Environmental Impact Assessment Report
Volume 4: Outline Offshore Invasive Non-Native Species (INNS) Management Plan

MarramWind Offshore Wind Farm

December 2025

MarramWind

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Contents

1. Introduction

1.1 Overview

1.1.1.1 This Outline Offshore Invasive Non-Native Species Management Plan (INNSMP) has been produced to accompany the Environmental Impact Assessment Report (EIA Report) and aims to secure specific measures to avoid, reduce or remedy likely significant effects associated with invasive non-native species (INNS) during the relevant stages of the MarramWind Offshore Wind Farm (hereafter, referred to as 'the Project').

1.1.1.2 This Outline Offshore INNSMP relates to M-102 of **Volume 3, Appendix 5.2: Commitments Register**.

1.1.1.3 This Outline Offshore INNSMP s part of a suite of outline plans prepared for the Project at the point of submissions for the consents, marine licences and permissions noted above. With agreement from Marine Directorate - Licensing Operation Team (MD-LOT) during a Quarterly Project Update call held on 18 September 2025, a single set of outline plans has been prepared and submitted with these being relevant to each of the marine licence applications submitted for the Project. This approach avoids any duplications of plans across the multiple marine licence applications required for the generating station and transmission components of the Project.

1.2 Project background

1.2.1.1 The Project is wholly owned by Scottish Power Renewables UK Limited (SPR). MarramWind Limited, a subsidiary of SPR, is the Applicant for the Project.

1.2.1.2 The Project is a proposed floating wind farm located in the North Sea, with a grid connection capacity of up to 3 gigawatts (GW). The location of the Project is determined by the Option Area Agreement (OAA), which is the spatial boundary of the Northeast 7 (NE7) Plan Option within which the electricity generating infrastructure will be located. The NE7 Plan Option is located north-east of Rattray Head on the Aberdeenshire coast in north-east Scotland, approximately 75 kilometres (km) at its nearest point to shore and 110km at its furthest point. An option to lease agreement for the Project within the NE7 Plan Option was signed in April 2022.

1.2.1.3 A summary of the Project is provided in **Volume 1, Chapter 1: Introduction** and a comprehensive description of the Project is provided in **Volume 1, Chapter 4: Project Description**.

1.2.1.4 This Offshore INNSMP relates to the management of INNS to works in the marine environment. The Project's offshore infrastructure, located seaward of Mean High Water Springs (MHWS) is illustrated in **Figure 1** and includes the following:

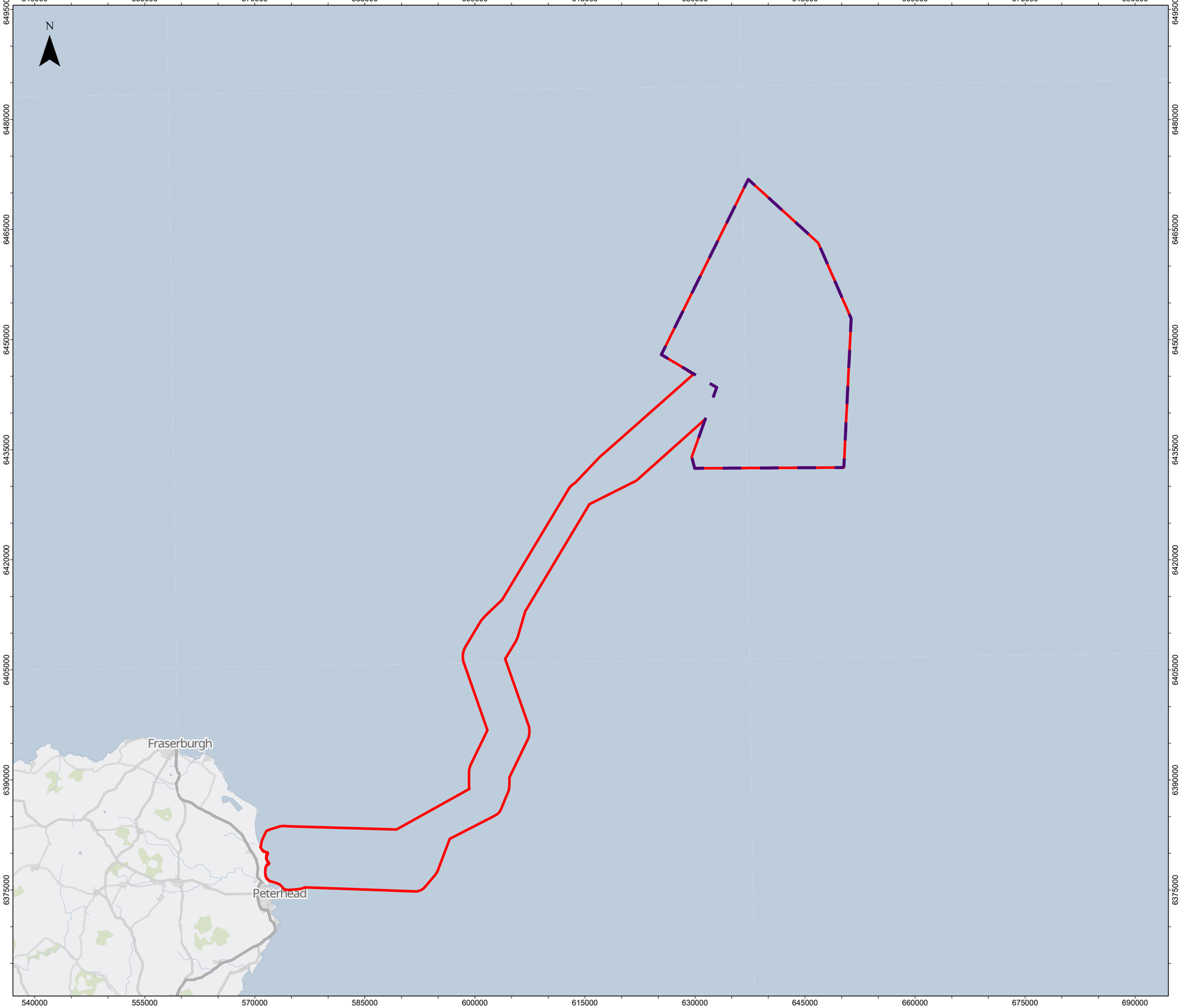
- wind turbine generators (WTGs), including WTG floating units (platforms, anchors, and mooring lines);
- array cables;
- subsea distribution centres (SDCs);
- subsea substations;
- offshore substations;
- reactive compensation platform(s) (RCPs) (if required); and

- offshore export cable corridor to connect the offshore infrastructure to the landfall(s).

1.2.1.5 The EIA Report accompanies applications for offshore consents, licences and permissions for the Project to MD-LOT under Section 36 (s.36) of the Electricity Act 1989, the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009, for the offshore infrastructure seaward of MHWS.

