Rampion 2 Wind Farm

Category 8:

Examination Documents:

Applicant's Post Hearing Submission – Issue Specific Hearing 1

Appendix 13 – Further Information for Action Point 45 and 46 – Physical Processes and Benthic

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1. Introduction

1.1 Overview

1.1.1 Rampion Extension Development Limited (hereafter referred to as 'RED') (the 'Applicant') is developing the Rampion 2 Offshore Wind Farm Project ('Rampion 2') located adjacent to the existing Rampion Offshore Wind Farm Project ('Rampion 1') in the English Channel.

1.1.2 Rampion 2 will be located between 13km and 26km from the Sussex Coast in the English Channel and the offshore array area will occupy an area of approximately 160km^2. A detailed description of the Proposed Development is set out in **Chapter 4: The Proposed Development**, **Volume 2** of the Environmental Statement (ES) **[APP-045]**, submitted with the Development Consent Order (DCO) Application.

1.2 Purpose of this Document

1.2.1 This document provides further information requested in response to Action Point 45s and 46 set out in the Action Points Arising from Issue Specific Hearing 1 **[EV3-020]** which state:

- Action Point 45 - "*Consideration of a commitment to use rock bags, including their material*"; and
- Action Point 46 - "*More details required of proposed alternatives to use of floatation pits, such as gravel beds. The environmental effects of these alternatives should also be assessed in the Environmental Statement.*"

2. Consideration of a commitment to use rock bags

2.1.1 The DCO Application details the potential need to apply cable protection in the event it is not possible for spans of cable to be buried at the agreed depth. The protection is principally applied to protect both the cable and sea users, but it also acts to increase separation between the cable and any electro-sensitive species in an area, reducing impact. The DCO Application details more than one type of cable protection material, allowing flexibility on determining the most appropriate solution for where cable protection needs to be applied.

2.1.2 When designing the cable protection solution, the key driver will be to ensure it remains in place over the lifetime of the Proposed Development with minimal operational intervention. At the decommissioning phase of the Proposed Development, an assessment will have to be made before a decision can be made as to whether it is beneficial to remove it. This would form part of the licence application required to enable authorisation of the decommissioning works.

2.1.3 The material used for the cable protection will have a bearing on the method used to remove it, should such a licence be granted.

- Rock Protection: This is a common material which has been used on many offshore wind projects. It does not involve the introduction of plastic into the marine environment. To remove this material at the decommissioning stage, it would typically need to be dredged. There will be a trade off between how effective the dredging will be to remove the original material deposited versus the amount of disturbance introduced to the seabed as it stands at the time of the decommissioning works.
- Concrete Mattresses: There are several examples of concrete mattresses deployment for cable protection purposes. In deciding on the use of a concrete mattress as a solution, consideration will need to be made on the emissions associated with concrete production and that these structures are typically constructed using nylon rope. Removal of concrete mattresses would require assessment of how much seabed material had been deposited on top of the mattresses over the lifetime of its deployment and the competency of the nylon rope which typically holds the concrete elements of the mattress together.
- Rock Bags: There are numerous examples of the use of rock bags for cable protection applications in the offshore wind industry. Typically, these rock bags have been formed of polymer netting. One manufacturer is known to be offering a basalt fibre product, but the Applicant is not aware of any current applications of this technology for cable protection. It is likely that basalt fibre products will be significantly more expensive than polymer-based ones. As for concrete mattresses, an assessment of the rock bags would need to be made at the stage of decommissioning to understand whether they hold sufficient integrity to be able to be removed in whole. If this is not possible, they could be removed by cutting the bags and decanting the rocks contained onto the

seabed, which could subsequently be dredged in a similar manner to that used for the removal of straight rock cable protection.

2.1.4 In summary:

- The Applicant cannot commit to the removal of cable protection, as this will be subject to a separate licence application to enable decommissioning of the project.
- The Applicant would like to maintain the options for the materials used for cable protection works, as set out in the application and defined in the DCO, to enable the most appropriate design solution for the situation which evolves after the initial cable burial methods detailed in the application have been applied.
- If either rock bags or concrete mattresses are determined as the preferred material for cable protection, the Applicant will seek to find products in the market which do not involve the use of plastics, though this is subject to such products being available in the supply chain at the procurement stage and these products being suitable for the application of long-term cable protection.

