Bellrock Offshore Wind Farm

Bellrock Wind Farm Development Area

Habitats Regulations Appraisal Screening Report

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Executive Summary

Through the ScotWind leasing round managed by Crown Estate Scotland (CES), Bellrock Offshore Wind Farm Limited (the Applicant) was successfully awarded exclusivity of the area of seabed shown in **Figure 1.1** in **Appendix 1** to develop the 1.2 gigawatts (GW)[1] Bellrock Offshore Wind Farm Project (the **Bellrock Project**).

The Bellrock Project will deliver significant supply chain expenditure within Scotland, have the potential to power over 1.1 million[2] homes with renewable energy and will help achieve Scotland's net zero targets whilst improving energy security.

For consenting purposes, the Bellrock Project will comprise a Wind Farm Development Area (WFDA) and an Offshore Transmission Development Area (OfTDA). Separate consents will be sought for each Development Area.

For clarity, Scottish and Southern Electricity Networks (SSEN) Transmission are responsible for consenting and developing the electrical infrastructure from the SSEN Transmission offshore substation to shore, as this forms part of the National Electricity Transmission System.

The Bellrock WFDA will comprise the following infrastructure:

- Between 42 and 80 wind turbine generators (WTGs)[3], with floating substructures (FSSs) and (if used) fixed bottom substructures (FBSSs);
- Station keeping systems (SKSs) for each FSS, including mooring lines and anchors;
- Inter-array cables (IACs), subsea cable hub(s) and associated cable protection; and
- Scour protection for FSSs and anchoring points and (if used) FBSSs.

The Applicant will seek the following consents from the Marine Directorate – Licencing Operations Team (MD-LOT) for the Bellrock WFDA:

- Section 36 (s.36) consent under the Electricity Act 1989; and
- Marine Licence under the Marine and Coastal Access Act 2009 (MCAA) (applicable to Scottish offshore waters between 12 nautical miles (nm) and 200 nm).

This Habitat Regulations Appraisal (HRA) Screening Report accompanies the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024) and informs the HRA process

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[1] Project capacities quoted throughout this Bellrock WFDA HRA Screening Report are approximate. The final capacity will be confirmed within the Bellrock WFDA HRA Screening Report. Should a material increase in project capacity be proposed within the WFDA (shown in **Figure 1.1** in **Appendix 1**), the Applicant will liaise with MD-LOT to establish the validity of the Bellrock WFDA Scoping Opinion.

[2] www.bellrockwind.co.uk

[3] Additional capacity may also be developed within the Bellrock WFDA for overplanting purposes.

for the Bellrock WFDA. Specifically, this HRA Screening Report provides supporting information to enable HRA Screening with respect to the likely significant effects (LSEs) associated with the Bellrock WFDA on European sites and Ramsar sites. Where no potential LSE is predicted on a European site (either alone or in-combination with other projects or plans), the European Site has been screened out and no further assessment will be carried out. Where LSE cannot be ruled out, a more detailed assessment will be carried out in advance of the consent applications and reported within the full Report to Inform Appropriate Assessment (RIAA) that will be issued alongside the s.36 and Marine Licence application(s) for the Bellrock WFDA.

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Glossary of Terminology

Term	Definition
Biologically Defined Minimum Population Scale (BDMPS)	The biogeographic area during a biologically relevant season which is deemed to represent the minimum biologically meaningful scale for defining the population, used within this report in the context of the non-breeding seasons (as per Furness 2015).
Management Units (MU)	The MUs provide an indication of the spatial scales at which impacts of plans and projects alone, cumulatively and in-combination, need to be assessed for the marine mammal species in United Kingdom (UK) waters, with consistency across the UK.
Applicant	Legal entity submitting the consent applications for Bellrock Offshore Wind Farm Limited.
Bellrock Offshore Wind Farm	An offshore wind farm capable of exporting around 1.2 GW of renewable energy to the National Electricity Transmission System. Additional capacity may also be developed for overplanting purposes. The Wind Farm Development Area is located 120 km east of Stonehaven, and the working assumption is that Bellrock Offshore Wind Farm will connect to the National Electricity Transmission System via an SSEN Transmission offshore substation located to the west of the Bellrock Wind Farm Development Area. The Bellrock Offshore Wind Farm comprises of the following development areas: • Wind Farm Development Area; and • Offshore Transmission Development Area.
BlueFloat Energy | Renantis Partnership	A strategic partnership between BlueFloat Energy and Renantis to jointly develop offshore wind farm projects in the UK, including Bellrock Offshore Wind Farm.
Cable protection	Protective measure to minimise the effects of scour and hazards along the inter-array cables and/or offshore export cables (e.g. cable exposure or snagging), as well as for protecting inter-array cables and/or offshore export cables at infrastructure crossing points.
Connector	Joint between a dynamic inter-array cable and a static inter-array cable.
Dynamic inter-array cable	The section of inter-array cable between the floating substructure and the connector to the static inter-array cable, which is designed to accommodate the dynamic movement of the floating substructure and minimise movement of the static inter-array cable.
Excursion limit	The maximum horizontal movement of a floating substructure from its design coordinates.
Fixed bottom substructure	A substructure, or foundation, that provides support for the wind turbine generator and provides a conduit for inter-array cables.
Floating offshore unit	The combined wind turbine generator and floating substructure.
Floating offshore substation	The combined offshore substation and floating substructure.
Floating substructure	A floating structure which provides buoyancy and, in conjunction with the station keeping system, supports a superstructure (e.g. wind turbine generator, offshore substation or similar), and maintaining verticality and movement within acceptable limits.

Term	Definition
Highest astronomical tide	The highest level that can be expected to occur under average meteorological conditions and under any combination of astronomical conditions.
Innovation and Targeted Oil & Gas	A Crown Estate Scotland leasing round for offshore wind projects, under which the Sinclair Offshore Wind Farm and the Scaraben Offshore Wind Farm were awarded Exclusivity Agreements for their respective Wind Farm Development Areas, under which early-stage development works can progress.
Inter-array cable	Armoured cable containing electrical and fibre optic cores, which link the wind turbines to each other and to the subsea cable hub(s) and / or the offshore substation(s) and include dynamic inter-array cable and static inter-array cable sections.
Interconnector cable	Armoured cable containing electrical and fibre optic cores which link two or more offshore substations.
Lowest astronomical tide	The lowest level that can be expected to occur under average meteorological conditions and under any combination of astronomical conditions.
Mean High Water Springs	The average over a year of the heights of two successive high waters during those periods of 24 hours (once every fortnight) when the range of the tide is greatest.
Mean Low Water Springs	The average over a year of the heights of two successive low waters during those periods of 24 hours (once every fortnight) when the range of the tide is greatest.
Mean Sea Level	The average level of the sea taking account of all tidal effects but excluding surge events.
National Electricity Transmission System	The high-voltage electricity power transmission network serving Great Britain which receives electricity from generators (such as offshore wind farms) and transmits that electricity to anywhere on the National Electricity Transmission System to satisfy demand.
Offshore export cable	Armoured cable containing electrical and fibre optic cores between the offshore substation(s) and the transition bay(s).
Offshore export cable corridor	The Marine Licence application boundary within which the offshore export cable route will be located.
Offshore export cable route	The area within the offshore export cable corridor where construction and commissioning of the offshore export cable(s) will be undertaken and will involve (but not limited to) seabed preparation, trenching, installation and burial of offshore export cable(s), and cable protection.
Offshore substation	An offshore platform which houses electrical equipment such as transformers, switchgear, and protection and control systems, enabling the wind farm's renewable electricity to be received via inter-array cables and exported via the offshore export cable(s).
Offshore Transmission Development Area	The application boundary extending to Mean High Water Springs or the SSEN Transmission offshore substation, within which the following will be consented: offshore export cable(s), offshore substation(s), interconnector cables, reactive compensation station and cable protection. The Offshore Transmission Development Area refers to both the area and the infrastructure described above. The Offshore Transmission Development Area is subject to a Marine Licence application.

Term	Definition
Operational life	The expected operational life of the project from final commissioning to the cessation of commercial operations.
Overplanting	The installation of additional capacity over and above that which the wind farm can export to the National Electricity Transmission System, to allow additional renewable energy to be generated and exported during times of lower wind speed or during wind turbine generator maintenance than would otherwise have been the case.
Pre-construction works	Activities undertaken prior to formal commencement of construction. Examples include survey works such as geotechnical and geophysical surveys and seabed preparation activities.
Reactive compensation station	An offshore platform containing equipment which maintains the voltage control of the offshore export cables and maintains the quality of electricity transmitted.
Safety Zone	An area of water around or adjacent to a floating offshore unit which is to be constructed, extended, operated or decommissioned, from which certain or all classes of vessels are excluded and within which activities can be regulated for the purpose of securing safety of the floating offshore unit or vessels in that vicinity, and individuals on both the floating offshore unit and vessel, in line with Section 95 of the Energy Act 2004.
ScotWind	A Crown Estate Scotland leasing round for offshore wind projects in which the process enabled developers to apply for seabed rights to plan and build wind farms in Scottish waters.
Scour protection	Protective material positioned around anchors and substructures to avoid sediment being eroded as a result of the flow of water.
SSEN Transmission offshore substation	An offshore substation to be developed by SSEN Transmission that will be part of the National Electricity Transmission System, connecting mainland Scotland to mainland England, and which will be Bellrock Offshore Wind Farm's connection point to the National Electricity Transmission System.
Static inter-array cable	The section of inter-array cable between the connector from the dynamic inter-array cable to the subsea cable hub(s) and/or the offshore substation(s).
Station keeping system	The system (including mooring lines and anchors) used to hold a floating substructure within its excursion limit and maintain the intended orientation of the floating substructure.
Subsea cable hub	A subsea device which allows the connection of multiple inter-array cables.
Wet storage	The temporary storage for floating substructures and/or floating offshore units prior to their transportation to the relevant Wind Farm Development Area.
Wind Farm Development Area	The application boundary within which the following will be consented: wind turbine generators, floating and/or fixed bottom substructures and station keeping systems; inter-array cables; subsea cable hubs and associated cable protection; and scour protection. The Wind Farm Development Area refers to both the area and the infrastructure described above. Each Wind Farm Development Area is subject to a separate Section 36 consent and Marine Licence application.

Term	Definition
Wind turbine generator	A wind turbine generator converts wind energy into electrical energy. The main components include rotor assembly (composed of three blades and a hub); nacelle (containing the generator, shaft and gearbox, power electronic converter and transformer); and a tower (containing lifting equipment and switchgear).

Glossary of Abbreviations

Term	Definition
AHTS	Anchor handling tug supply
AoS	Area of Search
BDMPS	Biologically Defined Minimum Population Scale
BEIS	Department of Business, Energy and Industrial Strategy
CBRA	Cable Burial Risk Assessment
CEA	Cumulative effects assessment
CES	Crown Estate Scotland
CfD	Contracts for Difference
CIS	Celtic and Irish Sea
CTV	Crew transfer vessel
DEA	Drag embedment anchor
EEZ	European Economic Zone
EIA	Environmental Impact Assessment
EMF	Electromagnetic field
EMP	Environment Management Plan
EPS	European Protected Species
EU	European Union
FBSS	Fixed bottom substructure
FCS	Favourable Conservation Status
FOU	Floating offshore unit
FPSO	Floating production storage and offloading
FSS	Floating substructure
GNS	Greater North Sea
HLV	Heavy lift vessel
HRA	Habitats Regulations Appraisal
HVDC	High-voltage direct current
IAC	Inter-array cable

Term	Definition
IAMMWG	Inter-agency Marine Mammal Working Group
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
JUV	Jack-up vessel
LAT	Lowest Astronomical Tide
LSE	Likely significant effect
MCAA	Marine and Coastal Access Act
MD-LOT	Marine Directorate – Licensing Operations Team
MHWS	Mean High Water Springs
MMMP	Marine Mammal Mitigation Protocol
MSS	Marine Scotland Science
MU	Management Unit
MW	Megawatt
NEQ	Net Explosive Quantity
nm	Nautical mile
NS	North Sea
O&M	Operation and Maintenance
OFSS	Offshore substation(s)
OfTDA	Offshore Transmission Development Area
OnTDA	Onshore Transmission Development Area
OWE	Offshore Wind Energy
OWF	Offshore wind farm
PLGR	Pre-lay grapnel run
pSAC	Proposed Special Area of Conservation
pSPA	Proposed Special Protected Area
PTS	Permanent threshold shift
RIAA	Report to Inform Appropriate Assessment
ROV	Remotely operated vehicle

Term	Definition
SAC	Special Area of Conservation
SCANS	Small Cetaceans in European Atlantic waters and the North Sea
SCI	Site of Community Importance
SCOS	Scottish Committee on Seals
SD	Standard Deviation
SEER	U.S. Offshore Wind Synthesis of Environmental Effects Research
SEPLA	Suction embedded plate anchors
SKS	Station keeping system
SMP	Sectoral Marine Plan
SMRU	Sea Mammal Research Unit
SOV	Service operation vessel
SPA	Special Protected Area
SSEN	Scottish and Southern Electricity Networks
SSSI	Site of Special Scientific Interest
TLP	Tension Leg Platform
UK	United Kingdom
USV	Unmanned surface vessel
UXO	Unexploded ordnance
VLA	Vertical load anchors
WFDA	Wind Farm Development Area
WS	West Scotland
WTG	Wind turbine generator
WWT	Wildfowl and Wetlands Trust
ZoI	Zone of Influence

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1 Introduction

1. This Bellrock Wind Farm Development Area (WFDA) Habitats Regulations Appraisal (HRA) Screening Report provides information to enable screening for the Bellrock WFDA, with respect to the Bellrock WFDA's potential to have likely significant effects (LSE) on sites in the 'UK National Site Network' as required by the Habitats Regulations. This report accompanies the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024).

2. This Bellrock WFDA HRA Screening Report has been prepared by Royal HaskoningDHV.

1.1 The Bellrock Project Overview

3. In January 2022, as part of the ScotWind leasing round, Bellrock Offshore Wind Farm Limited (the Applicant) was successfully awarded exclusivity of the area of seabed shown in **Figure 1.1** in **Appendix 1** to develop the 1.2 gigawatts (GW)[4] Bellrock Offshore Wind Farm Project (the **Bellrock Project**).

4. For consenting purposes, the Bellrock Project comprises two Development Areas for which separate consents will be sought by the Applicant:

   - The Wind Farm Development Area (WFDA), for the installation and operation of the offshore generating station; and
   - The Offshore Transmission Development Area (OfTDA), for the installation and operation of the offshore grid infrastructure required to export the electricity from the Bellrock WFDA to a Scottish and Southern Electricity Networks (SSEN) Transmission offshore substation (see **Section 1.4** below for details).

5. This Bellrock WFDA HRA Screening Report accompanies the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024) which requests a formal Scoping Opinion submitted to the Marine Directorate – Licensing Operations Team (MD-LOT), acting on behalf of the Scottish Ministers, relating to the Bellrock WFDA.

6. The Bellrock WFDA is located 120 km east of Stonehaven (116 km southeast of Peterhead), off the Aberdeenshire coast, as shown in **Figure 1.1** in **Appendix 1.1**.

7. The Bellrock Project will deliver significant supply chain expenditure within Scotland, have the potential to power over 1.1 million homes[5] with renewable energy and will help achieve Scotland's net zero targets whilst improving energy security.

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[4] Project capacities quoted throughout this Bellrock WFDA HRA Screening Report are approximate. The final capacity will be confirmed within the Bellrock WFDA HRA Screening Report. Should a material increase in project capacity be proposed within the WFDA (shown in **Figure 1.1** in **Appendix 1**), the Applicant will liaise with MD-LOT to establish the validity of the Bellrock WFDA Scoping Opinion.

[5] www.bellrockwind.co.uk

1.2 Development Areas

8. In addition to the WFDA as discussed in **Section 1.1** above, the Bellrock Project will also comprise the OfTDA to allow for the generation of electricity from the wind turbine generators (WTGs) and its transmission to the SSEN Transmission offshore substation. The two Development Areas are shown schematically in **Plate 1.1** and the key infrastructure associated with each Development Area is presented in **Table 1.1** below.

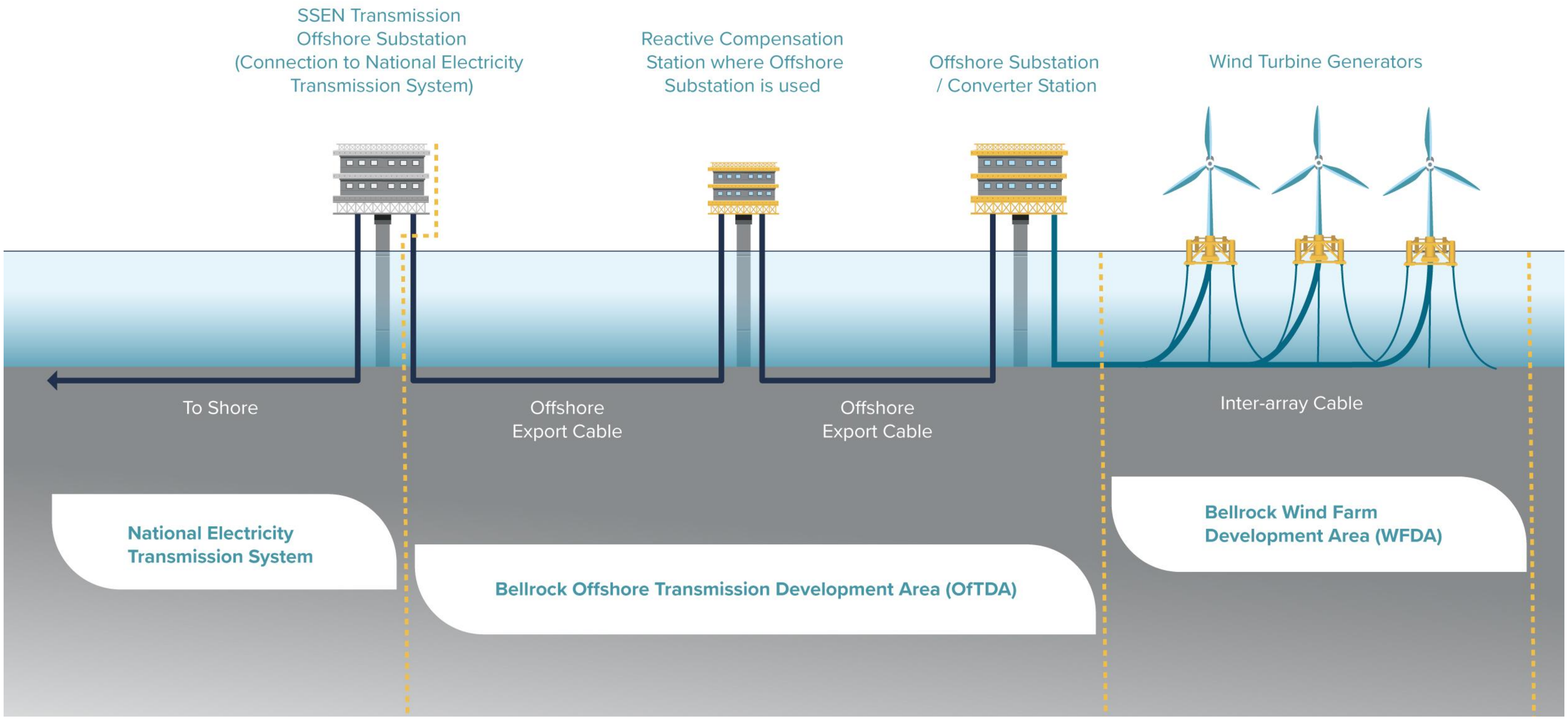
9. For clarity, SSEN Transmission are responsible for consenting and developing the electrical infrastructure from the SSEN Transmission offshore substation to shore, as this forms part of the National Electricity Transmission System.

10. Key infrastructure associated with each Development Area is presented in **Table 1.1** below.

Table 1.1: Key Infrastructure within each Development Area

Development Area	Key Infrastructure
Bellrock WFDA	Area as shown in **Figure 1.1** in **Appendix 1** within which the following will be consented: WTGs and associated substructures and station keeping systems (SKS) if applicable, inter-array cables (IACs), subsea cable hub(s) and associated cable protection, and scour protection.
Bellrock OfTDA	Area extending from the Bellrock WFDA to the SSEN Transmission offshore substation within which the following will be consented: offshore substation(s), interconnector cables, reactive compensation station, offshore export cable(s) and associated cable protection. The Bellrock OfTDA will be subject to separate HRA Screening Report / consent application.

Plate 1.1: Overview of the Bellrock Project Development Areas



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11. This Bellrock WFDA HRA Screening Report relates to the Bellrock WFDA only, the boundary of which is shown in **Figure 1.1** in **Appendix 1**. Stage 3 of the HRA Process (see **Section 2.2** for details) is undertaken in this Bellrock WFDA HRA Screening Report and the Applicant seeks comment and feedback from relevant consultees on whether they agree with the proposed approach. The subsequent Bellrock WFDA Report to Inform Appropriate Assessment (RIAA) will apply to the Bellrock WFDA application.

12. One additional HRA Screening Report will be prepared (separately to this Bellrock WFDA HRA Screening Report) to seek comment and feedback from consultees on the Bellrock OfTDA HRA Screening Report, which will be submitted for offshore transmission activities and infrastructure within the Bellrock OfTDA as detailed in **Table 1.1.**

1.3 Consents Strategy

13. The Applicant will seek the following consents from MD-LOT for the Bellrock WFDA:

- Section 36 (s.36) consent under the Electricity Act 1989; and
- Marine Licence under the Marine and Coastal Access Act 2009 (MCAA) (applicable to Scottish offshore waters between 12 nautical miles (nm) and 200 nm).

14. The consent application will be accompanied by the Bellrock WFDA Environmental Impact Assessment (EIA) Report, and a RIAA which will present an assessment of LSEs on the environment that will consider the construction, operation and maintenance, and decommissioning of the Bellrock WFDA infrastructure.

15. Separate consent applications will be submitted for the Bellrock OfTDA. In order to present a full project assessment of the Bellrock Project, in-combination effects of the Bellrock WFDA and Bellrock OfTDA will be considered together within each respective RIAA, before being considered alongside other projects and plans in the wider area.

16. Further details on the methodology for the RIAA is discussed in **Section 1.4** and **Section 1.5** below.

1.4 Bellrock Project

17. As discussed above, the Bellrock Project comprises a WFDA and an OfTDA.

18. The Bellrock WFDA, as shown in **Figure 1.1** in **Appendix 1**, is located 120 km east of Stonehaven (116 km southeast of Peterhead) and covers an area of 280 km^2. The Bellrock WFDA will have a seabed lease for up to 60 years and an anticipated operational life of up to 50 years.

19. The Bellrock WFDA will comprise of between 42 and 80 WTGs[6] (depending on the size of the WTGs) with floating substructures (FSSs) and (if used) fixed bottom substructures (FBSSs), and

[6] Additional capacity may also be developed within the Bellrock WFDA for overplanting purposes.

will be capable of exporting around 1.2 GW of renewable energy to the National Electricity Transmission System.

20. Within the Bellrock OfTDA, interconnector cables will connect multiple offshore substations (if more than one offshore substation is used). Electricity will be transmitted from the offshore substation(s) to a SSEN Transmission offshore substation via offshore export cables which are typically buried where ground conditions allow.

21. The SSEN Transmission offshore substation is part of a coordinated offshore network being developed by SSEN Transmission which will enable a coordinated connection between several offshore wind farms and the wider National Electricity Transmission System. This centralised and strategic approach aims to reduce seabed impacts, costs, and potential effects on the environment. Regular discussions are taking place between the Applicant and SSEN Transmission to determine the location and design of the SSEN Transmission offshore substation.

22. The Bellrock WFDA RIAA will be based on the number of WTGs and their physical size, which will be dependent on the technology available on the market at the time of construction. A number of FSS, FBSSs and SKS options are being considered. IACs will connect the WTGs to the offshore substation(s) and interconnector cables will connect the offshore substation(s). Refer to **Chapter 3:** Project Description.

1.5 Purpose of this Habitat Regulations Appraisal Screening Report

23. This Bellrock WFDA HRA Screening Report informs the HRA process for the Bellrock WFDA. Specifically, this Bellrock WFDA HRA Screening Report provides supporting information to enable HRA Screening with respect to the LSEs associated with the Bellrock WFDA on European sites. Where no potential LSE is predicted on a European site (either alone or in-combination with other projects or plans), the European Site has been screened out and no further assessment will be carried out. Where LSE cannot be ruled out, a more detailed assessment will occur in advance of the consent applications and reported within the full RIAA that will be issued alongside the s.36 and Marine Licence applications for the Bellrock WFDA.

24. Only the potential effects from the Bellrock WFDA during pre-construction, construction, operation, and decommissioning are considered within this Bellrock WFDA HRA Screening Report. The HRA screening associated with infrastructure and activities for the Bellrock OfTDA will be considered separately in the Bellrock OfTDA HRA Screening Report. Any onshore designated sites where there is potential connectivity to the Bellrock WFDA have been considered in this Bellrock WFDA HRA Screening Report. Each RIAA will reflect the information available at that time on the other Development Area in the Bellrock Project (with the final RIAA submitted being most up to date).

25. The assessment within this Bellrock WFDA HRA Screening Report is based on the existing understanding of the baseline environment and the Bellrock WFDA activities. Further assessments, surveys, stakeholder engagement and offshore project design amendments may change this assessment. Any such changes will be considered within the RIAA.

26. This Bellrock WFDA HRA Screening Report covers designated sites for Annex I habitats, Annex I birds and Annex II species, and will be provided to the relevant stakeholders to seek agreement on the European sites that should be considered further. This is the first stage in the development of information to support the HRA (all steps in the HRA process and associated reporting requirements are described in **Section 2**).

1.6 The Applicant and Environmental Impact Assessment Project Team

1.6.1 The Applicant

27. The Bellrock Project is being developed by Bellrock Offshore Wind Farm Limited, a joint venture between BlueFloat Energy and Renantis (together, the 'Partnership').

28. In addition to the Bellrock Project, the Partnership is also developing the 900 MW Broadshore Offshore Wind Farm, the 99.5 MW Sinclair Offshore Wind Farm, the 99.5 MW Scaraben Offshore Wind Farm (collectively referred to as the Broadshore Hub) and the 1 GW Stromar Offshore Wind Farm (in conjunction with Ørsted), all of which are located in the northern North Sea.

29. The Partnership aims to contribute to a world leading floating offshore wind industry in the United Kingdom (UK), combining innovative technology with a plan to attract and grow a skilled Scottish workforce and stimulate a thriving local supply chain. BlueFloat Energy's knowledge and experience in developing floating offshore wind projects combined with Renantis' track record in global project development and community engagement ensure the Partnership is well placed to deliver world class floating offshore projects.

1.6.2 Environmental Impact Assessment Project Team

30. Royal HaskoningDHV has been instructed by the Applicant to lead (through their Edinburgh office) the EIA for the Bellrock WFDA. This includes informing and preparing the initial review of the key environmental issues associated with the construction, operation and maintenance, and decommissioning of the Bellrock WFDA as part of the scoping process and reports.

31. The Bellrock WFDA RIAA will be prepared by competent experts and will outline the relevant expertise or qualifications of the experts.

32. Royal HaskoningDHV is registered with the Institute of Environmental Management and Assessment (IEMA) and its Environmental Impact Assessment Quality Mark scheme. The scheme allows organisations that lead the co-ordination of EIAs and HRAs in the UK to make a commitment to excellence in their EIA and HRA activities and have this commitment independently reviewed.

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2 Habitat Regulations Appraisal Process

2.1 Legislative Context

2.1.1 The Habitats Regulations

33. In 1992, the European Union (EU) Directive 92/43/EEC, known as the 'Habitats Directive', was adopted to enable EU member states to meet obligations set out under the Bern Convention (1979). The purpose of the Habitats Directive is to maintain or restore natural habitats and wild species listed in Annex I and II of the Habitats Directive at Favourable Conservation Status (FCS). Protection to meet FCS is given through designation of European Sites (Special Areas of Conservation (SAC)). In addition, the EU Directive 2009/147/EC, known as the 'Birds Directive', was implemented to provide a framework for conservation and management of wild birds in Europe. Annex I of the Birds Directive provides a list of rare, vulnerable and migratory species, which are protected through the designation of Special Protected Areas (SPAs).

34. These directives are transposed into Scottish law by:

- The Conservation (Natural Habitats and c.) Regulations 1994;
- Conservation of Habitats and Species Regulations 2017 (2017 No. 1012) which apply to Section 36 (s.36) applications within Scottish offshore waters (12 nautical miles (nm) to 200 nm); and
- Conservation of Offshore Marine Habitats and Species Regulations 2017 (2017 No. 1013) which apply to Marine Licences within the Scottish Offshore region.

35. The Conservation of Offshore Marine Habitats and Species Regulations 2017 is the relevant piece of secondary legislation which, prior to the UK's departure from the EU, transposed offshore marine aspects of the Habitats Directive and elements of the Birds Directive into the domestic law (see **Section 2.1.1.1** below for further details). Together, with changes enacted by the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019 (the 'EU Exit Regulations'), this regulation is referred to as the 'Habitats Regulations'. The Habitat Regulations require a Habitat Regulations Appraisal (HRA) to be undertaken, where a project is likely to have significant effects on a designated site (SPAs, SACs, proposed or candidate SPAs and SACs or Ramsar Sites), either individually or in combination with other plans or projects, in consideration of the site's conservation objectives.

36. The UK is no longer a member of the EU. However, the Habitats Directive continues to provide legislative guidance for HRA in the UK through the EU Exit Regulations. This legislation sets out the changes that apply now that the UK has left the EU, confirming that:

- All protected sites and species retain the same level of protection; and
- Among other things, the requirement for HRA to be undertaken continues to apply.

37. Unless the UK government implements additional legislative changes which may affect the HRA process, the obligations, process and terminology of the Habitats Regulations will, for the purposes of this Bellrock WFDA HRA Screening Report, remain as set out in existing legislation and regulations. The role of the European Commission is now taken by Scottish Ministers.

2.1.1.1 European Sites (Post EU Exit)

38. The Europe-wide network of nature conservation sites that are the subject of the HRA process was established under the Habitats Directive. European sites (SACs and SPAs) located within an EU Member State are combined to create a Europe-wide network of designated sites (the Natura 2000 network) and may be referred to as Natura 2000 Sites.

39. European sites located within the UK no longer belong to the Natura 2000 network but instead combine to form the UK's "National Site Network". The National Site Network comprises of European sites in the UK that existed on 31 December 2020 (or proposed to the European Commission before that date) and any new sites designated under the Habitats Regulations under an amended designation process. Post EU-exit, the European Commission no longer has involvement in the final stages of the derogation procedure for those sites which are part of the UK National Site Network. Hereafter, sites within the UK and the EU are both referred to within this Bellrock WFDA HRA Screening Report as 'European sites'.

40. Ramsar sites are not included within the National Site Network but are still included within this Bellrock WFDA HRA Screening Report as they remain protected in the same way as SACs and SPAs – please refer to **Section 2.1.2** for further details.

41. National Site Network management objectives are established in the EU Exit Regulations and are referred to as the network objectives. The objectives in relation to the National Site Network are to:

- Maintain or, where appropriate, restore habitats and species listed in Annexes I and II of the Habitats Directive to an FCS; and
- Contribute to ensuring, in their area of distribution, the survival and reproduction of wild birds and securing compliance with the overarching aims of the Wild Birds Directive.

2.1.2 The Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention)

42. The Ramsar Convention (United Nations, 1971) was adopted in 1971 and ratified by the UK in 1976. It provides an international mechanism for protecting sites of global importance and is thus of key conservation significance, covering all aspects of wetland conservation. The Convention has three key uses:

- The designation for wetlands of international importance as Ramsar sites;
- The promotion of the wise use of all wetlands in the territory of each country; and
- International co-operation with other countries to further the wise use of wetlands and their resources.

43. The criteria for assessing a site for designation as a Ramsar site include whether or not the wetland supports 20,000 water birds and/or supports 1% of the individuals in a population of one species or subspecies of water bird.

44. UK Government policy affords the same protection to Ramsar sites as SPAs and SACs. The UK has generally chosen to underpin the designation of its Ramsar sites through prior notification of these areas as Sites of Special Scientific Interest (SSSI).

2.1.3 Sectoral Marine Plan for Offshore Wind Energy

45. As part of the Scottish Government's commitment to long-term decarbonisation of the energy sector, the Scottish Government produced a Sectoral Marine Plan for Offshore Wind Energy (SMP-OWE) (Scottish Government, 2020). Which was adopted in October 2020 and built upon the 2013 Draft Sectoral Marine Plan for Offshore Renewable Energy in Scottish Waters. The SMP-OWE aimed to identify sustainable Plan Options for the future development of commercial-scale offshore wind energy in Scotland, including deep water wind technologies, and covers both Scottish inshore (Scottish territorial waters or within 12 nautical miles (nm) from shore) and offshore waters (extending from 12 nm) out to the Exclusive Economic Zone (EEZ) limit).

46. The SMP-OWE identified 15 Plan Options across four regions for offshore wind development in Scotland. The plan identifies which areas of seabed can be made available for leasing by Crown Estate Scotland (CES).

47. The SMP-OWE was developed in combination with a strategic (plan level) HRA process, in order to assess the SMP-OWE's potential effects on international protected nature conservation sites. The strategic HRA process was undertaken as a sequence of discrete stages in accordance with established guidance for conducting plan-level HRA that was produced by Scottish Natural Heritage (SNH, now NatureScot) in 2015:

- Phase 1 – Pre-Screening Report;
- Phase 2 – Review of Proposed Assessment Methodology; and
- Phase 3 – Screening and Report to Inform Appropriate Assessment.

48. The pre-screening report identified an initial list of 652 European/Ramsar sites, and their qualifying interest habitats and species, for which there could be a likely significant effect (LSE) (or where the possibility of an LSE could not be excluded). A 100 km buffer around the Plan Options was used to identify these European sites to represent the maximum foraging distance of bird species. Following the main screening process, a total of 468 European sites were identified, this consisted of the following:

- 267 SACs (including possible/proposed SACs (pSACs), candidate SACs (cSACs) and Site of Community Importance (SCIs));
- 150 SPAs (including potential/proposed SPAs (pSPAs)); and
- 51 Ramsar sites (Scottish Government, 2019).

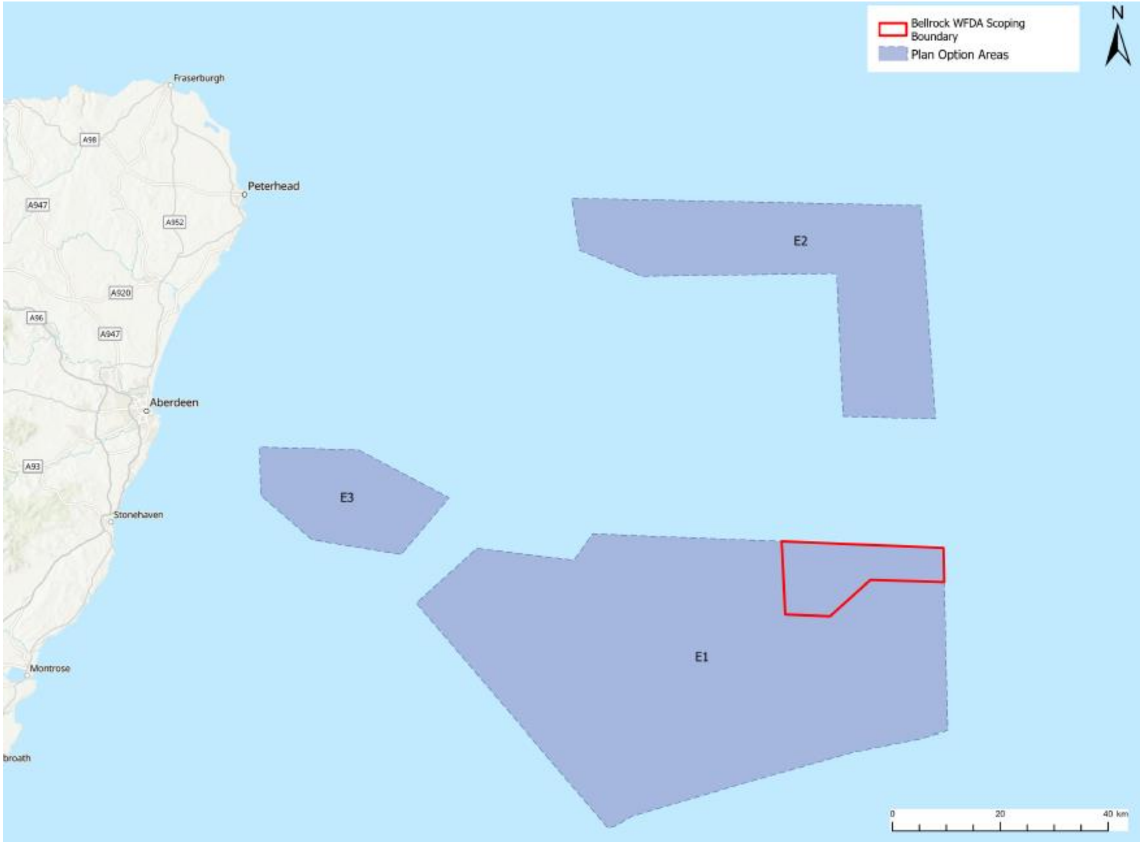
49. Of these 468 sites, 107 were non-UK sites screened in due to the presence of mobile features (e.g. cetaceans and/or birds) with ranges that regularly exceeded 100 km.

50. Overall, it was concluded that the SMP-OWE may avoid adverse effects on the integrity of Natura 2000 features either alone or in-combination with other plans and projects, provided that the project-level HRAs are conducted, an iterative plan review is undertaken, and:

- The classification of Plan Options E3 and NE2 to NE6 as being 'subject to high levels of ornithological constraint'. It was proposed, therefore, that development will be unable to progress at these Plan Options until such time that enough evidence on the environmental capacity for seabirds exists to reduce the risk to an acceptable level. This will involve the resolution of knowledge gaps through potential strategic monitoring; and
- The completion of regional-level survey work to address knowledge gaps regarding potential impacts of development within Plan Options E1 and E2.

51. The Applicant was offered an option agreement for the Bellrock WFDA under the ScotWind leasing round in 2022, and is located in Plan Option E1 as shown in **Plate 2.1**.

Plate 2.1: ScotWind Plan Option Areas



52. This Bellrock WFDA HRA Screening Report builds on the conclusions of the plan level HRA in light of developments on the nature, scale, and location of the Bellrock WFDA. It should be noted that at the time of writing, the Scottish Government is revising the SMP-OWE and plan-level HRA in 2023/2024 and will publish the consultations and amendments to the SMP-OWE in due course. The updated SMP-OWE is expected to be published in 2024.

2.2 The Habitat Regulations Appraisal Process

2.2.1 Overview

53. HRA is a precautionary, rigorous and legally binding procedure to protect Scotland's European sites. HRA considers the potential for LSE to arise as a result of a plan or project, which may affect the integrity of the national site network and their associated qualifying features, and can involve up to nine stages (NatureScot, 2023).

2.2.2 Stage 1: What is the Plan or Project?

54. This stage requires the Applicant to provide the competent authority with sufficient information about the project to carry out an HRA. Details on the Bellrock WFDA are presented in **Chapter 3: Project Description** of this Bellrock WFDA HRA Screening Report.

2.2.3 Stage 2: Is the Plan or Project Directly Connected with or Necessary to Site Management for Nature Conservation?

55. This test is to identify and remove from further assessment those proposals which are clearly necessary to, or of no value to, or inevitable as part of, management of the site for its qualifying interest. All qualifying interests should be considered. The Bellrock WFDA is not directly connected with or necessary to site management of any European sites.

2.2.4 Stage 3: Is the Plan or Project (Either Alone or In Combination with Other Plans or Projects) Likely to Have a Significant effect on a European Site?

56. This is essentially a screening stage to determine whether or not appropriate assessment is required. European sites are screened for LSE (either alone or in-combination with other plans or projects). It is important to consider any connectivity between the proposal and each of the qualifying interests, i.e., are there processes or pathways by with the proposal may influence the site's interest directly or indirectly? If there is doubt or a lot of detail is required, LSE should be concluded and Stage 4 should be undertaken. The effects of the Bellrock Project should be considered 'in combination' with the effects of other projects and plans on the same European site.

57. Upon determination that there is no potential for LSE to occur for qualifying features of a site, that site is proposed to be 'screened out'.

58. Under the Habitats Regulations, a HRA must be carried out on all plans and projects that have LSEs on European sites. The designations considered within this Bellrock WFDA HRA Screening Report are:

- SPAs (some of which are also Ramsar sites);
- pSPAs – SPAs that are approved by the UK Government but are still in the process of being classified;
- SACs;

- pSACs – A site which has been identified and approved to go out to formal consultation;
- cSACs – Following consultation on the pSAC, the site is submitted to the European Commission for designation and at this stage it is called a cSAC;
- SCI – Once the European Commission approves the site it becomes a SCI, before the UK government then designates it as a SAC (please note that any remaining cSACs and SCIs within the UK are sites that were adopted by the European Commission before the end of the Transition Period following the UK's exit from the EU); and
- Ramsar sites (protecting wetland areas and extend only to 'areas of marine water the depth of which at low tide does not exceed six metres').