1.2.1.6 The EIA Report also accompanies an application to Aberdeenshire Council for Planning Permission in Principle consent under The Town and Country Planning (Scotland) Act 1997, for the onshore infrastructure landward Mean Low Water Springs (MLWS).

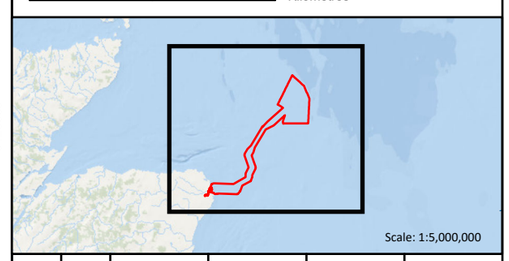
1.2.1.7 There are four sets of EIA regulations applicable to the Project: the Electricity Works (EIA) (Scotland) Regulations 2017 for offshore generating stations requiring s.36 consent; the Marine Works (EIA) (Scotland) Regulations 2017 and the Marine Works (EIA) Regulations 2007 for marine licence applications within Scottish territorial waters (0 to 12 nautical miles) and offshore waters (12 to 200 nautical miles) respectively; and the Town and Country Planning (EIA) (Scotland) Regulations 2017 for planning applications submitted to Aberdeenshire Council for onshore infrastructure located landward of MLWS.



Offshore Red Line Boundary

Option Agreement Area

0 10 20 Kilometres



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PROJECT TITLE

MarramWind Offshore Wind Farm

DRAWING TITLE

Figure 1 Offshore Red Line Boundary

Environmental Impact Assessment Report
Volume 4 Outline Invasive Non-Native Species (INNS) Management Plan

NOT TO BE USED FOR NAVIGATION

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1.3 Purpose of the Invasive Non-Native Species Management Plan

1.3.1.1 Non-native species are plants and animals that have been introduced to the environment by human activities in locations where they would not naturally occur. Many non-native species are harmless but where non-native species spread and interact with other species or habitats to the detriment of native species, these can become INNS. INNS can damage natural habitats and populations of native species, which can have environmental, economic and human health impacts. INNS can be transported around the world by marine vessels and the introduction of material into the marine environment from other locations. Therefore, it is essential for the Project to manage its risk of contributing to the introduction and / or spread of INNS. This is achieved via an Offshore INNSMP.

1.3.1.2 The Outline Offshore INNSMP will form the basis of the Final Offshore INNSMP. The Final Offshore INNSMP will be finalised and approved post-consent via a discharge of condition(s) relevant to all stages of the Project (i.e. construction, operation and maintenance (O&M), and decommissioning) prior to construction by Scottish Ministers in accordance with s.36 and associated marine licences. This will allow features of evolving design and implementation of the project to be appropriately reflected in the plan. From this point on, the Offshore INNSMP refers to the final, approved Offshore INNSMP.

1.3.1.3 This Outline Offshore INNSMP sets out the INNS management approach and controls that will be put in place and adopted by the Applicant, including where these would be implemented by any third party contractors and sub-contractors as appropriate. The purpose of these measures is to reduce the spread and mitigate the potential impact of INNS resulting from activities associated with the construction, O&M, and decommissioning stages of the Project's offshore infrastructure, seaward of MHWS. The Offshore INNSMP will be followed during all stages of the Project (construction, O&M and decommissioning) and during vessel operations.

1.3.1.4 The broad objectives of the Outline Offshore INNSMP are as follows:

- To provide a framework to ensure that measures are implemented to reduce the introduction and spread of INNS, and mitigate associated adverse environmental impacts during all construction, O&M, and decommissioning works.
- To ensure that all procedures pertaining to marine works (including construction, O&M and decommissioning of subsea structures) and vessel operations follow best practice guidance, thus preventing and reducing the risk of possible spread or introduction of INNS into Scottish waters.
- To establish a clear monitoring and recording system, along with effective communication pathways, in the event of any potential introduction of INNS as a result of the Project works in the marine environment; and
- To provide a framework for compliance auditing and inspection to enable the Applicant to be assured that the necessary levels of environmental performance are being met.

1.3.1.5 The Final Offshore INNSMP shall state the legislative requirements, current standards of practice and best practice measures that define the standard of construction, O&M, and decommissioning practices adhered to by the Contractors. However, adhering to the Final Offshore INNSMP does not absolve the Applicant, its contractors or subcontractors from complying with legislation and bylaws relevant to their construction, O&M, and decommissioning activities.

1.3.1.6 This Outline Offshore INNSMP has been prepared with consideration of feedback received from stakeholders via the Scoping Opinion, statutory consultation and wider engagement, through which it was emphasised that management plans should be sufficiently robust to

serve as effective embedded environmental measures where they are integral to impact reduction. Table 10.1 of **Volume 1, Chapter 10: Benthic, Epibenthic and Intertidal Ecology** presents stakeholder concerns related to INNS.

1.3.1.7 This Outline Offshore INNSMP will be updated and submitted to the Scottish Ministers prior to each stage of the Project (construction, O&M and decommissioning), in consultation with relevant regulatory bodies and stakeholders such as MD-LOT, Marine Science Scotland, NatureScot, and the Scottish Environment Protection Agency (SEPA), regarding specific requirements for the management of INNS.

1.3.1.8 The Final Offshore INNSMP will be reviewed and further updated prior to initiation of the O&M and decommissioning stages and will comply with relevant consent conditions.

1.4 Legislation and guidance

1.4.1.1 This Outline Offshore INNSMP has been developed with reference to the following key European level (EU) and UK level legislation and guidance:

- EU Regulation 11/43/2014 on the prevention and management of the introduction and spread of invasive alien species*;*
- International Maritime Organization (IMO), International Conversion for the Control and Management of Ships' Ballast Water and Sediments (adopted in 2004) (IMO 2021);
- IMO Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (IMO, 2023);
- The Wildlife and Countryside Act 1981;
- Resolution MEPC.207(62) 2011 Guidelines for the Control and Management of Ships Biofouling to Minimize the Transfer of Invasive Aquatic Species;
- The Invasive Non-Native Species (Amendment etc.) (EU Exit) Regulations 2019;
- The Merchant Shipping (Anti-Fouling Systems) Regulations 2024;
- The Animal Welfare and Invasive Non-Native Species (Amendment etc.) (EU Exit) Regulations 2020;
- Marine Biosecurity Planning - Guidance for producing site and operation-based plans for preventing the introduction of non-native species (Payne *et al*., 2014);
- Marine Biosecurity Planning – Identification of best practice: A review. Scottish Natural Heritage Commissioned Report No. 748 (Cook *et al*., 2014); and
- MD-LOT guidance: Marine licensing and consenting: offshore renewable energy projects – mitigation and monitoring plans (Invasive Non-Native Species Mitigation Plan) (Scottish Government, 2025).