3. Assessment of gravel bag beds

3.1.1 The Proposed Development has discounted the use of floatation pits as an option in case vessel beaching is not possible. However, a cable installation method still needs to be available to the Project as an alternative to vessel beaching (if the ground conditions and/or the vessel utilised do not allow for this). It is proposed that temporary gravel bag beds are used, if required. These would have a footprint equivalent to the cable installation vessel and allow the vessel to beach at a location where the ground conditions will not allow direct beaching on the seabed.

3.1.2 The use of gravel bags is regarded as the maximum design scenario in comparison to beaching the cable installation vessel, due to the length of time the gravel bag beds would need to remain on the seabed and the total area involved. The cable installation vessel would be present for one or two tidal cycles at each location where it would need to beach, whereas the gravel bags would be in place for up to approximately six weeks and would have a greater surface area than the vessel. Further details and an assessment of impacts are presented below.

3.1.3 The alternatives to the use of floatation pits was discussed within the **Chapter 9: Benthic, subtidal and intertidal ecology, Volume 2** of the ES **[APP-050]** but was not specifically assessed. Further detail and assessment are presented in **Section 4** below.

3.2 Magnitude of Impact

3.2.1 The total maximum area of subtidal habitat disturbance due to placement of gravel bag beds is predicted to be up to approximately 142,800m^2 in total. This equates to approximately 0.06 percent of the total seabed area within the proposed Order Limits. This amount of temporary disturbance within the construction phase of the development is covered by the over-precautionary nature of the ES assessment and maximum design scenario presented within Table 9-15 of the **Chapter 9: Benthic, subtidal and intertidal ecology, Volume 2** of the ES **[APP-050]**. The Applicant is confident that this work will fit within the envelope already assessed.

3.2.2 However, additional assessment is presented here as the methods have not been specifically discussed within the ES.

3.2.3 To get close enough to the shore to enable the cable to be pulled in, the cable installation vessel will need to get close to the HDD duct exit points. The application also details the option to install an up 1,000m duct extension, which could be used to extend the position of the duct exit point further from mean low water springs (MLWS). In event that the ground conditions do not allow the cable installation vessel to beach, a decision could be made to utilise the proposed gravel bags. In this event it is likely that the duct extension option will also be used. The gravel bag bed would be installed prior to the cable pull in operations at the land fall for each export cable.

3.2.4 The cable installation vessel is likely to be a maximum of 150m long and 50m wide, therefore the gravel bag bed to support the beaching operation would be

170m long and 70m wide. The gravel bag beds when laid will be 1m tall. **Figure 1** below presents a schematic of the temporary gravel bag beds.

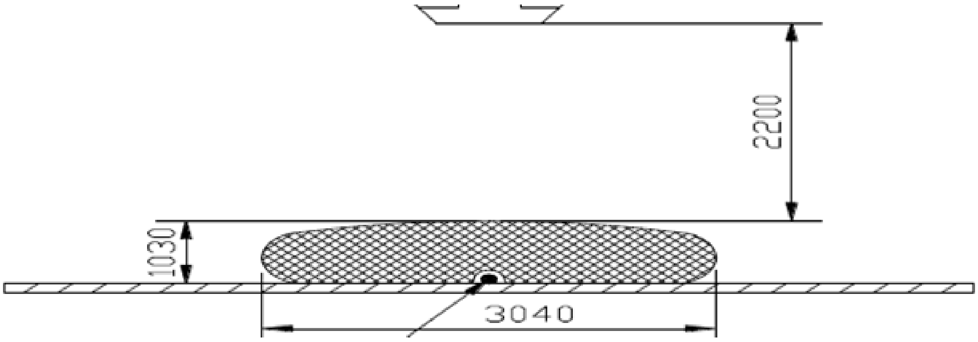

Figure 1. Schematic of gravel bag.