59. Stage 3 Screening is undertaken in this Bellrock WFDA HRA Screening Report, and the Applicant is seeking comment and feedback from relevant consultees on whether they agree with the proposed approach.

2.2.4.1 Mitigation

60. In terms of the consideration of mitigation measures at the HRA Screening stage, the European Court of Justice issued a judgement in the People Over Wind and Sweetman case (Case C323/17) in April 2018, clarifying the stage in a HRA process when mitigation measures can be taken into account when assessing impacts on a European site. The ruling stated that "*it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*". However, this does not mean that essential or intrinsic elements of the project design which could reduce or eliminate potential impacts on European sites when screening for LSE are to be ignored (see NatureScot, 2019). Examples of the intrinsic elements of a proposal which would not be considered a 'measure' and could be taken into account in a screening would usually be related to design, location, layout or standard conditions. These 'embedded mitigation measures' are not specifically designed to avoid or reduce effects on a European site but do so incidentally.

61. As such, embedded mitigation measures are taken into account in this Bellrock WFDA HRA Screening Report but mitigation measures which are specifically implemented to reduce or avoid effects on a European site are not. The embedded mitigation measures taken into account include standard industry practice and post-consent management plans for accidental release of hazardous substances, such as the Environmental Management Plan (EMP), that would be in place regardless of the possible effects on European sites.

62. If there is an element of doubt about potential effects on qualifying features then the conclusion of "LSE" will be made, with progression to appropriate assessment.

2.2.5 Stage 4: Undertake an Appropriate Assessment of the Implications for the Site in View of its Conservation Objectives

63. Where a plan or project is considered to have an LSE on the qualifying interest(s) of a European site an appropriate assessment is required. The AA determines whether the project alone or in-combination has the potential to adversely affect the integrity of the European site in view of its individual conservation objectives.

64. A single Report to Inform Appropriate Assessment (RIAA) will be prepared by the Applicant taking consideration of the feedback received from the relevant consultees, and further consultation as required. The RIAA will be submitted alongside the consent application for the Bellrock WFDA. The competent authority carries out the appropriate assessment with advice from NatureScot. The Competent Authority then forms its own conclusions based on the RIAA. In this instance, the Competent Authority is MD-LOT.

2.2.6 Stage 5: Can it be Ascertained that the Proposal will Not Adversely Affect the Integrity of the Site?

65. For the Bellrock WFDA to be consented, the appropriate assessment must ascertain that they will not adversely affect the integrity of a European site. Conclusions must be based on there being no reasonable scientific doubt as to the absence of adverse effects. The integrity of the site only applies to the qualifying interests and is directly linked to the conservation objectives for the site.

66. Stages 6 to 9 are only considered in exceptional circumstances where it cannot be ascertained that the plan or project will not adversely affect the integrity of a European site.

2.2.7 Stage 6: Are there Alternative Solutions?

67. Stage 6 examines alternative ways of achieving the objectives of the project that would avoid adverse impacts on the integrity of the European site, should avoidance or mitigation measures be unable to prevent adverse effects. If it cannot be ascertained beyond reasonable scientific doubt that the proposal will not adversely affect the integrity of a European site, it can only proceed if there are no alternative solutions and there are imperative reasons of overriding public interest (see stages 8 and 9). This requirement is set out in regulation 29 of the offshore Habitats Regulations. Guidance (NatureScot, 2022) suggests alternative solutions could include alternative locations or routes; different scales or designs of development; alternative processes; or other different, practicable approaches which would have a lesser impact.

2.2.8 Stage 7: Would a Priority Habitat or Species be Adversely Affected?

68. Priority habitats that are qualifying interests of SACs in Scotland are provided on NatureScot's website. These habitats are given a greater level of protection under regulation 29 of the offshore Habitats Regulations. Consideration needs to be taken as to whether priority habitat in Scotland (or other relevant part of the UK) would be adversely affected. There are no priority species (as defined in the Habitats Directive) in Scotland's SACs and the Birds Directive does not refer to 'priority' species, therefore this stage is not relevant to the HRA process in this case.

2.2.9 Stages 8 and 9: Are there Imperative Reasons of Overriding Public Interest?

69. Where it cannot be ascertained that a plan or project will not adversely affect the integrity of a European site, and there are no alternative solutions, a plan or project can only proceed if there are imperative reasons of overriding public interest (IROPI) for doing so (regulation 29 of the offshore Habitats Regulations). Scottish Ministers must be consulted. Where a priority habitat could be affected, IROPI are limited to those reasons outlined in regulation 29. These must relate to

human health, public safety, beneficial consequences of primary importance to the environment, or any other IROPI subject to the opinion of the Scottish Ministers. Where a plan or project is to proceed for IROPI, Scottish Ministers have a duty to secure any compensatory measures necessary to ensure the overall coherence of the UK site network is protected (regulation 36 of the Habitats Regulations).

70. Without prejudice to the potential findings of the RIAA or the conclusions of the Competent Authority's AA, the Applicant will progress the development of information to support HRA derogation during the pre-submission phase, in consultation with relevant stakeholders.

2.3 Screening Methodology

2.3.1 Approach to Identifying Sites and Features

71. To facilitate the identification of the European sites and features to be considered in the HRA screening for the Bellrock WFDA, an initial pre-screening of European sites and effects has been undertaken as part of the screening assessment. This is considered an appropriate approach due to the scale of the Bellrock WFDA and the extensive ranges of European site features which may be affected (marine mammals and birds).

72. The criteria adopted for the initial identification of European sites are outlined in **Table 2.1**. This approach takes account of the location of the European sites (including Ramsar sites) in relation to the Bellrock WFDA, the anticipated Zone of Influence (ZoI) of potential effects associated with the Bellrock WFDA, and the ecology and distribution of qualifying interest features.

73. For pre-screening criterion 1, initial consideration is given to whether there is a physical boundary overlap between the Bellrock WFDA and any European sites; with all overlapping sites screened in to be taken forward for determination of LSE.

74. Pre-screening criterion 2 identifies any European sites, not already screened in using criterion 1, where there is an overlap between the Bellrock WFDA and the range of any qualifying mobile species of the European site. All sites where the Bellrock WFDA overlaps with the range of one (or more) features of a European site, are taken forward for determination of LSE.

75. Criterion 3 identifies any European sites, not already screened in by criteria 1 or 2, where the predicted ZoI of the Bellrock WFDA overlaps with a European site and/or qualifying interests of the site. For receptors associated with ornithology, consideration is also given to factors that inform the probable extent to which the different qualifying features will occur in the Bellrock WFDA.

Table 2.1: Criteria for initial identification of European sites

Criterion	Definition for identification of relevant European sites
1	The Bellrock WFDA overlaps with one or more European or Ramsar site(s).
2	European or Ramsar sites with qualifying mobile features/species (e.g. Annex I birds, Annex II marine mammals, migratory fish or shellfish) whose range (e.g. foraging, migratory, overwintering, breeding or natural habitat range) overlaps with the Bellrock WFDA.
3	European or Ramsar sites and/or qualifying interest features located within the potential ZoI of effects associated with the Bellrock WFDA (e.g. habitat loss or disturbance, noise and collision risk).

76. Development effects of the Bellrock WFDA will vary in their magnitude and significance, resulting from numerous factors including technology, processes used and the location and timing of activities. Concerning designated habitats and species populations, these effects can be direct (e.g., habitat loss associated with infrastructure installation) or indirect (e.g., via changes in water quality).

77. Screening is based on a conceptual 'source-pathway-receptor' approach:

- Source:
  - The origin of a potential effect (noting that a single source may have numerous pathways and receptors); and
  - Example: inter-array cable (IAC) installation.
- Pathway:
  - The means by which the effect of the activity could impact a receptor; and
  - Example: noise from IAC installation such as machinery.
- Receptor:
  - The element of the receiving environment that is impacted; and
  - Example: bird species within range of the noise disturbance.

78. The source-pathway-receptor approach identifies potential effects resulting from the proposed construction, operation and maintenance, and decommissioning of the Bellrock WFDA. Where there is no pathway, or the pathway has sufficient distance for dissipation of the effect to a negligible level before reaching the receptor, there may be justification for the screening out of that particular receptor (i.e. feature) for the site in question.

79. Overall LSE for each European or Ramsar site cannot be screened out if a source-pathway-receptor relationship and potential LSE have been screened in for any one qualifying feature. However, each qualifying feature of that European or Ramsar site will be subsequently considered separately, and the screening process may rule out LSE for some individual features at this stage.

80. Where there is insufficient information available at this stage to screen out a European or Ramsar site or feature, the European or Ramsar site is screened in for further consideration. If, on receipt of that information, it is then possible to screen out a European or Ramsar site, or feature this will be documented as part of the Stage 2 assessment and the screening outcomes updated accordingly.

2.3.2 Consideration of In-combination Effects

81. The Habitats Regulations require that the potential effects of a project on designated sites are considered both alone and in-combination with other plans or projects. Onshore plans or projects that may be considered include (but are not limited to):

- Residential developments;
- Onshore wind farms and solar arrays;
- Planned construction of onshore cables and pipelines;
- Agricultural projects;
- Transport developments;
- Oil and gas projects and operation; and
- Carbon capture projects.

82. Offshore plans or projects that may be considered include (but are not limited to):

- Other offshore wind farms and renewables developments;
- Planned construction of sub-sea cables and pipelines;
- Aquaculture projects;
- Aggregate extraction and dredging;
- Licenced disposal sites;
- Shipping and navigation;
- Port/harbour developments;
- Oil and gas projects and operation, including seismic surveys;
- Unexploded ordnance (UXO) clearance; and
- Carbon capture developments.

83. The assessment will present relevant in-combination effects of projects using the approach as detailed in Scottish National Heritage’s HRA Guidance for Plan-making Bodies in Scotland (Scottish National Heritage, 2015). This approach provides a list of criteria for types of other plans and projects that may be used to indicate the certainty that can be applied to each ‘other existing development and/or approved development’:

1. The incomplete parts of projects that have been started but which are not yet completed;
2. Projects given consent but not yet started;
3. Projects that are subject to applications for consent;
4. Projects that are subject to outstanding appeal procedures;
5. Any known unregulated projects that are not subject to any consent;
6. Ongoing projects subject to regulatory reviews, such as discharge consents or waste management licenses;
7. Development that has recently been completed but where any residual effects may not form part of the environmental baseline;
8. Policies and proposals that are not yet fully implemented in plans that are still in force; and
9. Draft plans that are being brought forward by other public bodies and agencies.

84. As per the cumulative effects assessment (CEA) in the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024), the in-combination assessment will be considered in two stages:

- **Stage 1**: In-combination effects of the whole Bellrock Project (i.e., the Bellrock WFDA and the OfTDA).
- **Stage 2**: In-combination effects of the whole Bellrock Project (i.e., the Bellrock WFDA and the OfTDA), alongside other plans or projects which fall into the criteria listed above.

85. All other relevant plans or projects that are publicly available six months prior to submission of the Bellrock WFDA's application will be considered in the in-combination assessment.

2.4 Consultation

86. A Scoping workshop was held with MD-LOT and NatureScot on 30th October 2023 to discuss and agree the approach to the Environmental Impact Assessment (EIA) and HRA processes for the Bellrock WFDA. A summary of the details of the consultation undertaken at the Scoping Workshop to inform this HRA is presented in **Table 2.2**.

Table 2.2: Summary of Consultation to Date on Stage 1: LSE Screening for the Wind Farm Development Area

Consultee	Date/Document	Consultation Response	How and Where Addressed
MD-LOT/NatureScot	30th October 2023. Bellrock WFDA Scoping Workshop.	NatureScot noted that the preference is for scoping and screening to consider two full years of survey data, but many developers not taking that pathway and are basing this on a single year of baseline only.	Species that are scarce or absent in the first year of baseline survey data have been screened out only where the available evidence on wider distribution and ecology supports this. Please see **Section 7.1**.
MD-LOT/NatureScot	30th October 2023. Bellrock WFDA Scoping Workshop.	NatureScot noted that any departure from guidance or roadmap agreed approaches, that this is transparently/clearly done, and that this should be discussed with NatureScot.	Noted.
MD-LOT	30th October 2023. Bellrock WFDA Scoping Workshop.	MD-LOT will consider the cut-off time period for projects to be included in the in-combination assessment consistently across all projects, and once confirmed, will update the Applicant.	Noted. The Applicant has proposed a six month cut-off.
MD-LOT	15th December 2023, email response to Bellrock WFDA Scoping Workshop 30th October 2023.	*Do you agree with the approach to have two Habitats Regulations Assessment (HRA) Screening Reports?* MD-LOT would have no objection to the provision of 2 HRA Screening Reports; however has a query around the split of the WFDA and OfTDA. The diagram on slide 15 appears to show that the OfTDA EIA overlaps with the WFDA EIA. Could you please provide some narrative around this and what this means for the respective EIAs.	The OfTDA overlaps the WFDA as the offshore substations will be located within the WFDA but consented as part of the OfTDA. Information is provided in **Section 1**.
NatureScot	20th December 2023, email response to Bellrock WFDA Scoping Workshop 30th October 2023.	*Do you agree with the proposed approach for impact assessment and HRA for fish and shellfish?* Based on the project information provided to date, we are content with the proposed assessment approach for diadromous fish.	Noted. This approach is set out in **Section 5**.

3 Project Description

3.1 Introduction

87. This chapter provides an overview of the Bellrock WFDA and describes the main infrastructure to be included within the Bellrock WFDA s.36 and Marine Licence applications. It also provides an overview of the main activities that will be undertaken during construction, operation, and decommissioning of the Bellrock WFDA under the s.36 consent and Marine Licence.

88. As discussed in **Chapter 1: Introduction,** a separate Screening Report and consent applications will be submitted for the Bellrock Offshore Transmission Development Area (OfTDA) in due course. Whilst there is a geographic overlap between the boundaries of the Bellrock WFDA and Bellrock OfTDA, infrastructure within the Bellrock OfTDA (i.e. offshore substation(s), offshore export cables, and reactive compensation station (if required)) is outside of the scope of this Bellrock WFDA Habitats Regulations Appraisal (HRA) Screening Report and subsequent consent applications. To ensure a comprehensive assessment is undertaken in the Report to Inform Appropriate Assessment (RIAA), the Bellrock WFDA in-combination assessment will consider the Bellrock OfTDA, along with other projects and plans (see **Section 2.3.2** for details).

3.2 Design Envelope Approach

89. A parameter-based design envelope approach will be utilised to set parameters for the Bellrock WFDA RIAA and establish the extent to which the Bellrock WFDA could impact on European sites. The design envelope will set out a series of design options for the Bellrock WFDA and will have a minimum and maximum scenario for each design parameter. These parameters will be further refined once more detailed engineering studies have been undertaken (which includes site-specific data).

90. The design envelope will include all relevant technical, spatial and temporal elements of the Bellrock WFDA, and the proposed methodology to be employed for construction, operation and maintenance, and decommissioning.

91. The Bellrock WFDA RIAA will consider the design envelope and determine, then assess, the reasonable worst-case scenario for that specific chapter. Further details of the use of a design envelope are provided in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** of the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024). This is considered a standard approach and is widely accepted by stakeholders and regulators. It is essential to ensure the necessary design flexibility at this early stage of project development.

92. The information presented in this chapter outlines the options and flexibility required by the Applicant and the range of potential design, location and activity parameters upon which the scoping of impacts is based. The final detailed design would lie within the parameters of the design

envelope, enabling detailed design work to be undertaken post-consent whilst retaining the validity of the Bellrock WFDA RIAA.

93. The need for flexibility in the consent is a key aspect of any large development but is particularly significant for offshore wind projects where technology is evolving. The design envelope must therefore provide sufficient flexibility to enable the Applicant and their contractors to use the most up to date, efficient and economical technology and techniques in the construction, operation, maintenance, and decommissioning of the Bellrock WFDA without affecting the surrounding environment to a greater extent than the worst-case scenarios assessed in the Bellrock WFDA RIAA.

94. The design envelope has been refined in the preparation of this Bellrock WFDA HRA Screening Report. For example, spar type floating substructures (FSSs) have been removed from the design envelope as the draught requirements are not suited to Scottish ports and the Bellrock WFDA characteristics. The refinement of the design envelope will continue throughout the Environmental Impact Assessment (EIA) process and will be described in the RIAA.

95. Guidance has been prepared by Marine Directorate (formally Marine Scotland) and the Energy Consents Unit on using the design envelope approach for applications under s.36 of the Electricity Act 1989 where flexibility is required in applications (Scottish Government, 2022). This guidance will be referred to in refining the design envelope to inform the Bellrock WFDA RIAA.

3.3 Project Infrastructure

3.3.1 Bellrock Wind Farm Development Area

96. The Bellrock WFDA is located 120 km east of Stonehaven (116 km southeast of Peterhead), Aberdeenshire as shown in **Figure 1.1** in **Appendix 1**. Due to the ongoing Holistic Network Design (HND) process, the location of the Scottish and Southern Electricity Networks (SSEN) Transmission offshore substation and is yet to be determined. The Bellrock WFDA will comprise of:

- Wind turbine generators (WTGs) with floating substructures (FSSs) and (if used) fixed bottom substructures (FBSSs) (**Section 3.4**);
- Station keeping systems (SKSs) for each FSS, including mooring lines and anchoring systems (**Section 3.5**);
- Inter-array cables (IACs), subsea cable hub(s) and associated cable protection (**Section 3.7**); and
- Scour protection for FSSs' anchoring points and (if used) FBSSs (**Section 3.8**).

97. Key site parameters for the Bellrock WFDA are presented in **Table 3.1**.

Table 3.1: Bellrock Wind Farm Development Area Parameters

Parameter/Unit	Bellrock WFDA
Distance from Stonehaven (km)	120 east
Distance from Peterhead (km)	116 east
Area (km^2)	280
Water depth (m from mean sea level (MSL))	-60 to -105
Crown Estate Scotland lease period (years)	Up to 60
Operational life (years)	Up to 50

3.3.2 Wind Turbine Generators

98. The WTGs convert wind energy into electrical energy. Each WTG is a complex system composed of a high number of components. The main components are:

- Rotor assembly, composed of three blades and a hub;
- Nacelle, containing the generator, shaft and gearbox (if applicable), power electronic converter and transformer; and
- Tower containing lifting equipment and, if applicable, the switchgear.

99. Technology develops rapidly and the available sizes of turbines are expected to increase over the coming years. The WTG parameters are reflective both of today's technology and up to what the Applicant considers could be achievable by 2035. The final WTG model(s) that will be used for the Bellrock WFDA will be selected post-consent.

100. The RIAA will consider several WTG parameters ensuring the worst-case is assessed for each receptor. The WTG design envelope for the Bellrock WFDA is outlined in **Table 3.2** and an infographic of key features is presented in **Plate 3.1**.

Plate 3.1: Key Features of a Typical Floating Offshore Unit

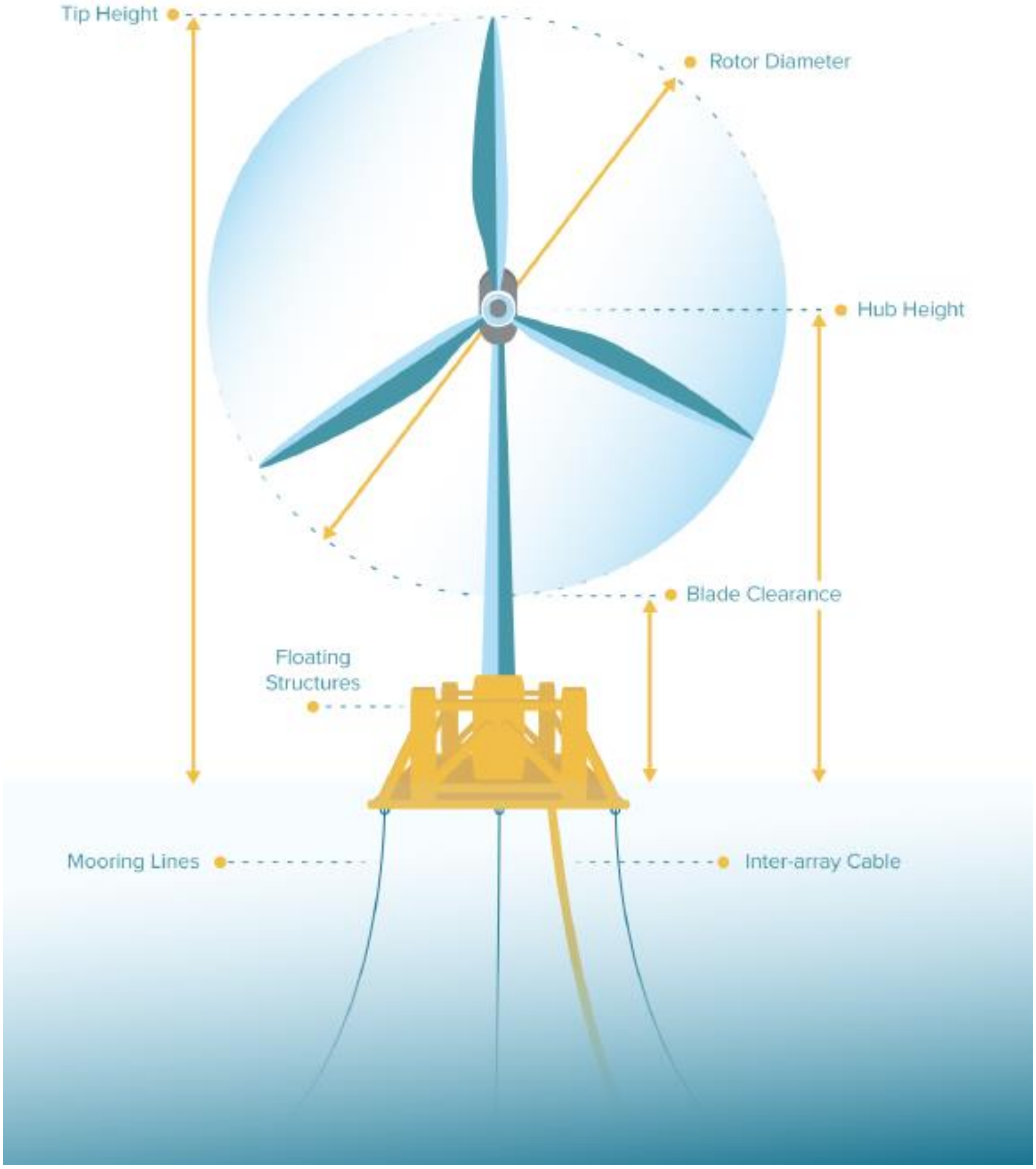


Table 3.2: Wind Turbine Generator Design Envelope

Parameter	Minimum	Maximum
WTG Capacity (MW) [1]	15	28
Number of WTGs [2] [3]	42	80
WTG Rotor Diameter (m)	236	330
Minimum Blade Tip Clearance above Mean High Water Springs (MHWS) (m) [4]	22	-
Maximum Blade Tip Height (m) above Lowest Astronomical Tide (LAT)	-	400
Minimum WTG Spacing (m)	1,000 (all directions)	-
Safety Zone radius required around WTG (pre-commissioning) (m, approximate) [5]	50	50
Safety Zone radius required around WTG (active construction) (m, approximate) [5]	500	500
Safety Zone radius required around WTG (major maintenance) (m, approximate) [5]	500	500

[1] The minimum capacity corresponds to the maximum number of WTGs and vice versa.

[2] Additional WTGs may also be developed within the WFDA for overplanting purposes.

[3] The final capacity will be confirmed within the Bellrock WFDA EIA Report. Should a material increase in project capacity be proposed within the WFDA (shown in **Figure 1.1** in **Appendix 1**), the Applicant will liaise with MD-LOT to establish the validity of the WFDA Scoping Opinion.

[4] As per Marine Guidance Note (MGN) 654. The minimum air gap for the Bellrock WFDA will be informed by technical studies and will be defined in the Bellrock WFDA EIA Report.

[5] The Bellrock WFDA EIA Report will include an assessment of the proposed approach to Safety Zones at the point of application. The total number of Safety Zones to be established at the same time has not been yet defined.

3.4 Wind Turbine Generator Substructures

101. The Bellrock WFDA will use WTGs installed upon FSSs and (if used) FBSSs. The final selection of substructure and associated SKSs (discussed in **Section 3.5**) will depend on factors including but not limited to seabed conditions, water depth, wave, wind and tidal conditions, economics and procurement approach. As site conditions vary across the Bellrock WFDA it is possible that more than one substructure or SKS type is used. A summary matrix of substructures and SKS options are provided in **Section 3.6**. Together, the WTG and FSS are referred to as 'floating offshore unit' (FOU).

102. The Bellrock WFDA RIAA will consider different substructure and associated SKSs based on the most up to date worst-case design parameters, **Section 3.4.1** and **Section 3.4.2** below discuss FSS and FBSS options in turn.

3.4.1 Floating Substructures

103. FSSs require an appropriate SKS, comprising of mooring lines and anchors which will attach the FSSs to the seabed and keep them in position. SKSs options are detailed in **Section 3.5**.

104. **Table 3.3** outlines the key parameters required for scoping in relation to FSSs. The parameters presented are considered worst-case and will be further refined as more detailed engineering studies are undertaken. **Plate 3.2** provides typical schematics of each FSS under consideration.

Plate 3.2: Floating Substructure Options

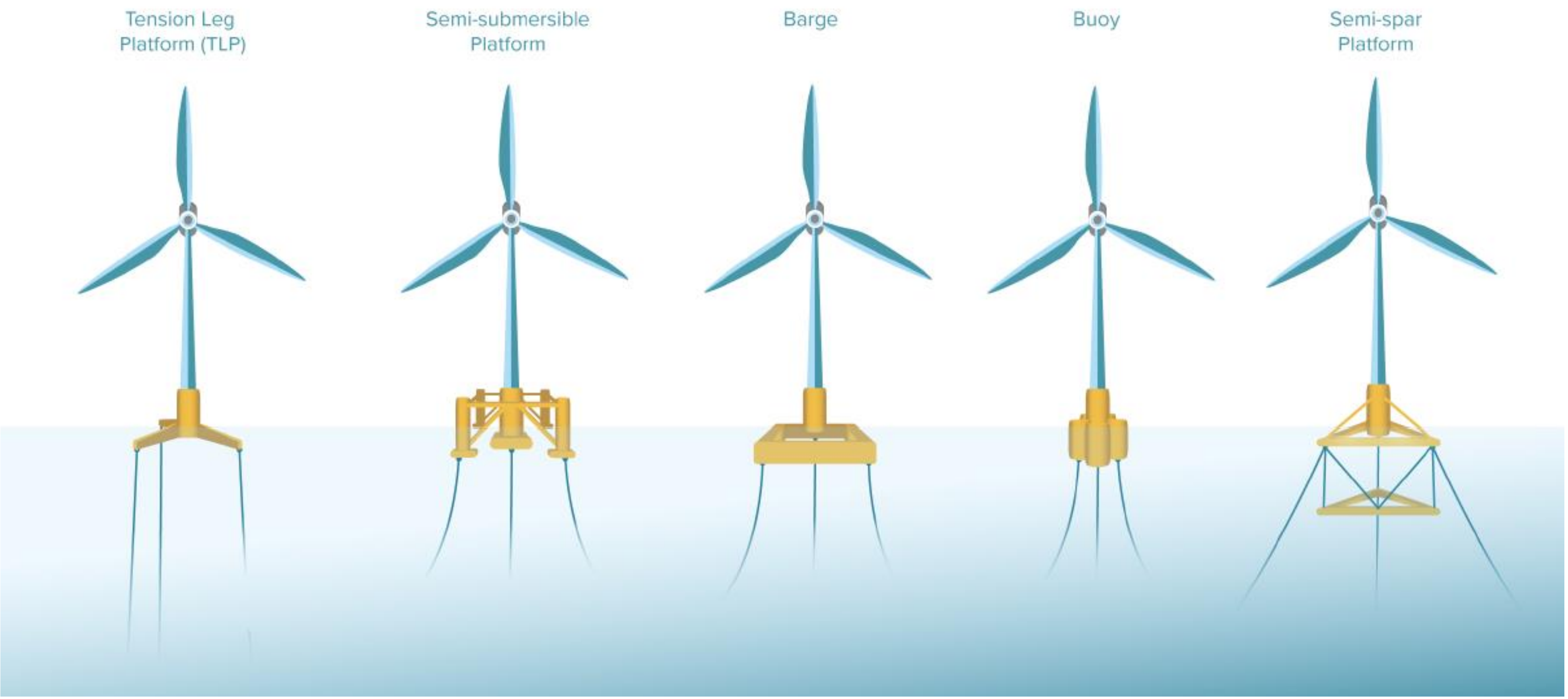


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Table 3.3: Floating Substructure Design Envelope

Parameter (per FOU)	Minimum	Maximum
Footprint at sea surface (m x m)	60 x 60	140 x 140
Height of FSS (m)	15	60
Excursion Limit of substructure[1] (m)	N/A	140
[1] Extent to which the FSS may offset from the design coordinates due to external conditions (e.g. wind and metocean).		

3.4.1.1 Tension Leg Platform

105. A tension leg platform (TLP) is a highly buoyant semi-submerged structure, which maintains its position and stability through the opposite forces of excess buoyancy in the FSS and the highly tensioned tendons anchored to the seabed.

106. It is anticipated that the WTG installation on a TLP would take place at an assembly port but there are some FSS concepts which may not offer sufficient stability for an integrated FOU transportation operation to the WFDA. However, if WTG integration onto the FSS was expected to be performed at the Bellrock WFDA, then this would require installation equipment and methodologies (e.g., a floating crane installing a WTG on a FSS within the Bellrock WFDA) which are yet to be fully developed and deployed for commercial scale floating wind projects. In addition, major component replacement during the operational and maintenance phase would be more challenging for this technology if the FOU required a tow back to port for repair. A TLP may however lend itself to floating maintenance operations given the concept’s good stability characteristics.

3.4.1.2 Semi-submersible Platform

107. Semi-submersible platforms are buoyancy-stabilised structures which float semi-submerged and maintain position via a SKS. These structures usually consist of a set of three or more columns connected via bracings or pontoons with heave plates. Semi-submersible technology can use a wide range of SKSs. WTG integration is likely to take place at an assembly port and subsequent transfer to and installation at the Bellrock WFDA is typically achieved using tugs and anchor handling vessels (AHVs).

3.4.1.3 Barge

108. Barge technology offers low draught but a very large water-plane area, which provides the distributed buoyancy by which the platform achieves stability.

109. Generally, barge substructures comprise of a single hull, but variations of barge FSSs exist such as twin hulled barge concepts. Barges tend to be more susceptible to wave loading than other technology types due to the large water-plane areas.

110. Like semi-submersible technology, barges can use a variety of SKS technology and are capable of FOU integration at an assembly port.

3.4.1.4 Buoy (Modified Spar-buoy)

111. This form of FSS is less developed in the market, although it has some unique benefits. These FSSs are a modified form of a traditional spar (typically a cylindrical shaped FSS with a large draft, incorporating ballast in the lower end) but have a much shallower draught and much larger water plane area than their traditional spar counterparts. They behave like semi-submersibles during transport and installation activities, operations, and WTG integration but they achieve stability, via a low centre of gravity and high centre of buoyancy, over a wider footprint than a traditional spar.

112. Unlike spars which typically require large draughts (both at the quayside and in operation), buoys tend to have draughts comparable to semi-submersibles, which improves port access and other challenges associated with deep draughts. In addition, it also allows for WTG integration at an assembly port and transport of a fully integrated FOU to the Bellrock WFDA.

3.4.1.5 Semi-spar Platform

113. This is a subset of traditional spar form of FSS also known as a hybrid spar. They are typically split into two structures, one highly buoyant structure supporting the WTG, and another structure/mass suspended below the support structure which acts to lower the centre of gravity. Coupled together they act like a traditional spar.

114. Semi-spars offer the advantages of traditional spars in terms of stability and reduced water plane area. However, also including the additional benefits of other FSS options like, WTG integration at the assembly port and integrated transport and installation operations.

115. However, the use of a counterweight does provide challenges and complications regarding installation, tow to shore maintenance activities and decommissioning, as lowering and raising of the suspended structure/mass is a difficult marine operation to undertake.

3.4.2 Fixed Bottom Substructures

116. The FBSSs are installed into the seabed prior to the integration of the WTGs on the FBSS.

117. The following sections outline the different types of FBSSs that could be selected for the Bellrock WFDA. **Table 3.4** outlines the parameters for FBSSs, while **Plate 3.3** shows a diagram of each FBSS under consideration.

Plate 3.3: Fixed Bottom Substructure Options

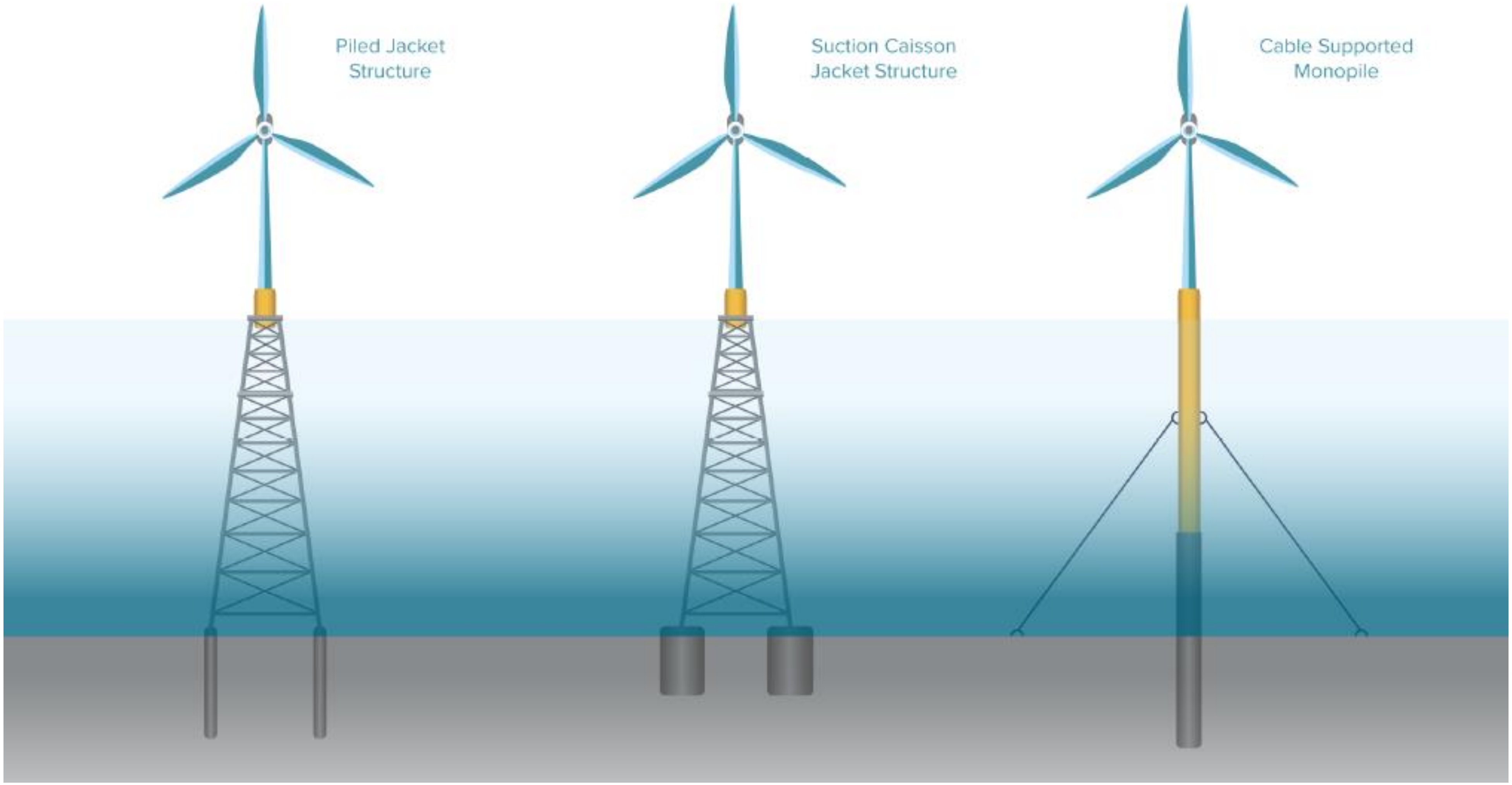

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Table 3.4: Fixed Bottom Substructure Design Envelope

Parameter (per WTG)	Minimum	Maximum
Maximum FBSS footprint (m x m)	-	60 x 60
Piled Jacket Structure		
Number of legs	3	4
Maximum footprint (m)	-	50 x 50
Number of pin piles	-	8
FBSS piled jacket – pin pile diameter (m)	-	4
FBSS piled jacket – pile blow energy (kilojoules (kJ))	-	4,000
Suction Caisson Jackets		
Number of legs	3	4
Maximum footprint (m)	-	60 x 60
Cable Supported Monopiles		
Monopile diameter (m)	10	16
Monopile blow energy (kJ)	To be determined, subject to further design	

3.4.2.1 Piled Jacket Structure

118. Piled jacket structures are formed of a steel lattice construction, which comprises of steel members and welded joints. There is no separate transition piece with a jacket structure, with the whole jacket structure being constructed as an entirely integrated unit. The jacket structure is attached to the seabed by pin piles which are attached to the jacket feet and either driven and/or drilled into the seabed, depending on the geotechnical conditions of the seabed.

3.4.2.2 Suction Caisson Jacket Structure

119. The suction caisson jacket structure differs from the piled jacket structure by the method in which the jacket is attached to the seabed. Suction caissons are typically hollow steel canisters, capped at the top and open at the bottom and attached underneath the legs of the jacket. The structure is installed by lowering it onto the prepared seabed and a pipe running through each caisson unit begins to pump/suck water out of each unit. As this happens, and as a result of the generated suction force, the buckets get pressed/pulled down into the seabed.

120. Once the required penetration depth has been achieved the pump is switched off and grout is injected under the bucket to fill the remaining airgap and ensure contact between soil within the bucket and the top of the bucket. Suction caisson jackets do not require to be drilled or hammered into the seabed.

3.4.2.3 Cable Supported Monopile

121. Monopile substructures consist of a pile typically fabricated from steel, driven into the seabed using methods such hammering or vibrating, but could also be drilled and grouted. Given the Bellrock WFDA's water depths and potential scale of WTG to be installed, traditional monopile FBSSs are not considered a viable option. Cable supported monopiles, also known as fully restrained platforms, include aspects of the monopile substructure design and mooring and anchoring systems to provide stability to the monopile. This enables the use of well-established monopile technology in deeper waters without significantly increasing the weight of the substructure (e.g. increasing the cost and complexity of construction, transport and installation).

122. The anchors for the additional restraining equipment would also be required to be attached to the seabed using a suitable solution dependant on the site characteristics (e.g. pin piles which are hammered or drilled).

3.5 Station Keeping System

123. To maintain position of the FOU, it is necessary to connect the FSS to the seabed via a SKS. The SKSs generally comprises mooring lines and anchors, which also provide stability to the FOU with various degrees of influence based on the system deployed. The mooring line and anchor design envelopes are outlined in **Table 3.5** and **Table 3.6** respectively**.**

124. There are several types of mooring configuration and anchoring solutions which are available for floating technology. **Section 3.5.1** outline the types of mooring configuration considered for the WFDA and **Section 3.5.2** outlines the various types of anchors being considered.

125. In addition to the mooring lines and anchoring there are several ancillary elements, not described in detail here, which are deployed as part of the SKS. These include, but may not be limited to:

- Buoyancy elements;
- Clump weights;
- Shackles and connectors; and
- Tensioners.

126. The design of the SKSs depends on the site characteristics and the technology being used. It is possible that different mooring and anchoring solutions may be used across the Bellrock WFDA. This will be dependent on the site characteristics (i.e. ground conditions) and determined during the design development.

3.5.1 Mooring Lines

127. Mooring lines are connected to the FSS at various points or a single point (depending on the mooring system and/or the FSS concept).

128. Mooring lines for FSS purposes can be made of several different materials, in various forms, for example:

- Steel (e.g. chain, sheathed spiral strand wire rope, steel pipe); and
- Synthetic rope (e.g. polyester, nylon, high modulus polyethylene).

