Eastern Green Link 3

Marine Environmental Appraisal

Chapter 4 – Marine Environmental Appraisal Scope and Methodology

Prepared for: Scottish Hydro Electric Transmission plc (SHE-T)

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TRANSMISSION

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Abbreviations/Glossary

CEMP	Construction Environmental Management Plan
EIA	Environmental Impact Assessment
EMODnet	European Marine Observation and Data Network
HVDC	High Voltage Direct Current
IEMA	Institute of Environmental Management and Assessment
JNCC	Joint Nature Conservation Committee
MD-LOT	Marine Directorate - Licensing Operations Team
MEA	Marine Environmental Assessment
MEAp	Marine Environmental Appraisal
MMO	Marine Management Organisation
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
PAC	Pre-Application Consultation
SNCB	Statutory Nature Conservation Bodies
ZoI	Zone of Influence

4. Marine Environmental Appraisal Scope and Methodology

4.1. Introduction

The purpose of the Marine Environmental Assessment (MEA) is to provide a systematic analysis of the impacts of the Proposed Development in relation to the existing (baseline) environment. This Marine Environmental Appraisal (MEAp) summarises this and provides information to the regulatory authority (in this case Marine Directorate - Licensing Operations Team (MD-LOT)), statutory consultees, stakeholders and the public, to enable them to assess the acceptability of the Proposed Development and its potential environmental effects.

The MEAp addresses the three phases of the Proposed Development:

- Construction – the works, activities and processes that will be required to build the Proposed Development, including pre-construction works.
- Operation and maintenance – the works undertaken during the lifetime of the Proposed Development, after construction works are completed, during operation of the High Voltage Direct Current (HVDC) link.
- Decommissioning – the works and processes required to undertake the closure, dismantling and removal of the Proposed Development.

The MEA process typically comprises a series of phases, which are shown in **Figure 4-1** and **Table 4-1**. Although a statutory Environmental Impact Assessment (EIA) is not required for the Proposed Development, the MEA process has been undertaken to the same standard, and includes:

- A description of the Proposed Development comprising information on the site, design and size of the development.
- A description of the baseline environment to identify aspects that may be sensitive to the development.
- The likely significant effects of the Proposed Development on the environment.
- Mitigation measures required to minimise potentially significant effects.
- Potential residual effects after mitigation measures have been put in place.

The technical topic areas that have been assessed as part of the MEA for the Proposed Development are:

- Designated Sites
- Marine Physical Processes
- Intertidal and Subtidal Benthic Ecology
- Fish and Shellfish
- Intertidal and Offshore Ornithology
- Marine Mammals and Marine Reptiles
- Shipping and Navigation
- Commercial Fisheries
- Other Marine Users
- Marine Archaeology

Figure 4-1 presents an overview of the MEA approach, which is described in more detail in the following sections. Relevant stakeholders were engaged at various stages throughout the MEA process as described in the Pre-Application Consultation Report which is provided with this MEAp.