3.2.5 Installation of the gravel bag beds would be completed one month prior to the planned date of the cable pull in works. Each of these gravel bag beds would be the same dimensions and once the gravel bags had been used for the first export cable installation, they will be moved to form gravel bag beds along the route for the second export cable. This activity would be completed for each of the four export cables. There would be up to three gravel bag beds in total for each of the export cable pull in operation and each would remain in the same position for up to approximately six weeks before being moved to their next location for a subsequent export cable pull in operation. In total gravel bag beds could be in place on the seabed along one of the four export cable installation routes for a total of six months. Following installation, the gravel bags would be fully removed from the inshore area, so they would be regarded as temporary in nature.

3.2.6 The magnitude of the impact on known chalk habitat and other known subtidal receptors within the Offshore Export Cable Corridor during gravel bag placement is classified as minor. This impact is classified as temporary and very localised compared to the overall extent of these features within the eastern English Channel region, as does not threaten the long-term viability of the resource (as described within Section 9.6 of the **Chapter 9: Benthic, subtidal and intertidal ecology, Volume 2** of the ES **[APP-050]**).

3.3 Sensitivity of Receptors

3.3.1 The sensitivity of all subtidal biotopes that have been predicted to characterise the proposed area for gravel bag placement have been assessed according to the detailed MarESA sensitivity assessments (

3.3.2 **Table *3.1*)**. This assessment has determined that all biotopes have a 'low' to 'medium' sensitivity to a disturbance of this nature. As detailed within the baseline characterisation (**Chapter 9: Benthic, subtidal and intertidal ecology, Volume 2** of the ES **[APP-050]**), comparable habitats are distributed within the wider region and eastern English Channel. Therefore, given the relatively small spatial scales for the total habitat disturbance outlined above, this loss is not expected to undermine regional ecosystem functions or diminish biodiversity.

3.3.3 According to predicted spatial distribution of biotopes (Figure 9.4 of **Chapter 9: Benthic, subtidal and intertidal ecology – Figures, Volume 3** of the ES **[APP-082]**) the biotopes likely to be present within the footprint of the proposed gravel bag beds include '*Sabellaria spinulosa* with kelp and red seaweeds on sand-influenced infralittoral rock (A3.215)'. This biotope is described as having a 'medium' sensitivity to abrasion and disturbance.

3.3.4 The resistance of the characteristic species of this biotope is regarded as low as abrasion at the surface of *S. spinulosa* crusts is likely to damage the tubes and result in sub-lethal and lethal damage to the worms. It is also likely that placement of gravel bags will result in the loss of seaweed, particularly kelp species with associated epiphytes, and understorey macroalgae (where present). The resilience of this biotope is regarded as medium, with the ability of kelp to recover within two to six years (Kain, 1979; Birkett et al., 1998; Christie et al., 1998) following disturbance events with associated communities taking similar period to re-stablished (Birkett et al., 1998). However, when Kain (1979) removed distinct blocks of kelp, within two years of clearance, the blocks were again dominated by kelp.

3.3.5 The presence of Atlantic and Mediterranean low energy infralittoral rock habitats within the inshore regions of the wider benthic subtidal area around the proposed gravel bag bed placement locations is indicated by UKSeaMap (2018). This is further recorded by studies detailing the presence of underwater chalk features in the region (Irving, 1999; James et al., 2011) within 1km of the shore. Chalk or clay platforms are not particularly structurally complex habitat and are often bored by piddocks, with the biotope 'Piddocks with a sparse associated fauna in sublittoral very soft chalk or clay (A4.231)' present, although the biotope has a restricted distribution around the UK and is designated as a UK BAP Priority Habitat. A 'sparse' fauna is associated with this biotope as the substratum is too hard for sedimentary species and too soft for epifauna and flora to attach to (Connor et al., 2004). While other piddock species may occur, *Pholas dactylus* is the key characterising species for this biotope, as its boring lifestyle physically structures the habitat and its empty holes provides niches for other species (Pinn et al., 2008); it is considered that if this species were removed the biotope classification would change. All the species associated with this biotope are commonly found on many different shore types and are either mobile or rapid colonisers.

