maintenance of infrastructure, lost-gear reporting and formalised procedures to prevent marine litter.
    - Anchors of more than sufficient weight are used to keep infrastructure in place and reduce the risk of seabed abrasion.

- Best-practice biosecurity and genetic diversity safeguards
    - For shellfish (notably native oysters and scallops), we follow NORA/Native Oyster Network biosecurity guidelines and use bonamia-free hatcheries with CEFAS-inspected biosecurity.
    - For seaweed, we follow DEFRA guidance and the Natural England review (Wilding et al., 2021), using locally derived gametophytes via Hortimare, and methods that maintain wild genetic diversity and minimise crop-to-wild gene flow.

Taken together, these measures mean that benthic impacts can be avoided, minimised and effectively mitigated in line with the Welsh National Marine Plan and the precautionary approach referred to in our cover letter. We also see this as consistent with NRW's powers to vary or revoke licences if new evidence of harm were ever to emerge.

3.2 Trigger Points and Periodic Monitoring

(Responds to: request for trigger points and a periodic monitoring review report)

NRW A requests further clarification on whether trigger points have been selected to avoid potential impacts on the Large Shallow Inlets and Bays and Reef features, and suggests the submission of a periodic monitoring review report capturing mitigation measures such as rotation of infrastructure.

Existing evidence base

As part of the initial application, a 61-page Baseline Benthic Habitat Survey Report was submitted. This report was produced with support from, and approved by, NRW's Colin Charman, Ben Wray and Alex Scorey. It was designed to establish the effects of the current farms and describe seabed habitats under the proposed farm areas. Methods included both Drop-Down Video (DDV) and diver footage at locations under the current farms and control locations away from the farm areas (where the proposed farms would be).

The report contains 38 images from underneath both current farm areas; and 51 images from under the proposed farm areas. None of these images show empty shellfish shells or any obvious detritus from the farms. When comparing the same habitat types under the existing farms and in the proposed expansion areas, there is no evidence of smothering.

Habitat summary:

- Porthlysgi is mostly bare sand with very minimal organisms – a naturally low-complexity habitat, showing no signs of impact from existing farm structures.
- Carn ar Wig has a mixture of sediment and rocky areas with low-trophic organisms such as seaweeds; images taken under the current farms and in the proposed extension area show comparable levels of growth, again with no sign of smothering.

The Ramsey Sound environment supports this:

- tidal currents up to 6 knots;
- a tidal range of 5.5 m;
- high flow rates around and beneath the farms;
- at Porthlysgi, an open southerly aspect and frequent swell which repeatedly moves sand and re-buries anchors.

These conditions mean waste material is quickly dispersed and is unlikely to accumulate beneath the farms.

Commitment to trigger points and periodic monitoring

To ensure continued protection of the Large Shallow Inlets and Bays and Reef features, we welcome NRW A's suggestion and commit to:

- Adding the two proposed sites to our existing annual benthic monitoring programme, with a report produced by Jon Moore.
- Agreeing clear trigger points with NRW, such that evidence of smothering, detritus build-up or habitat change at sensitive locations would trigger stock rotation, temporary gear relocation, or modified harvesting; and these measures and their outcomes would be documented in periodic monitoring reviews.
- Strengthening the Aquaculture Environmental Management Plan (AEMP) to embed regular maintenance, debris checks and rope/float inspections; formalise protocols to prevent marine litter and respond to any lost gear; and ensure that any benthic concerns identified are acted on quickly.
- Applying recognised best-practice guidance for genetic diversity, biosecurity and pathogen control, including advice from Natural England (Wilding et al., 2021), NORA/Native Oyster Network; and DEFRA's seaweed aquaculture guidance.

We believe that the combination of a highly energetic physical environment, five years of on-site evidence, annual professional monitoring, agreed trigger-based mitigation pathways; and adherence to recognised best practice shows that benthic impacts can be kept within acceptable limits and managed adaptively over time.

3.3 Evidence of No Detritus Accumulation or Smothering

(Responds to: request for evidence on "no detritus accumulation or smothering")

NRW A requests evidence in support of the statement in the Environmental Information to inform HRA that current farms placed for five years have not resulted in detritus accumulation or smothering.

Baseline and monitoring evidence

- The Benthic Baseline Habitat Survey (submitted with the initial application and approved by NRW officers) contains 89 seabed images across all relevant habitat types:
    - 38 images taken beneath the current farms;
    - 51 images taken beneath the proposed expansion areas.
- None of these images show empty shells or obvious farm-related detritus.

- When comparing like-for-like habitat types under the farms and in the proposed areas, there is no evidence of smothering or difference attributable to the current infrastructure.

In addition to the formal survey:

- Regular use of divers and underwater drones to inspect farm structures has not shown detritus build-up under the existing farms.

Physical context

- **Ramsey Sound**:
  - currents up to 6 knots;
  - tidal range ~5.5 m;
  - highly energetic and well-flushed conditions.
- **Porthlysgi Bay**:
  - open southerly aspect, receiving the full prevailing weather and up to 7 m of swell;
  - combined with the Ramsey Sound topography, this generates a dynamic, shifting sandy seabed with continuous reworking.
- These physical characteristics make persistent deposition highly unlikely at either site and are consistent with international literature and NRW's expectations for high-energy systems.