129. The mooring types within the design envelope are illustrated in **Plate 3.4** below.

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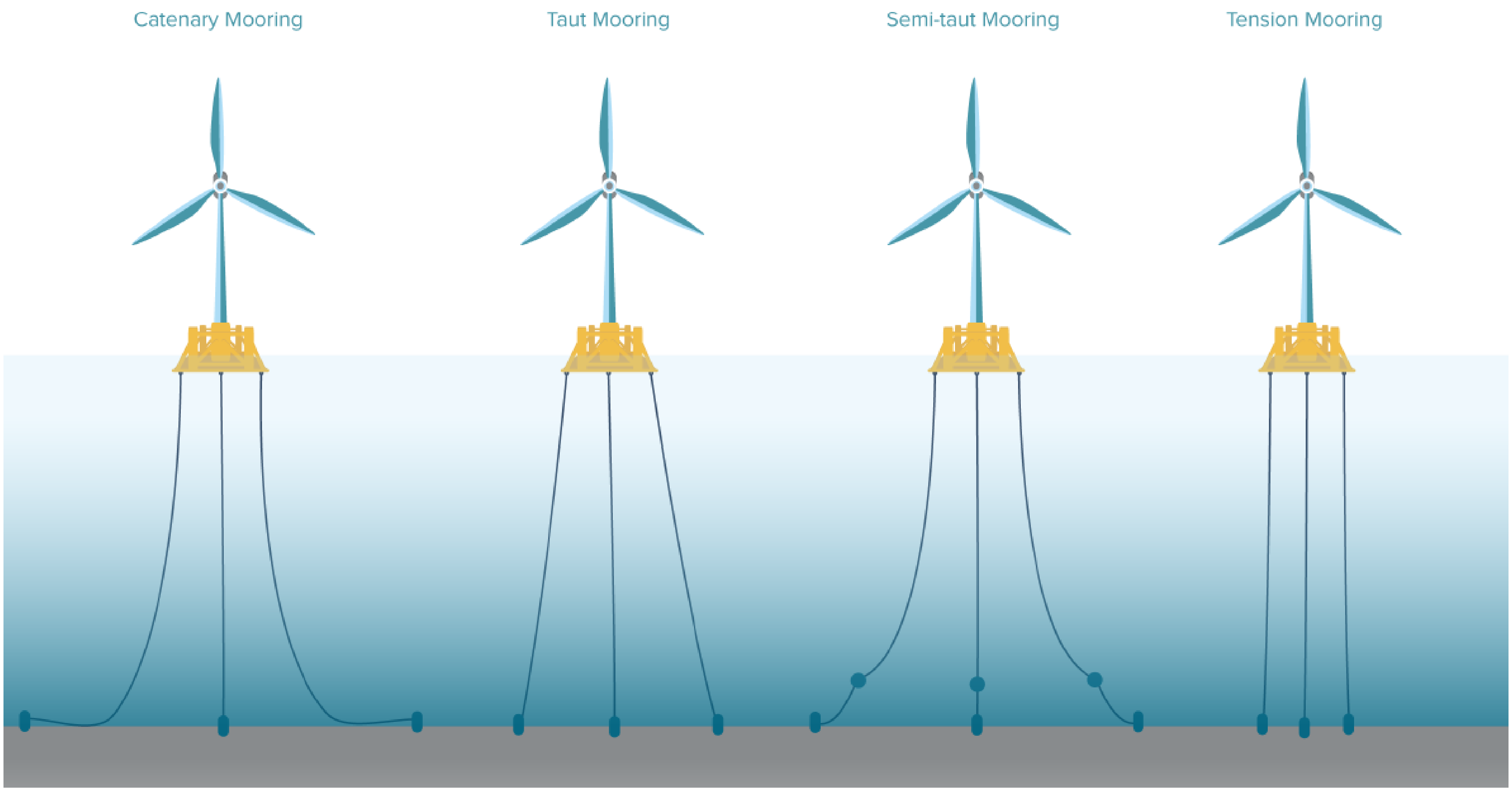
Plate 3.4: Examples of Mooring Configurations



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3.5.1.1 Catenary Mooring

130. This configuration uses free hanging chain, whose own weight leads to the catenary shape through the water column between the FSS and the anchor. There is a section of chain resting on the seabed prior to termination at a suitable anchor, meaning the anchors will generally only experience horizontal loading. Generally, the weight of the chain resists excursions and provides stability.

131. The length of the catenary system is typically six to eight times the water depth. This system works well in water depths of up to 300 m.

3.5.1.2 Taut Mooring

132. This configuration uses lines which are tensioned between the substructure and anchors until taut. The tension and flexibility in the lines are used to provide stability and control excursions. As the mooring is taut, there is no contact with the seabed.

133. In this configuration the load on the anchor is both vertical and horizontal, therefore pile or suction anchors are most likely to be used. It has a shorter length than a catenary system, at roughly two times the water depth. This system works well in a wide range of water depths.

3.5.1.3 Semi-taut Mooring

134. This configuration uses chain at the top and bottom of the mooring line, and rope in the mid-section forming a combination of a taut and catenary system. Buoyancy modules are used to lift the rope off the seabed and prevent damage to these sections. However, there remains some seabed contact with this mooring option.

135. The semi-taut solution, being a mix of taut and catenary systems, mean the anchors suitable for catenary systems can be used.

3.5.1.4 Tension Mooring

136. This type of system is used by TLP. Due to the vertical loading and high tension on these systems, tendons with low strain and high strength are used, which can be synthetic ropes or steel tubulars for example.

3.5.1.5 Shared Mooring

137. A shared mooring system is a system where adjacent FSSs share anchor points. These systems are innovative and offer potential cost and potential environmental benefits given the reduced number of anchors. Unlike the other SKS forms, this system will most likely only have three lines per FSS, with each of those lines connected to a buoy, with a line running vertically down from the buoy to an anchor with vertical tension capacity (i.e. a suction or driven type pile).

Table 3.5: Moorings Design Envelope

Parameter (per WTG)	Minimum	Maximum
Number of mooring lines	-	12

138. Seabed footprints relating to the mooring system will be provided in the Bellrock WFDA RIAA.

3.5.2 Anchors

139. The anchor is the connection point between the mooring system and the seabed. Consideration needs to be given to the site-specific ground conditions and their associated properties. These are important consideration in selection of the anchor type used. A brief description of the anchor types considered for the WFDA is given in this section. **Plate 3.5** illustrates various types of anchors being considered with the Bellrock WFDA.

Plate 3.5: Different Anchor Types Being Considered for the Bellrock WFDA

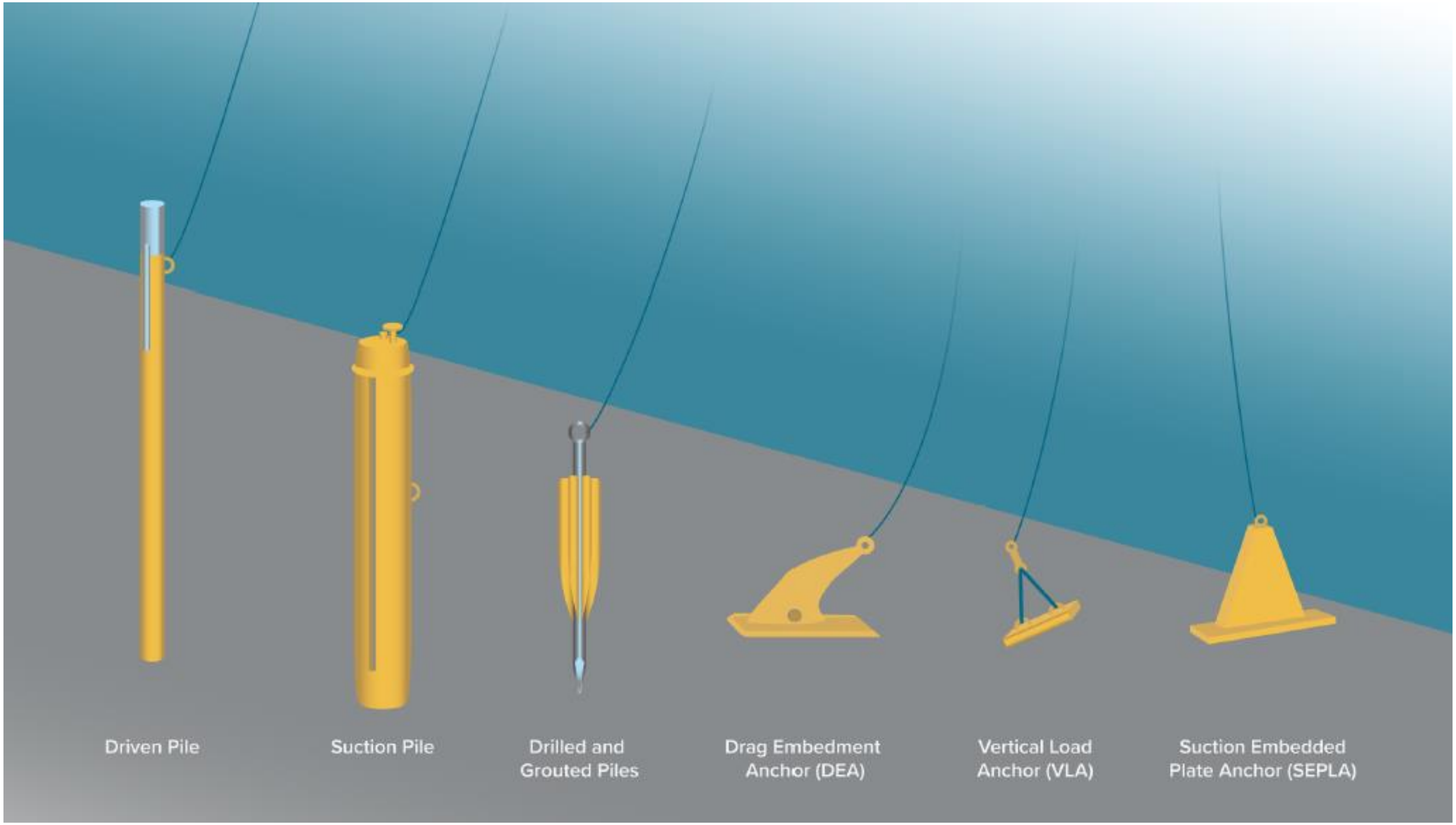

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Table 3.6: Anchor Design Envelope

Parameter (per WTG)	Minimum	Maximum
Number of anchors per FSS	-	12

Table 3.7: Pile Anchor Design Envelope

Parameter (per WTG)	Minimum	Maximum
Anchor driven pile diameter (m)	2	3.5
Anchor driven pile length (m)	20	35
Anchor driven pile hammer energy (kJ)	250	3000

3.5.2.1 Driven Piles

140. Driven piles are steel tubes and are typically used for anchoring purposes in hard or challenging soil conditions. The pile is typically driven to the required penetration depth via an impact or vibratory hammer. These types of anchors can be used to support both vertical and horizontal loads.

3.5.2.2 Suction Piles

141. In suitable soil types (typically clays/sands) it may be possible to use suction piles (also known as suction caisson/buckets, suction cans). These use the same technique to embed into the seabed as outlined in **Section 3.4.2.2**. As with the driven pile, these anchors are good for both horizontal and vertical load resistance.

3.5.2.3 Drilled and Grouted Piles

142. Drilled and grouted piles are similar to driven piles and also typically used in hard soil conditions. However, these anchors (piles) are installed through drilling a void into the seabed to a target depth and then grouting in-situ to seal form the connection between the pile and the surrounding ground.

3.5.2.4 Drag Embedment Anchors

143. Drag embedment anchors (DEAs) work by being dragged across the seabed, embedding themselves to the required depth. They are best suited for use with catenary and semi-taut mooring systems due to the fact that they support horizontal loading. They work well in sediments which contain a significant proportion of clay and when fully submerged in the seabed.

3.5.2.5 Vertical Load Anchors

144. Vertical load anchors (VLAs) are similar to DEAs in that they are installed by dragging the anchor across the seabed. However, these anchors are capable of bearing both vertical and horizontal loads.

3.5.2.6 Suction Embedded Plate Anchors

145. Suction embedded plate anchors (SEPLA) are similar to VLAs but are installed using a suction embedment method.

3.6 Summary of Substructure, Mooring and Anchor Systems

146. A summary of the potential WTG types, detailing potential compatible configurations of associated substructure types, mooring, and anchor options is presented in **Table 3.8** and **Table 3.9** below. **Table 3.8** and **Table 3.9** also identify which options would require scour protection and/or piling activities.

Table 3.8: Summary Matrix of Floating Substructure Type and Associated Station Keeping System Infrastructure

Substructure Type	Mooring Options	Floating Substructure Anchor Options	Scour Protection	Impact Piling
TLP	Tension mooring	Driven piles	Yes	Yes
		Drilled and grouted piles	Yes	No
		Suction piles	Yes	No
Semi-submersible Barge Buoy (modified spar-buoy) Semi spar	Taut mooring	Driven piles	Yes	Yes
		Drilled and grouted	Yes	No
		Suction piles	Yes	No
	Catenary Semi-taut	Driven piles	Yes	Yes
		Drilled and grouted	Yes	No
		Suction piles	Yes	No
		Drag embedment/vertical load/suction embedded plate	No	No
	Shared mooring	Driven piles	Yes	Yes
		Drilled and grouted	Yes	No
		Suction piles	Yes	No

Table 3.9: Summary Matrix of Fixed Bottom Substructure Type

Substructure Type	Mooring Options	FBSS Options	Scour Protection	Impact Piling
Piled jacket	N/A	Pin piles Driven Drilled and grouted	Yes	Yes, when driven
Suction caisson jacket	N/A	Suction caissons	Yes	No
Cable supported monopile	Taut lines between the monopile and anchor piles	Monopile Driven Drilled and grouted Anchor piles supporting the taut lines Driven Drilled and grouted	Yes	Yes, when driven (monopile and anchor piles)

3.7 Cables

147. Cables are a vital infrastructure, responsible for conducting the electricity generated by the WTGs to the offshore substation(s) (OFSS(s)) for export, as well as powering the WTG when required. The Bellrock WFDA will utilise IACs to conduct electricity from the WTGs to an OFSS(s) or a subsea cable hub(s) if used.

148. Other transmission infrastructure components, such as the OFSS(s), interconnector cables connecting two or more OFSSs with each other, and offshore export cables connecting the Bellrock OFSS(s) to the SSEN Transmission offshore substation are within the scope of the Bellrock OfTDA, and therefore a separate consent application will consider these elements.

149. No cable crossings of third party cables are anticipated within the Bellrock WFDA. Cables, and proposed burial and protection methods, are discussed in the following sections.

3.7.1 Inter-array Cables

150. The IACs are armoured cables containing electrical and fibre optic cores, which link the WTGs to each other and to the subsea cable hub(s) and/or the offshore substation(s) and include dynamic IAC and static IACs. It is typical for WTGs to be connected together via strings or loops of IACs, dependent on the electrical design selected.

151. Currently, the typical voltage rating of an IAC is 66 kV, however due to the increasing WTG capacity it is likely that the voltage rating of IACs will need to increase to accommodate this. Therefore, IACs with a voltage rating of 132 kV are also being considered at this stage.

152. The IAC footprint, i.e., total length of cable to be installed multiplied by width of seabed to be affected during the installation, is not yet determined and will be specified within the Bellrock WFDA RIAA.

153. For FSSs, due to the nature (and movement) of the structure, static IAC (on the seabed) and dynamic IAC (moving within the water column) are required, joined together by a connector to form one continuous cable. The dynamic IAC section is designed to accommodate the dynamic movement of the FSS.

154. Dynamic IACs can be deployed in various configurations, depending on a number of factors such as water depth and on-site conditions. These configurations may include:

- Free hanging;
- Lazy “S” wave; and
- Steep wave.

155. The lazy “S” wave configuration is the configuration most associated with floating wind applications. However, further detailed design is required to define the most suitable configuration for the Bellrock WFDA. **Plate 3.6** illustrates these potential configuration options.

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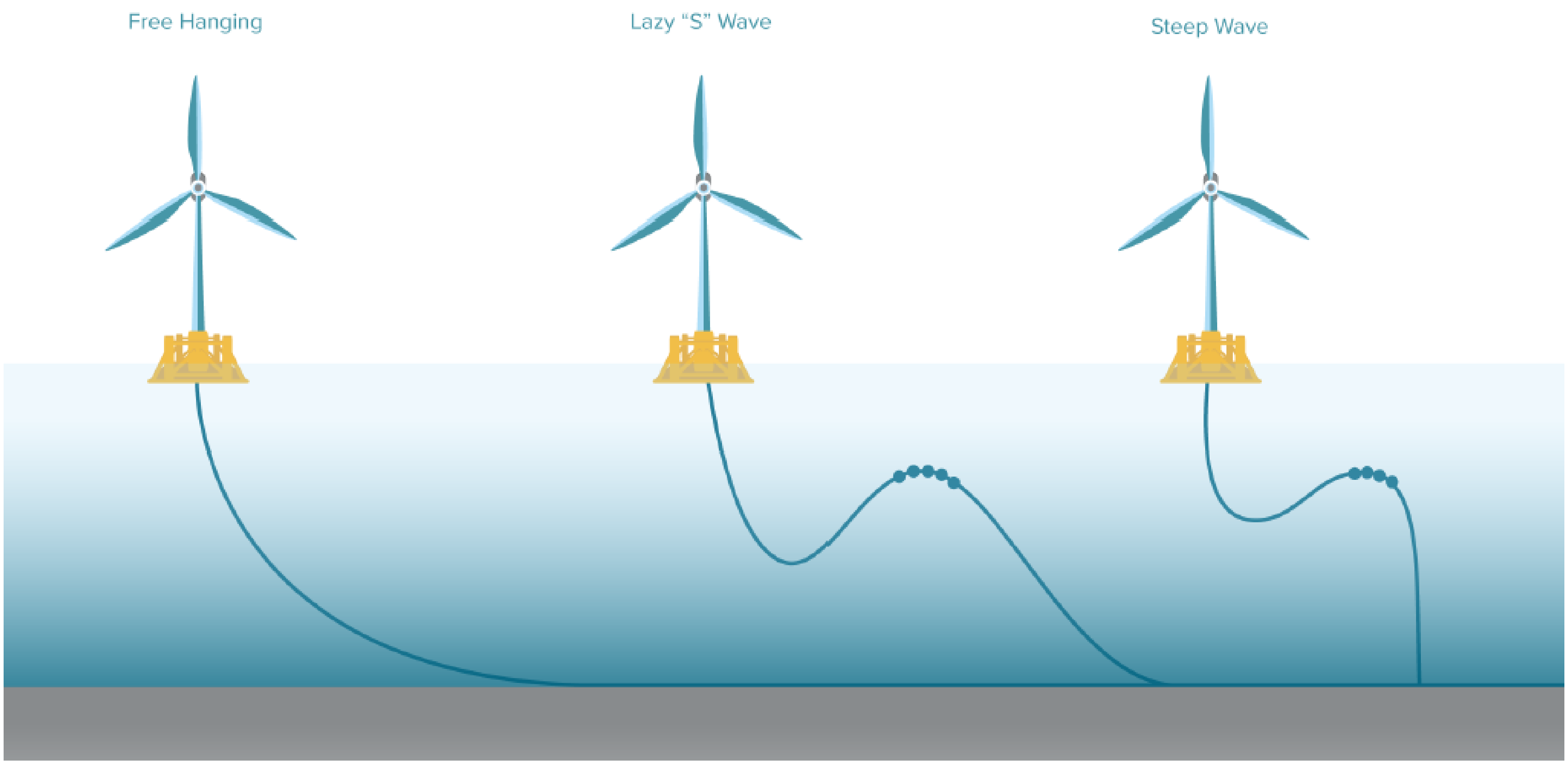
Plate 3.6: Dynamic Inter-array Cable Configuration Options



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156. Dynamic cable configurations require a number of auxiliary cable items, designed to help reduce fatigue and protect the cable, such as:

- Buoyancy modules;
- Bend stiffeners;
- Bend restrictors;
- Abrasion protection at the touchdown point; and
- Connector (joining the dynamic IAC to the static IAC).

157. At the point where the dynamic cable comes into contact with the seabed, the touchdown point, it essentially transitions to being a laid static cable, usually via a connector. Cable protection may be applied to the static IAC. In addition, clump weights/ballast and tethering anchors are used to hold the cable in position.

158. Should the static section of the IACs require burying or protection this would be subject to further studies and a Cable Burial Risk Assessment (CBRA), particularly for the portion of cable that comes into contact with the seabed after the touchdown point (see **Section 3.8**).

159. Prior to any installation on the seabed, it is likely that seabed preparation activities will be required. This would involve activities such as boulder and sand wave clearance, and management of unexploded ordnance (UXO). These are outlined in **Section 3.9.2**.

3.7.2 Cable Burial and Protection

160. The IAC static sections may be surface laid or buried. Where burial is undertaken, a detailed CBRA will be prepared to determine the target burial depth and methods to be used for the static IAC installation. The burial methods that may be used for the static IAC include jet trenching, mechanical trenching, cable ploughing and mass flow excavator. The burial depths may vary and will be dependent on risk and ground conditions. The CBRA will also highlight instances where adequate burial cannot be achieved, and alternative protection is needed. The maximum width of seabed affected by installation per cable and volume of material to be deployed for cable protection will be presented within the Bellrock WFDA RIAA.

161. Where is not possible to achieve adequate burial depth, either due to seabed conditions or the crossing of third-party pipes/cables, then further external cable protection may be required. The type of cable protection selected will be dependent on factors, for example seabed and sediment conditions, the physical processes present, and health and safety considerations associated with installation, maintenance and decommissioning. Cable protection may include concrete mattresses, rock placement/rock bags, grout bags and cast-iron shells (articulated pipes).

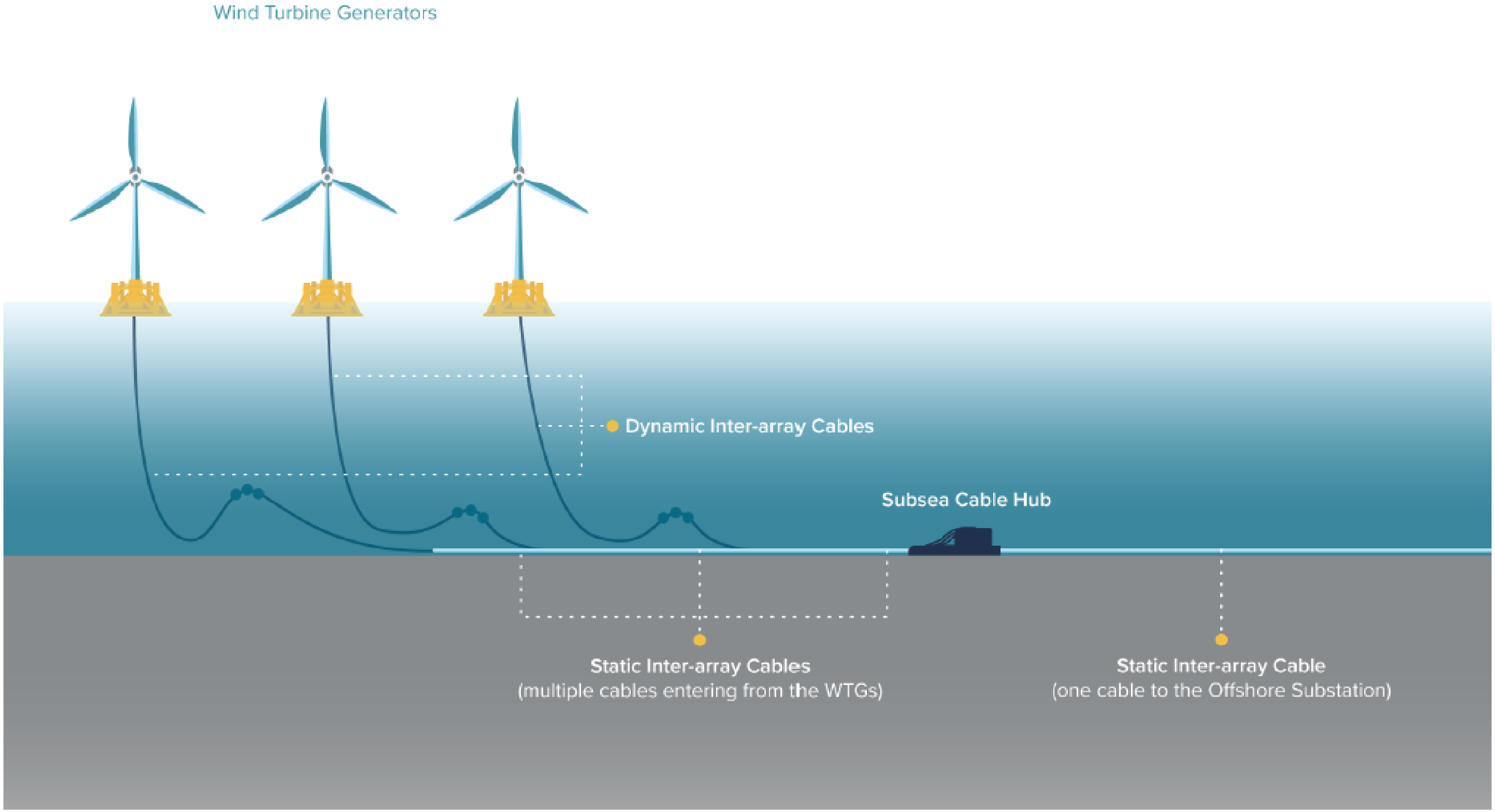
162. In addition to the cable protection methods described above, ancillary elements will also be considered for securing cable protection and limited movement. These may include touchdown protection (sleeves and anchoring), bend stiffeners and buoyancy modules.

3.7.3 Subsea Cable Hub

163. A subsea cable hub is designed to allow the connection of multiple WTGs into one subsea cable hub using IACs. It is a point where a number of the IACs gather together and transition to an IAC which then connects to the OFSS for onward export.

164. The aim of the subsea cable hub(s) is to increase the flexibility in design and construction, reduce cost, and increase power availability. Subsea cable hub(s) are included as a potentially innovative technology, and therefore it is considered prudent to make allowance for these innovative technologies. The number of subsea cable hub(s) and their footprints will be defined within the Bellrock WFDA RIAA and is subject to further engineering studies. **Plate 3.7** provides an image of what a potential subsea cable hub system may look like.

Plate 3.7: Example of Subsea Cable Hub



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3.8 Scour Protection

165. Where the seabed sediment is soft enough to be mobilised, sediment transport can lead to scour, the formation of scour holes, around infrastructure installed on or in the seabed (e.g., substructures, anchors, subsea equipment). The depth of scour is dependent on the shape of the infrastructure installed, the characteristics of the seabed sedimentology and metocean (e.g. waves and currents) conditions.

166. Scour created around infrastructure can, in turn, lead to additional fatigue, wear and tear to the installed infrastructure. In the worst-case, it can lead to failures and need for complex corrective maintenance campaigns. Therefore, the use of the correct scour protection, both in terms of volume and material, is an important consideration for the projects. Commonly used scour protection types and those which are under consideration for the Bellrock WFDA include concrete mattresses, graded rock placement/rock bags, grout bags, and artificial frond mats. **Table 3.10** outlines the main types of scour protection.

Table 3.10: Scour Protection Design Envelope

Parameter	Minimum	Maximum
Scour Protection (Concrete Mattresses, Graded Rock Placement/Rock Bags, Grout bags, and Artificial Frond Mats) [1]		
FSS anchor scour protection (m^2) – per driven pile	75	241
FSS anchor scour protection (m^2) – per suction pile	-	265
FBSS scour protection footprint (m^2) [2] – per WTG	-	8,500
Artificial Fronds		
FBSS scour protection footprint	Will be further evaluated as part of the design process	
[1] Type and volume of scour protection is subject to the infrastructure installed and site-specific conditions. [2] Accounts for a radial footprint of up to 20 m and assuming a jacket substructure.		

3.9 Project Timeline and Activities

3.9.1 Project Timeline

167. The Bellrock WFDA is at an early stage, therefore, the details provided below are indicative.

168. The timing and commencement of pre-construction and construction is subject to a number of variables including the development of the SSEN Transmission offshore substation, grid

connection dates, award of necessary consents, securing project financing and supply chain and port availability, and procurement and contract award.

169. Due to the complexities in the development of offshore wind projects, construction works for the Bellrock WFDA could start up to seven years after consent award, with further details on the programme of works to be set out in the Bellrock WFDA RIAA. The Applicant will seek a suitable consent validity date from Scottish Ministers and Marine Directorate - Licensing Operations Team (MD-LOT) within the consent applications in due course.

3.9.2 Pre-construction Works

170. Pre-construction activities are activities undertaken prior to formal commencement of construction. For the Bellrock WFDA, pre-construction activities include:

- Geophysical, geotechnical and visual surveys, which are typically carried out to inform on the presence of UXO, bedform and mapping of boulders, bathymetry, topography and subsurface layers.
- Seabed preparation, including sand wave and boulder clearance, required prior to construction commencing to allow for the for successful laying of infrastructure on the seabed (e.g. cables, SKSs, FBSSs). This is particularly important for cable laying works where sand wave and boulder clearance may need to be undertaken to provide a flat seabed free from obstructions and mobile sediments. These seabed preparations also assist with minimising damage to cables and maintaining the required cable burial depths.

171. UXO on or in the seabed may exist as a result of previous conflict or munition dumping and, if present, poses a significant health and safety hazard. Therefore, UXO must be appropriately managed (e.g. identification of potential UXOs through undertaking desktop studies, geophysical surveys, and field investigations; avoiding potential UXOs through micro-siting, and ultimately relocation (if applicable and allowed as an option), or disposal in situ. If UXO clearance is considered necessary (including field investigation and disposal in situ), separate Marine Licence application(s) will be made prior to UXO clearance works, with an accompanying assessment of UXO clearance effects on relevant receptors. The assessment of UXO clearance effects in this Bellrock WFDA HRA Screening Report will be indicative only.

172. Detailed layout design works need to be undertaken prior to conducting the detailed UXO survey prior to construction, to ensure the UXO survey is targeted in the areas where infrastructure is to be placed. A desktop UXO Threat and Risk Assessment for the Bellrock WFDA was undertaken by 6 Alpha Associates (2023) based only on historical records. This assessment resulted in an overall UXO risk rating of low, although there remains the potential for some UXO to be present. This will be confirmed as the understanding of the Bellrock WFDA evolves through geophysical surveys.

173. The hierarchy of UXO clearance techniques, in order of preference, are:

1. Avoid (through micro-siting of infrastructure);
2. Move UXO without clearing it (if applicable and accepted as an option);

3. Remove the UXO without clearing it (if applicable and accepted as an option);
4. Low-order deflagration if above options not suitable/unsafe; and
5. High-order clearance, if low-order deflagration not possible, or in the unlikely event that low-order deflagration was unsuccessful.

174. Pre-construction activities will be considered as appropriate within the technical chapters of the Bellrock WFDA RIAA, under construction phase impacts. While UXO clearance will be subject to a separate Marine Licence(s), an indicative assessment of potential impacts will be included for relevant receptors (e.g. benthic ecology, fish and shellfish ecology, and marine mammals).

3.9.3 Construction

175. To complete the construction of the Bellrock WFDA, a number of activities must be undertaken. An outline list (in no specific order) is provided below for both FSSs and FBSSs. This will be developed and defined as the Bellrock WFDA progresses.

176. The construction phase of the Bellrock WFDA is anticipated to take between two to four years. Note that these durations are indicative, and the final durations will be subject to a number of factors, such as substructure construction methods, weather conditions, availability of resources and supply chain arrangements, among other factors.

3.9.3.1 Floating Substructures Construction

177. Following the pre-construction activities described in **Section3.9.2**, general activities for installation of FSS are as follows:

- Pre and post-installation surveys across all offshore activities during construction, to plan and confirm offshore site suitability and infrastructure positions;
- Installation of the SKSs (transported to the site and pre-laid at the installation locations, prior to the installation of the FOU);
- Towing of FOU (i.e. WTG and FSS which have been integrated at the port/ harbour), using an appropriate vessel, to the Bellrock WFDA from port/harbour or wet storage[7] location;
- If WTG and FSS integration does not take place at the assembly port, the FSSs will be towed to the Bellrock WFDA site and integrated with the WTG in situ using a suitable crane vessel;
- FOU installation and commissioning, including the deployment of scour protection (i.e. hooking up the FOU to the pre-installed mooring system and IAC, then undertaking the necessary testing);
- IAC and subsea cable hub (if adopted) installation, including cable burial and protection (where required); and
- Commissioning and snagging.

[7] Temporary mooring of FSSs and/or FOUs (known as ‘wet storage’) will be undertaken at port(s) or dedicated mooring locations under Marine Licence(s) and other consents as required, secured by the relevant port(s)/storage locations. Therefore, wet storage of FOUs will be considered within the in-combination section along with other projects and plans.

3.9.3.2 Fixed Bottom Substructures Construction

178. Following pre-construction activities, general activities for installation of FBSSs are as follows:

- Pre and post-installation surveys across all offshore activities during construction, to plan and confirm offshore site suitability and infrastructure positions;
- FBSS installation, including the deployment of scour protection;
- IAC and subsea cable hub(s) (if adopted) installation, including seabed preparation, cable burial and protection (where required);
- WTG installation and commissioning: WTG components will be loaded onto an appropriate vessel and transported to the Bellrock WFDA for installation. The WTG tower is installed onto the FBSS first followed by the nacelle and blades. The WTGs will then undergo the required testing and commissioning; and
- Commissioning and snagging.

3.9.3.3 Construction Vessels

179. Typical vessels used during the construction of the Bellrock WFDA include:

- Survey vessels;
- Anchor handling tug supply (AHTS) vessels;
- Tow tug vessels;
- Cable installation vessels (pre-lay grapnel run (PLGR), lay and burial);
- Remotely operated vehicle (ROV) support vessels;
- Scour protection installation vessels;
- Heavy lift vessels (HLV);
- Jack-up vessels (JUV);
- Support vessels;
- Service and commissioning vessels;
- Guard vessels;
- Service operation vessels (SOV);
- Crew transfer vessel (CTV); and
- Accommodation vessels.

3.9.4 Operation and Maintenance

180. The operational phase is anticipated to be up to 50 years for the Bellrock WFDA[8].

181. At this stage of the development, the overall operation and maintenance strategy is not finalised. Details such as the final technical specification and the operation and maintenance base location are currently not known, as is to be expected at this early stage of development.

182. Operation and maintenance activities will comprise of preventative and corrective maintenance. Further details will be provided in the Bellrock WFDA RIAA.

183. It is envisaged that that routine preventative and corrective maintenance activities will take place using the following vessels and transport:

- SOVs (potentially with daughter crafts);
- CTVs;
- Survey vessels;
- Helicopters (if required);
- Drones;
- Unmanned surface vessel (USV); and
- Remotely Operated Vehicle (ROV) support vessels.

184. Major repairs requiring large component replacements and extensive remedial works will require additional vessels and logistics. These may involve replacement of WTG components (e.g. generator, blades, gearbox, etc.) or entire WTGs or repairs to the FOU, cables or mooring systems.

185. Major component exchanges for floating wind projects, may take place in situ at the Bellrock WFDA or at a suitable port/sheltered waters.

186. Specialist HLVs and/or JUVs may be used for major repairs that can be carried out in-situ. If the unit is to be repaired at shore, the activities may involve decoupling the FOU from its cable and mooring system and towing to a suitable port for the corrective maintenance to take place. For this purpose, AHTS, tow tugs, guard vessels, and other support vessels may be required.

3.9.5 Decommissioning

187. It is a requirement under Section 105 of the Energy Act 2004 that developers of offshore renewables projects are required to prepare a Decommissioning Programme for approval by Scottish Ministers.

188. The Decommissioning Programme must consider good industry practice, guidance and legislation for decommissioning works which includes anticipated costs and financial securities.

[8] The Bellrock WFDA seabed lease is up to 60 years. At the end of operational life, any repowering will be subject to separate consents.

3.10 Site Selection and Consideration of Alternatives

189. This section provides an overview of the site selection process and consideration of alternatives to date for the Bellrock WFDA. The Bellrock WFDA EIA RIAA will outline the stages of site selection and will set out any refinements to the project design envelope that have taken place as a result of the EIA process or in response to consultation and stakeholder feedback. The main alternatives that have been considered as part of this process will also be presented.

3.10.1 Bellrock Project

3.10.1.1 Bellrock Wind Farm Development Area

190. In November 2017, Crown Estate Scotland (CES) announced their intention to run a further leasing round for commercial scale offshore wind energy projects in Scottish Waters.

191. To inform the spatial development of this leasing round, Marine Scotland (now Marine Directorate) undertook a planning exercise from June 2018 to identity areas of search (AoS) (Marine Scotland Science, 2018b) for offshore wind development. The study considered various geospatial data layers to carry out a multi-criteria analysis depicting both opportunity (such as average wind speed or existing grid connections) and constraints (such as fishing activity, shipping traffic or environmental sensitivities). These AoS were subsequently refined through several iterations of Opportunity and Constraint Analysis, and consultation and engagement with sectoral stakeholders and Scottish Ministers.

192. This informed the draft Sectoral Marine Plan (SMP) for Offshore Wind (the draft SMP) which was published for consultation between December 2019 and March 2020 (Marine Scotland, 2018a). The draft SMP identified the seventeen most sustainable areas (known as Draft Plan Options) for the future development of commercial-scale offshore wind energy in Scotland.

193. The ScotWind Leasing Process was subsequently launched by CES in June 2020, allowing developers to apply for the rights to develop and operate offshore wind farms in Scottish waters within defined areas (known as Draft Plan Options) as defined by the draft SMP.

194. In October 2020, the final SMP for Offshore Wind Energy (Scottish Government, 2020) was published, providing the strategic framework for CES's ScotWind seabed leasing round. The SMP identified sustainable areas (known as Plan Options) for the development of commercial-scale offshore wind energy projects. The SMP was subject to a Sustainability Appraisal (SA) throughout its preparation, comprising the following key documents:

- Strategic Environmental Assessment (Scottish Government, 2019);
- Habitats Regulations Appraisal (Scottish Government, 2019);
- Social and Economic Impact Assessment (Scottish Government, 2019); and
- Draft SMP: Regional Locational Guidance (Scottish Government 2020).

195. During the ScotWind application period, the Applicant undertook comprehensive desktop studies to select the sites to bid on within the ScotWind leasing auctions, considering environmental, construction and commercial matters.

196. CES subsequently announced the outcome of its ScotWind Leasing process in January 2022 and awarded the Applicant seabed rights for the E1 Option Area for the development of the Bellrock Project.

197. Whilst the SMP and CES leasing process defined the boundary of the Bellrock WFDA shown in **Figure 1.1** in **Appendix 1**, the Applicant will continue to review development constraints during the EIA process and consider revisions to the Bellrock WFDA boundary where appropriate.

3.10.1.2 Grid Connection

198. As noted in **Chapter 1: Introduction**, the Applicant's working assumption is that the Bellrock Project will connect into the National Electricity Transmission System through the SSEN Transmission offshore substation.

199. The Department for Business, Energy and Industrial Strategy (BEIS) launched the Offshore Transmission Network Review (OTNR) in July 2020 to ensure that the transmission connections for offshore wind generation are delivered in the most appropriate way, considering the increased ambition to achieve net zero and the balance between environmental, social and economic costs' (BEIS, 2020). Three workstreams were created in the OTNR to cover offshore wind projects at different stages of development, namely Early Opportunities, Pathway to 2030 and Enduring Regime.

200. The HND was established under the OTNR 'Pathway to 2030' workstream published in July 2022 and built upon a previous study conducted in 2020 which confirmed there is a significant benefit in moving quickly towards an integrated network (National Grid Electricity System Operator, 2020; 2022).

201. The HND is led by the Electricity System Operator (ESO) in close consultation with the transmission owners (in this case, SSEN Transmission) through the Central Design Group (CDG) and aims to enable delivery of a network that simultaneously handles connection of offshore wind farms to shore as well as transporting the power to where it will be used. It provided recommended connection arrangements designs through holistically consideration across four objects: costs to consumer, deliverability and operability, impacts to environment and community (National Grid ESO, 2022).

202. The detailed network design and the location for the SSEN Transmission offshore substation is yet to be defined. The Bellrock OFTDA will be consented separately to the Bellrock WFDA.

3.10.2 Further Design Envelope Refinement

203. Refinement of the Bellrock WFDA boundary, design and consideration of alternatives is an iterative process throughout the scoping and EIA process. The project design envelope (including, where appropriate, the WFDA boundary) for the Bellrock WFDA will be refined as more detailed site-specific information becomes available, further stakeholder engagement is undertaken and the EIA progresses.

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4 Habitats

204. This section details the results of the process to identify European and Ramsar sites with qualifying Annex I habitat features to be taken forward for determination of likely significant effects (LSE). As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Offshore Transmission Development Area (OfTDA) (i.e. offshore substation(s), interconnector cables, reactive compensation station, offshore export cable(s) and associated cable protection) will be presented in the Bellrock OfTDA Habitat Regulations Appraisal (HRA) Screening Report which will be submitted separately.