3.3.6 Recovery of a piddock population following disturbance will rely on recolonisation and subsequent growth to adult size. Substratum type has been shown to be the most important factor recolonisation for piddocks (Richter and Sarnthein, 1976), which, allied to their slow growth rate (Pinn et al., 2005) results in their resilience being assessed as 'Medium'. The clay and chalk substratum supporting this biotope was formed in prehistoric periods and are therefore unlike sedimentary habitats which may be renewed by water transport of sediment particles.

Consequently, following removal of the substratum no recovery of habitat is possible, and consequently the resilience of the substratum following complete removal is therefore considered to be 'Very Low'.

3.3.7 The biotope '*Crepidula fornicata* with ascidians and anemones on infralittoral coarse mixed sediment (A5.431)' is predicted as being present in the near shore portion of the proposed gravel bag placement area. This biotope is described as having a 'low' sensitivity to abrasion and disturbance.

3.3.8 Further offshore the biotope *'Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment A5.444' is predicted as being present. This biotope is considered to have a high recovery potential. For instance, the rapid recolonisation of denuded areas by bryozoans and hydroids has been reported (Sebens 1985, 1986), while hydroids are known to recover rapidly from disturbance through repair, asexual reproduction, larval colonisation (Sparks, 1972) and regeneration following fragmentation (Berghahn & Offermann, 1999). Although bryozoan recruitment is generally limited to the immediate area surrounding breeding colonies where strong water movement occur dispersal is enhanced resulting in colonisation appreciable distances from potentially parent colonies (Hiscock, 1981).

3.3.9 Due to the limited footprint of the gravel bag beds and the short period during which they will be in place, the recovery of the benthic communities impacted is likely to occur as a combination of recruitment from surrounding unaffected areas and larval dispersal, with recovery likely to occur within six years. Generally, for the biotopes likely to occur in the footprint of the gravel bag beds the disturbance of the coarse sediments and hard substrata is likely to disturb epifauna and may damage a proportion of the characterising species, which is why resistance is recorded as 'low' for these habitat types. However, species are likely to recruit and recolonise rapidly, and some damaged characterising species may recover or recolonise, resulting in medium to high resilience.

3.3.10 The sensitivity of the of subtidal benthic communities within the footprint of the proposed gravel bag beds are therefore considered to be worst case **medium**, reflecting that the receptors have some ability to tolerate the potential impacts and could potentially recover to an acceptable status over a 10-year period.

Table 3.1 - MarESA assessment for benthic subtidal habitats for abrasion/disturbance

Biotope code (JNCC and EUNIS)	Biotope name	MarESA sensitivity assessment	Assessment confidence
A3.215/ IR.MIR.KR.Lhyp.Sab	*Sabellaria spinulosa* with kelp and red seaweeds on sand-influenced infralittoral rock	Medium (based on low resistance and medium resilience)	Confidence is medium as the assessment is based on some peer reviewed papers but also relies on grey literature and relies on similar pressures on the feature.
A5.431/ SS.SMx.IMx.CreAsAn	*Crepidula fornicata* with ascidians and anemones on infralittoral coarse mixed sediment	Low (based on a low resistance and high resilience)	Confidence is medium as the assessment is based on some peer reviewed papers but also relies on grey literature and relies on similar pressures on the feature.
A5.444/ SS.SMx.CMx.FluHyd	*Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment	Medium (based on low resistance and medium resilience)	Confidence is medium as the assessment is based on some peer reviewed papers
A4.231/ CR.MCR.SfR.Pid	Piddocks with a sparse associated fauna in sublittoral very soft chalk or clay	Medium (based on medium resistance and very low resilience)	Confidence is low as the assessment is based on expert judgement and therefore a baseline is not available.

3.5 Significance of residual effect

3.5.1 The direct impact of habitat disturbance will represent a local spatial extent, short term impact, affecting a relatively small portion of the benthic subtidal habitats in the proposed Order Limits. However, it is noted that the location for the proposed gravel bag beds is within a site for kelp restoration and protection. Although most benthic receptors are known to have a medium to high degree of tolerance to this impact, based on MarESA assessments, the sensitivity of the receptors has been assessed as worst-case medium while the magnitude is minor for subtidal receptors. Due to the short-term and localised nature of this impact and the tolerance and recoverability of the majority of the benthic receptors, the significance of the residual effect is deemed **minor adverse significance** (not significant in EIA terms).