This evidence supports the statement that, over the first five years of operation, the current farms have not resulted in detritus accumulation or smothering, and that the proposed modest expansion—under the same conditions and with monitoring in place—can be managed safely.

3.4 AEMP: Monitoring and Marine Litter Prevention

(Responds to: inclusion of regular monitoring/maintenance to avoid marine littering)

NRW A requests that the Aquaculture Environmental Management Plan (AEMP) explicitly includes regular monitoring and maintenance of infrastructure to avoid marine litter.

Cârr-y-Môr Response

The Aquaculture Environmental Monitoring Plan submitted with the application has been revised to include explicit information on monitoring and maintaining farm infrastructure to avoid marine littering. The revised document is attached, with all updates clearly highlighted.

The updated AEMP now provides for:

- Scheduled infrastructure inspections, including anchor lines, ropes, floats and shackles;
- Rope, float and shackle integrity checks, with clear recording of any replacements;
- Documentation of gear maintenance, via simple logs and photographic records;
- Lost-gear reporting procedures and recovery efforts;
- Regular photographic evidence from workboats of infrastructure condition; and
- Staff protocols for deck management, waste handling and debris retrieval (including third-party debris encountered during operations).

Anchors of more than sufficient weight will continue to be used to ensure infrastructure remains securely in place on the seabed, reducing the risk of gear movement and associated abrasion or litter. These measures are in line with our wider Avoid–Minimise–Mitigate framework and reflect our commitment, set out in the cover letter, to operate to high environmental standards.

3.5 Pathogens and Biosecurity Measures

(Responds to: further information on control of pathogens and biosecurity)

NRW A requests further information on the control of pathogens and biosecurity measures, particularly in relation to the translocation and cultivation of native oyster (*Ostrea edulis*) and scallops (*Pecten maximus*).

Cân-y-Môr Response

The control of pathogens and our biosecurity measures is outlined in the submitted Marine Invasive Non-Native Species Biosecurity Risk Assessment and Management Plan. We acknowledge NRW A's request for more detailed explanation of:

- the source of stock;
- processes for cleaning and inspection; and
- related mitigation measures.

Drawing on our experience with native oyster on-growing for restoration projects, we follow:

- NORA and Native Oyster Network UK & Ireland guidance: *European Guidelines on Biosecurity in Native Oyster Restoration* (November 2020); and
- DEFRA regulatory guidance for new and expanding marine seaweed aquaculture in England, where relevant.

Key elements include:

- **Source and disease status (native oysters)**

    - We source native oysters from a bonamia-free hatchery, operating under strict biosecurity and inspected by the CEFAS Fish Health Inspectorate for notifiable diseases.
    - This greatly reduces the risk of unknown contaminants and makes it very unlikely that Pacific oysters would be mixed in.

- **Inspection and removal of INNS**
    - All oysters are inspected using minimum "visible examination of the shell and hinge" for epifauna, as set out in the NORA guidance.
    - Any Pacific oysters or other INNS encountered are removed and recorded.
    - Native oysters are kept in baskets or lantern nets so that any unintentionally introduced Pacific oysters (too small to detect initially) remain contained and can be removed once they are large enough to identify (they grow faster and have a distinct shell shape).

- **Scallop sourcing and cleaning**
    - Scallops will be sourced from suitable, good-quality waters, with individuals inspected and cleaned before being relayed onto the farm.
    - Similar principles of screening and biosecurity will apply.

These measures are embedded in the Biosecurity Plan and will be kept under review in light of NRW advice and emerging best practice.

3.6 Genetic Diversity of Cultured Seaweed

(Additional NRW A concern: genetic diversity and crop-to-wild gene flow)

NRW A has raised concerns about how the genetic diversity of cultured seaweeds used on the farms will be maintained and how crop-to-wild gene flow will be managed.

Cârr-y-Môr Response

In the absence of specific Welsh Government guidance on seaweed aquaculture, Cârr-y-Môr has previously been advised to refer to:

- DEFRA's "Regulatory guidance for new and expanding marine seaweed aquaculture businesses in England"
- Natural England's evidence review: *Seaweed aquaculture and mechanical harvesting: an evidence review to support sustainable management* (Wilding et al., 2021).

Table 2 of the DEFRA guidance notes potential impacts including: "Potential introduction of pests, parasites, disease, INNS and impact on genetic diversity (crop-to-wild gene flow)", and directs readers to Wilding et al. (2021) for best practice. Section 3.8 of that report

("Cultivation best practice") sets out measures to maintain genetic diversity of wild stocks and minimise risks. We commit to following this guidance. Key principles include:

- **Fertile material and genetic preservation (kelps)**
  - Collect fertile material from only a restricted number of wild plants (typically 10–30 individuals) to be biobanked and used to initiate gametophyte cultures.
  - Carry out collections in accordance with any Crown Estate harvesting licence.
  - Source reproductive material from sites relatively close to the aquaculture site (distance not rigidly defined) so that stocks remain locally adapted.