1.4.1.2 In Scotland, INNS are regulated under section 14 of the Wildlife and Countryside Act 1981. This provision was updated in 2012 with the enactment of sections 14 to 17 of the Wildlife and Natural Environment (Scotland) Act 2011.

1.4.1.3 In 2012, the Scottish Government issued the Code of Practice on Non-Native Species (Scottish Government, 2012), which sets out a framework of responsibilities for bodies with authority over invasive non-native species. The Code outlines guidance for developers on operating in accordance with legal requirements to minimise the impact of INNS on the marine environment. It outlines a three-tiered framework, which includes prevention, rapid response, and strategies for control and containment.

1.4.1.4 The Great Britain Invasive Non-Native Species Strategy (HM Government, 2015) also outlines a tiered approach for managing INNS: (i) prevention, (ii) early detection, surveillance, monitoring, and rapid response, and (iii) long-term management and control.

1.4.1.5 Scottish Government (2020) identifies INNS as a significant threat to marine biodiversity and related industries, including aquaculture. The policy underscores the importance of establishing a rapid-response framework to prevent the colonisation of new invasive species within Scotland's seas and islands, recognising their considerable risk to the health of marine ecosystems.

1.4.1.6 Payne *et al*. (2014) serves as the structural foundation for the subsequent Offshore INNSMP and provides detailed, step-by-step instructions for developing an INNS management plan. Cook *et al.* (2014) support this methodology through their review of Payne (2014) commissioned by Scottish Natural Heritage.

1.4.1.7 The latest guidance from MD-LOT, issued in July 2025 (Scottish Government, 2025), specifies the necessity for comprehensive information and well-defined commitments to be included within the Outline Offshore INNSMP at the application stage. This guidance also offers recommendations and best practices that should be adhered to.

1.5 Implementation of the Offshore Invasive Non-Native Species Management Plan

1.5.1.1 The Offshore INNSMP is an iterative document that evolves throughout the development and refinement of the Project's detailed design process, procurement and construction.

1.5.1.2 The Final Offshore INNSMP, approved by Scottish Ministers, will be incorporated into the contracts for Principal Contractors responsible for the works. All parties involved, including Principal Contractors, subcontractors and their suppliers, must comply with the relevant provisions detailed in the Final Offshore INNSMP. They are obligated to provide documentation outlining how they will guarantee both the implementation and monitoring of the Offshore INNSMP requirements.

1.6 Scope of Offshore Invasive Non-Native Species Management Plan

1.6.1.1 This Outline Offshore INNSMP covers the following:

- implementation of the Offshore INNSMP specific to the Project. This includes:
  - roles and responsibilities;
  - site characteristics;
  - pathways for the introduction and / or spread of INNS;
  - biosecurity control measures;
  - biosecurity surveillance, monitoring and reporting procedures;
  - contingency plan;
  - monitoring and review;
- a list of references;
- glossary and abbreviations; and

- Offshore INNSMP methodology.

1.6.1.2 The Final Offshore INNSMP(s) will be prepared and approved prior to construction and will:

- Align to the confirmed suite of consents, including the Section 36 consent and relevant marine licences, and reflect the final construction and O&M methodologies agreed through procurement.
- Include a concise 'licence-mapping' (**Appendix B**) appendix that identifies which INNS controls apply to each licence and stage of the Project (construction, O&M and decommissioning).
- Incorporate Contractor method statements (for example, towing / wet storage, port interface) where specific activities require additional risk controls or report provisions.

1.6.1.3 Where this Outline INNSMP references 'towed / wet stored floating assets', this is to signal the potential for licence- or method-specific controls that will be finalised post-consent in consultation with MD-LOT and NatureScot.

1.7 Other related implementation plans

1.7.1.1 The Offshore INNSMP will be developed with consideration of the content and requirements of other relevant Implementation Plans. These are set out in **Table 1.1** below with details of the linkages.

Table 1.1 Other related implementation plans to the Offshore INNSMP

Implementation plan	Linkage with Offshore INNSMP
Environmental Management Plan	The **Outline Environmental Management Plan** provides the overarching framework for environment management during the construction and O&M stage of the Project.
Marine Pollution Contingency Plan	The **Outline Marine Pollution Contingency Plan**, which is appended to the **Outline Environmental Management Plan** provides a list of procedures to safeguard the marine environment and respond to any potential accidental pollution event during the construction, O&M and decommissioning stages of the Project.
Scour Protection Management Plan	The **Outline Scour Protection Management Plan** outline key principles of management the protection of array cables, SDCs, subsea substation, offshore substations, export cables and RCP, from the effects of scour, immediately following construction and during the O&M stage of the Project.
Marine Mammal Mitigation Plan	The **Outline Marine Mammal Mitigation Plan** provides contingency arrangements to respond to and minimise the impacts of noisy activities, such as unexploded ordnance (UXO) detonation and piling, associated with the Project.
Outline Fisheries Mitigation, Monitoring and Communication Plan	The **Outline Fisheries Mitigation, Monitoring and Communication Plan** provides the strategy for engaging, consulting, liaising, communicating and undertaking mitigation actions with respect to the fishing industry during the construction, O&M and decommissioning stages of the Project.

Implementation plan	Linkage with Offshore INNSMP
Vessel Management and Navigational Safety Plan	The **Outline Vessel Management and Navigational Safety Plan** provides information regarding the type and number of vessels involved during construction and O&M stages of the Project, together with navigational safety measures to be implemented during these stages.

2. Project Invasive Non-Native Species Management Plan

2.1 Roles and responsibilities

2.1.1.1 All personnel employed by the Applicant, including third party contractors and subcontractors, will be required to adhere to the commitments and requirements set out in the Offshore INNSMP and its associated documents. While contractors may implement their own internal procedures, these must meet or exceed the standards and embedded environmental measures specified within the Offshore INNSMP.

2.1.1.2 A preliminary overview of the roles and associated responsibilities in relation to the Outline Offshore INNSMP is presented in **Table 2.1**. These will be confirmed following Project consent and refined as needed throughout the different stages of the Project. Final definitions and agreement on these responsibilities will be reached with MD-LOT prior to the start of construction works.

Table 2.1 Roles and responsibilities for the implementation of the Offshore INNSMP

Roles	Responsibility
The Applicant	Responsible for overall implementation of the Offshore INNSMP. Ensures compliance with relevant legislation and licence conditions and coordinates with regulators and oversees contractor delivery.
Independent Environmental Clerk of Works (ECoW)	Independent oversight and quality assurance of the INNSMP. Monitors Contractor and Subcontractor compliance with the INNSMP throughout all phases of the Project.
Biosecurity manager	Delegated responsibility for day-to-day implementation of the INNSMP.
Contractors and subcontractors	Responsible for implementing, and adhering to, the INNSMP. Reports any early warning INNS concerns or observations to the Biosecurity Manager.