4.1 Sites Designated for Annex I Habitat Features

205. The approach used to identify European sites with relevant Annex I habitat qualifying features to be carried forward for further assessment is detailed below, setting out the different criteria that have been applied. This is based on the methodology set out in **Section 2.3**.

Criterion 1 – The Bellrock Wind Farm Development Area (WFDA) overlaps with one or more European/Ramsar sites

206. There are no European sites with relevant qualifying Annex I habitats which overlap with the Bellrock WFDA Screening Boundary. Therefore, no sites are screened in based on criterion 1.

Criterion 2 – The Bellrock WFDA overlaps with the ranges of qualifying mobile species of one or more European/Ramsar sites

207. There are no European sites which meet criterion 2 for relevant qualifying Annex I habitats, as Annex I habitats do not contain mobile features. Therefore, no sites are screened in based on criterion 2.

Criterion 3 – One or more European/Ramsar sites and/or their qualifying features are located within the potential Zone of Influence (ZoI) of impacts associated with the Bellrock WFDA

208. For this HRA Screening, the ZoI is defined by a 10 km wide buffer around the Bellrock WFDA Screening Boundary. This buffer is considered sufficiently precautionary to capture all sites likely to be in the ZoI from direct and indirect effects associated with increased suspended sediment concentrations arising from construction, operation and maintenance, and decommissioning of the Bellrock WFDA infrastructure**.** For details, please see **Chapter 6: Benthic Ecology** of the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024).

209. There are no European sites which meet criterion 3 for Annex I habitats. Therefore, no sites have been screened in based on criterion 3, as the closest site is the Berwickshire and North Northumberland Coast SAC at 154 km.

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5 Fish and Shellfish

210. This section details the results of the process to identify European and Ramsar sites with qualifying Annex II fish and shellfish features to be taken forward for determination of likely significant effects (LSE). As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Offshore Transmission Development Area (OfTDA) (i.e. offshore substation(s), interconnector cables, reactive compensation station, offshore export cable(s) and associated cable protection) will be presented in the Bellrock OfTDA Habitat Regulations Appraisal (HRA) Screening Report which will be submitted separately.

5.1 Sites Designated for Annex II Fish and Shellfish

211. Based on experience from recent offshore wind farm (OWF) projects, the greatest impact ranges from OWF projects on fish and shellfish result from underwater noise, specifically noise produced by pile driving, but also seabed preparation, dredging, rock dumping, unexploded ordnance (UXO) clearance, cable installation, vessel presence and operational wind turbine generator (WTG) sound.

212. The screening distance for fish and shellfish will be based on a conservative appraisal of the worst-case monopile pile driving impact ranges (temporary threshold shifts (TTS) in hearing or behavioural disturbance effects) for the most sensitive hearing groups of fish (fish that have a swim bladder that is involved in hearing), considered as stationary receptors, for recent offshore wind farm projects (**Table 5.1**). Worst-case impact ranges resulting from underwater noise modelling for large diameter monopiles (behavioural disturbance or temporary threshold shifts) on recent UK projects has never resulted in impact ranges of more than 75 km. It should be noted that Bellrock WFDA would install smaller diameter piles where floating substructures (FSSs) are used, and will therefore likely have lower impact ranges than the larger diameter monopiles referenced in **Table 5.1**.

213. **Appendix 2: Nature Conservation Marine Protected Areas (NCMPA) Screening Report** of the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024) provides further details on the justification of this ZoI.

Table 5.1: Worst-case Monopile Pile Driving Noise Impact Ranges for Recent Offshore Windfarm Projects

Project and Parameters	Worst-case Modelled Maximum Impact Range	Reference
Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects 16 m diameter monopile Maximum blow energy 5,500 kJ	39 km	Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects (2023) ES Appendix 10.2 – Underwater Noise Modelling Report (Revision C) (Clean)
Hornsea Project Four 15 m diameter monopile Maximum blow energy 5,000 kJ	38 km	Hornsea Project Four (2021) Environmental Statement: Volume A4, Annex 4.5: Subsea Noise Technical Report Part 1
Norfolk Vanguard 15 m diameter monopile Maximum blow energy 5,000 kJ	58 km	Norfolk Vanguard (2018) Environmental Statement Appendix 5.3 - Underwater Noise Modelling
East Anglia ONE North 15 m diameter monopile Maximum blow energy 4,000 kJ	39 km	East Anglia ONE North Limited (2019) Environmental Statement - Appendix 11.4 - Underwater Noise Assessment
Moray West 15 m diameter monopile Maximum blow energy 5,000 kJ	12 km	Moray West (2018) Environmental Impact Assessment Report - Technical Appendix 9.2: Underwater Noise Modelling
Berwick Bank 2 x 5.5m diameter pin piles piled concurrently Maximum blow energy 4,000 kJ	7 km	Berwick Bank Wind Farm (2022) Environmental Impact Assessment Report. Volume 2, Chapter 9: Fish and Shellfish Ecology

214. On this basis, there is no potential for impacts from the Bellrock WFDA to directly affect any Special Area of Conservation (SAC) designated for fish or shellfish species, with the closest site (River Dee SAC) situated at 117 km from the Bellrock WFDA (please see **Table 7.6** in **Chapter 7: Fish and Shellfish Ecology** of the **Bellrock WFDA Scoping Report**). Therefore, no sites or fish/shellfish species are screened in based on criterion 1.

215. This leaves a remaining potential for the Bellrock WFDA to impact on migratory diadromous fish species (Atlantic salmon, sea lamprey, and river lamprey) as they move into the ZoI of the Bellrock WFDA during migrations to, or from, a SAC that they form part of a designated population (criteria 2 and 3).

216. However, it is the current position of NatureScot and Marine Directorate – Licensing Operations Team (MD-LOT), that the at-sea migrations of Annex II diadromous fish species (especially offshore, i.e. beyond the 12 nm limit) is not well enough understood to enable apportioning of at-

sea individuals to any SAC, thereby rendering a HRA for these species not possible. This position was confirmed in email correspondence from NatureScot in response to information provided as part of the Bellrock WFDA Scoping Workshop held 30th October 2023 (**Table 2.2**). The Applicant agrees with this position, and also agrees with NatureScot and MD-LOT that impacts of the Bellrock WFDA on diadromous fish can be screened out of the HRA, based on current best evidence. For further information on the approach to Environmental Impact Assessment (EIA) for diadromous fish species, please consult **Chapter 7: Fish and Shellfish Ecology** of the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024).

217. Therefore, no sites or Annex II fish and shellfish species are screened in based on criteria 2 and 3.

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6 Marine Mammals

218. This section details the results of the process to identify European and Ramsar sites with qualifying marine mammal features to be taken forward for determination of likely significant effects (LSE). As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Offshore Transmission Development Area (OfTDA) (i.e. offshore substation(s), interconnector cables, reactive compensation station, offshore export cable(s) and associated cable protection) will be presented in the Bellrock OfTDA Habitat Regulations Appraisal (HRA) Screening Report which will be submitted separately.

6.1 Sites Designated for Annex II Marine Mammal Features

219. Two cetacean species (harbour porpoise, *Phocoena phocoena,* and bottlenose dolphin, *Tursiops truncatus*), and two seal species (grey seal, *Halichoerus grypus,* and harbour seal, *Phoca vitulina*), are present in United Kingdom (UK) waters and listed in Annex II of the Habitats Directive. Therefore, they are afforded protection through the designation of Special Areas of Conservation (SACs) in the UK.

220. In addition, all species of cetacean occurring in UK waters are listed in Annex IV of the Habitats Directive as European Protected Species (EPS), which prohibits the deliberate killing, disturbance or the destruction of these species or their habitat. EPS are considered further in the **Bellrock Wind Farm Development Area (WFDA) Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024).

221. Based on a review of key desk-based sources undertaken during the **Bellrock WFDA Scoping Report (Chapter 8: Marine Mammals)**, and outputs of the first year of offshore aerial survey data collected through the Bellrock WFDA (**Section 1.2** in **Appendix 4** of the **Bellrock WFDA Scoping Report**), the following Annex II marine mammal species are considered likely to occur in the vicinity of the Bellrock WFDA, and are considered in this HRA Screening Report:

- Harbour porpoise;
- Bottlenose dolphin;
- Grey seal; and
- Harbour seal.

222. The Annex II species European otter, *Lutra lutra*, is not considered as it will not be present in offshore waters and the potential for impact as a result of offshore works is highly unlikely due to the distance between the Bellrock WFDA and the coast (approximately 120 km).

223. The following sections describe the process used to define the list of SACs for which there is possible connectivity and therefore potential for a source – pathway – receptor relationship for

marine mammal qualifying SAC features (i.e. harbour porpoise, bottlenose dolphin, grey seal and harbour seal), in line with the criteria set out in **Section 2.3**. No designated sites for marine mammals overlap with the Bellrock WFDA, and therefore, no sites have been screened in on the basis of criterion 1.

6.1.1 Harbour Porpoise

224. Harbour porpoise within the eastern North Atlantic are generally considered to be part of a continuous biological population that extends from the French coastline of the Bay of Biscay to northern Norway and Iceland (Tolley and Rosel, 2006; Fontaine et al*.*, 2007; Fontaine et al., 2014; Inter-Agency Marine Mammal Working Group (IAMMWG), 2015). However, for conservation and management purposes, it is necessary to consider this population as smaller, discrete Management Units (MU). MUs provide an indication of the spatial scales at which effects of plans and projects alone, and in-combination, need to be assessed for the key cetacean species in UK waters, with consistency across the UK (IAMMWG, 2015). The IAMMWG defined three MUs for harbour porpoise: North Sea (NS); West Scotland (WS); and the Celtic and Irish Sea (CIS).

225. For harbour porpoise, connectivity is considered potentially possible between the Bellrock WFDA and any designated sites within the NS MU (IAMMWG, 2023) where harbour porpoise are listed as a qualifying feature. Therefore, all designated sites outside the NS MU have been screened out from further consideration.

226. A large-scale survey (Small Cetaceans in European Atlantic waters and the North Sea; SCANS-IV) of the presence and abundance of cetacean species around the north-east Atlantic, undertaken in the summer 2022 (Gilles et al*.*, 2023), shows harbour porpoise being the most commonly sighted species in survey block NS-D where the Bellrock WFDA is located.

227. The site-specific offshore aerial surveys for the Bellrock WFDA for March 2022 to February 2023 have recorded harbour porpoise as the most commonly sighted marine mammal species.

228. This HRA screening considers any designated sites within the harbour porpoise NS MU, where the species is considered as a grade A, B or C feature (JNCC, 2009). These represent populations equivalent to the following:

- Grade A: excellent representativity;
- Grade B: good representativity; and
- Grade C: significant representativity.

229. As grade D indicates a non-significant population, it has therefore not been considered further.

230. As harbour porpoise are wide-ranging within the NS MU, no discrete population can be assigned to an individual designated site. Therefore, it is assumed that at any one time as a precautionary case, harbour porpoise within or near the vicinity of the Bellrock WFDA are associated with the nearest SAC. The nearest SAC to the Bellrock WFDA is the Southern NS SAC and the focus of the Conservation Objectives (JNCC, 2019) for harbour porpoise of this site is on addressing pressures that affect site integrity which include:

- Killing or injuring harbour porpoise (directly or indirectly);
- Preventing their use of significant parts of the site (disturbance / displacement);
- Significantly damaging relevant habitats; or
- Significantly reducing the availability of prey.

231. However, given the distance between the Bellrock WFDA to the Southern NS SAC (154 km), this designated site is beyond that of potential for direct, alone or in-combination, and mitigation would be in place to reduce any risk of potential injury (permanent threshold shift (PTS)). However, there is the potential for effect on foraging harbour porpoise associated with the SAC which may be present at the Bellrock WFDA. Therefore, the Southern NS SAC has been screened in to be considered further in the Report to Inform Appropriate Assessment (RIAA) (**Table 6.3**).

6.1.2 Bottlenose Dolphin

232. Throughout its range, the bottlenose dolphin occurs in a diverse range of habitats, from shallow estuaries and bays, coastal waters, continental shelf edge and deep open offshore ocean waters.

233. It has been determined that there are two ‘eco-types’ of bottlenose dolphin present in Europe, the coastal type and the pelagic type. These types are genetically and ecologically different from each other (Louis et al., 2014; Oudejans et al., 2015; Department of Business, Energy and Industrial Strategy (BEIS), 2022). However, it is primarily a coastal type (inshore species) in Scotland, with most sightings within 10 km of land, although they can occur offshore, often in association with other cetaceans.

234. On the east coast of Scotland, bottlenose dolphin are often found within deep narrow channels (Hastie et al., 2003; Bailey & Thompson, 2006). Historically, individuals from the Moray Firth population occur along the east coast of Scotland to the Firth of Forth, although a small number were sighted further south (Cheney et al., 2013, Quick et al., 2014). Based on photo-identification (photo-ID) studies, 28.9% of bottlenose dolphin sighted within St Andrews Bay and the Tay estuary were also sighted within the Moray Firth SAC (Arso Civil et al., 2019). In more recent years, this population has been seen further south, along the east coast of England and as far as the Netherlands (Hoekendijk et al., 2021).

235. The site-specific offshore aerial surveys of the Bellrock WFDA for March 2022 to February 2023 have no recorded sightings of any bottlenose dolphin. However, there is a recording of one unidentified dolphin and one unidentified cetacean. The SCANS-IV (Gilles et al., 2023) survey shows no bottlenose dolphin sighted within survey block NS-D where the Bellrock WFDA is located.

236. For bottlenose dolphin, connectivity is considered potentially possible between the Bellrock WFDA and any designated sites within the Greater North Sea (GNS) and Coastal East Scotland MUs (IAMMWG, 2023), where bottlenose dolphin is listed as a qualifying feature. Therefore, all designated sites outside of these MUs have been screened out from further consideration.

237. This HRA screening considers any designated sites where bottlenose dolphin is considered as a grade A, B or C feature (JNCC, 2009). Grade D indicates a non-significant population and have not been considered further.

238. **Table 6.3** in **Section 6.4** provides the list of designated sites for bottlenose dolphin considered in the HRA screening.

239. As a precautionary approach, it is assumed that all bottlenose dolphin in the vicinity of the Bellrock WFDA are from the Moray Firth SAC. Therefore, with regard to the potential effects of the Bellrock WFDA, connectivity of bottlenose dolphin from other designated sites, other than the Moray Firth SAC, is screened out from further consideration in the RIAA (**Table 2.1**). The Moray Firth SAC is screened in on the basis of criterion 2**; Table 2.1**. Therefore, with regard to the potential effects of the Bellrock WFDA, connectivity of bottlenose dolphin from other designated sites, other than the Moray Firth SAC, is screened out from further consideration in the RIAA (**Table 2.1**).

6.1.3 Grey Seal

240. Grey seals are wide ranging and can breed and forage in different areas (Russell et al., 2013). Grey seal generally travel between known foraging areas and back to the same haul-out site, but will occasionally move to a new site. For example, movements have been recorded between haul-out sites on the east coast of England and the Outer Hebrides (Scottish Committee on Seals (SCOS), 2018). Tags deployed on grey seals at Donna Nook and Blakeney Point in May 2015 indicated that they used multiple haul-outs sites; with one hauling out in the Netherlands and one in Northern France (Russell, 2016).

241. Grey seals will typically forage in the open sea and return regularly to land to haul-out, although they may frequently travel up to 100 km between haul-out sites. Foraging trips generally occur within 100 km of their haul-out sites, although grey seal can travel up to 448 km to forage (SCOS, 2022; Carter et al., 2022).

242. For any SACs screened in, consideration will be given to the differences in grey seal distributions during their breeding and non-breeding seasons, as well as to the potential for effects on grey seals that may be foraging at-sea and effects to grey seals that may be hauled-out, and the increased sensitivities at certain times of the year (e.g. increased sensitivity to disturbance at haul-out sites during the breeding season).

243. To take into account the wide range and movements of grey seal, all designated sites where grey seal are a qualifying feature in the NS area were considered. All designated sites outside this region were screened out from further consideration due to distance and a lack of evidence of connectivity. For grey seal, the screening process includes any designated site where the species is a grade A, B or C feature.

244. Connectivity of grey seals from designated SACs was based on the SAC density maps provided by Carter et al. (2022). Where grey seal associated within a specific SAC were identified to have presence at the Bellrock WFDA, or to be present within the potential zones of influence of the Bellrock WFDA, it has been assumed there is the potential for connectivity with that SAC. Due to their large foraging ranges, grey seals could come from any of the designated sites with potential connectivity. As a result, any potential effects to grey seal will be assessed based on them being from a designated site with potential for connectivity, and that they have travelled away from the site(s) in order to forage.

245. The Isle of May SAC, the Berwickshire and North Northumberland Coast SAC, and the Humber Estuary SAC are all designated for grey seal and have been screened into the RIAA, (**Table 6.3**) taking into account the movements and distributions of grey seal (on the basis of criterion 2; **Table 2.1**).

6.1.4 Harbour Seal

246. The Sea Mammal Research Unit (SMRU), in collaboration with others, has deployed telemetry tags on harbour seals around the UK. The spatial distributions indicate harbour seals persist in discrete regional populations, display heterogeneous usage, and generally stay within 50 km of the coast. Tagged harbour seals were observed to have a more coastal distribution than grey seals and do not travel as far from haul-outs (Russell and McConnell, 2014).

247. Harbour seals generally make smaller foraging trips than grey seal. The typical and average foraging range for harbour seal is 50-80 km (SCOS, 2017). Tracking studies have shown that harbour seals travel 50-100 km offshore and can travel up to 273 km on foraging trips (Carter et al., 2022). The range of these trips varies depending on the location and surrounding marine habitat.

248. Genetic analysis of harbour seals around the UK and continental Europe (Carroll et al., 2020) found there to be two metapopulations of Europe; one being the southern population (incorporating the South-East England MU and continental Europe) and one being the northern population (including all other UK MUs). Within the northern population itself, there was also genetic differences between most of the MUs, with the exception of between the WS and Western Isles MU, and between the North Coast Scotland and Orkney and Moray Firth MUs. This genetic analysis also revealed movement of harbour seal from the Moray Firth and North Coast Orkney MUs to east Scotland, Shetland, and north-west Scotland (Carroll et al., 2020). This indicates that while the foraging distances of harbour seal are not as large as grey seal, there is movement of some individuals between a number of the Scottish MUs. Therefore, harbour seals within the Moray Firth may have some connectivity with the north and north-west coasts of Scotland, Orkney, and the east coast of Scotland.

249. To take into account the wide range and movements of harbour seal, all designated sites where harbour seal are a qualifying feature in the NS were initially considered. All designated sites outside of this region were screened out from further consideration. For harbour seal, the screening process includes any designated site where the species is a grade A, B or C feature.

250. As for grey seal, the potential connectivity of harbour seal from designated SACs was based on the SAC density maps provided by Carter et al. (2022). Where harbour seal associated with a specific SAC were identified to have presence at the Bellrock WFDA, or to be present within the potential zones of influence of the Bellrock WFDA, it is assumed that there is potential for connectivity with that SAC.

251. Harbour seals could come from any of the designated sites considered to have potential connectivity. As a result, any potential effects to harbour seal will be assessed based on them being from a designated site with potential connectivity, and that they have travelled away from the site(s) in order to forage.

252. The Firth of Tay and Eden Estuary SAC is designated for harbour seal and has been screened into the RIAA (**Table 6.3)**, taking into account the movements and distributions of harbour seal (criterion 2, **Table 2.1**).

6.2 Determination of Likely Significant Effect for Annex II Marine Mammal Features

6.2.1 Potential Effects Considered in Screening

253. The key factors that will be considered during the HRA screening process for marine mammals are:

- Potential effects (source); and
- Proximity of source to feature (distance between the Bellrock WFDA, SACs, and migration routes) (pathway and receptor).

254. The potential effects on marine mammals from the Bellrock WFDA have been identified within the **Bellrock WFDA Scoping Report (Chapter 8: Marine Mammals)** (BlueFloat Energy | Renantis Partnership, 2024). **Table 6.1** presents potential effects during construction, operation and maintenance and decommissioning considered in the HRA process.

Table 6.1: Summary of Potential Effects to Marine Mammals Screened into the RIAA

Potential Effects	Construction	Operation and Maintenance	Decommissioning
Underwater noise (all potential sources during construction, operation and maintenance and decommissioning)	✓	✓	✓
Collision risk with vessels	✓	✓	✓
Primary entanglement	x	x	x
Secondary entanglement	x	✓	x
Disturbance at seal haul-out sites	✓	✓	✓
Changes in water quality	x	x	x
Changes to prey availability	✓	✓	✓

255. The following sections present the potential effects and effects on marine mammals that may result from the Bellrock WFDA. These effects will be taken into account when determining the potential for likely significant effect (LSE) on the European sites and relevant marine mammal qualifying interest features.

6.2.1.1 Construction

6.2.1.1.1 Underwater Noise

256. Underwater noise can cause both physiological (e.g. lethal, physical injury and threshold shifts) and behavioural (e.g. disturbance, behavioural response and masking of communication) impacts on marine mammals (e.g. Bailey et al., 2010; Madsen et al., 2006; Southall, 2021; Stöber & Thomsen, 2019).

257. Activities that have the potential to generate underwater noise associated with the construction of the Bellrock WFDA are:

- Clearance of unexploded ordnance (UXO), if required;
- Geophysical surveys;
- Piling for FSSs and (if used) fixed bottom substructures (FBSSs) (driven pile anchors);
- Installation of FSSs and (if used) FBSSs, and anchors (non-piling methods);
- Other construction activities such as seabed preparation, cable laying and rock placement; and
- Use of vessels.

258. Underwater noise modelling will be undertaken to determine the potential impacts on marine mammals during the above activities and will include modelling for auditory injury (PTS). Further information on underwater noise modelling is provided in **Appendix 5: Approach to Marine Mammals and Underwater Noise** of the **Bellrock WFDA Scoping Report**).

259. The potential for disturbance to marine mammals will be assessed as described in **Appendix 5: Approach to Marine Mammals and Underwater Noise** of the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024), with dose response curves to be used for all species (Graham et al., (2017) for harbour porpoise and bottlenose dolphin in the absence of species specific data; Whyte et al., (2020) for both harbour seal and grey seal).

260. A Marine Mammal Mitigation Protocol (MMMP) will be produced to reduce the risk of physical injury or permanent auditory injury (PTS) in marine mammals from both UXO clearance and impact piling (see **Section 8.5.1** in **Chapter 8: Marine Mammals** in the **Bellrock WFDA Scoping Report**).

261. It is important to note, if there is the potential for significant disturbance to result in a population-level effect, then alternatives and mitigation options will be considered, and an EPS licence application submitted.

6.2.1.1.2 Vessel Interaction (Collision Risk)

262. An increase in vessel presence during the construction phase could lead to a potential increase in the risk of vessel collision. The risk of vessel collision is associated with the vessels within the Bellrock WFDA, as well as those vessels in transit to and from site. Despite the potential for marine mammals to detect and avoid vessels, ship strikes are known to occur (Wilson et al., 2007; Schoeman et al., 2020).

263. The increased risk of collision with marine mammals during construction has been screened in and will be assessed in the RIAA, taking into account the most recent and robust research, guidance and information available.

264. Vessel best practice measures will be produced to reduce the risk of collision with vessels associated with the construction of the Bellrock WFDA.

265. The assessment of the potential effect of vessel interaction will take into account the type and number of vessels to be used during the construction period and the potential collision risk associated with those vessels. A literature review will be undertaken to determine the sensitivity of each marine mammal species to vessel collisions (and their ability to avoid vessels), alongside a review of the risk of collision due to the type, size, and speed of vessels associated with the Bellrock WFDA). The assessment of the potential impact of vessel interaction will take into account the type and estimated number of vessels to be used during the construction period and the potential collision risk associated with those vessels.

266. The increase in vessel movements during construction will be put into the context of current vessel movements in and around the Bellrock WFDA.

6.2.1.1.3 Disturbance at Seal Haul-out Sites

267. Disturbance from vessel transits to and from the Bellrock WFDA and the construction port(s) has the potential to disturb seals at haul-out sites, depending on the route and proximity to the haul-out sites.

268. This HRA Screening Report is focused on the Bellrock WFDA only, and therefore potential for disturbance to haul-out sites due to activity in the Bellrock Offshore Transmission Development Area (OfTDA) is not included. This impact will be considered within the Bellrock OfTDA HRA Screening Report.

269. As the construction port(s) is not yet known, the potential for any disturbance of seals at or from seal haul-out sites during construction (due to vessel transits) has been screened in. Only seals at haul-out sites with potential connectivity to the relevant designated site will be considered and assessed, taking into account the most recent and robust research, guidance and information available.

270. The likelihood of increased vessels near to the locations of nearby seal haul-out sites will be used to determine the level of potential disruption and behavioural impact caused to the seals. An expert judgement will be made using current scientific knowledge and a literature review of the latest research and evidence of disturbance at seal haul-out sites will be undertaken to determine the potential magnitude and sensitivity of effect.

271. The duration of the construction vessels movement to and from the Bellrock WFDA will be based on the worst-case scenario. The increase in vessel movements during construction will be put into the context of current vessel movements in and around the Outer Moray Firth, East and North-East coast of Scotland.

6.2.1.1.4 Changes to Prey Resource

272. **Chapter 7: Fish and Shellfish Ecology** in the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024) outlines the potential impacts on fish species and therefore the prey resource for marine mammals during construction.

273. The potential for any changes to the prey resource for marine mammals during construction will be assessed further. Impacts will be based on the assessment in the fish and shellfish ecology chapter of the Bellrock WFDA Environmental Impact Assessment (EIA) Report.

6.2.1.1.5 Changes to Water Quality

274. The increases in suspended sediments and the risk of accidental release of contamination during construction has the potential to impact marine mammals, and their prey. The potential for water quality changes will be determined in the marine geology, oceanography and physical processes chapter of the Bellrock WFDA EIA Report, including the best practice and management measures that would be put in place. Any changes to water quality would be localised and short lived, and the potential for any impacts from changes in water quality on marine mammals is not expected to be significant. Potential impacts on marine mammals related to changes in water quality during construction are screened out of the RIAA (see **Chapter 8: Marine Mammals** in the **Bellrock WFDA Scoping Report** for details).

6.2.1.2 Operation and Maintenance

6.2.1.2.1 Underwater Noise Impacts

275. Potential sources of underwater noise during the operation and maintenance phase include:

- Operational noise from wind turbine generators (WTGs) and FSSs and from movement of moorings on the seabed;
- Operation and maintenance preventive and corrective activities underwater, such as surveys, repairs, inter-array cable (IAC) re-burial (if buried) and any additional rock placement; and
- Operation and maintenance vessel activity.

276. Underwater noise modelling will be undertaken to determine the potential impacts on marine mammals during the above activities and will include modelling for auditory injury (PTS). Further information on underwater noise modelling is provided in **Appendix 5: Approach to Marine Mammals and Underwater Noise** of the **Bellrock WFDA Scoping Report**).

6.2.1.2.2 Entanglement

277. Depending on the method used, there is the perceived potential for entanglement in the mooring lines of the station keeping systems (SKSs) for FSSs, as well as the dynamic IACs. To date, there have been no recorded instances of marine mammal entanglement from mooring systems of renewable devices (Sparling et al., 2013; Isaacman and Daborn, 2011), or for anchored floating production storage and offloading (FPSO) vessels in the oil and gas industry (Benjamins et al., 2014) with similar mooring lines as proposed for FSSs. However, entanglement in fishing gear is known to occur in Scottish waters, and there is therefore the potential for a risk of secondary entanglement (i.e. entanglement on fishing gear which is entangled on mooring lines).

278. The level of risk to become entangled varies depending on the species (Benjamins et al., 2014). These varying factors include body size, flexibility of movement, the ability to detect mooring lines, and the feeding ecology of the species.

279. Toothed whales have a lower risk than baleen whales, primarily due to their small size and manoeuvrability. Seal species have a similar risk level to small-toothed cetaceans, with an increase in manoeuvrability.

280. The potential for primary entanglement is considered to be very low risk, given the design of the mooring lines and dynamic cables. Therefore, the potential for primary entanglement has been screened out from consideration in the RIAA. However, there is the potential for secondary entanglement, whereby anthropogenic debris, such as lost, abandoned or discarded fishing gear and other marine debris is caught in the mooring lines and poses a risk to transiting marine mammals. The potential for secondary entanglement has been screened in and will be assessed further in the RIAA. The impact assessment for entanglement will be based on a qualitative assessment of the latest research and data on entanglement of marine mammals.

281. During operation, periodic inspections, as part of the asset integrity campaign, will include visual surveys and identification of debris and gear entangled to the Bellrock WFDA infrastructure. This will provide further understanding on the potential for the debris and ghost fishing gears to be caught in the WFDA infrastructure, increasing the risk for entanglement. Note this is in the early stages of development and will be further refined during the EIA process.

6.2.1.2.3 Vessel Interaction (Collision Risk)

282. As outlined for construction (**Section 6.2.1.1.2**), the increased risk of collision with marine mammals will be given further consideration. It is anticipated that the impacts associated with vessel activities during operation and maintenance would be similar to, or less than those during the construction phase, due to a likely lower number of vessels, although vessels would be in the area periodically for the full lifetime of the Bellrock WFDA.

283. The increased risk of collision with marine mammals during operation has been screened in and will be assessed in the RIAA, taking into account the most recent and robust research, guidance and information available.

284. The operation and maintenance port(s) to be used for the Bellrock WFDA is not yet known. Vessel movements to and from any port will be incorporated within existing vessel routes where possible, however, there is an increased risk for any vessel interaction within the Bellrock WFDA only as well as during transit to and from site.

6.2.1.2.4 Disturbance at Seal Haul-out Sites

285. As outlined for construction (**Section 6.2.1.1.3**), depending on the vessel routes, there is the potential for disturbance at seal haul-out sites. It is anticipated that the impacts associated with vessel activities during operation and maintenance would be similar to those during the construction phase, although the magnitude of impact (e.g. the number of vessels) will be lower.

286. There is no potential for any direct disturbance as a result of activities within the Bellrock WFDA, due to the distance to the nearest known seal haul-out sites. However, there is the potential for disturbance during vessel transits.

287. The potential for any disturbance of seals at or from seal haul-out sites during operation has been screened into the RIAA, taking into account the most recent and robust research, guidance and information available.

6.2.1.2.5 Impacts of Electromagnetic Fields (EMF)

288. Many marine organisms have evolved sensory abilities to use electric and magnetic cues in essential aspects of life history, such as prey detection, predatory behaviour, and navigation and these behaviours may be impacted by EMF emissions in the water column (Hutchison et al., 2020).

289. Dynamic IACs for a floating wind farm will not be buried by design and the static IACs may be laid directly on the seabed, and therefore have the potential to effect marine mammals both directly and indirectly through prey interaction pathways.

290. Studies indicate that magnetic fields decrease rapidly with vertical and horizontal distance from subsea cables, and that the reduction is greater the deeper cables are buried (Normandeau et al., 2011).

291. Although it is assumed that marine mammals are capable of detecting small differences in magnetic field strength, this is unproven and is based on circumstantial information. There is also, at present, no evidence to suggest that existing subsea cables influence cetacean movements.

292. Harbour porpoise are known to move in and out of the Baltic Sea, over several buried subsea High-Voltage Direct Current (HVDC) cables in the Skagerrak and western Baltic Sea with no apparent effect to their migratory movements. There is also no evidence to suggest that seal species respond to EMF (Gill et al., 2005).

293. As a precautionary approach the potential for EMF to impact on marine mammal and their prey species is screened in for further assessment in the RIAA. The RIAA will be based on a desk-based review of the potential effects of EMF, and the estimated EMF emissions for the Bellrock WFDA.

6.2.1.2.6 Changes to Prey Resource

294. **Chapter 7: Fish and Shellfish Ecology** of the **Bellrock WFDA Scoping Report** (BlueFloat Energy | Renantis Partnership, 2024) outlines the potential impacts on fish species and therefore the prey resource for marine mammals during operation and maintenance.

295. The potential for any changes to the prey resource for marine mammals during operation and maintenance has been screened into the RIAA. Impacts will be based on the assessment in the fish and shellfish ecology chapter of the Bellrock WFDA EIA Report.

296. The proposed approach for the assessment of changes to prey resources during operation and maintenance will be the same as for construction (as outlined in **Section 6.2.1.1.4**).

6.2.1.2.7 Changes to Water Quality

297. As with construction (**Section 6.2.1.1.5**), any changes to water quality would be localised and short lived and best practice and management measures would be put in place. Potential impacts to

marine mammals related to changes in water quality during operation are screened out from assessment in the RIAA.

6.2.1.3 Decommissioning

298. The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined above for the construction phase.

6.3 In-combination Assessment

299. The in-combination assessment will consider plans or projects where the predicted effects have the potential to interact with effects from the proposed construction, operation and maintenance, or decommissioning of the Bellrock WFDA.

300. The in-combination assessment considers potential effects from the Bellrock Project (both WFDA and OfTDA together) and secondly the in-combination effects of the Bellrock Project alongside other plans or projects, in line with the approach set out in **Section 2.3.2**.

301. The plans and projects assessed for potential in-combination effects are:

- Located within the relevant MU boundary for harbour porpoise, bottlenose dolphin, grey seal or harbour seal; and
- Where there is the potential for connectivity and clear pathway for the in-combination effect and marine mammals from the designated sites, e.g. the distance between the potential effect and a designated site with marine mammals as a qualifying feature is within the range for which there could be an interaction.

302. The projects identified for potential in-combination assessment with the Bellrock Project will be agreed during consultations with relevant stakeholders.

6.4 Summary of Screening of Sites for Annex II Marine Mammal Features

303. Of all the designated sites initially considered in the HRA screening (presented in **Table 6.3**) for marine mammals, six SACs (**Figure 6.1** in **Appendix 1** and **Table 6.2**) have been screened in for further assessment to determine the potential for any adverse effects on the integrity of the sites in relation to the conservation objectives as result of the Bellrock WFDA alone or the in-combination with other projects and activities. The reason for scoping the six SACs into the HRA for further consideration are presented in **Table 6.2** below.

304. **Table 6.3** provides the screening assessment for all designated sites in the NS area, with either harbour porpoise, grey seal or harbour seal listed as a qualifying feature with a population grade of A, B, or C, within the relevant screening areas.

Table 6.2: LSE Matrix for Designated Sites where Marine Mammals are a Qualifying Feature (or Feature of Interest) Screened into the RIAA for Further Assessment

Site and Qualifying Feature of Site	Underwater Noise (All Potential Sources)			Collision Risk with Vessels			Primary Entanglement			Secondary Entanglement			Disturbance at Seal Haul-Out Sites			Changes in Water Quality			Changes in Prey Availability			In-Combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Southern NS SAC																											
Harbour porpoise	✓	✓	✓	✓	✓	✓		×			✓		×	×	×	×	×	×	✓	✓	✓	✓	✓	✓
Moray Firth SAC																											
Bottlenose dolphin	✓	✓	✓	✓	✓	✓		×			✓		×	×	×	×	×	×	✓	✓	✓	✓	✓	✓
Berwickshire and North Northumberland Coast SAC																											
Grey seal	✓	✓	✓	✓	✓	✓		×			✓		✓	✓	✓	×	×	×	✓	✓	✓	✓	✓	✓
Isle of May SAC																											
Grey seal	✓	✓	✓	✓	✓	✓		×			✓		✓	✓	✓	×	×	×	✓	✓	✓	✓	✓	✓
Humber Estuary SAC																											
Grey seal	✓	✓	✓	✓	✓	✓		×			✓		✓	✓	✓	×	×	×	✓	✓	✓	✓	✓	✓
Firth of Tay & Eden Estuary SAC																											
Harbour seal	✓	✓	✓	✓	✓	✓		×			✓		✓	✓	✓	×	×	×	✓	✓	✓	✓	✓	✓

C = Construction, O&M = Operation and Maintenance, D = Decommissioning; ✓ = Potential for LSE, × = No Potential for LSE. Where there is no colour or mark, no pathway for significant effect is identified.

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Table 6.3: Screening of Designated Sites with Bottlenose Dolphin, Harbour Porpoise, Grey Seal or Harbour Seal as a Qualifying Feature in the NS

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
BEMNZ0001	Belgium	Vlaamse Banken SAC	Harbour porpoise	605	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Harbour seal			
			Grey seal			
BEMNZ0002	Belgium	SBZ 1 / ZPS 1 SPA	Harbour seal	641	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
BEMNZ0005	Belgium	Vlakte van de Raan Site of Community Importance (SCI)	Harbour porpoise	620	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
DK00EY133	Denmark	Agger Tange, Nissum Bredning, Skibsted Fjord Og Agerø SAC	Harbour seal	482	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00FX122	Denmark	Ålborg Bugt, Randers Fjord og Mariager Fjord SAC	Harbour seal	608	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00DX146	Denmark	Anholt Og Havet Nord For SAC	Harbour seal	662	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
DK00EX026	Denmark	Dråby Vig SAC	Harbour seal	518	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00VA259	Denmark	Gule Rev SAC	Harbour porpoise	460	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00FX257	Denmark	Havet Omkring Nordre Rønner SAC	Harbour seal Grey seal	630	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK003X202	Denmark	Hesselø Med Omliggende Stenrev SAC	Harbour seal Grey seal	701	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00FX113	Denmark	Hirsholmene, Havet Vest Herfor Og Ellinge Å's Udløb SAC	Harbour seal Grey seal	621	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00EY124	Denmark	Løgstør Bredning, Vejlerne Og Bulbjerg SAC	Harbour seal	515	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00EY134	Denmark	Lovns Bredning, Hjarbæk Fjord Og Skals, Simested Og Nørre Ådal, Samt Skravad Bæk SAC	Harbour seal	540	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00FX123	Denmark	Nibe Bredning, Halkær Ådal Og Sønderup Ådal SAC	Harbour seal	557	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
DK00FX112	Denmark	Skagens Gren og Skagerrak SAC	Harbour porpoise	586	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00FX010	Denmark	Strandenge På Læsø Og Havet Syd Herfor SAC	Harbour seal Grey seal	630	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00VA258	Denmark	Store Rev SAC	Harbour porpoise	552	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00VA347	Denmark	Sydlige Nordsø SAC	Harbour porpoise Grey seal Harbour seal	420	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00AY176	Denmark	Vadehavet med Ribe Å, Tved Å og Varde Å vest for Varde SAC	Harbour porpoise Grey seal Harbour seal	501	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DK00CY040	Denmark	Venø, Venø Sund SAC	Harbour seal	508	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
FR5300017	France	Abers - Côtes Des Legendes SAC	Grey seal	970	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
FR3102005	France	Baie de Canche et couloir des trois estuaires SAC	Harbour porpoise	701	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
FR5300015	France	Baie De Morlaix SAC	Grey seal	940	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
FR2502020	France	Baie de Seine occidentale SAC	Harbour porpoise	817	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Harbour seal			
FR2502021	France	Baie de Seine orientale SAC	Harbour porpoise	826	Out	The distance between the potential impact range of the Bellrock WFDA and the site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Harbour seal			
FR2500077	France	Baie Du Mont Saint-Michel SAC	Harbour seal	904	Out	The distance between the potential impact range of the Bellrock WFDA and the site is beyond that of potential for direct or indirect effects.
			Grey seal			
FR3102002	France	Bancs des Flandres SAC	Harbour porpoise	629	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
			Harbour seal			
FR5300020	France	Cap Sizun SAC	Grey seal	1,025	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
FR2500079	France	Chausey SAC	Grey seal	884	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
FR5302007	France	Chaussée de Sein SAC	Grey seal	1,036	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
FR5300009	France	Cote De Granit Rose-Sept-Iles SAC	Grey seal	916	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
FR5302006	France	Cotes de Crozon SAC	Grey seal	1,013	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
FR3100482	France	Dunes de l'Authie et Mollieres de Berck SAC	Harbour seal	724	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects.
FR3100474	France	Dunes De La Plaine Maritime Flamande SAC	Harbour seal	656	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects.