4. References

Berghahn, R. & Offermann, U. (1999). Laboratory investigations on larval development, motility and settlement of white weed (Sertularia cupressina L.) - in view of its assumed decrease in the Wadden Sea. Hydrobiogia, 392(2), 233–239.

Birkett, D.A., Maggs, C.A., Dring, M.J. & Boaden, P.J.S. (1998). Infralittoral reef biotopes with kelp species: an overview of dynamic and sensitivity characteristics for conservation management of marine SACs. Natura 2000 report prepared by Scottish Association of Marine Science (SAMS) for the UK Marine SACs Project., Scottish Association for Marine Science. (UK Marine SACs Project, vol VI.), 174 pp.

Christie, H., Fredriksen, S. & Rinde, E. (1998). Regrowth of kelp and colonization of epiphyte and fauna community after kelp trawling at the coast of Norway. Hydrobiologia, 375/376, 49-58.

Cole, H.A. & Hancock, D.A., 1956. Progress in oyster research in Britain 1949-1954, with special reference to the control of pests and diseases. *Rapports du Conseils International Pour L'Exploration de la Mer*, **140**, 24-29.

Connor, D.W., Allen, J.H., Golding, N., Howell, K.L., Lieberknecht, L.M., Northen, K.O. & Reker, J.B. (2004). The Marine Habitat Classification for Britain and Ireland. Version 04.05. ISBN 1 861 07561 8. In JNCC (2015), The Marine Habitat Classification for Britain and Ireland Version 15.03. [2019-07-24]. Joint Nature Conservation Committee, Peterborough.

Fowler, S.L. (1999). Guidelines for managing the collection of bait and other shoreline animals within UK European marine sites. Natura 2000 report prepared by the Nature Conservation Bureau Ltd. for the UK Marine SACs Project, 132 pp., Peterborough: English Nature (UK Marine SACs Project).

Hiscock, K. (1981). Marine life on the wreck of the M.V. "Robert". Report of the Lundy Field Society, 32, 40-44.

Irving, R.A. (1999). Report of the Sussex SEASEARCH Project, 1992-1998. Published by the Sussex SEASEARCH Project. English Nature, Lewes & Brighton & Hove Council, Brighton.

James, J.W.C., Pearce, B., Coggan, R.A., Leivers, M., Clark, R.W.E., Plim, J.F., Hill, J.M., Arnott, S.H.L, Bateson, L., De-Burgh Thomas, A. and, Baggaley, P.A. (2011). The MALSF synthesis study in the central and eastern English Channel. British Geological Survey Open Report OR/11/01. pp.1–158.

Kain, J.M. (1979). A view of the genus Laminaria. Oceanography and Marine Biology: an Annual Review, 17, 101-161.

Pinn, E.H., Richardson, C.A., Thompson, R.C. & Hawkins, S.J. (2005). Burrow morphology, biometry, age and growth of piddocks (Mollusca: Bivalvia: Pholadidae) on the south coast of England. Marine Biology, 147(4), 943-953.

Richter, W. & Sarnthein, M. (1976). Molluscan colonization of different sediments on submerged platforms in the Western Baltic Sea. In Biology of benthic organsisms (ed. B.F. Keegan, P.Ó. Céidigh & P.J.S. Boaden), pp. 531-539. Oxford: Pergamon Press.

Sebens, K.P. (1985). Community ecology of vertical rock walls in the Gulf of Maine: small-scale processes and alternative community states. In The Ecology of Rocky Coasts: essays presented to J.R. Lewis, D.Sc. (ed. P.G. Moore & R. Seed), pp. 346-371. London: Hodder & Stoughton Ltd.

Sebens, K.P. (1986). Spatial relationships among encrusting marine organisms in the New England subtidal zone. Ecological Monographs, 56, 73-96.

Sparks, A. (1972). Invertebrate Pathology Noncommunicable diseases: Elsevier.

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