2.2 Step 1: Understanding your site

2.2.1 Environmental conditions affecting your site

2.2.1.1 The Offshore Red Line Boundary (**Figure 1**) includes the OAA; offshore export cable corridor; and the landfall zones up to MHWS. The OAA is located in the North Sea 75-110km offshore (at its nearest and farthest points from shore respectively) of the north-east Aberdeenshire coastline, in Scotland.

2.2.1.2 The Project intersects the Southern Trench Nature Conservation Marine Protected Area (nCMPA). The Turbot Bank NCMPA (approximately 62km south of the OAA) awhile situated outside the Offshore Red Line Boundary, is noted due to their inclusion within the broader marine context considered during environmental assessment.

2.2.1.3 Water depths within the Project OAA range from 87.8 to 133.7m below Lowest Astronomical Tide (LAT). In the wider area, depths generally range from 50 to 100m LAT, increasing to over 200m LAT at the eastern end of the Southern Trench in the Outer Moray Firth. Along the offshore export cable corridor, depths decrease progressively from around 103 to 15m and reduce from 10 to 0m on approach to landfall(s). The OAA lies within a semi-diurnal tidal regime, with a mean spring range of approximately 1.7 to 1.9m and a mean neap range of approximately 0.8 to 1.0m. Tidal currents typically flow south during the flood and north during the ebb. Offshore, these currents are relatively weak, generally between 0.3 and 0.4m/s. In contrast, stronger tidal currents occur nearer the coast, where peak spring flows can reach up to 1.5m/s. In these areas, tidal flows also become more aligned with the coastline, and spring tidal excursions can extend over 10km.

2.2.1.4 As the Project OAA is located in offshore waters with no nearby freshwater inflows, the salinity levels are anticipated to align with those characteristics of the broader North Sea marine environment. No significant freshwater sources are present near the offshore export cable corridor that would directly impact salinity levels within the Red Line Boundary.

2.2.1.5 The seabed within the Project OAA is predominately characterised by the presence of deep circalittoral muddy sand and deep circalittoral sand environments, which is characteristic of the North Sea. The mid- to offshore sections of the offshore export cable corridor include the same habitats as the wind farm within OAA as well as deep circalittoral coarse sediment. The inshore section of the Red Line Boundary features bedrock, sand, mud and mixed sediments composed of medium to fine sand, with coarse sand and very fine pebbles which is typical of the wider region, representing a mosaic of different habitat types.

2.2.1.6 Further information on benthic and subtidal characteristics can be found in **Volume 1, Chapter 10: Benthic, Epibenthic and Intertidal Ecology**.

2.2.2 Information related to any slow or stationary periods or climactic conditions that may increase biosecurity risk

2.2.2.1 Environmental conditions at the Project are detailed in **Volume 1, Chapter 6: Marine Geology, Oceanography, and Physical Processes.**

2.2.2.2 As outlined above, the OAA is subject to comparatively weak tidal currents, which may elevate biosecurity risks due to the increased likelihood of fouling organisms colonising newly introduced substrates. In addition, these low-energy conditions reduce natural scouring and flushing.

2.2.3 INNS in the Red Line Boundary and wider Scottish North Sea

2.2.3.1 In the UK known Non-Native Species (NNS) are categorised into high-, medium-, low- or unknown-impact species (NatureScot, 2024), based on likely impacts on biodiversity.

2.2.3.2 In the North Sea region, including the Aberdeenshire coast, several marine INNS have been recorded or are considered high-risk due to their capacity to establish on artificial structures and impact native biodiversity. Notable animal species include carpet sea squirt (*Didemnum vexillum*), which forms extensive colonies on submerged surfaces, and Japanese skeleton shrimp (*Caprella mutica*), often transported via fouled vessels and aquaculture gear.

2.2.3.3 Slipper limpet (*Crepidula fornicata*) is also of concern for its ability to alter benthic habitats and outcompete native species. Other species of interest include the leathery sea squirt (*Styela clava*), which thrives on hard substrates, and *Codium fragile* subsp. *tomentosoides*, a macroalga capable of displacing native kelp species. These species have been identified through surveillance in Scottish waters and are recognised by NatureScot and the GB Non-

Native Species Secretariat (GBNNSS) as key targets for monitoring and control (NatureScot, 2023; GBNNSS, 2024).

2.2.3.4 Further algal species such as wireweed (*Sargassum muticum*) and wakame (*Undaria pinnatifida)* are also of concern due to their high growth rates and ability to displace native seaweed species.

2.2.3.5 The presence of *Goniadella gracilis and Monocorophium sextonae* were recorded during site-specific surveys of the offshore export cable corridor, while no INNS were recorded during intertidal surveys across the marine landfall, as reported in **Volume 1, Chapter 10: Benthic, Epibenthic and Intertidal Ecology**. *G. gracilis* is a small (approximately 3 cm) polychaete worm, originally described from the northeastern United States, and now found in European waters including the North Sea. *M. sextonae* is a small burrowing amphipod crustacean, native to New Zealand. It was introduced near Plymouth in the 1930s and had spread to Ireland by the late 1970s. It can now be found along the European coast from southern Norway to the Mediterranean and is considered naturalised. Analysis of baseline data is ongoing as part of the consenting and pre-construction stages. Should further INNS be identified through continued review or future survey updates, this Section will be revised and updated.

2.2.3.6 Post-construction monitoring conducted at the Beatrice Offshore Wind Farm (APEM, 2021) reported no detected incidence of INNS on wind turbine foundations subsequent to installation vessel activity originating from international ports. In addition, a meta-analysis conducted by Dauvin (2024) states that no relationship has yet been clearly established between the implementation of offshore wind farms and the colonisation of INNS on turbine foundations and scour protection, based on review of post-construction data from 25 offshore wind farms located internationally, including the North Sea. The installation of offshore wind turbine foundations does not, therefore, appear to inherently facilitate the proliferation of INNS in Scottish North Sea waters over relatively short timeframes.

2.2.3.7 While this evidence is encouraging, it does not eliminate the possibility that offshore wind farm infrastructure could contribute to the introduction or spread of INNS under certain circumstances in the longer term. Marine regulators, including NatureScot and MD-LOT, continue to highlight INNS as a key environmental concern, particularly as offshore wind farms expand into new areas and involve increased vessel traffic. Notably, these studies primarily reflect offshore turbine locations and do not fully account for potential INNS risks in nearshore zones.

2.3 Step 2: Understand how INNS can be introduced or spread to your site

2.3.1 Vessel / Equipment to be used in the array

2.3.1.1 **Table 2.2**, **Table 2.3** and **Table 2.4** outline expected vessel and foundation types for use in the OAA and offshore cable corridor during construction, O&M, and decommissioning. Each is assigned a preliminary INNS risk rating based on current Project data. The table will be updated as vessel routes, foundations, and contractor details are confirmed, ensuring the assessment remains accurate and aligned with the final Project design.