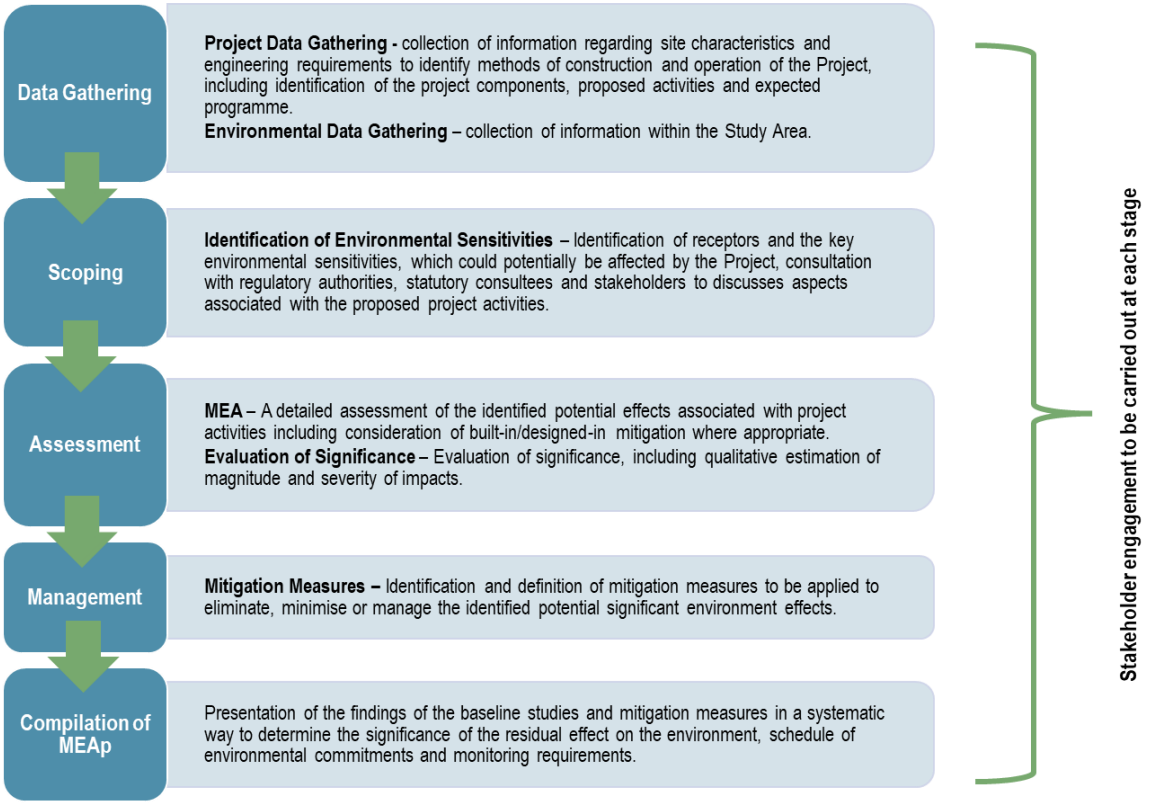


Figure 4-1: Overview of MEA approach

4.2. Technical Guidance and Best Practice Guidance

Although the Proposed Development does not require a statutory EIA, the approach to the MEA and the production of the MEAp closely follows numerous relevant EIA guidance and industry best practice documents, including but not limited to:

- National Infrastructure Planning advice notes - insofar as the principles for good EIA practice, and approaches to related assessments (such as PINs advice on Cumulative Effects Assessment (Planning Inspectorate, 2024), transboundary impacts and process (Planning Inspectorate, 2025a), and in-combination effects as part of the Habitats Regulations Assessment (Planning Inspectorate, 2025b)) may be considered appropriate.
- Relevant guidance issued by other government and non-governmental organisations (e.g. licensing and EIA guidance published by MD-LOT and NatureScot).
- Professional EIA guidance documents:
  - Guide to Shaping Quality Development (IEMA, 2016)
  - Delivering Proportionate EIA, A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice (IEMA, 2017)
  - Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018)
- Best Practice guidance documents informing assessment:
  - Natural England Offshore wind cabling: ten years' experience and recommendations (Natural England, 2018)
  - Review of cable installation, protection, mitigation and habitat recoverability (RPS, 2019)

Receptor specific guidance has also been used, as outlined in individual topic chapters.

4.3. Data Gathering

Environmental information has been collected from publicly available data sources and is supplemented with information as agreed with relevant consultees during the MEA Non-Statutory Scoping and MEA process. Site-specific baseline surveys, including geophysical and benthic, have been undertaken to fill gaps in the available data and further ground truth publicly available data.

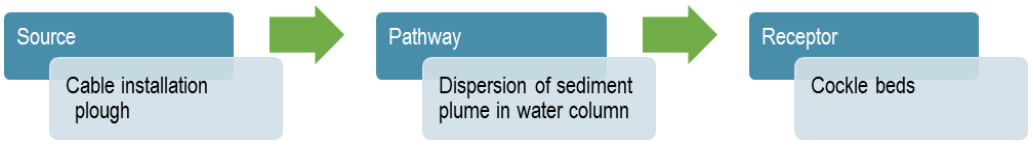
Key data sources used to establish the baseline for each technical discipline are described in **Chapters 5** to **14** of this MEAp, which includes a summary of limitations.

4.4. Environmental Appraisal Approach

The MEA has been undertaken within a consistent framework that facilitates transparency in the assessment and its conclusions. The definition of terms and assessment processes that have been adopted by each of the specialist assessors is described below.

In general, the MEA identifies, describes, and analyses the potential effects of the Proposed Development using a source-pathway-receptor model. For instance, a Proposed Development activity (source) may entail a predicted change in environmental conditions affecting either directly or indirectly (the pathway) a specific component of the baseline environment (the receptor). If the receptor is sensitive to the change it could result in either a beneficial or adverse impact which could lead to a beneficial or adverse effect on the receptor. **Figure 4-2** presents this model with a specific example to illustrate the concept.