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
FR3100480	France	Estuaire De La Canche, Dunes Picardes Plaquees Sur L'ancienne Falaise, Foret D'hardelot Et Falaise D'equihen SAC	Harbour seal	704	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
FR2300121	France	Estuaire de la Seine SAC	Harbour seal	832	Out	The distance between the potential impact range of the Bellrock WFDA and the site is beyond that of potential for direct or indirect effects, alone or in-combination.
FR2200346	France	Estuaires et littoral picards (baies de Somme et d'Authie) SAC	Grey seal	723	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Harbour seal			
FR3100478	France	Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et Dunes de Wissant SAC	Harbour porpoise	670	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
FR5300018	France	Ouessant-Molene SAC	Grey seal	990	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
FR2500088	France	Marais du Cotentin et du Bessin - Baie Des Veys SAC	Grey seal	819	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Harbour seal			
FR5300019	France	Presqu'ile De Crozon SAC	Grey seal	1003	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
FR2500085	France	Récifs et Marais Arrière-Littoraux du Cap Lévi À la Pointe de Saire SAC	Grey seal	798	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Harbour seal			
FR3102003	France	Recifs Gris-Nez Blanc-Nez SAC	Harbour porpoise	650	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
FR3102004	France	Ridens et dunes hydrauliques du detroit du Pas-de-Calais SAC	Harbour porpoise	656	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Harbour seal			
			Grey seal			
FR5300010	France	Tregor Goëlo SAC	Grey seal	901	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DE2104301	Germany	Borkum-Riffgrund SCI	Harbour porpoise	480	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
DE1003301	Germany	Doggerbank SCI	Harbour porpoise	244	Out	

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
			Harbour seal			The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DE1115391	Germany	Dünenlandschaft Süd-Sylt SAC	Grey seal	545	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DE2016301	Germany	Hamburgisches Wattenmeer SAC	Harbour porpoise	583	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
DE1813391	Germany	Helgoland mit Helgolander Felssockel SAC	Harbour porpoise	555	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
DE2507301	Germany	Hund und Paapsand SCI	Harbour seal	565	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DE1315391	Germany	Küsten- und Dünenlandschaften Amrums SAC	Grey seal	552	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DE2424302	Germany	Muhlenberger Loch/Nesssand SAC	Harbour seal	689	Out	The distance between the potential impact range of the Bellrock WFDA and the site is beyond that of potential for direct or indirect effects, alone or in-combination.

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
DE2306301	Germany	Nationalpark Niedersachsisches Wattenmeer SAC	Harbour porpoise	524	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
DE0916391	Germany	NTP S-H Wattenmeer und angrenzende Kustengebiete SAC	Harbour porpoise	519	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
DE2323392	Germany	Schleswig-Holsteinisches Elbastuar und angrenzende Flachen SAC	Harbour seal	625	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
DE1011401	Germany	SPA Ostliche Deutsche Bucht SPA	Harbour porpoise	483	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
DE1714391	Germany	Steingrund SAC	Harbour porpoise	559	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
DE1209301	Germany	Sylter Außenriff SCI	Harbour porpoise	504	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
DE2018331	Germany	Unterelbe SAC	Harbour porpoise	625	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Harbour seal			
DE2507331	Germany	Unterems und Aussenems SAC	Harbour seal	563	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
NL2008001	Netherlands	Doggersbank SAC	Harbour porpoise	235	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
NL3009005	Netherlands	Duinen Ameland SAC	Grey seal	504	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
NL2003060	Netherlands	Duinen en Lage Land Texel SAC	Grey seal	496	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
NL9801079	Netherlands		Grey seal	600	Out	

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
		Duinen Goeree & Kwade Hoek SAC	Harbour seal			The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
NL2003059	Netherlands	Duinen Terschelling SAC	Grey seal	493	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
NL2003061	Netherlands	Duinen Vlieland SAC	Grey seal	494	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
NL4000021	Netherlands	Grevelingen SAC	Grey seal Harbour seal	605	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
NL2008002	Netherlands	Klaverbank SAC	Harbour porpoise Grey seal Harbour seal	322	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
NL9802001	Netherlands	Noordzeekustzone SAC	Harbour porpoise Grey seal Harbour seal	471	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
NL3009016	Netherlands	Oosterschelde SPA and SAC	Harbour porpoise Grey seal	614	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
			Harbour seal			
NL2008003	Netherlands	Vlakte van de Raan SAC	Harbour porpoise	616	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
NL4000017	Netherlands	Voordelta SAC and SPA	Harbour porpoise	586	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
NL1000001	Netherlands	Waddenzee SAC	Harbour porpoise	495	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
NL9803061	Netherlands	Westerschelde & Saeftinghe SAC	Harbour porpoise	624	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Grey seal			
			Harbour seal			
SE0510050	Sweden	Balgö SAC	Harbour seal	716	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
SE0520171	Sweden	Gullmarsfjorden SAC	Harbour seal	675	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0420002	Sweden	Hallands Vadero SAC	Harbour seal	747	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0520170	Sweden	Kosterfjorden-Väderöfjorden SAC	Harbour porpoise	662	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
			Harbour seal			
SE0510058	Sweden	Kungsbackafjorden 2011	Harbour seal	705	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0510084	Sweden	Nidingen 2011	Harbour seal	703	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0520057	Sweden	Malmöfjord SAC	Harbour seal	676	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0520058	Sweden	Måseskär SAC	Harbour seal	673	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0520043	Sweden	Nordre Älvs Estuarium SAC	Harbour seal	690	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0420360	Sweden		Harbour seal	750	Out	

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
		Nordvästra Skånes havsområde SCI	Grey seal			The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0520176	Sweden	Pater Noster-Skärgården SAC	Harbour seal	680	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0520036	Sweden	Sälöfjorden SAC	Harbour seal	688	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0520188	Sweden	Soteskär SAC	Harbour seal	671	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
SE0520001	Sweden	Vrångöskärgården SAC	Harbour seal	693	Out	The distance between the potential effect range of the Bellrock WFDA and this designated site is beyond that of potential for direct or indirect effects, alone or in-combination.
UK0017072	**UK**	**Berwickshire and North Northumberland Coast SAC**	**Grey seal**	**152**	**In**	**Individuals from this SAC have the potential for connectivity with the Bellrock WFDA, or areas of potential effect.**
UK0019808	**UK**	**Moray Firth SAC**	**Bottlenose dolphin**	**209**	**In**	**Nearest UK designated site for bottlenose dolphin. It is assumed that all bottlenose dolphin in the Bellrock WFDA, or areas of potential effect, are from this designated site.**
UK0019806	UK	Dornoch Firth and Morrich More SAC	Harbour seal	244	Out	Individuals from this SAC have not been identified to have the potential for connectivity with the Bellrock WFDA, or with any potential direct or indirect effects, alone or in-combination.

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
UK0017096	UK	Faray and Holm of Faray SAC	Grey seal	299	Out	Individuals from this SAC have not been identified to have the potential for connectivity with the Bellrock WFDA, or with any potential direct or indirect effects, alone or in-combination.
UK0030311	**UK**	**Firth of Tay and Eden Estuary SAC**	**Harbour seal**	**158**	**In**	**Individuals from this SAC have the potential for connectivity with the Bellrock WFDA, or areas of potential effect.**
UK0030170	**UK**	**Humber Estuary SAC**	**Grey seal**	**338**	**In**	**Despite the significant distance from the SAC to the Bellrock WFDA, it has been identified that a limited number of individuals from this SAC have the potential for connectivity with the Bellrock WFDA, or the areas of potential effect.**
UK0030172	**UK**	**Isle of May SAC**	**Grey seal**	**160**	**In**	**Individuals from this SAC have the potential for connectivity with the Bellrock WFDA, or areas of potential effect.**
UK9002361	UK	Mousa SAC	Harbour seal	361	Out	Individuals from this SAC have not been identified to have the potential for connectivity with the Bellrock WFDA, or with any potential direct or indirect effects, alone or in-combination.
UK0030069	UK	Sanday SAC	Harbour seal	300	Out	Individuals from this SAC have not been identified to have the potential for connectivity with the Bellrock WFDA, or with any potential direct or indirect effects, alone or in-combination.
UK0012687	UK	Yell Sound Coast SAC	Harbour seal	407	Out	Individuals from this SAC have not been identified to have the potential for connectivity with the Bellrock WFDA, or with any potential direct or indirect effects, alone or in-combination.
UK0030395	**UK**	**Southern NS SAC**	**Harbour porpoise**	**154**	**In**	**Nearest designated site for harbour porpoise. It is assumed that all harbour porpoise in the Bellrock WFDA area, or areas of potential effect, are from this designated site.**

Site Code	Country	Designation name	Qualifying Feature	Distance (km)	Screened In/Out	Rationale
UK0017075	UK	The Wash and North Norfolk Coast SAC	Harbour seal	409	Out	Individuals from this SAC have not been identified to have the potential for connectivity with the Bellrock WFDA, or with any potential direct or indirect effects, alone or in-combination.

7 Offshore Ornithology

305. This section details the results of the process to identify European and Ramsar sites with qualifying ornithology features to be taken forward for determination of likely significant effects (LSE). As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Offshore Transmission Development Area (OfTDA) (i.e. offshore substation(s), interconnector cables, reactive compensation station, offshore export cable(s) and associated cable protection) will be presented in the Bellrock OfTDA Habitat Regulations Appraisal (HRA) Screening Report which will be submitted separately.

7.1 Sites Designated for Annex I Marine Ornithological Features

7.1.1 Initial Identification of Sites and Potential Connectivity

306. The approach used to identify European sites with relevant ornithological qualifying interest features to be carried forward for further assessment of likely significant effects (LSE) is detailed below. The different criteria that have been applied to assess the potential for connectivity with the Bellrock Wind Farm Development Area (WFDA) are also set out below. The assessment has taken into account advice already provided by NatureScot in their scoping advice for several ScotWind offshore wind farm projects, including the Ossian Offshore Wind Farm (NatureScot 2023a) which is also located in the East ScotWind region. This Bellrock WFDA HRA Screening Report also takes account consultation with NatureScot and the Marine Directorate – Licensing Operations Team (MD-LOT) from the Bellrock WFDA Scoping Workshop held on 30th October 2023 (and as detailed in the Bellrock WFDA Scoping Report (BlueFloat Energy | Renantis Partnership, 2024) – refer to **Table 7.1**).

307. The criteria that have been considered in determining potential connectivity are as follows, in line with **Section 7.3**.

Criterion 1: There is a physical overlap between the Bellrock WFDA Screening Boundary and any European sites; all sites with an overlapping boundary are screened in to be taken forward for determination of LSE.

308. As there are no European sites with relevant seabird species as qualifying features which overlap with the Bellrock WFDA Screening Boundary, no sites are screened in for further consideration for seabirds on the basis of this criterion.

Criterion 2: There is an overlap between the Bellrock WFDA Screening Boundary and the range of any qualifying mobile species of the site. All sites where the Bellrock WFDA Screening Boundary overlaps with the range of one (or more) of its features, are taken forward for determination of LSE.

309. Birds are highly mobile species, which can forage and migrate over wide areas. Birds present in offshore waters and potentially affected by the construction, operation and maintenance and decommissioning of the Bellrock WFDA will be predominantly seabirds (defined for this Bellrock WFDA HRA Screening Report as auks, gulls, terns, gannets, skuas, shearwaters, petrels, cormorants, and divers). These species have the potential to be present in the vicinity of the Bellrock WFDA during the breeding and non-breeding seasons (including the spring and autumn passage periods). Other bird species that may be affected by the Bellrock WFDA include those which may fly through the area of the Bellrock WFDA during their spring and/or autumn migration (or passage) periods (e.g. waterfowl), and any other species which may use the intertidal habitats or the inshore or offshore waters which are potentially affected by the Bellrock WFDA.

310. Based on the above, it is considered that (in relation to marine ornithology) the Special Protection Areas (SPAs) and Ramsar sites which have the potential to be affected by the Bellrock WFDA are those which:

- Include seabird qualifying features that may use the waters in and around the Bellrock WFDA (e.g. for foraging).
- Include qualifying features which may fly through the area of the Bellrock WFDA during migration.

Criterion 3: Impacts occurring within the potential Zone of Influence (ZoI) for the Bellrock WFDA

311. The potential ZoI of impacts associated with the Bellrock WFDA (e.g. habitat loss/disturbance, noise, and risk of collision) is considered to be limited to the area within 2 km of the Bellrock WFDA for most bird species. This may extend to considerably greater distances for some species, notably red-throated diver, which shows particular sensitivity to various sources of anthropogenic disturbance (e.g. Mendel et al., 2019, Heinänen et al., 2020). Given the large distributions defined in criterion 2 for many species, the ZoI of key impacts are considered likely to occur well within the area defined by these wider distributions. Given this, no further SPAs and Ramsar sites with ornithological qualifying features would be screened in for further consideration under criterion 3.

312. The SPAs (and Ramsar sites) which meet these different criteria are outlined below under the categories of:

- Breeding Seabird Colony SPAs and Ramsar sites;
- SPAs and Ramsar sites with migratory non-seabird qualifying features (subsequently termed Migratory non-Seabird SPAs for convenience). These are further subcategorised into Estuarine sites and Inland sites; and
- Marine SPAs.

7.1.1.1 Breeding Seabird Colony Special Protection Areas and Ramsar Sites

313. To determine the breeding seabird colony SPAs which may have connectivity with the Bellrock WFDA, those SPAs on the east coast of Scotland and in north Scotland (including Orkney and Shetland) were considered in terms of the potential for connectivity during the breeding season. Of such SPAs in west Scotland, sites where gannet, fulmar, great skua, Leach's storm petrel or Manx shearwater are listed as breeding qualifying features, or named assemblage components, were included for consideration (on the basis that the foraging ranges of these species may be sufficiently large to have potential to overlap with the Bellrock WFDA Screening Boundary – Woodward et al. 2019, NatureScot 2023b, **Table 7.1**). These sites are:

- Handa SPA;
- Shiant Isles SPA;
- Flannan Isles SPA;
- St Kilda SPA;
- Rum SPA; and
- Mingulay and Berneray SPA.

314. In addition, SPAs on the coasts or islands of Northern Ireland, Wales and England and with the potential for breeding season connectivity based on foraging range data (Woodward et al. 2019, NatureScot 2023b, **Table 7.1**) were also included for consideration.

315. Connectivity during the breeding periods, for the majority of species, is based on whether the SPA lies within mean maximum foraging range +1 standard deviation (SD) from the Bellrock WFDA Screening Boundary, according to foraging range data in Woodward et al. (2019). The NatureScot Guidance Note 3 (NatureScot 2023b) advises several exceptions to this general approach, relating to some SPA populations of gannet, guillemot and razorbill, as well as to those species for which there is insufficient data to calculate the mean maximum foraging range +1 SD. This guidance has been followed in determining potential connectivity in the current HRA Screening exercise. In terms of connectivity during the non-breeding periods, for the majority of species, consideration essentially extended to all UK breeding seabird colony SPAs (given the potential for birds to disperse more widely when not constrained by the location of their breeding sites), although for some it is assumed that the populations remain in the same regions as used during the breeding season. Further consideration of connectivity in the breeding and non-breeding seasons is provided below.

7.1.1.1.1 Connectivity in the Breeding Season

316. The initial stage of establishing potential connectivity during the breeding season involved determining whether the Bellrock WFDA Screening Boundary is within the mean maximum foraging range +1 SD (as determined by Woodward et al., 2019) of each qualifying feature (or named component of an assemblage feature) from each of the SPAs (**Table 7.1**), but with exceptions applied as detailed in the NatureScot (2023b) Guidance Note 3 (see above). To provide further context, this is also determined in relation to the mean maximum foraging range of each seabird species. The potential connectivity is established on the basis of the 'by-sea' distance, which represents the shortest distance using a route around, as opposed to across, land masses and

assumes that seabirds will generally avoid flying over larger land masses. The straight-line distance between each SPA and the Bellrock WFDA Screening Boundary is also presented, but only for context.

317. One full year of data (i.e. for March 2022 to February 2023) from the 2 year aerial survey programme of the Bellrock WFDA offshore aerial survey area has been processed to date, with this survey area encompassing the Bellrock WFDA plus a 4 km buffer. The resulting data are summarised in the Bellrock WFDA Scoping Report (BlueFloat Energy | Renantis Partnership, 2024), with further details presented in the interim survey report (HiDef, 2023). These data demonstrate that several of the 10 species which are identified as having potential breeding season connectivity with the Bellrock WFDA Screening Boundary in **Table 7.2**, occur infrequently and in very low numbers within the offshore aerial survey area during the breeding season. Thus, there were no breeding season (as defined in NatureScot (2020)) records of lesser black-backed gull, European storm petrel, Leach's petrel, Manx shearwater or great skua. Clearly, these data derive from a single breeding season only and, when considered in isolation, the baseline survey data cannot provide a basis for concluding a lack of connectivity until the full two breeding seasons of data are available.

318. However, for several of these rarely occurring species other data and evidence are relevant to considerations of the potential for breeding season connectivity, as follows:

- **Lesser black-backed gull**: While there are no breeding season records of lesser black-backed gull within the first year of baseline digital aerial surveys, there are three SPA populations which are identified as having the potential for connectivity with the Bellrock WFDA – Forth Islands SPA, Coquet Island SPA and Farne Islands SPA. All are within the mean maximum plus 1 SD breeding season foraging range of this species (**Table 7.1**, **Table 7.2**) from the Bellrock WFDA Screening Boundary, noting the species is a named component of the breeding seabird assemblage feature for the latter two SPAs. Therefore, it is concluded that there is potential for breeding season connectivity between the SPA populations of this species identified in **Table 7.2** and the Bellrock WFDA.

- **Leach's storm petrel**: There are five SPA populations identified as having the potential for connectivity with the Bellrock WFDA, all of which are well within the estimated mean breeding season foraging range of this species (**Table 7.1**, **Table 7.2**)[9]. The available evidence suggests that during the breeding season Leach's storm petrels forage mainly in waters along the continental shelf edge west of Scotland rather than in North Sea waters (Stone et al., 1995; Kober et al., 2010), indicating that there will be no breeding season connectivity between the five SPA populations identified in **Table 7.2**, and the Bellrock WFDA. It is acknowledged that the abundance of Leach's storm petrel is likely to be underestimated by aerial surveys because of their nocturnal activity but the absence of any breeding season records during the first year of surveys of the offshore aerial survey area is consistent with the expectation of no connectivity with the Bellrock WFDA. As such, it is concluded that there is no breeding season connectivity between the five SPA populations identified in **Table 7.2** and the Bellrock WFDA.

- **European storm petrel**: It is only the Auskerry SPA population which is identified as having the potential for connectivity with the Bellrock WFDA, The 'by-sea' distance of this SPA to the

[9] The mean range is used for Leach's storm petrel due to insufficient data being available for calculating the mean maximum +1 SD (Woodward et al. 2019; NatureScot (2023a) Guidance Note 3).

Bellrock WFDA Screening Boundary is 276 km, which is within the mean maximum breeding season foraging range for this species (**Table 7.1**,**Table 7.2**)[10]. The available evidence shows that during the breeding season European storm petrels are widely distributed across UK waters, with highest densities in the north and west (Stone et al., 1995; Kober et al., 2010; Waggit et al., 2020). The species is known to occur within the North Sea during the breeding season, albeit in relatively low densities. Therefore, it is concluded that there is potential for breeding season connectivity between Auskerry SPA population identified in **Table 7.2** and the Bellrock WFDA.

- **Manx shearwater**: There are five SPA populations identified as having the potential for connectivity with the Bellrock WFDA, all of which are within the estimated mean maximum breeding season foraging range of this species (**Table 7.1**, **Table 7.2**). The available evidence from both detailed tracking studies and broader-level distributional data indicates that during the breeding season this species is largely confined to western waters (consistent with the location of the relevant SPAs). Thus, tracking studies from three of the five SPAs identified as having potential connectivity with the Bellrock WFDA (including Rum which is the closest of these SPAs) show no evidence of birds using the waters in the vicinity of the Bellrock WFDA, or indeed in the North Sea more generally (Dean 2012; Dean et al., 2015). Broader-scale distributional information indicates that during the breeding season Manx shearwater are scarce in the northern North Sea (and in UK eastern waters more generally), with areas of moderate to high densities confined to western and (more) northern waters (Stone et al., 1995; Kober et al., 2010; Waggit et al., 2020). Thus, the available evidence suggests that there will be no breeding season connectivity between the five SPA populations identified in **Table 7.1**, and the Bellrock WFDA. The scarcity of breeding season records during the first year of surveys of the offshore aerial survey area is consistent with the expectation of no connectivity with the Bellrock WFDA.

- **Great skua**: There are nine SPA populations identified as having the potential for connectivity with the Bellrock WFDA, all of which are within the estimated mean maximum +1 SD breeding season foraging range of this species (**Table 7.1**, **Table 7.2**). The available evidence shows that during the breeding season the distribution of great skuas in UK waters is concentrated around the main breeding areas in Shetland and, to a lesser extent, Orkney and parts of north-western Scotland (Kober et al., 2010; Waggit et al., 2020). Densities within the North Sea waters further south are low, overall, but suggest that there is the potential for connectivity between the SPA populations of this species identified in **Table 7.2** and the Bellrock WFDA, despite the absence of breeding season records during the first year of surveys of the offshore aerial survey area.

319. The above conclusions on whether SPA populations of the above five species should be considered to have potential connectivity with the Bellrock WFDA Screening Boundary will be subject to review following the completion of the second year of the offshore aerial survey programme. Should this further baseline data lead to any change in the conclusions on potential connectivity, this will be set out and justified in a specific section of the Bellrock WFDA Report to Inform Appropriate Assessment (RIAA).

[10] The mean maximum range is used for European storm petrel due to insufficient data being available for calculating the mean maximum +1 SD (Woodward et al. 2019, NatureScot (2023a) Guidance Note 3).

320. Given the above, it is considered that 32 of the 41 breeding seabird colony SPAs identified in **Table 7.2** have potential connectivity with the Bellrock WFDA during the breeding season. Thus, four of these 41 SPAs are considered to lack potential connectivity because none of the qualifying features are within mean maximum +1 SD breeding season foraging range (or the advised equivalent as per NatureScot 2023b) of the Bellrock WFDA Screening Boundary when the 'by-sea' distance is considered (see **Table 7.2**). In addition, the potential for breeding season connectivity is excluded for a further five SPAs on the basis that the available evidence suggests that the only qualifying features within potential breeding season foraging range of the Bellrock WFDA Screening Boundary are likely to be scarce or absent within the offshore aerial survey area during the breeding season. These five SPAs are:

- Ramna Stacks and Gruney SPA for which only Leach's storm petrel is within potential foraging range of the Bellrock WFDA Screening Boundary.
- Rum SPA, Copeland Islands SPA, Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA, and Skomer, Skokholm and Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA for which only Manx shearwater is within potential foraging range of the Bellrock WFDA Screening Boundary.

Table 7.1: The Advised Foraging Ranges of Breeding Seabirds (from NatureScot (2023b) Guidance Note 3)

Species	Foraging Range (km) ± 1 Standard Deviation (SD) (Where Available for the Mean Maximum Value)
Red-throated diver	9.0*
European storm petrel	336.0*
Leach's storm petrel	657.0**
Northern fulmar	542.3 ± 657.9
Manx shearwater	1346.0 ± 1018.7
Northern gannet • Forth Islands SPA • St Kilda SPA • Grassholm SPA • All other SPAs	 590.0*** 709.0*** 516.7*** 315.2 ± 194.2
European shag	13.2 ± 10.5
Cormorant	25.6 ± 8.3
Black-legged kittiwake	156.1 ± 144.5
Black-headed gull	18.5*
Common gull	50.0*

Species	Foraging Range (km) ± 1 Standard Deviation (SD) (Where Available for the Mean Maximum Value)
Great black-backed gull	73.0*
Herring gull	58.8 ± 26.8
Lesser black-backed gull	127.0 ± 109
Sandwich tern	34.3 ± 23.2
Little tern	5.0*
Roseate tern	12.6 ± 10.6
Common tern	18.0 ± 8.9
Arctic tern	25.7 ± 14.8
Great skua	443.3 ± 487.9
Arctic skua	2 ± 0.7**
Common guillemot SPAs north of Pentland Firth (inclusive of Fair Isle data) SPAs south of Pentland Firth (excluding Fair isle data)	73.2 ± 80.5 55.5 ± 39.7
Razorbill SPAs north of Pentland Firth (inclusive of Fair Isle data) SPAs south of Pentland Firth (excluding Fair isle data)	88.7 ± 75.9 73.8 ± 48.4
Black guillemot	4.8 ± 4.3
Atlantic puffin	137.1 ± 128.3

Notes:

Values are the mean maximum ±1 standard deviation unless otherwise indicated (from Woodward et al., 2019), as advised by NatureScot (2023b) Guidance Note 3.

* Mean maximum value only – no standard deviation available.

** Mean value – no mean maximum or maximum values available.

*** Site-specific maximum values

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Table 7.2: European Sites Designated for Marine Ornithological Features with Potential Connectivity to the Bellrock WFDA Screening Boundary

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
Breeding Seabird Colony Special Protection Areas							
1	Buchan Ness to Collieston Coast SPA	UK9002491	113.4	113.4	Seabird assemblage (breeding) including the components:		
					– Kittiwake	Y	Y
					– Herring gull	N	N
					– Guillemot	N[6]	N[6]
					– Shag	N	N
					– Fulmar	Y	Y
2	Ythan Estuary, Sands of Forvie and Meikle Loch SPA, Ythan Estuary and Meikle Loch Ramsar site[9]	UK9002221 UK13061	114.9	114.9	Sandwich tern (breeding)	N	N
					Common tern (breeding)	N	N
					Little tern (breeding)	N	N
3	Fowlsheugh SPA	UK9002271	121.7	121.7	Kittiwake	Y	Y
					Guillemot	N[6]	N[6]
					Seabird assemblage (breeding) including the components:		
					– Fulmar	Y	Y

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Herring gull	N	N
					– Razorbill	N[6]	Y[6]
4	St Abbs Head to Fast Castle SPA	UK9004271	154.1	154.1	Guillemot (breeding)	N[6]	N[6]
					Herring gull (breeding)	N	N
					Razorbill (breeding)	N[6]	N[6]
					Kittiwake (breeding)	Y	Y
5	Farne Islands SPA	UK9006021	154.1	154.1	Arctic tern (breeding)	N	N
					Common tern (breeding)	N	N
					Roseate tern (breeding)	N	N
					Sandwich tern (breeding)	N	N
					Guillemot (breeding)	N[6]	N[6]
					Seabird assemblage (breeding) including the components (* = advised by Natural England within Berwick Bank Wind Farm Scoping Opinion):		
					– Kittiwake	Y	Y
					– Shag	N	N

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Cormorant	N	N
					– Puffin	N	Y
					– Fulmar*	Y	Y
					– Black-headed gull*	N	N/A
					– Great black-backed gull*	N	N/A
					– Lesser black-backed gull*	N	Y
					– Herring gull*	N	N
					– Razorbill*	N[6]	N[6]
6	Forth Islands SPA	UK9004171	157.8	157.8	Arctic tern (breeding)	N	N
					Common tern (breeding)	N	N
					Roseate tern (breeding)	N	N
					Sandwich tern (breeding)	N	N
					Gannet (breeding)	Y[8]	Y[8]
					Shag (breeding)	N	N
					Lesser black-backed gull (breeding)	N	Y
					Puffin (breeding)	N	Y

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					Seabird assemblage (breeding) including the components:		
					– Guillemot	N[6]	N[6]
					– Razorbill	N[6]	N[6]
					– Kittiwake	N	Y
					– Herring gull	N	N
					– Cormorant	N	N
7	Troup, Pennan and Lion's Heads SPA	UK9002471	148.4	159.0	Kittiwake (breeding)	N	Y
					Guillemot (breeding)	N[6]	N[6]
					Seabird assemblage (breeding) including the components:		
					– Fulmar	Y	Y
					– Herring gull	N	N
					– Razorbill	N[6]	N[6]
8	Coquet Island SPA	UK9006031	181.7	181.7	Arctic tern (breeding)	N	N
					Common tern (breeding)	N	N
					Roseate tern (breeding)	N	N

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					Sandwich tern (breeding)	N	N
					Seabird assemblage (breeding) including the components:		
					– Puffin	N	Y
					– Black-headed gull	N	N/A
					– Fulmar	Y	Y
					– Herring gull	N	N
					– Lesser black-backed gull	N	Y
					– Kittiwake	N	Y
9	East Caithness Cliffs SPA	UK9001182	237.9	237.9	Guillemot (breeding)	N[6]	N[6]
					Razorbill (breeding)	N[6]	N[6]
					Herring gull (breeding)	N	N
					Kittiwake (breeding)	N	Y
					Shag (breeding)	N	N
					Seabird assemblage (breeding) including the components:		
					– Great black-backed gull	N	N/A

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Cormorant	N	N
					– Fulmar	Y	Y
10	North Caithness Cliffs SPA	UK9001181	251.9	251.9	Guillemot (breeding)	N[6]	N[6]
					Seabird assemblage (breeding) including the components:		
					– Fulmar	Y	Y
					– Kittiwake	N	Y
					– Razorbill	N[6]	N[6]
					– Puffin	N	Y
11	Copinsay SPA	UK9002151	263.6	263.6	Seabird assemblage (breeding) including the components:		
					– Guillemot	N	N
					– Kittiwake	N	Y
					– Great black-backed gull	N	N/A
					– Fulmar	Y	Y
12	Pentland Firth SPA	UK9001131	267.4	267.4	Arctic Tern (breeding)	N	N
13	Auskerry SPA	UK9002381	275.8	275.8	European storm petrel (breeding)	Y	N/A

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					Arctic tern (breeding)	N	N
14	Flamborough and Filey Coast SPA	UK9006101	280.2	280.2	Gannet (breeding)	Y	Y
					Kittiwake (breeding)	N	Y
					Guillemot (breeding)	N[6]	N[6]
					Razorbill (breeding)	N[6]	N[6]
					Seabird assemblage (breeding) including the components:		
					– Fulmar	Y	Y
					– Puffin	N	N
					– Herring gull	N	N
					– Shag	N	N
					– Cormorant	N	N
15	Hoy SPA	UK9002141	276.3	281.7	Red-throated diver (breeding)	N	N/A
					Great skua (breeding)	Y	Y
					Seabird assemblage (breeding) including the components:		
					– Puffin	N	N

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Kittiwake	N	Y
					– Arctic skua	N	N
					– Fulmar	Y	Y
					– Great black-backed gull	N	N/A
					– Guillemot	N	N
16	Fair Isle SPA	UK9002091	299.5	299.5	Arctic tern (breeding)	N	N
					Guillemot (breeding)	N[7]	N[7]
					Seabird assemblage (breeding) including the components:		
					– Puffin	N	N
					– Razorbill	N	N
					– Kittiwake	N	Y
					– Great skua	Y	Y
					– Arctic skua	N	N
					– Shag	N	N
					– Gannet	Y	Y

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Fulmar	Y	Y
17	Calf of Eday SPA	UK9002431	297.4	318.0	Seabird assemblage (breeding) including the components:		
					– Cormorant	N	N
					– Great black-backed gull	N	N/A
					– Guillemot	N	N
					– Fulmar	Y	Y
					– Kittiwake	N	N
18	Rousay SPA	UK9002371	300.9	319.2	Arctic tern (breeding)	N	N
					Seabird assemblage (breeding) including the components:		
					– Arctic skua	N	N
					– Kittiwake	N	N
					– Guillemot	N	N
					– Fulmar	Y	Y
19	Marwick Head SPA	UK9002121	307.9	320.7	Guillemot (breeding)	N[7]	N[7]

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					Seabird assemblage (breeding) including the components:		
					- Kittiwake	N	N
20	West Westray SPA	UK9002101	310.8	330.0	Arctic tern (breeding)	N	N
					Guillemot (breeding)	N[7]	N[7]
					Seabird assemblage (breeding) including the components:		
					– Razorbill	N	N
					– Kittiwake	N	N
					– Arctic skua	N	N
					– Fulmar	Y	Y
21	Sumburgh Head SPA	UK9002511	332.3	332.3	Arctic tern (breeding)	N	N
					Seabird assemblage (breeding) including the components:		
					– Guillemot	N	N
					– Kittiwake	N	N
					– Fulmar	Y	Y

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
22	Sule Skerry and Sule Stack SPA	UK9002181	345.9	359.2	European storm petrel (breeding)	N	N/A
					Leach's storm petrel (breeding)	Y	N/A
					Gannet (breeding)	N	Y
					Puffin (breeding)	N	N
					Seabird assemblage (breeding) including the components:		
					– Guillemot	N	N
					– Shag	N	N
23	Noss SPA	UK9002081	360.6	360.6	Gannet (breeding)	N	Y
					Great skua (breeding)	Y	Y
					Guillemot (breeding)	N[7]	N[7]
					Seabird assemblage (breeding) including the components:		
					– Fulmar	Y	Y
					– Kittiwake	N	N
					– Puffin	N	N

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
24	Cape Wrath SPA	UK9001231	333.2	368.9	Seabird assemblage (breeding) including the components:		
					– Kittiwake	N	N
					– Guillemot	N[1]	N[1]
					– Razorbill	N[1]	N[1]
					– Puffin	N	N
					– Fulmar	Y	Y
25	Mousa SPA	UK9002361	348.8	372.3	European storm petrel (breeding)	N	N/A
					Arctic tern (breeding)	N	N
26	Foula SPA	UK9002061	370.9	400.5	Arctic tern (breeding)	N	N
					Leach's storm petrel (breeding)	Y	N/A
					Red-throated diver (breeding)	N	N/A
					Great skua (breeding)	Y	Y
					Guillemot (breeding)	N[7]	N[7]
					Puffin (breeding)	N	N
					Shag (breeding)	N	N

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					Seabird assemblage (breeding) including the components:		
					– Kittiwake	N	N
					– Razorbill	N	N
					– Arctic skua	N	N
					– Fulmar	Y	Y
27	Fetlar SPA	UK9002031	406.9	406.9	Arctic tern (breeding)	N	N
					Great skua (breeding)	Y	Y
					Seabird assemblage (breeding) including the components:		
					– Arctic skua	N	N
					– Fulmar	Y	Y
28	Handa SPA	UK9001241	338.9	408.3	Guillemot	N[6]	N[6]
					Razorbill	N[6]	N[6]
					Seabird assemblage (breeding) including the components:		
					– Great skua	Y	Y

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Kittiwake	N	N
					– Fulmar	Y	Y
29	North Rona and Sula Sgeir SPA	UK9001011	411.6	442.3	Gannet (breeding)	N	Y
					Fulmar (breeding)	Y	Y
					Seabird assemblage (breeding) including the components:		
					– Great black-backed gull	N	N/A
					– Kittiwake	N	N
					– Razorbill	N	N
					– Puffin	N	N
30	Ronas Hill – North Roe and Tingon SPA	UK9002041	408.4	448.6	Red-throated diver (breeding)	N	N/A
					Great skua (breeding)	N	Y
					Seabird assemblage (breeding) including the components:		
					– Arctic skua	N	N
					– Black guillemot	N	N

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
31	Ramna Stacks and Gruney SPA	UK9002021	422.6	449.1	Leach's storm petrel (breeding)	Y	N/A
32	Hermaness, Saxa Vord and Valla Field SPA	UK9002011	427.3	455.7	Red-throated diver (breeding)	N	N/A
					Gannet (breeding)	N	Y
					Great skua (breeding)	N	Y
					Puffin (breeding)	N	N
					Seabird assemblage (breeding) including the components:		
					– Fulmar	Y	Y
					– Shag	N	N
					– Guillemot	N	N
					– Kittiwake	N	N
33	Shiant Isles SPA	UK9002091	383.0	486.0	Shag (breeding)	N	N
					Razorbill (breeding)	N[6]	N[6]
					Puffin (breeding)	N	N
					Seabird assemblage (breeding) including the components:		

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Fulmar	Y	Y
					– Guillemot	N[6]	N[6]
					– Kittiwake	N	N
34	Flannan Isles SPA	UK9001021	465.0	540.7	Leach's storm petrel (breeding)	Y	N/A
					Seabird assemblage (breeding) including the components:		
					– Guillemot	N[6]	N[6]
					– Razorbill	N[6]	N[6]
					– Puffin	N	N
					– Fulmar	Y	Y
					– Kittiwake	N	N
35	Rum SPA	UK9001341	365.4	598.9	Red-throated diver (breeding)	N	N/A
					Manx shearwater (breeding)	Y	Y
					Seabird assemblage (breeding) including the components:		
					– Guillemot	N[6]	N[6]
					– Kittiwake	N	N

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
36	St Kilda SPA	UK9001031	506.5	614.0	European storm petrel (breeding)	N	N/A
					Leach's storm petrel (breeding)	Y	N/A
					Gannet (breeding)	Y[8]	Y[8]
					Great skua (breeding)	N	Y
					Puffin (breeding)	N	N
					Seabird assemblage (breeding) including the components:		
					– Guillemot	N[6]	N[6]
					– Razorbill	N[6]	N[6]
					– Kittiwake	N	N
					– Manx shearwater	Y	Y
					– Fulmar	N	Y
37	Mingulay and Berneray SPA	UK9001121	451.6	639.4	Razorbill (breeding)	N[6]	N[6]
					Seabird assemblage (breeding) including the components:		
					– Fulmar	N	Y
					– Guillemot	N[6]	N[6]

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Kittiwake	N	N
					– Puffin	N	N
					– Shag	N	N
38	Rathlin Island SPA	UK9020011	408.7	782.7	Guillemot (breeding)	N[6]	N[6]
					Razorbill (breeding)	N[6]	N[6]
					Kittiwake (breeding)	N	N
					Seabird assemblage (breeding) including the components:		
					– Fulmar	N	Y
					– Common gull	N	N/A
					– Lesser black-backed gull	N	N
					– Herring gull	N	N
					– Puffin	N	N
39	Copeland Islands SPA	UK9020291	407.8	887.3	Manx shearwater (breeding)	Y	Y
					Arctic tern (breeding)	N	N
40	Glannau Aberdaron ac Ynys Enlli/Aberdaron	UK9013121	526.9	1109.5	Manx shearwater (breeding)	Y	Y

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
	Coast and Bardsey Island SPA						
41	Skomer, Skokholm and Seas off Pembrokeshire/Sgomer Sgogwm a Moroedd Penfro SPA	UK9014051	647.3	1215.0	Manx shearwater (breeding)	Y	Y
					Puffin (breeding)	N	N
					European storm petrel (breeding)	N	N/A
					Lesser black-backed gull (breeding)	N	N
					Seabird assemblage (breeding) including the components:		
					– Razorbill	N[6]	N[6]
					– Guillemot	N[6]	N[6]
					– Kittiwake	N	N
Marine Special Protection Areas							
42	Outer Firth of Forth and St Andrews Bay Complex SPA	UK9020316	116.9	N/A	Red-throated diver (non-breeding)	N/A	N/A
					Slavonian grebe (non-breeding)		
					Common eider (non-breeding)		
					Long-tailed duck (non-breeding)		
					Common scoter (non-breeding)		

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					Velvet scoter (non-breeding)		
					Common goldeneye (non-breeding)		
					Red-breasted merganser (non-breeding)		
					Arctic tern (breeding)		
					Common tern (breeding)		
					European shag (breeding)		
					European shag (non-breeding)		
					Northern gannet (breeding)		
					Atlantic puffin (breeding)		
					Kittiwake (breeding)		
					Kittiwake (non-breeding)		
					Manx shearwater (breeding)		
					Common guillemot (breeding)		
					Common guillemot (non-breeding)		
					Razorbill (non-breeding)		
					Herring gull (breeding)		

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					Herring gull (non-breeding)		
					Little gull (non-breeding)		
					Black-headed gull (non-breeding)		
					Common gull (non-breeding)		
Migratory Waterbird SPAs (Estuarine)							
43	Ythan Estuary, Sands of Forvie and Meikle Loch SPA, Ythan Estuary and Meikle Loch Ramsar site[9]	UK9002221 UK13061	114.9	N/A	Pink-footed goose (non-breeding)	N/A	N/A
					Waterfowl assemblage (non-breeding) including the components:		
					– Eider		
					– Lapwing		
					– Redshank		
44	Loch of Strathbeg SPA and Ramsar site	UK9002211 UK13041	128.7	N/A	Barnacle goose (non-breeding)	N/A	N/A
					Greylag goose (non-breeding)		
					Pink-footed goose (non-breeding)		
					Whooper swan (non-breeding)		
					Waterfowl assemblage (non-breeding) including the components:		

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Eurasian teal		
					– Common goldeneye		
45	Montrose Basin SPA and Ramsar site	UK9004031 UK13046	141.4	N/A	Greylag goose (non-breeding)	N/A	N/A
					Pink-footed goose (non-breeding)		
					Redshank (non-breeding)		
					Waterfowl assemblage (non-breeding) including the components:		
					– Oystercatcher		
					– Eider		
					– Wigeon		
					– Knot		
					– Dunlin		
					– Shelduck		
46	Firth of Forth SPA and Ramsar site	UK9004411 UK13017	158.9	N/A	Bar-tailed godwit (non-breeding)	N/A	N/A
					Golden plover (non-breeding)		
					Knot (non-breeding)		

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					Pink-footed goose (non-breeding)		
					Red-throated diver (non-breeding)		
					Redshank (non-breeding)		
					Sandwich tern (passage)		
					Shelduck (non-breeding)		
					Slavonian grebe (non-breeding)		
					Turnstone (non-breeding)		
					Waterfowl assemblage (non-breeding) including the components:		
					– Scaup		
					– Great crested grebe		
					– Cormorant		
					– Curlew		
					– Eider		
					– Long-tailed duck		
					– Common scoter		

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Velvet scoter		
					– Goldeneye		
					– Red-breasted merganser		
					– Oystercatcher		
					– Ringed plover		
					– Grey plover		
					– Dunlin		
					– Mallard		
					– Lapwing		
					– Wigeon		
47	Firth of Tay and Eden Estuary SPA and Ramsar site	UK9004121 UK13018	159.6	N/A	Bar-tailed godwit (non-breeding)	N/A	N/A
					Greylag goose (non-breeding)		
					Pink-footed goose (non-breeding)		
					Redshank (non-breeding)		
					Waterfowl assemblage (non-breeding) including the components:		

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					– Black-tailed godwit *islandica*		
					– Common scoter		
					– Cormorant		
					– Dunlin		
					– Eider		
					– Common goldeneye		
					– Goosander		
					– Grey plover		
					– Long-tailed duck		
					– Oystercatcher		
					– Red-breasted merganser		
					– Sanderling		
					– Shelduck		
					– Velvet scoter		
Migratory waterbird SPAs (inland)							
48		UK9002261			Greylag goose (non-breeding)	N/A	N/A

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
	Loch of Skene SPA and Ramsar site	UK13040	135.3	N/A	Common goldeneye (non-breeding)		
					Goosander (non-breeding)		
49	Loch Leven SPA and Ramsar site	UK9004111 UK13033	205.8	N/A	Pink-footed goose (non-breeding)	N/A	N/A
					Shoveler (non-breeding)		
					Whooper swan (non-breeding)		
					Waterfowl assemblage (non-breeding) including the components:		
					– Cormorant		
					– Gadwall		
					– Common goldeneye		
					– Pochard		
					– Teal		
					– Tufted duck		
50	South Tayside Goose Roosts SPA and Ramsar site	UK9004401 UK13057	213.8	N/A	Greylag goose (non-breeding)	N/A	N/A
					Pink-footed goose (non-breeding)		
					Wigeon (non-breeding)		

ID	European Site	Site Code	Straight Line Distance to Bellrock WFDA (km)[1]	'By-Sea' Distance to Bellrock WFDA (km)[2]	Relevant Qualifying Features[3]	Within Mean Maximum Foraging Range[4, 5]	Within Mean Maximum Foraging Range +1SD[4, 5]
					Waterfowl assemblage (non-breeding) including the above components		
51	River Spey – Insh Marshes SPA and Ramsar site	UK9002231 UK13053	228.3	N/A	Hen harrier (non-breeding)	N/A	N/A
					Whooper swan (non-breeding)		

Notes:

1. Measured as the closest, straight line, distance from the SPA (irrespective of the presence of land masses).

2. Measured for the breeding seabird colony SPAs as the closest distance when avoiding larger land masses. *Where the 'by-sea' distance is further than the straight-line distance this has been used for calculating whether the features of the SPA are within foraging range (as defined in **Table 7.1**).