2.3.1.2 The EIA Report is currently informed by a maximum design scenario, which represents the most up-to-date information available. This scenario accounts for the potential use of a range of vessel and offshore infrastructure types as detailed in **Table 2.2**. This Section will be updated once final specifications are confirmed, and infrastructure-specific INNS risks will then be reassessed using the methodology in **Appendix A**.

2.3.1.3 To avoid duplication at outline stage, activity-specific controls are grouped by risk pathway (for example, vessels, marine structures, towing / wet storage).

Table 2.2 Example vessel and marine structures to be used

Vessel / marine structure	Parameter	Details and Risk Factor Assumptions	Risk of INNS introduction
Vessels (construction and decommissioning)	Indicative information on vessel types and quantities for each stage is listed below in **Table 2.3**.	• The source location and routing of the vessels for construction and decommissioning has not yet been determined and will be confirmed once this information becomes available. • All vessels to have valid anti-fouling coatings and inspection records. • Vessels will operate best practice ballasting and not discharge ballast water on site. • Vessels are expected to move slowly when installing or removing structures. • Up to 10 vessels may be operating on site at any one time during the site preparation and construction stages. • It is estimated that approximately 3,838 individual vessels transits would be required during the construction of the Project.	Low
Vessels (O&M)	Indicative information on vessel types and quantities for each stage is listed below in **Table 2.3**.	• The source location and routing of the vessels for O&M stages has not yet been determined and will be confirmed once this information becomes available. • Vessels will be required to have an anti-fouling coating and inspection history. • Vessels will operate best practice ballasting and not discharge ballast water on site. • Vessels are expected to move slowly when undertaking maintenance activities.	Low
Marine structures	WTG floating units, SDCs, subsea substations, offshore substations (including jacket foundations) and RCP(s) (including jacket foundations).	• There will be between 126 – 225 floating WTGs and associated floating units. • WTGs will each be mounted on a floating unit and secured to the seabed by up to eight mooring lines and seabed anchors (drag embedment, driven pile and / or suction anchors). • All infrastructure components, including anchors, chains, cables, and subsea platforms (subsea substations, SDC, RCP), may also become biofouled over time due to prolonged submersion and exposure. • The design allows for up to four offshore substations and two RCP's with jacket foundations (secured by driven piles or	Low

Vessel / marine structure	Parameter	Details and Risk Factor Assumptions	Risk of INNS introduction
		suction caisson) and possible scour protection. • Risk assessed as 'Low' due to offshore setting and embedded biosecurity controls, reducing the likelihood of transfer and colonisation.	
Scour and cable protection, and cable burial	Rock placement, Localised: concrete mattresses, bags, or steel split pipe.	• Scour protection may be installed for certain offshore substation jacket foundations and RCPs jacket foundations. • Cable burial and protection materials may be installed for the array cables and the offshore cable corridor. • Vessels are expected to move at slow speeds during cable lay and cable burial operations.	Low

Table 2.3 Indicative vessel types and quantities during the construction stage

Activity	Vessel type	Indicative number
Offshore substations foundation installation	Heavy lift vessel	1
	Support vessel	5
	Barge (if required)	1
WTG Floating units towage	Anchor handling tug supply (AHTS) vessel	3
WTG Floating units installation / mooring hook up	AHTS vessel	5
Cable installation for the offshore export cable corridor	Survey vessel (pre and post-lay)	1
	Cable lay vessel	1
	AHTS vessel (for trenching / bounder removal / pre-lay grapnel run / unexploded Ordnance removal)	2
	Offshore construction / larger AHTS vessel (for sand wave clearance)	2
	Rock dumping vessel	2
Cable installation for the array cables	Survey vessel (pre and post-lay)	2
	Cable lay array	2
	AHTS vessel (for trenching)	2

Activity	Vessel type	Indicative number
	Rock dumping vessel	2
Anchor installation	Offshore construction vessel / larger AHTS	2
Mooring line installation	Offshore construction vessel	2
	AHTS vessel	2
Support vessels	Guard vessel	2
	Service operation vessel	2
	Support vessel	3

Table 2.4 Indicative vessels to be used during the O&M stage

Component	Design envelope
Average annual SOV movements	2-week rotation x 2 vessels when full 3GW built out.
Average annual jack-up vessel movements (in-field maintenance)	Jack-up or offshore accommodation vessels would only be for major maintenance, assumed once every 10 years. It would seldom move during this time, remaining in position or significant operations, then moving to the next offshore substation for example, as opposed to coming to shore. It would be “fed” by supply vessels / personnel transfer by helicopter for the period it is there. Time in-situ is assumed to be 4 weeks per offshore substation.
Average annual towing spread movements (tow-to-port maintenance)	Unknown currently, but a conservative assumption is that every floating unit moves once every five years in first instance. This may reduce over time.
Average annual anchor handling vessel movements	Only relevant if drag embedment anchors are used, with a conservative assumption being the relaying of 12 drag embedment anchors per year.
Average annual helicopter transfers	On an ad hoc basis, daily trips four weeks of the year are assumed.
Average annual cable laying vessels movements	Up to five array cable changes are assumed per year at full 3GW scale.
Average annual diving support vessels movements	The Project is designed for ROV replacement, with diving support a back-up option only. A conservative assumption is that diving would be used on an ad hoc basis two weeks a year with two transits to shore.
Guard vessels	Two dedicated guard vessels will operate year-round on a two-week rotation to maintain site safety and enforce exclusion zones in accordance with MCA Marine Guidance Note (MGN) 654 and COLREGs. Their primary role is to monitor marine traffic and support navigational risk mitigation

Component	Design envelope
	during O&M activities. Under the worst-case scenario, this results in approximately 104 round trips and 208 transits per year, ensuring continuous coverage of the offshore array and associated infrastructure.

2.3.1.4 **Table 2.2** and **Table 2.3** will be updated prior to the construction stage whereby vessel specifications and quantity requirements are confirmed, following contractor procurement.

2.4 Step 3: Identifying activities which risk introducing non-native species

2.4.1.1 **Table 2.5** contains a list of Project activities that may pose a risk of introducing or spreading INNS. This list is based on the current project description presented in **Volume 1, Chapter 4: Project Description** and will be updated according to the final Project design. These activities are identified as potential sources of INNS introduction during the construction, O&M, and decommissioning stages.

Table 2.5 Project activities that may pose a risk of introducing or spreading INNS

Project stage	Activity Description
Pre-construction and construction	• wet storage of project infrastructure components; • towing of WTGs and other floating infrastructure to site; • presence of new structures in the water column; • installation of WTGs, including floating units, anchors, and mooring lines; • installation of offshore substations (including jacket foundations), subsea substations, SDCs and RCP(s) (including jacket foundation); and • installation of array and offshore cables.
O&M	• inspection surveys; • repairs and replacements • tow-to-port maintenance of floating units and tow-to-site for reconnection after maintenance at port; • painting; • vessel operations including crew changes if by boat; • removal of marine growth; and • cable repair and reburial.
Decommissioning	• decommissioning of WTGs, including floating units, anchors, and mooring lines; • decommissioning of offshore substations, subsea substations, SDCs, WTG floating units and RCP(s), ; • decommissioning of array and offshore cables; and • tow-to-port of WTGS and other floating infrastructure.