- **Minimising crop-to-wild gene flow**
  - Source fertile material from **multiple nearby locations** to maximise genetic diversity and environmental tolerance of cultured stocks.
  - Avoid using fertile material from farmed populations unless part of a structured selective breeding programme.
  - Harvest crops **before the onset of reproductive maturity** where appropriate to minimise gene flow from farmed to wild populations.

Hortimare seed bank and local stock

Cât-y-Môr currently uses a seed bank of kelp species maintained by Dutch company Hortimare, which has created a biobank of gametophytes from local wild stock suitable for use in Pembrokeshire. In future, small amounts of local wild stock will periodically be sent to Hortimare to refresh and maintain genetic diversity in the seed bank, ensuring it remains representative of the local gene pool rather than introducing non-local genotypes.

The guidance also notes that the use of seed banks and gametophyte culturing allows one collection event to supply seed for several subsequent years, reducing the need for repeated wild harvesting. Kelp species have very high fecundity, so relatively small amounts of sorus tissue can produce large volumes of seed. For example, 5–10 sorus regions can seed 10–20 km of twine (Stanley et al., 2019).

Cât-y-Môr would follow this advice when collecting fertile material, ensuring the holdfast and top of the blade are left intact so the individual plant can regrow, as well as only taking the minimum amount of individual blades needed.

These approaches are consistent with internationally recognised best practice and with the DEFRA guidance referenced above. We will continue to apply them to maintain genetic diversity, minimise crop-to-wild gene flow and align with NRW expectations on long-term ecological integrity.

4. Marine Mammals (Regulation 67(4) Responses)

This section relates to questions around marine mammals.

Marine Mammals Request: from NRW, Regulation 67(4)

- Please ensure the MEAC documents reflect the inclusion of live marine mammal engagement hotline.

Cârr-y-Môr's Response

Cârr-y-Môr welcomes the opportunity to clarify and strengthen these procedures.

We have now updated the MEAC to include:

- The BDMLR (British Divers Marine Life Rescue) 24/7 hotline for reporting live entanglements;
- Internal reporting protocols with named staff responsibilities;
- Immediate response steps, including tension release, gear retrieval or temporary modification;
- Staff training commitments, ensuring all operational crew understand identification, reporting and response protocols.

These additions formalise the practices we already follow, reflecting the same precautionary approach set out in the cover letter, where we emphasised our track record of safe, responsible, closely monitored operation.

Importantly, we have now operated these trial farms for five years with no marine mammal entanglements. The simple rope-and-float design used in regenerative seaweed and shellfish farming presents very low entanglement risk, especially when compared to mobile fishing gear, creels, or recreational drifting lines. Staff work at slow speeds, remain tied onto lines while working, and have high visibility of the gear at all times.

Updated MEAC documentation is provided within the supporting documents.

5. Navigation – Main Response (Regulation 67(4) Responses)

This section relates to questions around navigation. No additional navigation-related responses were received.

Navigation Request from NRW, Regulation 67(4):

- Please respond to the request of Trinity House regarding moving the buoys currently established at the farms to the corner extremities of the new sites. The buoys are to be yellow pillar shaped with yellow x top marks and each exhibiting a Fl Y 5s light (2-3nm range) – all components to be Cat 3.

Cârr-y-Môr's Response

Cârr-y-Môr will comply fully with all Trinity House requirements. These refinements are consistent with the wider design improvements described in the cover letter, where we noted our commitment to significantly reducing the visual signature of the farms while maintaining navigational safety.

We confirm that:

- All yellow navigational buoys for the current farms will be repositioned to the corner extremities of each proposed site boundary;
- Two seaward-facing buoys per site will carry Fl Y 5s flashing yellow navigation lights, in accordance with Trinity House specifications and as described in the original NRA/MEAC documentation;
- All navigation components will meet Category 3 standards;
- Updated site layout plans reflecting these changes will be included in the technical pack.

Trinity House has provided written confirmation that the proposed configuration is acceptable; this correspondence is included in the supporting documents.

These measures ensure clear, safe passage for all vessels operating within and around Ramsey Sound while complementing the reduced-impact visual design refinements presented elsewhere in this submission.

6. List of Supporting Documents:

The following documents have been uploaded into the Share File link per NRW request.

- DEML2540 Updated Photomontages (HD) - *please note that this document is also available as a 550MB file if needed*
- 7 - Car-Y-Mor license - INNS Biosecurity RA and Management Plan REVISED NOV25
- Aquaculture Environmental Management Plan REVISED NOV25
- MARINE EMERGENCY ACTION CARD - Carn Ar Wig REVISED NOV25
- MARINE EMERGENCY ACTION CARD - Porthlysgi REVISED NOV25
- Trinity House confirmation email for Nav Lighting
- Updated SLVIA Figures
    - Figure 4 Updated
    - Figure 5 Updated
    - Figure 8 Original
    - Figure 11 Updated