3. This includes all qualifying features of the marine SPA, all seabird qualifying features of the breeding seabird colony SPAs and all passage and wintering qualifying features of the migratory non-seabird SPAs (and Ramsar sites). The definitions of seabirds and migratory non-seabirds used in this Bellrock WFDA HRA Screening Report are given in the text.

4. Relevant to qualifying features of breeding seabird colony SPAs only (and not applicable (N/A) to the qualifying features of other SPAs). Breeding seabird foraging ranges are from NatureScot Guidance Note 3 (2023b).

5. For a small number of species no estimate of the mean maximum foraging range is available, with the mean or maximum foraging range being used instead. Also, exceptions to using the generic mean maximum foraging range +1 SD are made in a small number of instances, in accordance with NatureScot (2023b) Guidance Note 3 (see **Table 7.1**).

6. Foraging range applied is mean maximum and SD from Woodward et al., (2019) from which specific data from Fair Isle is excluded (see **Table 7.1**).

7. Foraging range applied is mean maximum and SD from Woodward et al., (2019) in which specific data from Fair Isle is included (see **Table 7.1**).

8. Foraging ranges used for assessing connectivity for northern gannet of this SPA used colony-specific foraging ranges (see **Table 7.1**).

9. Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar site is included under both Breeding Seabird Colony Sites and Migratory non-Seabird Sites (Estuarine) as its qualifying features include both breeding terns and migratory waterbirds.

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7.1.1.1.2 Connectivity in the Non-breeding Season

321. Outside the breeding season seabirds are not constrained by the requirement to attend nests and may disperse over greater distances than during the breeding season. As such, there is potential for connectivity with a greater range of qualifying features from breeding seabird colony SPAs than during the breeding season. NatureScot (2023c) Guidance Note 4 advises that consideration of the potential for non-breeding season effects on the qualifying features from breeding seabird colony SPAs should be based upon the Biologically Defined Minimum Population Scales (BDMPS) approach (Furness, 2015) for all species with the exception of guillemot. However, it is also noted that the NatureScot scoping advice for the Ossian Wind Farm (NatureScot, 2023a) recognises further exceptions in this regard for herring gull and puffin. For these three species it is assumed that connectivity in the non-breeding season is determined as follows:

- **Guillemot**: Considered not to disperse as widely from the breeding areas as several other seabird species during the non-breeding season (following Buckingham et al., 2022), so that connectivity is based on the breeding season foraging range (and connectivity with the Bellrock WFDA Screening Boundary during the non-breeding period is as determined for the breeding season).
- **Puffin**: It is considered that no assessment is required for the non-breeding season due to the fact that puffin disperse widely at this time, as outlined in the scoping advice provided to the Berwick Bank Wind Farm (NatureScot, 2021) and as also appears to be consistent with the approach of the HRA Screening for the Ossian Wind Farm (SSE Renewables, 2022; NatureScot, 2023a).
- **Herring gull**: As for guillemot, considered not to disperse as widely as several other seabird species during the non-breeding season, so that connectivity is based on the breeding season foraging range (and connectivity with the Bellrock WFDA Screening Boundary during the non-breeding period is as determined for the breeding season) (NatureScot, 2023a).

322. For most seabird species there are only two BDMPS regions defined within UK waters (with the main division being between the North Sea and western waters), although there are up to five for some species (Furness, 2015). For almost all species, the BDMPS of relevance to the Bellrock WFDA Screening Boundary is defined as the UK North Sea and Channel or the UK North Sea (although for red-throated diver, shag and cormorant it is the north-west North Sea and for roseate tern it is the East Coast and Channel). Within these large expanses of offshore waters, it is generally assumed that there is even mixing of birds from the different ‘source’ populations (from the UK and elsewhere), as well as amongst the different age classes, during passage and other non-breeding periods (Furness, 2015).

323. Processed and analysed data from the Bellrock WFDA aerial survey programme are currently available for the period March 2022 to February 2023 (inclusive) and so encompass one full non-breeding period. The available survey data include single or no records of red-throated diver, lesser black-backed gull, roseate tern, Sandwich tern, common tern, Arctic tern[11], little tern, Arctic skua, great skua, Manx shearwater, European storm petrel, Leach’s storm petrel, shag or cormorant from within the offshore aerial survey area during the respective non-breeding periods of these species.

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[11] A single Arctic tern was seen in September 2022, which is just outside of the breeding season (May to early August (Furness, 2015))

On the basis of their scarcity or absence within the offshore aerial survey area, it is considered that connectivity with SPA populations of most of these species during the non-breeding season is highly unlikely (except in the context of these species as qualifying features of migratory non-seabird SPAs – **Table 7.2**).

324. However, the above considerations rely on data from one non-breeding season only and, when considered in isolation, the baseline survey data cannot provide a basis for concluding a lack of connectivity until the full two non-breeding seasons of data are available. For eight of the above 14 species, it is considered that potential connectivity during the non-breeding period can be excluded on the basis of other evidence, as follows:

- **Red-throated diver**: Occurrence and distribution in the non-breeding period is known to be restricted to relatively inshore, shallow, waters (O'Brien et al., 2008; Furness, 2015) and, as such, it is considered that there is no potential for connectivity between SPA breeding populations and the Bellrock WFDA Screening Boundary during the non-breeding period.
- **Roseate tern**: All SPA breeding populations of this species are located to the south of the Bellrock WFDA Screening Boundary, with the closest two being the Farne Islands SPA and the Forth Islands SPA at a distance of over 150 km (and where more recent counts have been zero and three breeding pairs respectively) (Furness, 2015) (**Table 7.2**). Given that the passage movements for the SPA populations of this species are unlikely to extend to the north of the Forth Islands SPA (Furness, 2015), it is considered that there is no potential for connectivity between SPA populations and the Bellrock WFDA Screening Boundary during the non-breeding period.
- **Little tern**: The closest SPA breeding population to the Bellrock WFDA Screening Boundary is the Ythan Estuary, Sands of Forvie and Meikle Loch SPA at a distance of approximately 115km (**Table 7.2**). The Bellrock WFDA is more than 115 km from shore, whereas little terns are considered to have strongly inshore habitat associations (Urban et al., 1986; del Hoyo et al., 1996; Stienen et al., 2007). Given that the passage movements for the SPA populations of this species are unlikely to extend as far offshore as the Bellrock WFDA, it is considered that there is no potential for connectivity between SPA populations and the Bellrock WFDA Screening Boundary during the non-breeding period.
- **Manx shearwater**: None of the UK SPA breeding Manx shearwater populations are considered to contribute to the UK North Sea BDMPS (Furness, 2015), so there is no potential for connectivity with SPA populations of this species during the non-breeding period.
- **European storm petrel**: The available distributional data show an absence or scarcity of this species from the waters in the region of the Bellrock WFDA Screening Boundary during the non-breeding period, and an apparent absence (or near absence) from UK waters between December and April (Stone et al., 1995 Waggit et al., 2020). Therefore, it is considered that there is no potential for connectivity with SPA breeding populations during the non-breeding period.
- **Leach's storm petrel**: The available distributional data shows an absence or scarcity of this species from the waters in the region of the Bellrock WFDA Screening Boundary during the non-breeding period, and an apparent absence from Scottish waters between December and April (Stone et al., 1995; Deakin et al., 2022). Therefore, it is considered that there is no potential for connectivity with SPA breeding populations during the non-breeding period.

- **Shag**: Known to have a largely inshore distribution, with the available distributional data showing an absence of the species from the waters in the region of the Bellrock WFDA Screening Boundary during the non-breeding period (Stone et al., 1995; Kober et al., 2010; Waggit et al., 2020). Therefore, it is considered that there is no potential for connectivity with SPA breeding populations during the non-breeding period.
- **Cormorant**: Known to have a largely inshore distribution, with the available distributional data showing an apparent absence of the species from the waters in the region of the Bellrock WFDA Screening Boundary during the non-breeding period (Stone et al., 1995; Kober et al., 2010). Therefore, it is considered that there is no potential for connectivity with SPA breeding populations during the non-breeding period.

325. For the remaining six species identified above, potential connectivity with SPA breeding populations during the non-breeding period cannot be excluded at this stage, despite zero or single records of these species from the first year of offshore ornithology aerial surveys. Further consideration of the SPA populations of these species which have potential connectivity is provided below (along with such consideration for the remaining seabird species of relevance). However, the above conclusions on potential connectivity during the non-breeding period for these 14 species will be subject to review following the completion of the offshore aerial ornithology survey programme. Should the further baseline data lead to any change in the conclusions on potential connectivity, this will be set out and justified in a specific section of the Bellrock WFDA RIAA.

326. In relation to considering potential connectivity with SPA breeding populations during the non-breeding period, the remaining species of relevance are fulmar, great black-backed gull, kittiwake, gannet, and razorbill. The 11 species of relevance with regard to non-breeding season connectivity in **Table 7.3** include some of the species recorded in greatest abundance on the offshore aerial survey area during the first year of the baseline aerial surveys (noting that consideration has already been given above to the determination of non-breeding season connectivity for guillemot and puffin). For these 11 species it is assumed that there is the potential for non-breeding season connectivity for any of the SPA populations for which breeding season connectivity is established (as determined from the species' advised breeding season foraging range in **Table 7.1** – see **Table 7.2** and associated text above). The potential for connectivity with other SPA populations of these species during the non-breeding season is determined on the basis of the contribution of these SPA (adult) populations to the relevant BDMPS (adult) population (**Table 7.3**). The total number of adult birds and birds of all age classes in the BDMPS population for each species included in **Table 7.3** is shown in **Table 7.4**.

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Table 7.3: The Percentage Contribution of Different SPA Populations to the Biologically Defined Minimum Population Scales Population Relevant to the Bellrock WFDA Screening Boundary (Based on Adult Birds Only), as Derived from Furness (2015)

SPA	Percentage Contribution to the BDMPS Population (%)										
	Fulmar	Great skua	Arctic skua	Lesser black-backed gull	Great black-backed gull	Kittiwake	Common tern	Arctic tern	Sandwich tern	Gannet	Razorbill
Buchan Ness to Collieston Coast SPA	-	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	N/A
Ythan Estuary, Sands of Forvie and Meikle Loch SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.00	N/A	4.42	N/A	N/A
Fowlsheugh SPA	-	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	-
Loch of Strathbeg SPA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	N/A	N/A
St Abb's Head to Fast Castle SPA	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	0.81
Farne Islands SPA	-	N/A	N/A	-	N/A	-	0.15	3.31	6.44	N/A	N/A
Forth Islands SPA	N/A	N/A	N/A	-	N/A	-	0.04	0.46	0.00	-	1.74
Troup, Pennan and Lion's Heads SPA	-	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	1.15
Coquet Island SPA	-	N/A	N/A	-	N/A	N/A	1.65	2.11	5.24	N/A	N/A
Imperial Dock Lock SPA	N/A	N/A	N/A	N/A	N/A	N/A	1.30	N/A	N/A	N/A	N/A
East Caithness Cliffs SPA	-	N/A	N/A	N/A	1.09	-	N/A	N/A	N/A	N/A	8.27

SPA	Percentage Contribution to the BDMPS Population (%)										
	Fulmar	Great skua	Arctic skua	Lesser black-backed gull	Great black-backed gull	Kittiwake	Common tern	Arctic tern	Sandwich tern	Gannet	Razorbill
North Caithness Cliffs SPA	-	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	1.07
Cromarty Firth SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.11	N/A	N/A	N/A	N/A
Copinsay SPA	-	N/A	N/A	N/A	1.36	-	N/A	N/A	N/A	N/A	N/A
Pentland Firth Islands SPA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	N/A	N/A	N/A
Inner Moray Firth SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.00	N/A	N/A	N/A	N/A
Auskerry SPA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.16	N/A	N/A	N/A
Flamborough and Filey Coast SPA	-	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	6.62
Hoy SPA	-	-	1.01	N/A	0.37	-	N/A	N/A	N/A	N/A	N/A
Fair Isle SPA	-	-	1.52	N/A	N/A	-	N/A	0.04	N/A	-	0.57
Papa Westray SPA	N/A	N/A	1.82	N/A	N/A	N/A	N/A	0.27	N/A	N/A	N/A
Calf of Eday SPA	-	N/A	N/A	N/A	1.75	0.24	N/A	N/A	N/A	N/A	N/A
Rousay SPA	-	N/A	3.03	N/A	N/A	0.56	N/A	0.09	N/A	N/A	N/A
Marwick Head SPA	N/A	N/A	N/A	N/A	N/A	0.17	N/A	N/A	N/A	N/A	N/A
West Westray SPA	-	N/A	2.22	N/A	N/A	3.85	N/A	0.78	N/A	N/A	0.35

SPA	Percentage Contribution to the BDMPS Population (%)										
	Fulmar	Great skua	Arctic skua	Lesser black-backed gull	Great black-backed gull	Kittiwake	Common tern	Arctic tern	Sandwich tern	Gannet	Razorbill
Sumburgh Head SPA	-	N/A	N/A	N/A	N/A	0.07	N/A	0.31	N/A	N/A	N/A
Sule Skerry and Sule Stack SPA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A
Noss SPA	-	-	N/A	N/A	N/A	0.16	N/A	N/A	N/A	-	N/A
Cape Wrath SPA	-	N/A	N/A	N/A	N/A	0.06	N/A	N/A	N/A	N/A	0.39
Mousa SPA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.03	N/A	N/A	N/A
Papa Stour SPA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.82	N/A	N/A	N/A
Foula SPA	-	-	2.83	N/A	N/A	0.10	N/A	0.03	N/A	N/A	0.24
Fetlar SPA	-	-	6.67	N/A	N/A	N/A	N/A	0.03	N/A	N/A	N/A
Handa SPA	-	-	N/A	N/A	N/A	0.01	N/A	N/A	N/A	N/A	0.97
The Wash SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.35	N/A	N/A	N/A	N/A
North Norfolk Coast SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.31	N/A	32.31	N/A	N/A
North Rona and Sula Sgeir SPA	-	N/A	N/A	N/A	0.01	0.01	N/A	N/A	N/A	-	0.21
Ronas Hill – North Roe and Tingon SPA	N/A	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hermaness, Saxa Vord and Valla Field SPA	-	-	N/A	N/A	N/A	0.12	N/A	N/A	N/A	-	N/A

SPA	Percentage Contribution to the BDMPS Population (%)										
	Fulmar	Great skua	Arctic skua	Lesser black-backed gull	Great black-backed gull	Kittiwake	Common tern	Arctic tern	Sandwich tern	Gannet	Razorbill
Breydon Water SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.15	N/A	N/A	N/A	N/A
Shiant Isles SPA	-	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	0.08
Flannan Isles SPA	-	N/A	N/A	N/A	N/A	0.01	N/A	N/A	N/A	N/A	0.02
Alde-Ore Estuary SPA	N/A	N/A	N/A	0.89	N/A	N/A	N/A	N/A	0.02	N/A	N/A
Canna and Sanday SPA	N/A	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A
Rum SPA	N/A	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A
St Kilda SPA	-	-	N/A	N/A	N/A	0.01	N/A	N/A	N/A	-	0.32
Mingulay and Berneray SPA	-	N/A	N/A	N/A	N/A	0.01	N/A	N/A	N/A	N/A	1.9
North Colonsay and Western Cliffs SPA	N/A	N/A	N/A	N/A	N/A	0.03	N/A	N/A	N/A	N/A	N/A
Foulness SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.04	N/A	0.00	N/A	N/A
Dungeness, Romney Marsh and Rye Bay SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.13	N/A	N/A	N/A	N/A
Chichester and Langstone Harbour SPA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	N/A	N/A
Poole Harbour SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.26	N/A	N/A	N/A	N/A

SPA	Percentage Contribution to the BDMPS Population (%)										
	Fulmar	Great skua	Arctic skua	Lesser black-backed gull	Great black-backed gull	Kittiwake	Common tern	Arctic tern	Sandwich tern	Gannet	Razorbill
Solent and Southampton Water SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.44	N/A	0.00	N/A	N/A
Glas Eileanan SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.00	N/A	N/A	N/A	N/A
Ailsa Craig SPA	N/A	N/A	N/A	0.13	N/A	0	N/A	N/A	N/A	0.00	N/A
Rathlin Island SPA	-	N/A	N/A	0.07	N/A	0.04	N/A	N/A	N/A	N/A	1.45
Carlingford Lough SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.03	N/A	0.00	N/A	N/A
Larne Lough SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.05	N/A	0.00	N/A	N/A
Lough Neagh and Lough Beg SPA	N/A	N/A	N/A	0.34	N/A	N/A	0.02	N/A	N/A	N/A	N/A
Outer Ards SPA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	N/A	N/A	N/A
Strangford Lough SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.08	0.00	0.00	N/A	N/A
Bowland Fells SPA	N/A	N/A	N/A	3.18	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Morecambe Bay and Duddon Estuary SPA	N/A	N/A	N/A	3.46	N/A	N/A	N/A	N/A	0.00	N/A	N/A
Ribble and Alt Estuary SPA	N/A	N/A	N/A	5.74	N/A	N/A	0.02	N/A	N/A	N/A	N/A
The Dee Estuary SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.04	N/A	N/A	N/A	N/A

SPA	Percentage Contribution to the BDMPS Population (%)										
	Fulmar	Great skua	Arctic skua	Lesser black-backed gull	Great black-backed gull	Kittiwake	Common tern	Arctic tern	Sandwich tern	Gannet	Razorbill
Anglesey Terns SPA	N/A	N/A	N/A	N/A	N/A	N/A	0.04	0.00	0.00	N/A	N/A
Skomer, Skokholm and Seas off Pembrokeshire SPA	N/A	N/A	N/A	4.02	N/A	0.01	N/A	N/A	N/A	N/A	0.57
Grassholm SPA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	N/A
Isles of Scilly SPA	N/A	N/A	N/A	0.47	0.06	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

1. SPA populations are included for those species with potential connectivity to the Bellrock WFDA Screening Boundary during the non -breeding season but for which the SPA population does not have breeding season connectivity (see text). For species with multiple non-breeding periods (e.g., spring and autumn passage), the maximum percentage contribution to the BDMPS population is presented.

2. ‘N/A’ indicates that the species is not a qualifying feature of the SPA. ‘–‘ indicates that the SPA population has breeding season connectivity with the Bellrock WFDA Screening Boundary (so that non-breeding season connectivity is assumed).

Table 7.4 The Total Biologically Defined Minimum Population Scale Populations Relevant to the Bellrock WFDA Screening Boundary, as Derived from Furness (2015)

	Fulmar	Great skua	Arctic skua	Lesser black-backed gull	Great black-backed gull	Kittiwake	Common tern	Arctic tern	Sandwich tern	Gannet	Razorbill
Numbers of adult birds in BDMPS population[1]	408,808 – 573,641	125 – 11,436	990 – 3,872	37,302 – 144,012	32,070	375,815 – 480,815	88,154	115,968	25,594	163,701 – 284,747	106,183 – 302,314
Numbers of all birds (adults and immatures) in BDMPS population[1]	568,736 – 957,502	143 – 19,556	1,227 – 6,427	39,314 – 209,007	91,399	627,816 – 829,937	144,911	163,930	38,051	248,385 – 534,632	218,622 – 591,874

Notes:

1. A range is given for species with multiple non-breeding periods, encompassing the minimum and maximum BDMPS population size.

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327. The data in **Table 7.3** and **Table 7.4** demonstrate that many of the SPA populations beyond the advised breeding season foraging range from the Bellrock WFDA Screening Boundary (and, hence, with no potential connectivity during the breeding season) generally constitute a small part of the overall BDMPS population of the species. Limiting consideration to the adult age class, these SPA populations often comprise less than 1% of the wider BDMPS population, even when this percentage contribution is calculated in relation to the adult component of the BDMPS population (**Table 7.3**), as opposed to the total BDMPS population. Given the assumption of even mixing of birds from different populations (and age classes), it is highly unlikely that there could be any substantive degree of connectivity between most of these SPA populations and the Bellrock WFDA Screening Boundary during the non-breeding season because of the low likelihood that the birds using the Bellrock WFDA will derive from these populations. Therefore, for the SPA populations of these 11 species which do not have potential connectivity in the breeding season, it is considered that the potential for connectivity is limited to those SPA populations which comprise 1% or more of the adult component of the relevant BDMPS population. On this basis, potential connectivity in the non-breeding season only is limited to the following SPA populations:

- Arctic skua: Hoy SPA, Rousay SPA, Fair Isle SPA, West Westray SPA, Papa Westray (North Hill and Holm) SPA, Foula SPA and Fetlar SPA;
- Lesser black-backed gull: Bowland Fells SPA, Morecambe Bay and Duddon Estuary SPA, Ribble and Alt Estuaries SPA and Skomer, Skokholm and Seas off Pembrokeshire SPA;
- Great black-backed gull: East Caithness Cliffs SPA, Copinsay SPA and Calf of Eday SPA;
- Kittiwake: West Westray SPA;
- Common tern: Imperial Dock Lock SPA and Coquet Island SPA;
- Arctic tern: Auskerry SPA, Papa Stour SPA, Farne Islands SPA and Coquet Island SPA;
- Sandwich tern: Ythan Estuary, Sands of Forvie and Meikle Loch SPA, Farne Islands SPA, Coquet Island SPA and North Norfolk Coast SPA; and
- Razorbill: Forth Islands SPA, Troup, Pennan and Lion's Heads SPA, East Caithness Cliffs SPA, North Caithness Cliffs SPA Flamborough and Filey Coast SPA, Mingulay and Berneray SPA and Rathlin Island SPA.

328. The above process for identifying breeding seabird SPAs with the potential for connectivity to the Bellrock WFDA in the non-breeding season only adds a further nine sites to the 32 such SPAs which were concluded to have potential connectivity during the breeding season. These are Ythan Estuary, Sands of Forvie and Meikle Loch SPA, Imperial Dock Lock SPA, Papa Westray (North Hill & Holm) SPA, Papa Stour SPA, North Norfolk Coast SPA, Bowland Fells SPA, Morecambe Bay and Duddon Estuary SPA, Ribble and Alt Estuary SPA and Skomer, Skokholm and Seas off Pembrokeshire SPA.

7.1.1.2 Migratory Non-seabird Special Protection Areas (and Ramsar Sites)

329. European sites designated for migratory non-seabirds which have potential connectivity with the Bellrock WFDA Screening Boundary were identified using resources providing national-scale mapping and supplementary information of over-sea migratory routes and migratory fronts (Wright et al., 2012; Wildfowl and Wetlands Trust (WWT) & MacArthur Green, 2014). The migratory fronts

and corridors of migrant species associated with SPAs in Scotland, as mapped by WWT and MacArthur Green (2014), were examined along with species accounts in the same publication. Migratory information for the same species within Wright et al., (2012) was used to supplement understanding of species movements. When examining mapped migratory corridors of each species, SPAs (and Ramsar sites) were identified for further consideration for LSE if they were situated:

- On the eastern Scottish mainland or Scottish North Sea coast south of Fraserburgh (in the case of species migrating between Scandinavian, Russian Arctic or mainland European breeding ranges and Scottish non-breeding grounds as mapped in WWT and MacArthur Green (2014)); or

- On the eastern Scottish mainland at sites south of the Bellrock WFDA Screening Boundary (for species migrating between Icelandic breeding ranges and Scottish non-breeding grounds, including Icelandic greylag goose, pink-footed goose and whooper swan).

330. European sites meeting the above criteria, and all of their qualifying features, were taken forward for consideration for LSE. Marine SPAs were considered separately to this process.

331. Due to the location of Bellrock WFDA, only sites meeting the former criterion were identified. Applying the approach described above resulted in the identification of a total of nine SPAs for which at least one migratory non-seabird qualifying feature was considered to have potential connectivity with the Bellrock WFDA Screening Boundary during passage periods. These sites are taken forward for determination of LSE.

7.1.1.3 Marine Special Protection Areas

332. The Outer Firth of Forth and St Andrew's Bay Complex SPA, the marine SPA in greatest proximity to the Bellrock WFDA Screening Boundary, lies approximately 116 km west of the Screening Boundary. The site is therefore well beyond the 15 km proximity 'threshold' to the Bellrock WFDA Screening Boundary for which connectivity based on direct in-situ effects is considered likely (NatureScot, 2023c). However, following NatureScot advice within the Scoping Opinion for Ossian Offshore Wind Farm (NatureScot 2023a), the site is not screened out for LSE due to potential for Project activities to occur within, or close to, the SPA, specifically vessel movements transiting the SPA between assembly port(s) and the Bellrock WFDA during the construction and/or O&M phases. Additionally, examination of migration routes and migratory fronts of migratory non-seabirds to Scotland and Scottish waters (Wright et al., 2012; WWT & MacArthur Green, 2014) for initial screening for **Section 7.1.1.2** highlighted that some qualifying features of this marine SPA may migrate through the sea area containing the Bellrock WFDA and hence have the potential for connectivity with the Bellrock WFDA Screening Boundary.

333. No other marine SPAs were considered to have potential connectivity with the Bellrock WFDA, with all other such sites being more than 140 km from the Bellrock WFDA Screening Boundary.

7.1.2 Sites Taken Forward for Determination of Likely Significant Effect

334. As detailed above, the initial screening process to determine the potential for connectivity with the Bellrock WFDA identifies 50 European sites with seabirds or migratory non-seabirds as qualifying features to be taken forward for detailed determination of LSE in **Section 7.2** of this report. These sites are identified, together with the qualifying features of relevance, in **Table 7.5** below (noting that the further details outlined in **Section 7.1.1.1.1** mean that 13 of the 41 breeding seabird colony SPAs identified in **Table 7.2** are excluded from further consideration). The locations of the sites in **Table 7.5** taken forward for further consideration of potential for LSE in **Section 7.4** are shown in **Figure 7.1** in **Appendix 1.**

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Table 7.5: The Special Protection Areas and Ramsar Sites Taken Forward for Determination of Likely Significant Effects, with Details of the Associated Qualifying Features

European Site	Relevant Qualifying Features[1]
Breeding Seabird Colony Special Protection Areas	
Buchan Ness to Collieston Coast SPA	Seabird assemblage (breeding) including the components:
	Kittiwake
	Fulmar
Ythan Estuary, Sands of Forvie and Meikle Loch SPA [4]	Sandwich tern (breeding)[3]
Fowlsheugh SPA	Kittiwake (breeding)
	Seabird assemblage (breeding) including the components:
	Fulmar
	Razorbill
St Abbs Head to Fast Castle SPA	Seabird assemblage (breeding) including the components:
	Kittiwake
Farne Islands SPA	Arctic tern (breeding)[3]
	Sandwich tern (breeding)[3]
	Seabird assemblage (breeding) including the components (* = advised by Natural England within Berwick Bank Wind Farm Scoping Opinion):
	Kittiwake

European Site	Relevant Qualifying Features[1]
	Puffin[2]
	Lesser black-backed gull*
	Fulmar*
Forth Islands SPA	Gannet (breeding)
	Lesser black-backed gull (breeding)
	Puffin (breeding)[2]
	Seabird assemblage (breeding) including the components:
	Razorbill[3]
	Kittiwake
Imperial Dock Lock SPA	Common tern (breeding)[3]
Troup, Pennan and Lion's Heads SPA	Kittiwake (breeding)
	Seabird assemblage (breeding) including the components:
	Fulmar
	Razorbill[3]
Coquet Island SPA	Arctic tern (breeding)[3]
	Common tern (breeding)[3]
	Sandwich tern (breeding)[3]

European Site	Relevant Qualifying Features[1]
	Seabird assemblage (breeding) including the components:
	Puffin[2]
	Fulmar
	Lesser black-backed gull
	Kittiwake
East Caithness Cliffs SPA	Razorbill (breeding)[3]
	Kittiwake (breeding)
	Seabird assemblage (breeding) including the components:
	Great black-backed gull[3]
	Fulmar
North Caithness Cliffs SPA	Seabird assemblage (breeding) including the components:
	Fulmar
	Kittiwake
	Razorbill[3]
	Puffin[2]
Copinsay SPA	Seabird assemblage (breeding) including the components:
	Kittiwake

European Site	Relevant Qualifying Features[1]
	Great black-backed gull[3]
	Fulmar
Auskerry SPA	Storm petrel (breeding)[2]
	Arctic tern (breeding)[3]
Flamborough and Filey Coast SPA	Gannet (breeding)
	Kittiwake (breeding)
	Razorbill (breeding)[3]
	Seabird assemblage (breeding) including the components:
	Fulmar
Hoy SPA	Great skua (breeding)
	Seabird assemblage (breeding) including the components:
	Kittiwake
	Arctic skua[3]
	Fulmar
Fair Isle SPA	Seabird assemblage (breeding) including the components:
	Kittiwake
	Great skua

European Site	Relevant Qualifying Features[1]
	Arctic skua[3]
	Gannet
	Fulmar
Calf of Eday SPA	Seabird assemblage (breeding) including the components:
	Great black-backed gull [3]
	Fulmar
Rousay SPA	Seabird assemblage (breeding) including the components:
	Arctic skua[3]
	Fulmar
West Westray SPA	Arctic skua (breeding)[3]
	Seabird assemblage (breeding) including the components:
	Kittiwake [3]
	Fulmar
Papa Westray (North Hill and Holm) SPA	Arctic skua (breeding)[3]
Sumburgh Head SPA	Seabird assemblage (breeding) including the components:
	Fulmar
Sule Skerry and Sule Stack SPA	Gannet (breeding)

European Site	Relevant Qualifying Features[1]
	Seabird assemblage (breeding)
Noss SPA	Gannet (breeding)
	Great skua (breeding)
	Seabird assemblage (breeding) including the components:
	Fulmar
Cape Wrath SPA	Seabird assemblage (breeding) including the components:
	Fulmar
Papa Stour SPA	Arctic tern (breeding)[3]
Foula SPA	Great skua (breeding)
	Seabird assemblage (breeding) including the components:
	Arctic skua[3]
	Fulmar
Fetlar SPA	Great skua (breeding)
	Seabird assemblage (breeding) including the components:
	Fulmar
	Arctic skua[3]
Handa SPA	Seabird assemblage (breeding) including the components:

European Site	Relevant Qualifying Features[1]
	Great skua
	Fulmar
North Norfolk Coast SPA	Sandwich tern (breeding)[3]
North Rona and Sula Sgeir SPA	Gannet (breeding)
	Fulmar (breeding)
	Seabird assemblage (breeding)
Ronas Hill – North Roe and Tingon SPA	Great skua (breeding)
	Seabird assemblage (breeding)
Hermaness, Saxa Vord and Valla Field SPA	Gannet (breeding)
	Great skua (breeding)
	Seabird assemblage (breeding) including the components:
	Fulmar
Shiant Isles SPA	Seabird assemblage (breeding) including the components:
	Fulmar
Flannan Isles SPA	Seabird assemblage (breeding) including the components:
	Fulmar
St Kilda SPA	Gannet (breeding)

European Site	Relevant Qualifying Features[1]
	Great skua (breeding)
	Seabird assemblage (breeding) including the components:
	Fulmar
Mingulay and Berneray SPA	Razorbill (breeding)[3]
	Seabird assemblage (breeding) including the components:
	Fulmar
Rathlin Island SPA	Razorbill (breeding)[3]
	Seabird assemblage (breeding) including the components:
	Fulmar
Bowland Fells SPA	Lesser black-backed gull (breeding)[3]
Morecambe Bay and Duddon Estuary SPA	Lesser black-backed gull (breeding)[3]
Ribble and Alt Estuaries SPA	Lesser black-backed gull (breeding)[3]
Skomer, Skokholm and Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	Lesser black-backed gull (breeding)[3]
	Seabird assemblage (breeding) including the above components
Marine SPAs	
Outer Firth of Forth and St Andrews Bay Complex SPA	Red-throated diver (non-breeding)
	Slavonian grebe (non-breeding)

European Site	Relevant Qualifying Features[1]
	Common eider (non-breeding)
	Long-tailed duck (non-breeding)
	Common scoter (non-breeding)
	Velvet scoter (non-breeding)
	Common goldeneye (non-breeding)
	Red-breasted merganser (non-breeding)
	Arctic tern (breeding)
	Common tern (breeding)
	European shag (breeding)
	European shag (non-breeding)
	Northern gannet (breeding)
	Atlantic puffin (breeding)
	Kittiwake (breeding)
	Kittiwake (non-breeding)
	Manx shearwater (breeding)
	Common guillemot (breeding)
	Common guillemot (non-breeding)

European Site	Relevant Qualifying Features[1]
	Razorbill (non-breeding)
	Herring gull (breeding)
	Herring gull (non-breeding)
	Little gull (non-breeding)
	Black-headed gull (non-breeding)
	Common gull (non-breeding)
Migratory Non-Seabird Sites (Estuarine)	
Ythan Estuary, Sands of Forvie and Meikle Loch SPA, Ythan Estuary and Meikle Loch Ramsar site[4]	Pink-footed goose (non-breeding)
	Waterfowl assemblage (non-breeding) including the components:
	Eider
	Lapwing
	Redshank
Loch of Strathbeg SPA and Ramsar site	Barnacle goose (non-breeding)
	Greylag goose (non-breeding)
	Pink-footed goose (non-breeding)
	Whooper swan (non-breeding)
	Waterfowl assemblage (non-breeding) including the components:

European Site	Relevant Qualifying Features[1]
	Eurasian teal
	Common goldeneye
Montrose Basin SPA and Ramsar site	Greylag goose (non-breeding)
	Pink-footed goose (non-breeding)
	Redshank (non-breeding)
	Waterfowl assemblage (non-breeding) including the components:
	Oystercatcher
	Eider
	Wigeon
	Knot
	Dunlin
	Shelduck
Firth of Forth SPA and Ramsar site	Bar-tailed godwit (non-breeding)
	Golden plover (non-breeding)
	Knot (non-breeding)
	Pink-footed goose (non-breeding)
	Red-throated diver (non-breeding)

European Site	Relevant Qualifying Features[1]
	Redshank (non-breeding)
	Sandwich tern (passage)
	Shelduck (non-breeding)
	Slavonian grebe (non-breeding)
	Turnstone (non-breeding)
	Waterfowl assemblage (non-breeding) including the components:
	Scaup
	Great crested grebe
	Cormorant
	Curlew
	Eider
	Long-tailed duck
	Common scoter
	Velvet scoter
	Goldeneye
	Red-breasted merganser
	Oystercatcher

European Site	Relevant Qualifying Features[1]
	Ringed plover
	Grey plover
	Dunlin
	Mallard
	Lapwing
	Wigeon
Firth of Tay and Eden Estuary SPA and Ramsar site	Bar-tailed godwit (non-breeding)
	Greylag goose (non-breeding)
	Pink-footed goose (non-breeding)
	Redshank (non-breeding)
	Waterfowl assemblage (non-breeding) including the components:
	Black-tailed godwit *islandica*
	Common scoter
	Cormorant
	Dunlin
	Eider
	Common goldeneye

European Site	Relevant Qualifying Features[1]
	Goosander
	Grey plover
	Long-tailed duck
	Oystercatcher
	Red-breasted merganser
	Sanderling
	Shelduck
	Velvet scoter
Migratory Non-Seabird Sites (Inland Waterbodies)	
Loch of Skene SPA and Ramsar site	Greylag goose (non-breeding)
	Common goldeneye (non-breeding)
	Goosander (non-breeding)
Loch Leven SPA and Ramsar site	Pink-footed goose (non-breeding)
	Shoveler (non-breeding)
	Whooper swan (non-breeding)
	Waterfowl assemblage (non-breeding) including the components:
	Cormorant

European Site	Relevant Qualifying Features[1]
	Gadwall
	Common goldeneye
	Pochard
	Teal
	Tufted duck
South Tayside Goose Roosts SPA and Ramsar site	Greylag goose (non-breeding)
	Pink-footed goose (non-breeding)
	Wigeon (non-breeding)
	Waterfowl assemblage (non-breeding) including the above components
River Spey – Insh Marshes SPA and Ramsar site	Hen harrier (non-breeding)
	Whooper swan (non-breeding)

Notes:

1. The named components of the assemblage features which are listed exclude those which are also qualifying features in their own right, and include only those which are deemed to have potential connectivity.

2. Breeding seabird qualifying features which are included on the basis of potential connectivity during the breeding season only.

3. Breeding seabird qualifying features which are included on the basis of potential connectivity during the non-breeding season only.

4. Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar site is included under both Breeding Seabird Colony Sites and Migratory non-Seabird Sites (Estuarine) as its qualifying features include both breeding terns and migratory waterbirds.

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7.2 Determination of Likely Significant Effect for Annex I Marine Ornithological Features

7.2.1 Potential Effects Considered in Screening

335. A range of potential impacts on the marine ornithological features have been identified which may occur during the construction, operation and maintenance, and decommissioning phases of the Bellrock WFDA. These are the impacts which are taken into account when determining the potential for LSE on the designated sites and seabirds or migratory non-seabird features identified in **Section 7.1.1**. The list of potential impacts on seabirds and migratory non-seabirds has been compiled using the NatureScot (2023d) Guidance Note 6 which advises on impact pathways to offshore ornithology receptors; NatureScot Guidance Notes specifically on collision risk and distributional responses (displacement and barrier effects) (NatureScot, 2023e; 2023f); and experience and knowledge gained from previous offshore wind farm projects, as well as published literature. At this stage in the programme, full analysis of baseline survey information for the Bellrock WFDA offshore aerial survey area has not yet been completed, therefore, a precautionary approach is taken to the HRA Screening.

336. Consideration of the potential impacts identified for the marine ornithological features is presented in the following sections to inform the determination of LSE. Many of the European sites screened in include an assemblage qualifying feature, with the named components of each of these assemblage features also being identified in **Table 7.6** to **Table 7.55**. For the purposes of considering the potential impacts, these named components are treated as if they are qualifying features in their own right (with the potential impacts also considered for the overall assemblage feature).

337. While there is potential for physical presence of offshore infrastructure to impact birds from European sites, these impacts will increase incrementally as the Bellrock WFDA infrastructure is constructed with the greatest potential impacts resulting from the completed Bellrock WFDA. These impacts are therefore scoped out from further consideration in relation to the construction and decommissioning phases, to avoid double counting, but included under operation.