2.5 Step 4: Biosecurity control measures

2.5.1.1 The following sections provide information on site-specific risks and control measures in relation to the Project.

2.5.2 Presence of new structures in the water column

Risk description

2.5.2.1 The installation of WTGs, floating units (including anchors and mooring lines), subsea substations, SDCs, offshore substations and RCPs, and associated infrastructure introduces durable, artificial surfaces into a soft-sediment marine environment. These structures can facilitate the settlement and establishment of INNS, particularly benthic species capable of colonising submerged surfaces. Limited accessibility and reduced hydrodynamic flow around these structures may further increase the potential for INNS establishment and persistence.

Control measures

- Expected submerged surfaces of man-made structures may be coated with appropriate anti-fouling or temporary protective coatings prior to installation, to reduce the risk of INNS colonisation. Regular maintenance may include inspection and removal of marine growth,.
- Where possible, any man-made structures used should originate from land and not have been submerged in another marine environment. If marine-sourced components are required, they should be fully dried to eliminate any attached organisms and inspected before deployment. These measures can be carried out port-side or aboard transit vessels.

2.5.3 Vessel movements during construction, O&M and decommissioning stages

Risk description

2.5.3.1 Vessels and mobile marine equipment operating across different regions can act as vectors for INNS via biofouling on hulls, sea chests, propellers, or contained in ballast water. Long-transit or slow-moving vessels, particularly those from international ports, are more likely to carry INNS, which may then be released into the offshore environment if effective biosecurity controls are not in place.

Control measures

- All vessel used during construction, O&M, and decommissioning must comply with IMO guidance (2012) and, where applicable, IMO Biofouling Guidelines (2021), which includes:
  - Ballast water must be exchanged at least 200 nautical miles from land and exceeding 200m depth.
  - Vessels must use approved antifouling systems, including suitable coatings, biofouling-resistant materials, or marine growth prevention technologies.

  - In-water inspections and cleaning must be undertaken in accordance with applicable international standards to prevent INNS transfer.
- All vessels must comply with the International Ballast Water Management Convention (Maritime and Coastguard Agency, 2017), ensuring ballast water is treated or exchanged offshore before discharge at the Project site.
- All Contractors will be required by the Applicant to adhere to all measures set out in this INNSMP.

2.5.4 Towed infrastructure

Risk description

2.5.4.1 Floating WTGs and other project infrastructure may require towing between locations during construction, operation, or decommissioning. These assets can accumulate biofouling, including INNS, during offshore deployment. Tow-to-site and tow-to-port operations present a particular risk, as fouled structures may introduce INNS into nearshore waters or introduce them offshore if redeployed without adequate cleaning.

Control measures

- Where possible, conduct visual inspection for biofouling on accessible submerged areas prior to towing.
- Where practicable, observed biofouling may be removed before towing assets into new locations or ports.
- Incorporate biosecurity risk considerations into towing method statements, ensuring Contractors set out INNS control measures
- Maintain records of inspection, cleaning, and mitigation actions for audit and compliance purposes.

2.5.5 Anchor and mooring line installation

Risk description

2.5.5.1 Anchors and mooring lines can be in direct contact with the seabed, creating risk of INNS spread if previously used or stored in INNS-contaminated areas. Contact with suitable substrates during deployment or retrieval increases the risk of transferring INNS between locations.

Control measures

- Conduct pre-deployment inspection and cleaning of all anchor and mooring line components.
- Limit the time between fabrication, cleaning, and deployment to reduce risk of in-transit colonisation.
- Use sealed containers for transporting subsea equipment to prevent biofouling.
- Train installation crew to visually inspect and report any suspect organisms or fouling.

2.5.6 Scour protection / rock armour installation and materials

Risk description

2.5.6.1 Scour and cable protection measures such as rock placement create hard substrates on the seabed, which can attract and support colonisation by invasive benthic species. These areas are difficult to access and monitor, making early detection and removal of INNS challenging. The widespread use of such materials across multiple wind farm sites and along offshore export cable corridors may act as "stepping stones" for the spread of species in areas of otherwise unsuitable habitat.

Control measures

- Scour and cable protection materials must be sourced from terrestrial environments and must not have been previously submerged in a marine setting.
- Store materials in a controlled, dry environment where feasible to prevent colonisation during laydown.
- Nature inclusive design options that optimise material use for biodiversity may be considered within the Projects' **Nature Positive Plan** on an area-by-area basis

2.5.7 Maintenance and decommissioning activities

Risk description

2.5.7.1 Activities such as inspection, maintenance or removal of subsea infrastructure may disturb established biofouling communities and result in the detachment and dispersion of INNS if present. Where these activities involve towing structures (for example, WTGs and floating units) to or from port, the risks described in **Section 2.5.4** also apply. Additional risk arises if INNS attached to structures are released into nearshore waters during port entry, or introduced offshore if assets are redeployed without adequate cleaning.

Control measures

- Require biofouling assessments before removal of equipment or structures.
- Collect and dispose of removed biofouling in accordance with marine waste regulations.
- If high-risk INNS are found, notify biosecurity Manager immediately and implement containment procedures.
- For any tow-to-port maintenance or decommissioning activities, apply the inspection, cleaning, and record-keeping controls set out in **Section 2.5.4** to prevent the introduction of INNS into nearshore waters.
- Prior to redeployment from port to site, ensure assets are inspected and cleaned where necessary to avoid introducing INNS offshore

2.5.8 Interface with ports and wet storage

2.5.8.1 Tow-to-port and wet storage activities will be managed through Contractor method statements that implement IMO biofouling and ballast water guidance and any post-specific requirements. This Final INNSMP will cross-reference these controls to the relevant marine

licences in the licence mapping (**Appendix B**), ensuring traceability from risk to control at the licence level.

2.6 Step 5: Biosecurity, surveillance, monitoring and reporting procedures

2.6.1 Monitoring protocols

- Following approval of this INNSMP, a logbook will be established to document all checks and actions undertaken, including formal procedures to ensure the Biosecurity Manager is promptly notified of any potential INNS introductions.
- Examples of information to be recorded in the logbook can be found in Payne et al. (2014). All records entered should be accompanied by a date and signature by the Biosecurity Manager.
- Delivery of INNS awareness through site inductions, toolbox talks, and regular briefings to ensure all relevant personnel understand biosecurity risks, monitoring responsibilities, and reporting procedures.