7.2.2 Construction

7.2.2.1 Temporary Direct Habitat Loss

338. There is potential for temporary direct habitat loss and disturbance during construction (e.g. seabed preparation, inter-array cable (IAC) laying and station keeping system (SKS) installation). This effect, however, is restricted to discrete areas within the footprint of the Bellrock WFDA as there is no spatial overlap between the Bellrock WFDA Screening Boundary and any European sites designated for seabird species. On this basis, there is no potential for direct impacts to supporting habitats for seabird species within any European site.

339. There is potential for seabird qualifying features to be present in the waters in and around the Bellrock WFDA and therefore be affected by temporary habitat loss/disturbance (e.g. effects on

feeding grounds) during foraging and migration. However, considering the highly mobile nature of seabird qualifying features and the small spatial extent of supporting habitats affected with the similar available habitats present across the wider North Sea, significant impacts on foraging and food availability are not predicted.

340. On this basis, there is no potential for LSE on any seabird qualifying interest features of European sites as a result of temporary direct habitat loss during the construction phase, and this impact is screened out from further consideration for all European sites.

7.2.2.2 Disturbance and Displacement

341. For the purposes of determining LSE, disturbance and displacement are considered together although these effects will be treated as separate pathways in the assessment for adverse effects on integrity.

342. The presence of vessels (including towing of floating offshore units (FOUs); see **Bellrock WFDA Scoping Report, Section 3.9.3.1**) and construction works may disturb seabirds from offshore foraging or roosting areas in the short term, causing changes in behaviour or displacing them from the affected areas (NatureScot, 2023e). There is potential for disturbance and displacement effects as a result of vessel and construction activity during either of the two wind turbine generator (WTG)/FOU assembly options (see **Bellrock WFDA Scoping Report, Section 3.9.3.1**). Temporary disturbance/displacement may lead to a reduction in foraging opportunities or increased energy expenditure, resulting in decreased survival rates or productivity in the population. This would only be likely to apply to seabirds (and offshore waterbirds in the case of marine SPAs) which use the area of the marine environment in which construction activities will occur (including construction vessel movements between assembly port and WFDA, see **Paragraph 332**). The effects of such displacement are likely to be minimal for species such as gannet and fulmar (irrespective of their sensitivity to the effect), which have particularly large foraging ranges, because the resultant habitat loss will represent a small proportion of the available habitat.

343. However, based on NatureScot (2021) and Marine Scotland Science (MSS) (2021) advice (which in part results from the increasing number of offshore wind farms, with implications for the in-combination effects), the potential for LSE due to the displacement of gannets during the breeding and non-breeding season will be considered. Guillemot, razorbill and kittiwake will be considered for both breeding and non-breeding season effects, but, for puffin, effects are considered to be limited to the breeding season, as advised by NatureScot (2021). Seabird and waterbird features of marine SPAs in which project activities may occur will be considered for breeding season and/or non-breeding season effects as appropriate to the seasons for which the species is a qualifying feature of the SPA.

344. Migratory non-seabird species of SPAs and Ramsar sites separate from the Bellrock WFDA would not be significantly affected by disturbance and displacement effects when passing through (or over) the Bellrock WFDA on migration (as they are not expected to forage or rest in the marine environment around the Bellrock WFDA). It is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet, puffin, guillemot, razorbill, kittiwake, and seabird assemblage qualifying features of breeding seabird SPAs, and the qualifying features of marine SPAs in which project activities may occur.

7.2.2.3 Changes to Prey Availability

345. Indirect impacts on seabirds may occur as a result of changes in prey distribution, availability or abundance (NatureScot, 2023d), caused by construction activities that disturb the seabed (and cause increased suspended sediment concentrations) or increase subsea noise levels. Reduction or disruption to prey availability to seabirds may cause displacement from foraging grounds in the area or reduced energy intake, affecting survival rates or productivity in the population in the short-term. As above, migratory non-seabird species would not be significantly affected when passing through (or over) the Bellrock WFDA on migration (as they are not expected to forage or rest in the marine environment around the Bellrock WFDA).

346. The potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species and this impact cannot be screened out. The only exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

7.2.2.4 Accidental Pollution

347. In line with advice from NatureScot (2021) and MSS (2021) in relation to Berwick Bank Wind Farm, accidental pollution associated with construction activities is not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for management and contingency plans.

348. On this basis, there is no potential for LSE on any seabird qualifying interest features of European sites as a result of accidental pollution during the construction phase, and this effect pathway is screened out from further consideration for all European sites.

7.2.3 Operation and Maintenance

7.2.3.1 Direct Habitat Loss

349. Direct habitat loss may occur during the operation and maintenance phase of the Bellrock WFDA. Given the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting), direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations. Similarly, no effects are predicted on migratory non-seabird populations as a result of birds passing through (or over) the Bellrock WFDA on migration.

350. On this basis, there is no potential for LSE on any seabird qualifying interest features of European sites as a result of direct habitat loss during the operation and maintenance phase, and this impact is screened out from further consideration for all European sites.

7.2.3.2 Disturbance and Displacement

351. As noted for the construction period, disturbance and displacement are considered together for the purposes of determining LSE but will be treated as separate pathways in the assessment for adverse effects on integrity.

352. The presence of operational WTGs, as well as the associated maintenance activities (NatureScot 2023e), may disturb seabirds and displace them from foraging or roosting areas over the long-term. This may lead to a reduction in foraging opportunities or increased competition and energy

expenditure, resulting in decreased survival rates or productivity in the population. Such effects may be most likely in relation to seabirds using the marine habitats within the Bellrock WFDA, although species are known to vary in their sensitivity to displacement (e.g. large gull species show little evidence of displacement from offshore wind farms whereas gannet and red-throated diver show marked displacement - Dierschke et al., 2016; Heinänen et al., 2020). The effects of such displacement are likely to be minimal for species such as gannet and fulmar (irrespective of their sensitivity to the effect), which have particularly large foraging ranges, because the resultant habitat loss will represent a small proportion of the available habitat.

353. However, based on NatureScot (2021) and MSS (2021) advice (which in part results from the increasing number of offshore wind farms, with implications for the in-combination effects), the potential for LSE due to the displacement of gannets during the breeding and non-breeding season will be considered. Kittiwake, guillemot and razorbill will be considered for both breeding and non-breeding season effects, but, for puffin, effects are considered to be limited to the breeding season, as advised by NatureScot (2021).

354. Such disturbance and displacement effects do not have the potential for LSE in relation to migratory non-seabirds because they do not forage or roost in the marine habitats around the Bellrock WFDA and only transit the area on migration.

7.2.3.3 Collision Risk

355. Collisions of seabirds and/or migratory non-seabirds with the rotating blades of the WTGs may result in the death or injury of individuals (NatureScot, 2023f). Such mortality may be additive, so could cause population declines or, in some situations, prevent population recovery. Therefore, seabird species which forage within, or commute through, the Bellrock WFDA may be vulnerable to such effects, as is also the case for migratory non-seabirds which transit this area on migration. For seabirds, collision risk may vary between species in relation to a range of factors associated with flight behaviour but with flight heights being of fundamental importance in predicting the vulnerability to this effect (Johnston et al., 2014a;b). Thus, species which fly at low heights and below the rotor swept area (e.g. fulmar and auk species) are not vulnerable to this effect pathway, in contrast to other species which generally fly at greater heights and are at risk of collision for a proportion of their flight time (e.g. kittiwake, large gull species and gannet) (NatureScot, 2023f). Given the offshore location of the Bellrock WFDA Screening Boundary, it is extremely unlikely that any of the migratory non-seabird species associated with European sites would make more frequent movements across the Bellrock WFDA (e.g. when commuting between foraging and roosting sites), and it is considered that collision risk for these species is limited to their migratory movements. The evidence used to identify species susceptible to collision is presented in **Table 7.6** to **Table 7.55.**

356. There is potential for LSE in relation to collision to certain seabird and migratory non-seabird species as a result of the presence of the Bellrock WFDA, therefore, this impact is screened into the assessment.

7.2.3.4 Barrier to Movement

357. Large scale offshore wind farms may act as barriers to seabird and/or migratory non-seabird movements, causing individuals to fly around or over wind turbine arrays (NatureScot, 2023e). The potential for LSE cannot be excluded in relation to barrier effects on certain seabird species as a

result of the presence of the Bellrock WFDA, and this impact is, therefore, screened into the assessment. Such barrier effects are likely to be minimal for species such as fulmar (irrespective of their sensitivity to the effect), which have particularly large foraging ranges, because the resultant habitat loss will represent a small proportion of the available habitat.

7.2.3.5 Changes to Prey Availability

358. Indirect impacts on seabirds may occur as a result of changes in prey distribution, availability or abundance in the marine environment due to the presence of offshore infrastructure, and as a result of operation and maintenance activities that disturb the seabed (and cause increased suspended sediment concentrations) or increase subsea noise levels. In comparison to construction, however, subsea noise levels will be significantly lower in the operation and maintenance phase (e.g. there will be no piling), therefore, the potential for adverse effects on prey species as a result is greatly reduced. Similarly, seabed disturbance and associated increased suspended sediment concentrations will also be substantially lower in the operation and maintenance phase, namely occurring during cable or substructure maintenance activities. However, in accordance with NatureScot (2023d) guidance, this effect pathway is considered in relation to breeding seabird qualifying features during the operation and maintenance phase.

359. Migratory non-seabird species would not be significantly affected when passing through (or over) the Bellrock WFDA on migration (as they are not expected to forage or rest in the marine environment around the Bellrock WFDA).

7.2.3.6 Entanglement

360. With the advent of floating offshore wind, the potential for primary entanglement of diving seabirds with dynamic IACs and mooring lines associated with floating substructures (FSSs) has been raised (Maxwell et al. 2022). Currently there is no clear guidance on the assessment approaches required for bird entanglement. A short review of published reports from similar floating offshore wind farm projects and other moored infrastructures does not provide examples of where entanglement for seabirds has been screened in for assessment. This is most likely due to this potential impact being an incredibly rare occurrence (U.S. Offshore Wind Synthesis of Environmental Effects Research (SEER), 2022).

361. Primary entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under varying degrees of tension and the large dimensions of the chain reducing the likelihood of full or partial entanglement to be highly unlikely (SEER, 2022).

362. Offshore infrastructure with FBSSs may act as hard substrate, leading to likely habitat development, acting as a fish aggregation device, providing refuge for prey species increasing attraction factors within the Bellrock WFDA and may increase entanglement risk. While possible in theory, best available evidence from the Pentland Floating Offshore Windfarm indicates that the level of fish aggregation around floating wind turbine designs is minimal and therefore decreases the likelihood of increased prey fish densities influencing entanglement.

363. Secondary entanglement risk to diving seabirds could arise from fishing gear caught on the mooring lines (Maxwell et al. 2022). During operation, periodic inspections, as part of the asset integrity campaign, will include visual surveys and identification of debris and gear entangled to the Bellrock WFDA infrastructure. This will provide further understanding on the potential for the debris and ghost fishing gears to be caught in the WFDA infrastructure, increasing the risk for

entanglement. Note this is in the early stages of development and will be further refined during the EIA process.

364. As above, primary entanglement is a rare occurrence, and is therefore screened out from assessment. Secondary entanglement remains a possibility for diving seabird species, and the potential for LSE cannot be excluded. Secondary entanglement is therefore screened in for assessment.

7.2.3.7 Accidental Pollution

365. As per the construction phase, accidental pollution is not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans (NatureScot, 2021; MSS, 2021).

366. On this basis, there is no potential for LSE on any seabird qualifying interest features of European sites as a result of accidental pollution during the operational and maintenance phase, and this impact is screened out from further consideration for all European sites.

7.2.4 Decommissioning

367. The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined above for the construction phase. The impacts of direct habitat loss, collision and barriers to movement are not applicable to the decommissioning phase and, therefore, have been greyed out in **Table 7.6** to **Table 7.55**.

7.3 In-combination Assessment

368. Where one or more effect pathways to LSE are identified in relation to the Bellrock WFDA Screening Boundary for a qualifying feature, it is considered that there is potential for the Bellrock WFDA to contribute to in-combination effects. Other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

7.4 Summary of Screening of Sites for Annex I Marine Ornithological Features

369. **Table 7.6** to **Table 7.55** present the conclusions in relation to the determination of LSE as a result of the Bellrock WFDA. Separate LSE screening tables are presented for each of the 50 European sites which are taken forward for determination of LSE on the basis of the information and analysis in **Section 7.2** and which are listed in **Table 7.5**. The European sites are listed in the same order as in **Table 7.5**, the breeding seabird colony SPAs in **Table 7.6** to **Table 7.46** and the marine and migratory non-seabird SPAs in (**Table 7.47** to **Table 7.55**). The conclusion on whether LSE can be excluded or not is presented for each of the qualifying features screened in for each of these sites in relation to each effect pathway.

370. In **Table 7.6** to **Table 7.55**, C = Construction, O&M = Operation and Maintenance, D = Decommissioning; ✓ = Potential for LSE, × = No Potential for Likely Significant Effect.

371. The footnotes to these tables briefly outline the rationale for the conclusion in relation to LSE for each qualifying feature. Effects that are not applicable to a particular feature are greyed out.

372. Based on their potential for connectivity with the Bellrock WFDA, the sites screened in for consideration of potential LSE are:

- Buchan Ness to Collieston Coast SPA;
- Ythan Estuary, Sands of Forvie and Meikle Loch SPA;
- Fowlsheugh SPA;
- St Abb's Head to Fast Castle SPA;
- Farne Islands SPA;
- Forth Islands SPA;
- Imperial Dock Lock SPA;
- Troup, Pennan and Lion's Heads SPA;
- Coquet Island SPA;
- East Caithness Cliffs SPA;
- North Caithness Cliffs SPA;
- Copinsay SPA;
- Auskerry SPA;
- Flamborough and Filey Coast SPA;
- Hoy SPA;
- Fair Isle SPA;
- Calf of Eday SPA;
- Rousay SPA;
- West Westray SPA;
- Papa Westray (North Hill and Holm) SPA;
- Sumburgh Head SPA;
- Sule Skerry and Sule Stack SPA;
- Noss SPA;
- Cape Wrath SPA;
- Papa Stour SPA;
- Foula SPA;
- Fetlar SPA;

- Handa SPA;
- North Norfolk Coast SPA;
- North Rona and Sula Sgeir SPA;
- Ronas Hill – North Roe and Tingon SPA;
- Hermaness, Saxa Vord and Valla Field SPA;
- Shiant Isles SPA;
- Flannan Isles SPA;
- St Kilda SPA;
- Mingulay and Berneray SPA;
- Rathlin Island SPA;
- Bowland Fells SPA;
- Morecambe Bay and Duddon Estuary SPA;
- Ribble and Alt Estuaries SPA;
- Skomer, Skokholm and Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA;
- Outer Firth of Forth and St Andrew’s Bay Complex SPA;
- Loch of Strathbeg SPA and Ramsar site;
- Montrose Basin SPA and Ramsar site;
- Firth of Forth SPA and Ramsar site;
- Firth of Tay and Eden Estuary SPA and Ramsar site;
- Loch of Skene SPA and Ramsar site;
- Loch Leven SPA and Ramsar site;
- South Tayside Goose Roosts SPA and Ramsar site; and
- River Spey – Insh Marshes SPA and Ramsar site.

373. Of the sites considered in **Table 7.2**, the following have been screened out because there is no potential for connectivity with the Bellrock WFDA:

- Pentland Firth Islands SPA;
- Marwick Head SPA;
- Mousa SPA;
- Ramna Stacks and Gruney SPA;
- Rum SPA;
- Copeland Islands SPA; and

  Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA.

Table 7.6: LSE Matrix for Marine Ornithological Features of the Buchan Ness to Collieston Coast SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – kittiwake may be vulnerable to collisions within the Bellrock WFDA. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.7: LSE Matrix for Marine Ornithological Features of the Ythan Estuary, Sands of Forvie and Meikle Loch SPA/Ythan Estuary and Meikle Loch Ramsar site

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Sandwich tern (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Pink-footed goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Eider (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Lapwing (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Redshank (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Waterfowl assemblage (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Direct habitat loss due to the Bellrock WFDA is incapable of having effects on SPA non-seabird populations due to their use of terrestrial, freshwater or intertidal habitats only. Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – Sandwich tern from this SPA is considered to be relatively insensitive to disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs. Pink-footed goose, eider, lapwing and redshank will not be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or

incomplete WTGs or FOUs) due to their use of terrestrial, freshwater or intertidal habitats only, and the distance of the Bellrock WFDA from these habitats within the SPA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA. c: Collision – Sandwich tern may be vulnerable to collisions within the Bellrock WFDA. This species is identified as having potential connectivity with the Bellrock WFDA during the non-breeding season only, so the potential for collision effects is limited to this period. Pink-footed goose, eider, lapwing and redshank undertaking migratory movements to and from the SPA may also be vulnerable to collisions within the Bellrock WFDA. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the Sandwich tern, pink-footed goose, eider, lapwing, redshank and waterfowl assemblage qualifying features of this SPA. d: Barrier to movement – Sandwich tern from this SPA is considered to be relatively insensitive to barrier effects from the Bellrock WFDA. Pink-footed goose, eider, lapwing and redshank undertaking migratory movements to and from the SPA may also be affected by barrier effects from the Bellrock WFDA. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the pink-footed goose, eider, lapwing, redshank and waterfowl assemblage qualifying features of this SPA. e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects on breeding seabird species resulting from effects on the availability or abundance of prey species. LSE can be excluded in relation to indirect effects on pink-footed goose, eider, lapwing and redshank resulting from effects on the availability or abundance of prey species during the construction, O&M and decommissioning phases due to their use of terrestrial, freshwater or intertidal habitats only, and the distance of the Bellrock WFDA from these habitats within the SPA. Therefore, the potential for LSE in relation to this effect pathway cannot be excluded for the Sandwich tern qualifying feature of this SPA. f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution is not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

Table 7.8: LSE Matrix for Marine Ornithological Features of the Fowlsheugh SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Razorbill (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – razorbill and kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill, kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – kittiwake may be vulnerable to collisions within the Bellrock WFDA. Razorbill and fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – razorbill and kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill, kittiwake and seabird assemblage qualifying features of this SPA. e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. However, secondary entanglement effects cannot be excluded for diving seabird species that may be foraging in the Bellrock WFDA area, therefore, it is considered there is potential for LSE for the razorbill and seabird assemblage qualifying features of this SPA. (Potential for entanglement effects on razorbill is likely to be limited to the non-breeding season only.) g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.9: LSE Matrix for Marine Ornithological Features of the St Abb's Head to Fast Castle SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – kittiwake may be vulnerable to collisions within the Bellrock WFDA. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey Species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

Table 7.10: LSE Matrix for Marine Ornithological Features of the Farne Islands SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Lesser black-backed gull (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Arctic tern (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Sandwich tern (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Puffin (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – kittiwake and puffin from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The potential effects of disturbance and displacement on puffin are likely to be limited to the breeding season only, whilst for kittiwake the effect pathway is considered relevant to both the breeding and non-breeding seasons (Royal HaskoningDHV 2022; NatureScot 2021, 2023e; MSS 2021). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst lesser black-backed gull, Arctic tern and Sandwich tern are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake, puffin and seabird assemblage qualifying features of this SPA.

c: Collision – kittiwake, lesser black-backed gull, Arctic tern and Sandwich tern may be vulnerable to collisions within the Bellrock WFDA. Fulmar and puffin generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. For Sandwich and Arctic tern the potential for collision effects is limited to the non-breeding season because these species are identified as having the potential for connectivity during the non-breeding season only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake, lesser black-backed gull, Arctic tern, Sandwich tern and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – kittiwake and puffin from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst lesser black-backed gull, Arctic tern and Sandwich tern are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake, puffin and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. However, secondary entanglement effects cannot be excluded for diving seabird species that may be foraging in the Bellrock WFDA, therefore, it is considered there is potential for LSE for the puffin and seabird assemblage qualifying features of this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.11: LSE Matrix for Marine Ornithological Features of the Forth Islands SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Lesser black-backed gull (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Gannet (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Razorbill (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Puffin (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – razorbill, puffin, kittiwake and gannet from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). Lesser black-backed gull is considered to be relatively insensitive to such effects The potential effects of disturbance and displacement on puffin are likely to be limited to the breeding season only, whilst for gannet and kittiwake the effect pathway is considered relevant to both the breeding and non-breeding seasons (Royal HaskoningDHV 2022; NatureScot 2021, 2023e; MSS 2021). The potential for effects of disturbance and displacement on razorbill is limited to the non-breeding season because the species is identified as having the potential for connectivity during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill, puffin, kittiwake, gannet and seabird assemblage qualifying features of this SPA.

c: Collision – kittiwake, lesser black-backed gull and gannet may be vulnerable to collisions within the Bellrock WFDA. Razorbill and puffin generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake, lesser black-backed gull, gannet and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – razorbill, puffin, kittiwake and gannet from this SPA may be affected by barrier effects from the Bellrock WFDA. Lesser black-backed gull is considered to be relatively insensitive to such effects. The potential for barrier effects on puffin is likely to be limited to the breeding season only, whilst for gannet and kittiwake the effect pathway is considered relevant to both the breeding and non-breeding seasons (Royal HaskoningDHV 2022; NatureScot 2021, 2023e; MSS 2021). The potential for barrier effects on razorbill is limited to the non-breeding season because the species is identified as having the potential for connectivity during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill, puffin, kittiwake, gannet and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey Species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. However, secondary entanglement effects cannot be excluded for diving seabird species that may be foraging in the Bellrock WFDA area, therefore, it is considered there is potential for LSE for the puffin, razorbill and seabird assemblage qualifying features of this SPA. (Potential for entanglement effects on puffin is likely to be limited to the breeding season only, whilst for razorbill the effect pathway is considered relevant to the non-breeding season only.)

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

Table 7.12: LSE Matrix for Marine Ornithological Features of the Imperial Dock Lock SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Common tern (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – common tern from this SPA is considered to be relatively insensitive to disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – common tern may be vulnerable to collisions within the Bellrock WFDA. The potential for collision effects on this species is limited to the non-breeding season because the species is identified as having the potential for connectivity during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the common tern qualifying feature of this SPA.

d: Barrier to movement – common tern from this SPA is considered to be relatively insensitive to barrier effects from the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey Species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

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Table 7.13: LSE Matrix for Marine Ornithological Features of the Troup, Pennan and Lion's Heads SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Razorbill (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – razorbill and kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. The potential for effects of disturbance and displacement on razorbill is limited to the non-breeding season because the species is identified as having the potential for connectivity during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill, kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – kittiwake may be vulnerable to collisions within the Bellrock WFDA. Razorbill and fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – razorbill and kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. The potential for barrier effects on razorbill is limited to the non-breeding season because the species is identified as having the potential for connectivity during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill, kittiwake and seabird assemblage qualifying features of this SPA. e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. However, secondary entanglement effects cannot be excluded for diving seabird species that may be foraging in the Bellrock WFDA, therefore, it is considered there is potential for LSE for the razorbill and seabird assemblage qualifying features of this SPA. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution is not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.14: LSE Matrix for Marine Ornithological Features of the Coquet Island SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Lesser black-backed gull (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Arctic tern (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Common tern (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Sandwich tern (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Puffin (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – kittiwake and puffin from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The potential effects of disturbance and displacement on puffin are likely to be limited to the breeding season only, whilst for kittiwake the effect pathway is considered

relevant to both the breeding and non-breeding seasons (Royal HaskoningDHV 2022; NatureScot 2021, 2023e; MSS 2021). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst lesser black-backed gull, Arctic tern, common tern and Sandwich tern are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake, puffin and seabird assemblage qualifying features of this SPA. c: Collision – kittiwake, lesser black-backed gull, Arctic tern, common tern and Sandwich tern may be vulnerable to collisions within the Bellrock WFDA. Fulmar and puffin generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. The potential for collision effects on lesser black-backed gull, Arctic tern, common tern and Sandwich tern is limited to the non-breeding season because these species are identified as having the potential for connectivity during the non-breeding season only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake, lesser black-backed gull, Arctic tern, common tern, Sandwich tern and seabird assemblage qualifying features of this SPA. d: Barrier to movement – kittiwake and puffin from this SPA may be affected by barrier effects from the Bellrock WFDA. The potential for barrier effects on puffin is likely to be limited to the breeding season only, whilst for kittiwake the effect pathway is considered relevant to both the breeding and non-breeding seasons (Royal HaskoningDHV 2022; NatureScot 2021, 2023e; MSS 2021). The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst lesser black-backed gull, Arctic tern, common tern and Sandwich tern are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake, puffin and seabird assemblage qualifying features of this SPA. e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. However, secondary entanglement effects cannot be excluded for diving seabird species that may be foraging in the Bellrock WFDA, therefore, it is considered there is potential for LSE for the puffin and seabird assemblage qualifying features of this SPA. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.15: LSE Matrix for Marine Ornithological Features of the East Caithness Cliffs SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Razorbill (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Great black-backed gull (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – razorbill and kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst great black-backed gull are considered to be relatively insensitive to such effects. The potential for effects of disturbance and displacement on razorbill is limited to the non-breeding season because the species is identified as having the potential for connectivity during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill, kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – kittiwake and great black-backed gull may be vulnerable to collisions within the Bellrock WFDA. Razorbill and fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. The potential for collision effects on great black-backed gull is limited to the non-breeding period because the species is identified as having the potential for connectivity during this period only Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake, great black-backed gull and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – razorbill and kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst great black-backed gull are considered to be relatively insensitive to such effects. The potential for barrier effects on razorbill is limited to the non-breeding season because the species is identified as having the potential for connectivity

during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill, kittiwake and seabird assemblage qualifying features of this SPA. e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1** entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. However, secondary entanglement effects cannot be excluded for diving seabird species that may be foraging in the Bellrock WFDA area, therefore, it is considered there is potential for LSE for the .razorbill and the seabird assemblage qualifying features of this SPA. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.16: LSE Matrix for Marine Ornithological Features of the North Caithness Cliffs SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Razorbill (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Puffin (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – razorbill, puffin and kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The potential effects of disturbance and displacement on puffin are likely to be limited to the breeding season only (Royal HaskoningDHV 2022; NatureScot 2021, 2023e; MSS 2021), whilst for razorbill they are likely to be limited to the non-breeding season because the species is identified as having the potential for connectivity during this period only. For kittiwake the effect pathway is considered relevant to both the breeding and non-breeding seasons. The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill, puffin kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – kittiwake may be vulnerable to collisions within the Bellrock WFDA. Razorbill, puffin and fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – razorbill, puffin and kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. The potential for barrier effects on puffin is likely to be limited to the breeding season only (Royal HaskoningDHV 2022; NatureScot 2021, 2023e; MSS 2021), whilst for razorbill it is likely to be limited to the non-breeding season because the species is identified as having the potential for connectivity during this period only. For kittiwake the effect pathway is considered relevant to both the breeding and non-breeding seasons. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on

this species. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill, puffin, kittiwake and seabird assemblage qualifying features of this SPA. e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. However, secondary entanglement effects cannot be excluded for diving seabird species that may be foraging in the Bellrock WFDA area, therefore, it is considered there is potential for LSE for razorbill, puffin and the seabird assemblage qualifying features of this SPA. (Potential for entanglement effects on razorbill is likely to be limited to the non-breeding season only due to the absence of connectivity in the breeding season, while potential for entanglement effects on puffin is likely to be limited to the breeding season only (Royal HaskoningDHV 2022; NatureScot 2021, 2023e; MSS 2021)). g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.17: LSE Matrix for Marine Ornithological Features of the Copinsay SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Great black-backed gull (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst great black-backed gull are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – kittiwake and great black-backed gull may be vulnerable to collisions within the Bellrock WFDA. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. The potential for collision effects on great black-backed gull is limited to the non-breeding period because the species is identified as having connectivity during the non-breeding period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake, great black-backed gull and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst great black-backed gull are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1** entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.18: LSE Matrix for Marine Ornithological Features of the Auskerry SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Arctic tern (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
European storm petrel (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – Arctic tern from this SPA is considered to be relatively insensitive to disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). European storm petrel and other petrel species are considered to have low vulnerability to displacement and disturbance as a result of offshore wind farms and offshore vehicle traffic (aircraft, boat), due to observed association with vessels at sea and low rates or distances of escape flight when approached by boats (Deakin et al., 2022). Furthermore, the large foraging range of European storm petrel means and their specialisation for specific oceanographic features (Deakin et al. 2022) largely not found within the North Sea (continental shelf habitat, direct link to Atlantic plankton upwellings) means that a North Sea offshore wind farm occupies an extremely low to zero proportion of the species' preferred foraging habitat, and as a result there is no potential for displacement of this species due to the presence of offshore windfarm construction, operation or decommissioning activities in the North Sea. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – Arctic tern may be vulnerable to collisions within the Bellrock WFDA. This species is identified as having potential connectivity with the Bellrock WFDA during the non-breeding season only, so the potential for collision effects is limited to this period. As reported in a review by Deakin et al. (2022), European storm petrel generally fly significantly below the lower rotor swept height (typically within 2 m of the surface, occasionally up to 5 m (Flood and Thomas 2007), and may fly lower in higher wind conditions (Ainley et al., 2015)), and are not considered vulnerable to collision effects (King et al., 2009, Cook et al., 2012, Furness et al., 2012, Furness et al., 2013, Bradbury et al., 2014, Certain et al., 2015). Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the Arctic tern qualifying features of this SPA.

d: Barrier to movement – Arctic tern from this SPA is considered to be relatively insensitive to barrier effects from the Bellrock WFDA. The foraging habitat preference of European storm petrel for deeper oceanic waters over and around the outer shelf to the north-west of Scotland (Deakin et al., 2022) means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species (the Bellrock WFDA is not situated between breeding colonies and these oceanic waters). Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot generally be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species, but an exception in this regard is European storm petrel, for which this effect pathway is unlikely to be important because of its foraging habitat preference for deeper oceanic waters over and around the outer shelf to the north-west of Scotland (Deakin et al., 2022).

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is European storm petrel, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.19: LSE Matrix for Marine Ornithological Features of the Flamborough and Filey Coast SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Gannet (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Razorbill (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – gannet, razorbill and kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. The potential for effects of disturbance and displacement on razorbill is limited to the non-breeding season because the species is identified as having the potential for connectivity during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet, razorbill, kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – gannet and kittiwake may be vulnerable to collisions within the Bellrock WFDA. Razorbill and fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet, kittiwake and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – gannet, razorbill and kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. The potential for barrier effects on razorbill is limited to the non-breeding season because the species is identified as having the potential for connectivity during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet, razorbill, kittiwake and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. However, secondary entanglement effects cannot be excluded for diving seabird species that may be foraging in the Bellrock WFDA area, therefore, it is considered there is potential for LSE for razorbill and the seabird assemblage qualifying features of this SPA. (Potential for entanglement effects on razorbill is likely to be limited to the non-breeding season only due to the absence of connectivity during the breeding season.)

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.20: LSE Matrix for Marine Ornithological Features of the Hoy SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Great skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Arctic skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst Arctic skua and great skua are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – kittiwake, Arctic skua and great skua may be vulnerable to collisions within the Bellrock WFDA. The potential for collision effects on Arctic skua is limited to the non-breeding season because the species is identified as having connectivity with the Bellrock WFDA during this period only. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake, Arctic skua, great skua and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst Arctic skua and great skua are considered to be relatively

insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA. e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.21: LSE Matrix for Marine Ornithological Features of the Fair Isle SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Great skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Arctic skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Gannet (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – gannet and kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst Arctic skua and great skua are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet, kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – gannet, kittiwake, Arctic skua and great skua may be vulnerable to collisions within the Bellrock WFDA. The potential for collision effects on Arctic skua is limited to the non-breeding season because the species is identified as having connectivity with the Bellrock WFDA during this period only. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet, kittiwake, Arctic skua, great skua and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – gannet and kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst Arctic skua and great skua are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet, kittiwake and seabird assemblage qualifying features of this SPA. e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.22: LSE Matrix for Marine Ornithological Features of the Calf of Eday SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Great black-backed gull (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst great black-backed gull are considered to be relatively insensitive to such effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for qualifying features of this SPA.

c: Collision – great black-backed gull may be vulnerable to collisions within the Bellrock WFDA. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. The potential for collision effects on great black-backed gull is limited to the non-breeding season because the species is identified as having connectivity with the Bellrock WFDA during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the great black-backed gull and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst great black-backed gull are considered to be relatively insensitive to such effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1** entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.23: LSE Matrix for Marine Ornithological Features of the Rousay SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Arctic skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst Arctic skua are considered to be relatively insensitive to such effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for qualifying features of this SPA.

c: Collision – Arctic skua may be vulnerable to collisions within the Bellrock WFDA. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. The potential for collision effects on Arctic skua is limited to the non-breeding season because the species is identified as having connectivity with the Bellrock WFDA during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the Arctic skua and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst Arctic skua are considered to be relatively insensitive to such effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1** entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.24: LSE Matrix for Marine Ornithological Features of the West Westray SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Arctic skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Kittiwake (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – kittiwake from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The potential for disturbance and displacement effects on kittiwake is limited to the non-breeding season because the species is identified as having connectivity with the Bellrock WFDA during this period only. The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst Arctic skua are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

c: Collision – Arctic skua and kittiwake may be vulnerable to collisions within the Bellrock WFDA. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. The potential for collision effects on Arctic skua and kittiwake are limited to the non-breeding season because these species are identified as having connectivity with the Bellrock WFDA during this period only. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the Arctic skua, kittiwake and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – kittiwake from this SPA may be affected by barrier effects from the Bellrock WFDA. The potential for barrier effects on kittiwake is limited to the non-breeding season because the species is identified as having connectivity with the Bellrock WFDA during this period only. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst Arctic skua are considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the kittiwake and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1** entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.25: LSE Matrix for Marine Ornithological Features of the Papa Westray (North Hill and Holm) SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Arctic skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – Arctic skua is considered to be relatively insensitive to effects of disturbance within, or displacement from, the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for the qualifying features of this SPA.

c: Collision – Arctic skua may be vulnerable to collisions within the Bellrock WFDA. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the Arctic skua and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – Arctic skua is considered to be relatively insensitive to barrier effects resulting from the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

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Table 7.26: LSE Matrix for Marine Ornithological Features of the Sumburgh Head SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – the particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

d: Barrier to movement – the particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – the potential for LSE in relation to indirect effects resulting from effects on the availability or abundance of prey species is unlikely to be important for fulmar because of the particularly large foraging range of the species. As the only species screened in is fulmar, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – There is no potential for in-combination effects, because only fulmar is included in assessment for the site and no effect pathways to LSE are identified in relation to the Bellrock WFDA for the species.

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Table 7.27: LSE Matrix for Marine Ornithological Features of the Sule Skerry and Sule Stack SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Gannet (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – gannet from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

c: Collision – gannet may be vulnerable to collisions within the Bellrock WFDA. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – gannet from this SPA may be affected by barrier effects from the Bellrock WFDA. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species.

f: Secondary entanglement – As detailed in **Section 7.2.1** entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

Table 7.28: LSE Matrix for Marine Ornithological Features of the Noss SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Great skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Gannet (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – gannet from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst great skua is considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

c: Collision – great skua and gannet may be vulnerable to collisions within the Bellrock WFDA. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the great skua, gannet and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – gannet from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst great skua is considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.29: LSE Matrix for Marine Ornithological Features of the Cape Wrath SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – the particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

d: Barrier to movement – the particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – the potential for LSE in relation to indirect effects resulting from effects on the availability or abundance of prey species is unlikely to be important for fulmar because of the particularly large foraging range of the species. As the only species screened in is fulmar, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – There is no potential for in-combination effects, because only fulmar is included in assessment for the site and no effect pathways to LSE are identified in relation to the Bellrock WFDA for the species.

Table 7.30: LSE Matrix for Marine Ornithological Features of the Papa Stour SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Arctic tern (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – Arctic tern is considered to be relatively insensitive to disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – Arctic tern may be vulnerable to collisions within the Bellrock WFDA. This species is identified as having potential connectivity with the Bellrock WFDA during the non-breeding season only, so the potential for collision effects on this species is limited to this period. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the Arctic tern qualifying feature of this SPA.

d: Barrier to movement – Arctic tern is considered to be relatively insensitive to barrier effects from the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey Species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

Table 7.31: LSE Matrix for Marine Ornithological Features of the Foula SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Great skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Arctic skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst Arctic skua and great skua are considered to be relatively insensitive to such effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for the qualifying features of this SPA.

c: Collision – Arctic skua and great skua may be vulnerable to collisions within the Bellrock WFDA. The potential for collision effects on Arctic skua are limited to the non-breeding season because the species is identified as having connectivity with the Bellrock WFDA during this period only. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the Arctic skua, great skua and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst Arctic skua and great skua are considered to be relatively insensitive to such effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.32: LSE Matrix for Marine Ornithological Features of the Fetlar SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Great skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Arctic skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst Arctic skua and great skua are considered to be relatively insensitive to such effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for the qualifying features of this SPA.

c: Collision – Arctic skua and great skua may be vulnerable to collisions within the Bellrock WFDA. The potential for collision effects on Arctic skua are limited to the non-breeding season because the species is identified as having connectivity with the Bellrock WFDA during this period only. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the Arctic skua, great skua and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst Arctic skua and great skua are considered to be relatively insensitive to such effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.33: LSE Matrix for Marine Ornithological Features of the Handa SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Great skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst great skua is considered to be relatively insensitive to such effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for the qualifying features of this SPA.

c: Collision – great skua may be vulnerable to collisions within the Bellrock WFDA. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the great skua and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst great skua is considered to be relatively insensitive to such effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1,** accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.34: LSE Matrix for Marine Ornithological Features of the North Norfolk Coast SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Sandwich tern (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – Sandwich tern from this SPA is considered to be relatively insensitive to disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – Sandwich tern may be vulnerable to collisions within the Bellrock WFDA. This species is identified as having potential connectivity with the Bellrock WFDA during the non-breeding season only, so the potential for collision effects on this species is limited to this period. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the Sandwich tern qualifying feature of this SPA.

d: Barrier to movement – Sandwich tern from this SPA is considered to be relatively insensitive to barrier effects from the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey Species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1,** accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

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Table 7.35: LSE Matrix for Marine Ornithological Features of the North Rona and Sula Sgeir SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Gannet (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – gannet from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

c: Collision – gannet may be vulnerable to collisions within the Bellrock WFDA. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – gannet from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.36: LSE Matrix for Marine Ornithological Features of the Ronas Hill – North Roe and Tingon SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Great skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – great skua is considered to be relatively insensitive to effects of disturbance within, or displacement from, the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for the qualifying features of this SPA.

c: Collision – great skua may be vulnerable to collisions within the Bellrock WFDA. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the great skua and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – great skua is considered to be relatively insensitive to barrier effects resulting from the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey Species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered there is no potential for LSE for qualifying features of this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

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Table 7.37: LSE Matrix for Marine Ornithological Features of the Hermaness, Saxa Vord and Valla Field SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Great skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Gannet (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – gannet from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst great skua is considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

c: Collision – great skua and gannet may be vulnerable to collisions within the Bellrock WFDA. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the great skua, gannet and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – gannet from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst great skua is considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.38: LSE Matrix for Marine Ornithological Features of the Shiant Isles SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – the particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

d: Barrier to movement – the particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – the potential for LSE in relation to indirect effects resulting from effects on the availability or abundance of prey species is unlikely to be important for fulmar because of the particularly large foraging range of the species. As the only species screened in is fulmar, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – There is no potential for in-combination effects, because only fulmar is included in assessment for the site and no effect pathways to LSE are identified in relation to the Bellrock WFDA for the species.

Table 7.39: LSE Matrix for Marine Ornithological Features of the Flannan Isles SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – the particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

d: Barrier to movement – the particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – the potential for LSE in relation to indirect effects resulting from effects on the availability or abundance of prey species is unlikely to be important for fulmar because of the particularly large foraging range of the species. As the only species screened in is fulmar, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – There is no potential for in-combination effects, because only fulmar is included in assessment for the site and no effect pathways to LSE are identified in relation to the Bellrock WFDA for the species.

Table 7.40: LSE Matrix for Marine Ornithological Features of the St Kilda SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Great skua (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Gannet (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – gannet from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal, whilst great skua is considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

c: Collision – great skua and gannet may be vulnerable to collisions within the Bellrock WFDA. Fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the great skua, gannet and seabird assemblage qualifying features of this SPA.

d: Barrier to movement – gannet from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species, whilst great skua is considered to be relatively insensitive to such effects. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the gannet and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species. f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.41: LSE Matrix for Marine Ornithological Features of the Mingulay and Berneray SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Razorbill (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – razorbill from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. The potential effects of disturbance and displacement on razorbill are limited to the non-breeding season because the potential for connectivity is limited to this period. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill and seabird assemblage qualifying features of this SPA.

c: Collision – razorbill and fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

d: Barrier to movement – razorbill from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. The potential for barrier effects on razorbill is limited to the non-breeding season because the potential for connectivity is limited to this period. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1**above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. However, secondary entanglement effects cannot be excluded for diving seabird species that may be foraging in the Bellrock WFDA area, therefore, it is considered there is potential for LSE for the razorbill and seabird assemblage qualifying features of this SPA. (Potential for entanglement effects on razorbill is likely to be limited to the non-breeding season only.) g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans. h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.42: LSE Matrix for Marine Ornithological Features of the Rathlin Island SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Fulmar (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Razorbill (breeding)	×a	×a		✓b	✓b	✓b		×c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		✓b	✓b	✓b		✓c			✓d		✓e	✓e	✓e		✓f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – razorbill from this SPA may be affected by disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). The particularly large foraging range of fulmar means that any effects of disturbance within, or displacement from, the Bellrock WFDA are likely to be minimal. The potential effects of disturbance and displacement on razorbill are limited to the non-breeding season because the potential for connectivity is limited to this period. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill and seabird assemblage qualifying features of this SPA.

c: Collision – razorbill and fulmar generally fly below the lower rotor swept height and are not considered vulnerable to collision effects. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

d: Barrier to movement – razorbill from this SPA may be affected by barrier effects from the Bellrock WFDA. The particularly large foraging range of fulmar means that the consequences of barrier effects resulting from the Bellrock WFDA are likely to be minimal on this species. The potential for barrier effects on razorbill is limited to the non-breeding season because the potential for connectivity is limited to this period. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the razorbill and seabird assemblage qualifying features of this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey species. The exception in this regard is fulmar, for which this effect pathway is unlikely to be important because of the particularly large foraging range of the species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. However, secondary entanglement effects cannot be excluded for diving seabird species that may be foraging in the Bellrock WFDA area, therefore, it is considered there is potential for LSE for the razorbill and seabird assemblage qualifying features of this SPA. (Potential for entanglement effects on razorbill is likely to be limited to the non-breeding season only.)

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects. The exception in this regard is fulmar, for which no effect pathways to LSE are identified in relation to the Bellrock WFDA (so that there is no potential to contribute to in-combination effects).

Table 7.43: LSE Matrix for Marine Ornithological Features of the Bowland Fells SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Lesser black-backed gull (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – lesser black-backed gull is considered to be relatively insensitive to disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – lesser black-backed gull may be vulnerable to collisions within the Bellrock WFDA. The potential for collision effects is limited to the non-breeding season because the potential for connectivity is limited to this period. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the lesser black-backed gull qualifying feature of this SPA.

d: Barrier to movement – lesser black-backed gull is considered to be relatively insensitive to barrier effects from the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey Species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

Table 7.44: LSE Matrix for Marine Ornithological Features of the Morecambe Bay and Duddon Estuary SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Lesser black-backed gull (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – lesser black-backed gull is considered to be relatively insensitive to disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – lesser black-backed gull may be vulnerable to collisions within the Bellrock WFDA. The potential for collision effects is limited to the non-breeding season because the potential for connectivity is limited to this period. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the lesser black-backed gull qualifying feature of this SPA.

d: Barrier to movement – lesser black-backed gull is considered to be relatively insensitive to barrier effects from the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey Species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

Table 7.45: LSE Matrix for Marine Ornithological Features of the Ribble and Alt Estuaries SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Lesser black-backed gull (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – lesser black-backed gull is considered to be relatively insensitive to disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – lesser black-backed gull may be vulnerable to collisions within the Bellrock WFDA. The potential for collision effects is limited to the non-breeding season because the potential for connectivity is limited to this period. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the lesser black-backed gull qualifying feature of this SPA.

d: Barrier to movement – lesser black-backed gull is considered to be relatively insensitive to barrier effects from the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey Species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

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Table 7.46: LSE Matrix for Marine Ornithological Features of the Skomer, Skokholm and Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Lesser black-backed gull (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h
Seabird assemblage (breeding)	×a	×a		×b	×b	×b		✓c			×d		✓e	✓e	✓e		×f		×g	×g	×g	✓h	✓h	✓h

Notes:

a: Direct habitat loss – as detailed in **Section 7.2.1**, direct habitat loss due to the Bellrock WFDA is unlikely to have effects on SPA breeding seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Also, direct habitat loss during the construction period is a temporary and relatively short-term effect. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – lesser black-backed gull is considered to be relatively insensitive to disturbance and displacement from the Bellrock WFDA in the O&M phase (from presence of operational WTGs) and the construction and decommissioning phases (from vessel activities, and structure changes including presence of non-operational or incomplete WTGs or FOUs). Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

c: Collision – lesser black-backed gull may be vulnerable to collisions within the Bellrock WFDA. The potential for collision effects is limited to the non-breeding season because the potential for connectivity is limited to this period. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the lesser black-backed gull and breeding seabird assemblage qualifying features of this SPA.

d: Barrier to movement – lesser black-backed gull is considered to be relatively insensitive to barrier effects from the Bellrock WFDA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

e: Changes in prey availability – as detailed in **Section 7.2.1** above, the potential for LSE cannot be excluded in relation to indirect effects resulting from effects on the availability or abundance of prey Species.

f: Secondary entanglement – As detailed in **Section 7.2.1**, entanglement due to the Bellrock WFDA is unlikely to have effects on the majority of breeding seabird populations due to the design parameters and minimal evidence of fish aggregation around floating infrastructure. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

g: Accidental pollution – As detailed in **Section 7.2.1**, accidental pollution not considered as an impact pathway because this will be subject to other regulatory control through both legislation and the requirements for contingency plans.

h: In-combination effects – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA, so that the potential for LSE cannot be excluded in relation to in-combination effects.

Table 7.47: LSE Matrix for Marine Ornithological Features of the Outer Firth of Forth and St Andrews Bay Complex SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Red-throated diver (non-breeding)	×a	×a		✓b	✓b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Slavonian grebe (non-breeding)	×a	×a		✓b	✓b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Common eider (non-breeding)	×a	×a		✓b	✓b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Long-tailed duck (non-breeding)	×a	×a		✓b	✓b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Common scoter (non-breeding)	×a	×a		✓b	✓b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Velvet scoter (non-breeding)	×a	×a		✓b	✓b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Common goldeneye (non-breeding)	×a	×a		✓b	✓b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Red-breasted merganser (non-breeding)	×a	×a		✓b	✓b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Arctic tern (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Common tern (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
European shag (breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
European shag (non-breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Northern gannet (breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Atlantic puffin (breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Kittiwake (breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Kittiwake (non-breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Manx shearwater (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Common guillemot (breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Common guillemot (non-breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Razorbill (non-breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Herring gull (breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Herring gull (non-breeding)	×a	×a		×b	×b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	×h	×h	×h
Little gull (non-breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Black-headed gull (non-breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h
Common gull (non-breeding)	×a	×a		✓b	✓b	×b		×c			×d		×e	×e	×e		×f		×g	×g	×g	✓h	✓h	×h

Notes:

a: Direct habitat loss – Direct habitat loss due to the Bellrock WFDA is unlikely to have effects on the marine SPA's bird populations due to the considerable distance of the WFDA from the SPA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

b: Disturbance and displacement – Following NatureScot's comments in the scoping opinion for Ossian Offshore Wind Farm, consideration is given to potential disturbance and displacement effects from vessels transiting through this European site during the construction and/ or O&M phases. Among features of the SPA, herring gull, Arctic tern and common tern are considered to be relatively insensitive to such effects based on the low sensitivity indices assigned to these species by Fliessbach et al. (2019) who reviewed sensitivity to vessel traffic across seabird taxa. Manx shearwater is also considered relatively insensitive to such effects due to the species' exceptionally large foraging range, typically offshore and oceanic foraging ecology, and the apparent low rate and distance of escape flight behaviour in shearwaters when approached by boats (Deakin et al. 2022). For other features of the SPA, it is determined that potential for LSE cannot be ruled out.

c: Collision – As detailed in **Section 7.2.1**, for the migratory non-seabird SPAs (and Ramsar sites), potential LSE due to collision effects (restricted to the operation and maintenance period) cannot be excluded where the offshore wind farm lies within the migratory corridor of the species. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the non-breeding migratory non-seabird qualifying features of–this SPA - red-throated diver, Slavonian grebe, common eider, long-tailed duck, common scoter, velvet scoter, common goldeneye and red-breasted merganser.

d: Barrier to movement – As detailed in **Section 7.2.1**, for the migratory non-seabird SPAs (and Ramsar sites), potential LSE due to barrier effects (restricted to the operation and maintenance period) cannot be excluded where the offshore wind farm lies within the migratory corridor of the species. Therefore, it is considered that the potential for LSE in relation to this effect pathway cannot be excluded for the non-breeding migratory non-seabird qualifying features of–this SPA - red-throated diver, Slavonian grebe, common eider, long-tailed duck, common scoter, velvet scoter, common goldeneye and red-breasted merganser.

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D

e: Changes in prey availability – Changes to prey availability due to the Bellrock WFDA is unlikely to have effects on the marine SPA’s bird populations due to the considerable distance of the WFDA from the SPA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

f: Secondary entanglement – Entanglement effects due to the Bellrock WFDA is unlikely to have effects on the marine SPA’s bird populations due to the considerable distance of the WFDA from the SPA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

g: Accidental pollution – Accidental pollution effects due to the Bellrock WFDA is unlikely to have effects on the marine SPA’s bird populations due to the considerable distance of the WFDA from the SPA. Therefore, it is considered that there is no potential for LSE in relation to this effect pathway for this SPA.

h: In-combination effects – Other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the Bellrock WFDA (a-g), so that the potential for LSE cannot be excluded in relation to in-combination effects during the project phases where potential project-alone effects occur.

Table 7.48: LSE Matrix for Marine Ornithological Features of the Loch of Strathbeg SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Barnacle goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Greylag goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Pink-footed goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Whooper swan (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Eurasian teal (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Common goldeneye (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Waterfowl assemblage (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

Notes:

As detailed in **Section 7.2.1**, for the migratory non-seabird SPAs (and Ramsar sites), collisions and barrier to movement (d) (both of which are restricted to the operation and maintenance period) are the only effect pathways for which the potential for LSE cannot be excluded. As a consequence of the conclusions for these two effect pathways, it is also the case that the potential for LSE as a result of in-combination effects with other plans and projects (h) cannot be excluded. For all other effect pathways, it is considered that there is no potential for LSE.

Table 7.49: LSE Matrix for Marine Ornithological Features of the Montrose Basin SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Greylag goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Pink-footed goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Redshank (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Oystercatcher (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Common eider (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Eurasian wigeon (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Knot (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Dunlin (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Shelduck (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Waterfowl assemblage (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

Notes:

As detailed in **Section 7.2.1**, for the migratory non-seabird SPAs (and Ramsar sites), collisions (c) and barrier to movement (d) (both of which are restricted to the operation and maintenance period) are the only effect pathways for which the potential for LSE cannot be excluded. As a consequence of the conclusions for these two effect pathways, it is also the case that the potential for LSE as a result of in-combination effects with other plans and projects (h) cannot be excluded. For all other effect pathways, it is considered that there is no potential for LSE.

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Table 7.50: LSE Matrix for Marine Ornithological Features of the Firth of Forth SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Bar-tailed godwit (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Golden plover (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Knot (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Pink-footed goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Red-throated diver (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Redshank (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Shelduck (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Slavonian grebe (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Turnstone (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Scaup (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Great crested grebe (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Cormorant (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Curlew (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Common eider (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Long-tailed duck (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Common scoter (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Velvet scoter (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Common goldeneye (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Red-breasted merganser (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Oystercatcher (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Ringed plover (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Grey plover (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Dunlin (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Mallard (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Lapwing (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Wigeon (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Waterfowl assemblage (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

Notes:

As detailed in **Section 7.2.1**, for the migratory non-seabird SPAs (and Ramsar sites), collisions (c) and barrier to movement (d) (both of which are restricted to the operation and maintenance period) are the only effect pathways for which the potential for LSE cannot be excluded. As a consequence of the conclusions for these two effect pathways, it is also the case that the potential for LSE as a result of in-combination effects with other plans and projects (h) cannot be excluded. For all other effect pathways, it is considered that there is no potential for LSE.

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Table 7.51: LSE Matrix for Marine Ornithological Features of the Firth of Tay and Eden Estuary SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Bar-tailed godwit (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Greylag goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Pink-footed goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Redshank (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Black-tailed godwit islandica (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Common scoter (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Cormorant (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Dunlin (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Common eider (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Common goldeneye (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Goosander (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Grey plover (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Long-tailed duck (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Oystercatcher (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Red-breasted merganser (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Sanderling (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Shelduck (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Velvet scoter (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Waterfowl assemblage (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

Notes:

As detailed in **Section 7.2.1**, for the migratory non-seabird SPAs (and Ramsar sites), collisions (c) and barrier to movement (d) (both of which are restricted to the operation and maintenance period) are the only effect pathways for which the potential for LSE cannot be excluded. As a consequence of the conclusions for these two effect pathways, it is also

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
the case that the potential for LSE as a result of in-combination effects with other plans and projects (h) cannot be excluded. For all other effect pathways, it is considered that there is no potential for LSE.																								

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Table 7.52: LSE Matrix for Marine Ornithological Features of the Loch of Skene SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Greylag goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Common goldeneye (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Goosander (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

Notes:

As detailed in **Section 7.2.1**, for the migratory non-seabird SPAs (and Ramsar sites), collisions (c) and barrier to movement (d) (both of which are restricted to the operation and maintenance period) are the only effect pathways for which the potential for LSE cannot be excluded. As a consequence of the conclusions for these two effect pathways, it is also the case that the potential for LSE as a result of in-combination effects with other plans and projects (h) cannot be excluded. For all other effect pathways, it is considered that there is no potential for LSE.

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Table 7.53: LSE Matrix for Marine Ornithological Features of the Loch Leven SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Pink-footed goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Shoveler (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Whooper swan (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Cormorant (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Gadwall (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Common goldeneye (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Pochard (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Teal (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Tufted duck (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Waterfowl assemblage (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

Notes:

As detailed in **Section 7.2.1,** for the migratory non-seabird SPAs (and Ramsar sites), collisions (c) and barrier to movement (d) (both of which are restricted to the operation and maintenance period) are the only effect pathways for which the potential for LSE cannot be excluded. As a consequence of the conclusions for these two effect pathways, it is also the case that the potential for LSE as a result of in-combination effects with other plans and projects (h) cannot be excluded. For all other effect pathways, it is considered that there is no potential for LSE.

Table 7.54: LSE Matrix for Marine Ornithological Features of the South Tayside Goose Roosts SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Greylag goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Pink-footed goose (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Eurasian wigeon (non-breeding	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Waterfowl assemblage (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

Notes:

As detailed in **Section 7.2.1**, for the migratory non-seabird SPAs (Ramsar sites), collisions (c) and barrier to movement (d) (both of which are restricted to the operation and maintenance period) are the only effect pathways for which the potential for LSE cannot be excluded. As a consequence of the conclusions for these two effect pathways, it is also the case that the potential for LSE as a result of in-combination effects with other plans and projects (h) cannot be excluded. For all other effect pathways, it is considered that there is no potential for LSE.

Table 7.55: LSE Matrix for Marine Ornithological Features of the River Spey – Insh Marshes SPA

European Site Qualifying Feature	Direct Habitat Loss			Disturbance/ Displacement			Collision			Barrier to Movement			Changes in Prey Availability			Secondary Entanglement			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D	C	O&M		C	O&M	D	C	O&M	D
Hen harrier (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h
Whooper swan (non-breeding)	×a	×a		×b	×b	×b		✓c			✓d		×e	×e	×e		×f		×g	×g	×g	×h	✓h	×h

Notes:

As detailed in **Section 7.2.1**, for the migratory non-seabird SPAs (Ramsar sites), collisions (c) and barrier to movement (d) (both of which are restricted to the operation and maintenance period) are the only effect pathways for which the potential for LSE cannot be excluded. As a consequence of the conclusions for these two effect pathways, it is also the case that the potential for LSE as a result of in-combination effects with other plans and projects (h) cannot be excluded. For all other effect pathways, it is considered that there is no potential for LSE.

8 Summary of Stage 1: HRA Screening

374. A summary of the European sites and relevant qualifying features for which potential LSEs have been identified and screened in for further assessment in the Report to Inform Appropriate Assessment (RIAA) is provided in **Table 8.1** below.

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Table 8.1: Summary of European Sites and Relevant Qualifying Features for which Potential LSEs have Been Identified and Screened in for Further Assessment in the RIAA (✓ = Potential for LSE during Project Phase, C = Construction, O&M = Operation and Maintenance, D = Decommissioning)

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
Marine Mammals						
Southern North Sea SAC	154	Harbour porpoise	Underwater noise (all potential sources)	✓	✓	✓
			Collision risk with vessels	✓	✓	✓
			Secondary entanglement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Moray Firth SAC	209	Bottlenose dolphin	Underwater noise (all potential sources)	✓	✓	✓
			Collision risk with vessels	✓	✓	✓
			Secondary entanglement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Berwickshire and North Northumberland Coast SAC	152	Grey seal	Underwater noise (all potential sources)	✓	✓	✓
			Collision risk with vessels	✓	✓	✓
			Secondary entanglement		✓	
			Disturbance at seal haul-out sites	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Isle of May SAC	160	Grey seal	Underwater noise (all potential sources)	✓	✓	✓
			Collision risk with vessels	✓	✓	✓
			Secondary entanglement		✓	
			Disturbance at seal haul-out sites	✓	✓	✓
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Humber Estuary SAC	338	Grey seal	Underwater noise (all potential sources)	✓	✓	✓
			Collision risk with vessels	✓	✓	✓
			Secondary entanglement		✓	
			Disturbance at seal haul-out sites	✓	✓	✓
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Firth of Tay and Eden Estuary SAC	158	Harbour seal	Underwater noise (all potential sources)	✓	✓	✓
			Collision risk with vessels	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Secondary entanglement		✓	
			Disturbance at seal haul-out sites	✓	✓	✓
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Breeding Seabird Colony Special Protection Areas						
Buchan Ness to Collieston Coast SPA	113.4	Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ythan Estuary and Meikle Loch Ramsar site	114.9	Sandwich tern (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Pink-footed goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			In-combination effects		✓	
		Eider (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Lapwing (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Redshank (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Waterfowl assemblage (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
Fowlsheugh SPA	121.7	Razorbill (breeding)	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
		Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
St Abb's Head to Fast Castle SPA	154.1	Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Farne Islands SPA	154.1	Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			In-combination effects	✓	✓	✓
		Lesser black-backed gull (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Arctic tern (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Sandwich tern (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Puffin (breeding) [2]	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement	✓	✓	✓
			Changes in prey availability		✓	
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
Forth Islands SPA	157.8	Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Lesser black-backed gull (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Gannet (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Razorbill (breeding) [3]	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
		Puffin (breeding) [2]	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement	✓	✓	✓
			Changes in prey availability		✓	
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
Imperial Dock Lock SPA	205.9	Common tern (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Troup, Pennan and Lion's Heads SPA	148.4	Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Razorbill (breeding) [3]	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement	✓	✓	✓
			Changes in prey availability		✓	
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
Coquet Island SPA	181.7	Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Lesser black-backed gull (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Arctic tern (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Common tern (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Sandwich tern (breeding) [3]	Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Puffin (breeding) [2]	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Secondary entanglement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
East Caithness Cliffs SPA	237.9	Razorbill (breeding) [3]	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
		Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Great black-backed gull (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
North Caithness Cliffs SPA	251.9	Razorbill (breeding) [3]	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
		Puffin (breeding) [2]	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
		Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
Copinsay SPA	263.6	Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Great black-backed gull (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
Auskerry SPA	275.8	Arctic tern (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Flamborough and Filey Coast SPA	280.2	Gannet (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Razorbill (breeding) [3]	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
		Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
Hoy SPA	276.3	Great skua (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Arctic skua (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Fair Isle SPA	299.5	Great skua (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Arctic skua (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Gannet (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Kittiwake (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Calf of Eday SPA	297.4	Great black-backed gull (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Rousay SPA	300.9	Arctic skua (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
West Westray SPA	310.8	Arctic skua (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Kittiwake (breeding) [3]	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Papa Westray (North Hill and Holm) SPA	315.2	Arctic skua (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Sule Skerry and Sule Stack SPA	345.9	Gannet (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Noss SPA	360.6	Great skua (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			In-combination effects	✓	✓	✓
		Gannet (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Papa Stour SPA	390.3	Arctic tern (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Foula SPA	370.9	Great skua (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Arctic skua (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Fetlar SPA	406.9	Great skua (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Arctic skua (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Handa SPA	338.9	Great skua (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
North Norfolk Coast SPA	423.8	Sandwich tern (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
North Rona and Sula Sgeir SPA	411.6	Gannet (breeding)	Disturbance and displacement	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Ronas Hill – North Roe and Tingon SPA	408.4	Great skua (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Hermaness, Saxa Vord and Valla Field SPA	427.3	Great skua (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Gannet (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
St Kilda SPA	506.5	Great skua (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Gannet (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Collision		✓	
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Mingulay and Berneray SPA	451.6	Razorbill (breeding) [3]	Disturbance and displacement	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
Rathlin Island SPA	408.7	Razorbill (breeding) [3]	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Disturbance and displacement	✓	✓	✓
			Barrier to movement		✓	
			Changes in prey availability	✓	✓	✓
			Secondary entanglement		✓	
			In-combination effects	✓	✓	✓
Bowland Fells SPA	336.7	Lesser black-backed gull (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			In-combination effects	✓	✓	✓
Morecambe Bay and Duddon Estuary SPA	329.0	Lesser black-backed gull (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Ribble and Alt Estuaries SPA	377.4	Lesser black-backed gull (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Skomer, Skokholm and Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	647.3	Lesser black-backed gull (breeding) [3]	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
		Seabird assemblage (breeding)	Collision		✓	
			Changes in prey availability	✓	✓	✓
			In-combination effects	✓	✓	✓
Marine SPAs						
Outer Firth of Forth and St Andrew's Bay Complex SPA	116.9	Red-throated diver (non-breeding)	Disturbance by vessel movements	✓	✓	
			Collision		✓	
			Barrier to movement		✓	
			In-combination effects	✓	✓	
		Slavonian grebe (non-breeding)	Disturbance by vessel movements	✓	✓	
			Collision		✓	
			Barrier to movement		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			In-combination effects	✓	✓	
		Common eider (non-breeding)	Disturbance by vessel movements	✓	✓	
			Collision		✓	
			Barrier to movement		✓	
			In-combination effects	✓	✓	
		Long-tailed duck (non-breeding)	Disturbance by vessel movements	✓	✓	
			Collision		✓	
			Barrier to movement		✓	
			In-combination effects	✓	✓	
		Common scoter (non-breeding)	Disturbance by vessel movements	✓	✓	
			Collision		✓	
			Barrier to movement		✓	
			In-combination effects	✓	✓	
		Velvet scoter (non-breeding)	Disturbance by vessel movements	✓	✓	
			Collision		✓	
			Barrier to movement		✓	
			In-combination effects	✓	✓	
		Common goldeneye (non-breeding)	Disturbance by vessel movements	✓	✓	
			Collision		✓	
			Barrier to movement		✓	
			In-combination effects	✓	✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
		Red-breasted merganser (non-breeding)	Disturbance by vessel movements	✓	✓	
			Collision		✓	
			Barrier to movement		✓	
			In-combination effects	✓	✓	
		European shag (breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
		European shag (non-breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
		Northern gannet (breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
		Atlantic puffin (breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
		Kittiwake (breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
		Kittiwake (non-breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
		Guillemot (breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
		Guillemot (non-breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
		Razorbill (non-breeding)	Disturbance by vessel movements	✓	✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			In-combination effects	✓	✓	
		Little gull (non-breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
		Black-headed gull (non-breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
		Common gull (non-breeding)	Disturbance by vessel movements	✓	✓	
			In-combination effects	✓	✓	
Migratory Non-Seabird Sites (Estuarine)						
Loch of Strathbeg SPA and Ramsar site	128.7	Barnacle goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Greylag goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Pink-footed goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Whooper swan (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
			Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
		Eurasian teal (non-breeding)	Barrier to movement		✓	
			In-combination effects		✓	
		Common goldeneye (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
Montrose Basin SPA and Ramsar site	141.4	Greylag goose (non-breeding)	Collision		✓	
			Changes in prey availability		✓	
			In-combination effects		✓	
		Pink-footed goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Redshank (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Oystercatcher (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Eider (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Wigeon (non-breeding)	Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Barrier to movement		✓	
			In-combination effects		✓	
		Knot (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Dunlin (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Shelduck (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Waterfowl assemblage (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
Firth of Forth SPA and Ramsar site	158.9	Bar-tailed godwit (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Golden plover (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Knot (non-breeding)	Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Barrier to movement		✓	
			In-combination effects		✓	
		Pink-footed goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Red-throated diver (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Redshank (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Sandwich tern (passage)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Shelduck (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Slavonian grebe (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
			Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
		Turnstone (non-breeding)	Barrier to movement		✓	
			In-combination effects		✓	
		Scaup (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Great crested grebe (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Cormorant (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Curlew (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Eider (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Long-tailed duck (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Common scoter (non-breeding)	Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Barrier to movement		✓	
			In-combination effects		✓	
		Velvet scoter (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Goldeneye (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Red-breasted merganser (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Oystercatcher (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Ringed plover (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Grey plover (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Dunlin (non-breeding)	Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Barrier to movement		✓	
			In-combination effects		✓	
		Mallard (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Lapwing (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Wigeon (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Waterfowl assemblage (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
Firth of Tay and Eden Estuary SPA and Ramsar site	159.6	Bar-tailed godwit (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Greylag goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
			Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
		Pink-footed goose (non-breeding)	Barrier to movement		✓	
			In-combination effects		✓	
		Redshank (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Black-tailed godwit *islandica* (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Common scoter (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Cormorant (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Dunlin (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Eider (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Goldeneye (non-breeding)	Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Barrier to movement		✓	
			In-combination effects		✓	
		Goosander (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Grey plover (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Long-tailed duck (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Oystercatcher (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Red-breasted merganser (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Sanderling (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Shelduck (non-breeding)	Collision		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
			Barrier to movement		✓	
			In-combination effects		✓	
		Velvet scoter (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Waterfowl assemblage (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
Migratory Non-Seabird Sites (Inland Waterbodies)						
Loch of Skene SPA and Ramsar site	135.3	Greylag goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Common goldeneye (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Goosander (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
Loch Leven SPA and Ramsar site	205.8	Pink-footed goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
		Shoveler (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Whooper swan (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Cormorant (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Gadwall (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Goldeneye (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Pochard (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Teal (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
		Tufted duck (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Waterfowl assemblage (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
South Tayside Goose Roosts SPA and Ramsar site	213.8	Greylag goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Pink-footed goose (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Wigeon (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
		Waterfowl assemblage (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	
River Spey – Insh Marshes SPA and Ramsar site	228.3	Hen harrier (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	

European Site	Closest Straight-Line Distance to Wind Farm Development Area (km)	Relevant Qualifying Features	Effect pathway	Project Phase		
				C	O&M	D
		Whooper swan (non-breeding)	Collision		✓	
			Barrier to movement		✓	
			In-combination effects		✓	

Notes:

1. The Assemblage qualifying feature of a site is screened in if a qualifying feature corresponding to the assemblage type (e.g. seabird, waterfowl), or a named component species of the assemblage, is screened in for further assessment in the Report to Inform Appropriate Assessment on the basis that LSE cannot be ruled out.

2. Breeding seabird qualifying features which are included on the basis of potential connectivity during the breeding season only.

3. Breeding seabird qualifying features which are included on the basis of potential connectivity during the non-breeding season only.

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Appendix 1: Figures

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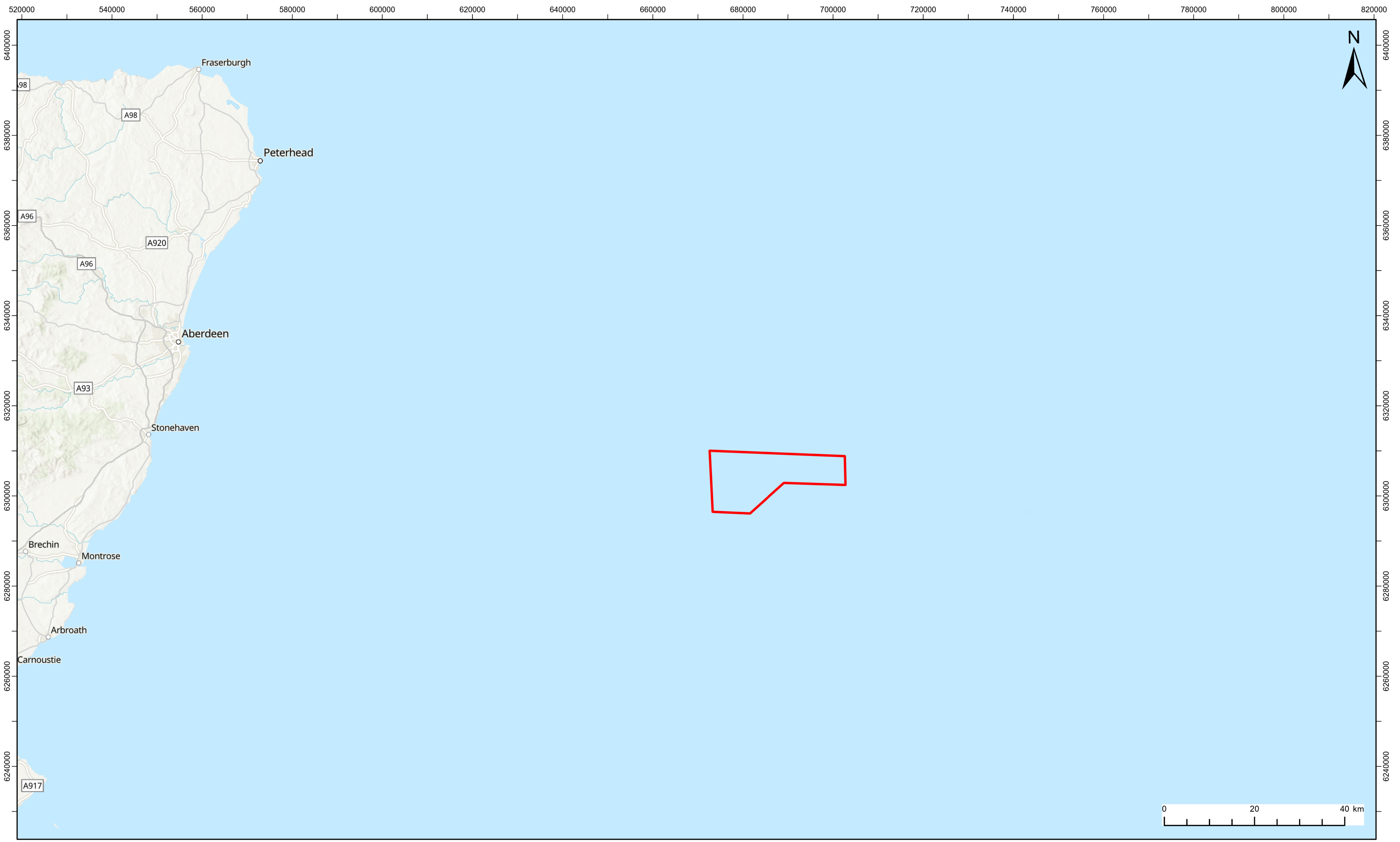


Legend:

Bellrock WFDA Screening Boundary

Rev 1	23/02/2024	Final	GC	HF	JM
REV	DATE	STATUS	DRW	CHK	APR

Coordinate System: WGS 1984 UTM Zone 30N

Source: Esri UK, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS, Esri, CGIAR, N Robinson, NCEAS, USGS, Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS

Scale @ A3 1:750,000

Figure Title:

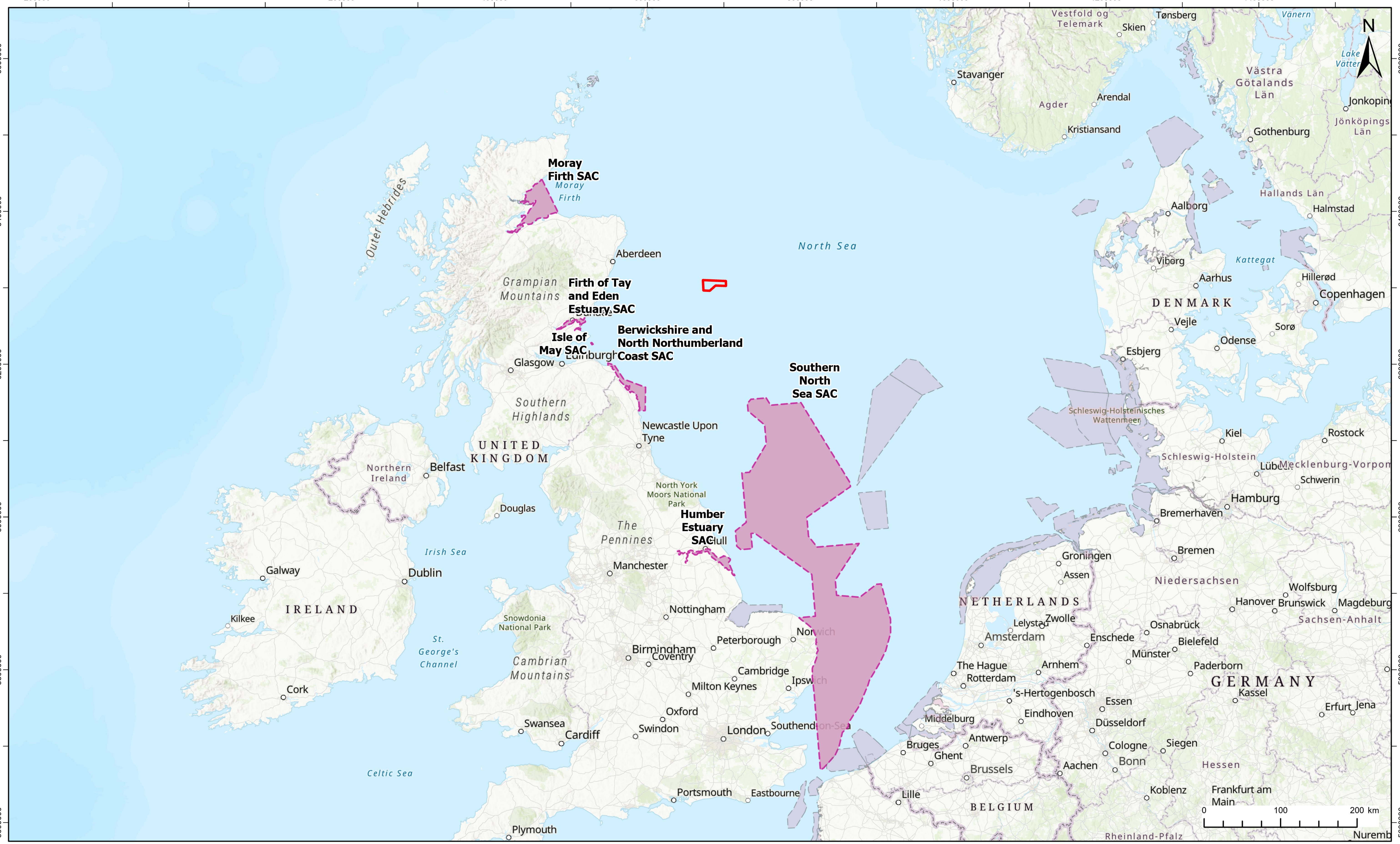
Bellrock WFDA Screening Boundary

Project: Bellrock WFDA

Report: HRA Screening Report

Drawing No.: RHDHV_BEL_CST_FGR_0031

Figure 1.1



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Legend:

- Bellrock WFDA Screening Boundary
- Designated Sites Screened In
- Designated Sites Screened Out

REV	DATE	STATUS	DRW	CHK	APR
Rev 1	12/03/2024	Final	GC	HF	JM

Coordinate System: WGS 1984 UTM Zone 30N

Source: JNCC, European Environment AgencyEsri, TomTom, FAO, NOAA, USGS, Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, USGS

Scale @ A3
1:4,500,000

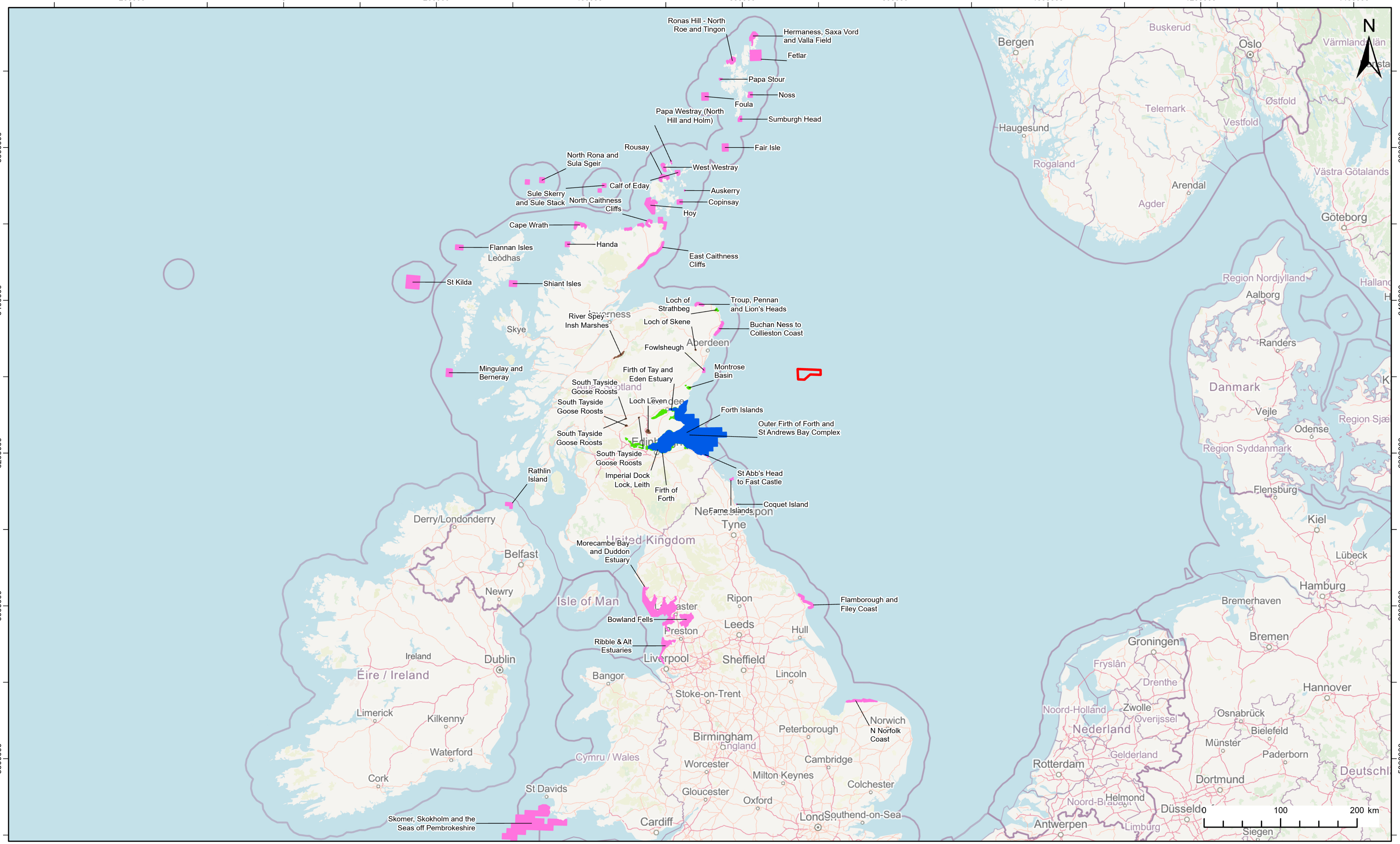
Figure Title: **Designated Sites Where Marine Mammals are a Qualifying Feature (or Feature of Interest) Screened into the HRA for Further Assessment**

Project: Bellrock WFDA

Report: HRA Screening Report

Drawing No.: RHDHV_BEL_CST_FGR_0018

Figure 6.1



Legend:

- Bellrock WFDA Screening Boundary
- Breeding Seabird Colony Sites
- Migratory Non-Seabird Sites (Estuarine)
- Migratory Non-Seabird Sites (Inland Waterbodies)
- Marine SPAs

Rev 1	12/03/2024	Final	GC	HF	JM
REV	DATE	STATUS	DRW	CHK	APR

Coordinate System: WGS 1984 UTM Zone 30N

Source: Esri, TomTom, FAO, NOAA, USGS, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri

Scale @ A3 1:4,500,000

Figure Title:
Location of Special Protection Areas (SPAs) Designated for Ornithological Features Taken Forward for Determination of LSE

Project: Bellrock WFDA

Report: HRA Screening Report

Drawing No.: RHDHV_BEL_CST_FGR_0019

Figure 7.1

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