2.6.2 Reporting procedures

- A reporting procedure will be developed in consultation with the relevant statutory bodies and Statutory Nature Conservation Bodies (SNCBs) - which may include, but not limited to, MD-LOT, NatureScot and Joint Nature Conservation Committee (JNCC) - and aligned with consent conditions, to be set out in the INNSMP. This will provide a clear framework for documenting the presence of INNS and the measures taken to mitigate the risk of spread.

2.7 Step 6: Contingency plan

2.7.1 Contingency actions

- A contingency plan will be developed, setting out actions to address potential INNS introductions, in line with the guidance set out in Payne et al. (2014). The plan will:
  - Develop a rapid response protocol to guide site staff in case of confirmed INNS detection.
  - Define specific response tiers based on species risk (for example, alert species = high priority).
  - Establish a pre-approved contractor for emergency biofouling removal and disposal.

2.7.2 Communication pathways

- A clearly defined alert pathway will be established to ensure timely escalation and communication of any confirmed or suspected INNS detections. As a minimum, this will include (MD-LOT, NatureScot, SEPA). A typical alert pathway structure is set out below:

  Biosecurity Manager → ECoW → Applicant → Regulators

- A detailed communication pathway will be developed as part of the final INNSMP, once the relevant roles and recipient stakeholders requiring notification have been established.
- Communication pathways will be detailed within the INNSMP to ensure clear lines of reporting, escalation, and coordination with relevant stakeholders such as MD-LOT and NatureScot.

2.8 Step 7: Monitoring and review

2.8.1.1 The Offshore INNSMP will be reviewed and updated prior to each project stage (construction, O&M, decommissioning).

2.8.1.2 Additional reviews will be triggered by:

- changes in vessel sourcing, construction methods, or materials;
- discovery of new INNS in the region; and
- regulatory feedback or new guidance (for example, from MD-LOT or NatureScot).

2.8.1.3 All inspection and control activities must be recorded in dedicated logbooks. These records will serve as a formal record of compliance and provide evidence for internal audits and regulatory reporting.

2.8.1.4 The INNSMP will be subject to regular review to ensure it remains current and effective. As a minimum, the plan will be updated annually during the construction phase, with additional reviews undertaken if required and in agreement with MD-LOT.

2.8.1.5 Further monitoring and review procedures will be established and implemented within the INNSMP, ensuring that inspections, reporting, and adaptive management measures are in place to effectively manage INNS risks throughout the lifecycle of the Project.

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4. Glossary and Abbreviations

4.1 Abbreviations

Acronym	Definition
AHTS	Anchor Handling Tug Supply
ECoW	Environmental Clerk of Works
EIA	Environmental Impact Assessment
EU	European Level
GBNNSS	Great Britian Non-Native Species Secretariat
GW	gigawatts
INNS	Invasive Non-Native Species
INNSMP	Invasive Non-Native Species Management Plan
JNCC	Joint Nature Conservation Committee
km	kilometre
LAT	Lowest Astronomical Tide
MD-LOT	Marine Directorate – Licensing Operations Team
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MPA	Marine Protected Area
NC	Nature Conversation
NE7	North East 7
NPP	Nature Positive Plan
O&M	Operation and Maintenance
OAA	Option Agreement Area
RCP	Reactive Compensation Platform
s.36	Section 36
SDC	Substation Distribution Centre
SEPA	Scottish Environment Protection Agency
SNCBs	Statutory Nature Conservation Bodies

Acronym	Definition
SPR	ScottishPower Renewables
SSSI	Site of Scientific Interest
UK	United Kingdom
WTG	Wind Turbine Generator

4.2 Glossary of terms

Term	Definition
Biosecurity	The measures taken to prevent the introduction and spread of invasive non-native species (INNS), into the environment or marine ecosystems.

Appendix A Offshore Invasive Non-Native Species Management Plan Methodology

The following sections describe the process of creating the Offshore INNSMP following best practice guidance (Payne *et al*., 2014), information provided in the Code of Practice on Non-Native Species (Scottish Government, 2020), and up-to-date guidance by MD-LOT on INNS mitigation and monitoring plans (The Scottish Government, 2024). A stepwise approach was used to conduct a risk assessment of the Project and develop an appropriate INNSMP, as detailed below from **Section 3.2** to **Section 3.8**.

INNS may occupy different ecological niches, including planktonic, pelagic or benthic. The type of greatest concern for the Project is considered to be hard substrate benthic organisms that might colonise submerged structures. The majority of species identified by NatureScot as threatening Scottish waters fall into this group (NatureScot, 2025).

Step 1: Understanding your site

The parameters outlined below should be considered to inform the understanding of the Project site during development of the INNSMP:

- physico-chemical conditions (for example, salinity, temperature, dissolved oxygen);
- hydrodynamics (for example, tidal flow, current velocity);
- availability of natural or artificial substrata; and
- whether INNS are already present within / on site.

INNS establishment depends on multiple oceanographic and environmental factors, including salinity, depth, current strength, and the presence of suitable substrates. Marine salinities can support a wide range of INNS (Evans, 1980), while strong currents may reduce larval settlement but aid dispersal. Sites with stable, submerged surfaces (natural or artificial) are more susceptible to colonisation, especially if structures remain undisturbed for extended periods.

The risk of INNS establishment is further elevated by the existence of artificial structures, even if the structure has only been present for just a few weeks as INNS can be capable of rapidly forming populations (Bax *et al*., 2003). Periods of low vessel activity or seasonal temperature changes can increase biosecurity risk by creating favourable conditions for settlement and reproduction. These site-specific temporal factors should be recorded during planning and O&M stages.

Even if no INNS have been detected through surveys, their presence cannot be ruled out, particularly in fully saline waters. The INNSMP should prioritise measures that prevent new introductions and contain potential spread. A precautionary approach must be applied throughout all project stages.

Based on the above parameters, sites can be classified as either low or significant risk for INNS introduction and spread.

According to Payne *et al.* (2014), sites are considered low risk for INNS if they receive freshwater input (for example from rivers), are physically isolated (such as enclosed harbours), or have artificial structures regularly treated with antifouling and allowed to air-dry.

In contrast, higher risk sites are typically fully marine with little freshwater inflow, contain untreated or unmanaged artificial structures submerged long-term, lack cleaning access, and are well-

connected to other similar environments. These criteria increase the likelihood of INNS becoming established and spreading.

Step 2: Understand how INNS may be introduced or spread to site

In addition to understanding the site, consideration of pathways by which INNS may be introduced or spread are required. This process should be iterative and revisited whenever the INNSMP undergoes review. The questions and associated risks presented in **Table 3.1**, adapted from Payne *et al.* (2014), illustrate the considerations that should be assessed during the development of an INNSMP.

Table A1 Example questions to support development of an INNS Management Plan (Adapted from Payne *et al.*, 2014)

Consideration	Risk		
	High	Medium	Low
1. Has the vessel / equipment just arrived from the local area?			
2. Has the vessel / equipment had an anti-fouling coating applied to submerged structures within the last 12 months (or time recommended by manufacturer)?			
3. Are all the visible submerged surfaces free of bio-fouling (a green 'slime' is OK)			
4. Do the visible submerged surfaces have more than a green 'slime' coating?			
5. Does the vessel / equipment have noticeable clumps of algae and / or animals clinging to the visible parts of the hull/ rudder/ propeller?			
6. Has the vessel / equipment just arrived from another country, region or water body with similar environmental conditions (for example, seawater temperature)?			
7. Has the vessel / equipment just arrived from a water body known to have NNS present?			
8. Does the vessel / equipment spend long periods of time stationary at sites in between anti-fouling treatments?			
9. Is the vessel 'slow moving', such as a construction barge or drilling rig?			

For example, a recreational vessel with no visible signs of biofouling on the hull or below the waterline may be considered low risk for the introduction of INNS. In contrast, a work vessel or barge that moves between sites and is present at sites for long durations may be considered as a significant medium to high risk of introducing INNS to the site.

For the purposes of this assessment, any activity that falls within the 'Low' category in **Table A1** above is assessed as 'Low' risk. Any activity that falls within the 'Medium' or 'High' categories is assessed as 'Significant' risk. This is considered to present a conservative approach to assessing the risk of introducing INNS.

Step 3: Identifying activities which risk introducing non-native species

The next step is to identify the main activities that take place that could lead to the introduction and / or release of marine INNS at the Project site or to the wider environment.

Activities presenting negligible risk such as those occurring in areas never exposed to seawater are not considered within this plan. Nonetheless, it is advisable to exercise caution by considering all activities conducted in or near water, encompassing both vessels and structures.

A list of example activities that carry a risk of introduction and / or releasing INNS is provided in Payne *et al*. (2014). These are not directly related with offshore renewables, but applicable ones include:

- use of construction barge and slow moving vessels;
- using vessels from locations outside local water body;
- removal of old structures / equipment;
- cleaning of hull and associated structures; and
- maintenance of equipment and vessels.

When identifying activities, there are two possible approaches to follow, as described below. In general, the in-depth approach is recommended (Payne *et al*., 2014).

Simple approach

The simple approach aims to list all the activities that take place on the site, or that may carry a significant risk of introduction and / or releasing INNS, and then to develop control measures for each of these.

In-depth approach

This technique helps the Applicant to better understand the risk of introducing and / or spreading INNS associated with each proposed activity. It also guides the development of biosecurity control measures as well as where and when to apply them. The in-depth approach enables a more rigorous assessment of activities and preventative actions to be incorporated into the INNSMP.

This framework originates from a hazard analysis and critical control point system and is detailed further in Annex B of Payne *et al*. (2014).

This approach comprises the following:

- List site activities: a list of all activities which have a reasonable risk of leading to the introduction of INNS is compiled.
- Describe activities: a brief description of activities is provided based on "who, what, when, where, why and how".
- Split activities into task: activities are subdivided into tasks, which are then briefly described.

- Establish critical control points and control measures: the following is included for each task identified:
  - risk;
  - justification;
  - critical control point;
  - control measure; and
  - who will carry out the control measure.
- Develop an action plan: Based on the control measures developed in Step 4, an action plan is completed, setting out who will carry out the control measure, what they will do and when.

Step 4: Biosecurity control measures

This step identifies adequate biosecurity control measures. It is important that these measures are effective, simple, realistic in their application, and can be easily translated into instructions or recommendations to others.

Control measures enable the Applicant to fulfil the legal requirement take 'reasonable steps' to prevent the introduction of INNS. These measures should take into account the extent of control the Applicant has over the site and its activities and be designed with this in mind.

To make the control measures effective, it is necessary to consider:

- who will carry out the action;
- what they will be doing to reduce the risk of introducing INNS;
- where will the control measure be applied; and
- when will the control measure be applied.

Wherever feasible, biosecurity protocols should be integrated at the design stage of new developments to proactively mitigate any significant risk associated with the introduction or spread of INNS.

Step 5: Biosecurity surveillance, monitoring and reporting procedures

Early detection of INNS on the site is important as this increases the likelihood of successful containment and potential for full eradication. A key component of a successful biosecurity plan is a prompt early warning culture, by which staff and site users are encouraged to report any unusual sightings to the biosecurity manager at the first possible instance, even if it turns out to be a native species.

This step outlines those procedures to be followed in the event of discovering and positively identifying an INNS on site. As part of this process the following should be considered:

- identifying who is responsible for surveillance and monitoring of the site;
- adding actions to encourage vessel operators involved in the Project to be vigilant and report any sightings of concern;
- monitoring the visible signs of biofouling on any vessels or equipment that enter the Project site; and

- staff training and regular communication on biosecurity risks, warning signs, and basic identification skills of INNS that are likely to be exist within the region.

It can be a legal responsibility to report the presence of a high alert or high-risk non-native species in Scotland (Wildlife and Countryside Act 1981 Sect 14B). The biosecurity plan should include a clear and efficient communication pathway for such situations.

Step 6: Contingency plan

A contingency plan should be in place to deal with potential failure of the 'prevention' and 'rapid response' methods implemented within the INNSMP. This document should be short and be accessible to all staff, ensuring it provides a step-by-step action list.

The contingency plan will evaluate the activities outlined in this INNSMP that may introduce or facilitate the spread of INNS and will establish appropriate actions to address any potential failure of the proposed control measures.

It should include possible biosecurity alerts and scenarios, outlining the events that may occur as these scenarios progress and presenting them in a series of stages. It should also provide control, and minimisation measures appropriate for each scenario.

Monitoring and review

Following completion of the INNSMP, an effective documentation system (for instance, a logbook) should be established to ensure accurate recording of all checks and actions undertaken. Additionally, formal procedures must be implemented to promptly notify the biosecurity manager of any potential INNS introductions.

A scheduled review of site and operational plans should be implemented to ensure that the INNSMP is refined and updated as necessary.

Appendix B Licence Mapping Annex

This Appendix will provide a clear mapping between the biosecurity measures set out in the Offshore INNSMP and the specific marine licences and consent conditions applicable to the Project. Its purpose will be to ensure traceability from regulatory requirements to practical implementation, supporting compliance and audit readiness.

This Appendix will:

- identify each relevant licence or consent condition (for example s.36 consent, marine licences for generation, array cables, SDCs, subsea substations, offshore substations, offshore export cables and RCPs);
- cross-reference the INNS control measures, monitoring protocols and reporting obligations that apply to each licence; and
- highlight any activity-specific addendum (for example towing / wet storage, port interference) that will be appended to the Final Offshore INNSMP following contractor procurement and confirmation of construction and O&M methodologies.

This mapping will be updated as part of the Final Offshore INNSMP to reflect:

- the confirmed suite of consents and associated conditions;
- finalised construction and O&M methodologies; and
- stakeholder engagement outcomes with MD-LOT, NatureScot and other statutory stakeholders.

MarramWind