Figure 4-2: Source - Pathway - Receptor model example



Confusion can arise whilst reading an MEAp due to a lack of clarification around the words 'impact' and 'effect'. Throughout the assessment process, the term 'impact' will be used to define a change that is caused by a source. For example, pile driving of foundations during construction (the source) results in increased levels of subsea noise (the impact). Impacts can be direct, indirect, secondary, cumulative, inter-related or transboundary. They can also be beneficial, adverse or negligible. The term 'effect' will be used throughout the assessment (and in the MEAp) to express the outcome of an impact, i.e., the increased levels of suspended sediment (impact) from the laying of the cable (source) has the potential to smother benthic communities or fish habitat (the effect).

The MEA process follows a sequential process as described in **Table 4-1** and further outlined in **Sections 4.4.2** to **4.4.5**. Consultation with statutory and non-statutory stakeholders is an ongoing process that was started during the feasibility stage of the Proposed Development (i.e., to inform route development and option appraisal) and has continued throughout the assessment process. Consultation has informed each of the steps outlined in **Table 4-1** and is described in further detail in **Section 4.8**.

Table 4-1: Assessment methodology

Step		Description
1	Characterise the baseline environment	Uses publicly available information and where necessary site-specific surveys to identify the presence, diversity and distribution of sensitive receptors within the corresponding Study Area (defined in **Chapters 6** to **14**).
2	Establish the potential impacts to be assessed	Impacts define a change that is caused by a source, in this case the licensable activities of the Proposed Development. The nature of an impact is determined by the activity type, intensity and duration. The Feature Activity Sensitivity Tool (FeAST) (FeAST, 2025) and the Joint Nature Conservation Committee's Marine Pressures-Activities Database (PAD) v1.5 (JNCC 2022) identify potential pathways for impacts between proposed activities and ecological receptors to occur.
3	Evaluate the significance of the effect	The significance of an impact on a receptor is characterised by the sensitivity of the receptor to the impact (considering its recoverability and importance) and the magnitude of the predicted impact i.e., the duration, frequency, spatial extent and scale of change from the baseline that is predicted to occur. Combined, the sensitivity of the receptor and the magnitude of the impact are used to determine the significance of the effect.
4	Establish mitigation (where required).	Impacts which are Minor or Negligible (Not Significant) typically do not require mitigation measures other than compliance with environmental legislation and best practice. Impacts which are classified as Moderate or Major (Significant) would typically be unacceptable without the implementation of project specific mitigation designed to avoid or abate the significance of the impact. When identifying mitigation, a standard hierarchical approach has been taken as follows: 1. Avoid or prevent: Preferably the mitigation should seek to avoid or prevent the significant impact at source e.g., by avoiding the sensitive receptor spatially or temporally. 2. Reduce: If the impact is unavoidable the mitigation measures should seek to reduce the significance of the impact e.g., by reducing the footprint, duration or intensity.

Step		Description
		3. Offset: If the impact can neither be avoided nor reduced then mitigation measures should seek to offset the effect through the implementation of compensatory measures. The MEAp identifies appropriate and feasible mitigation measures to be implemented to ensure compliance with environmental legislation and best practice and reduce environmental impacts.

4.4.1. Scoping Conclusions

To inform the MEA non-statutory scoping was undertaken to gain feedback and agreement from MD-LOT and the statutory nature conservation bodies (SNCBs) of the scope of the assessments within the MEAp. **Table 4-2** and **Table 4-3** provide a summary of the impacts that were scoped in and out during the scoping assessment (in the MEA Non-Statutory Scoping Report). Impacts that were scoped out will not be subject to further assessment.

Table 4-2: Scoping Summary - Physical & Biological

Potential Impact	Physical Environment			Intertidal and Subtidal Benthic Ecology			Fish and Shellfish			Intertidal and Marine Ornithology			Marine Mammals and Marine Reptiles		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Temporary habitat loss/seabed disturbance	IN	OUT	IN	IN Subtidal broadscale habitats also IN	IN Subtidal broadscale habitats also IN	IN Subtidal broadscale habitats also IN	IN	IN	IN	-	-	-	-	-	-
Permanent habitat loss	IN	OUT	IN	IN Subtidal broadscale habitats also IN	IN Subtidal broadscale habitats also IN	OUT	IN	IN	IN	-	-	-	-	-	-
Temporary increase and deposition of suspended sediments	IN	IN	OUT	IN	IN	IN	IN	OUT	IN	IN	IN	IN	-	-	-
Underwater noise changes	-	-	-	OUT	OUT	OUT	OUT	OUT	OUT	-	-	-	IN	OUT	OUT
Introduction or spread of marine invasive non-native species (MINNS)	-	-	-	IN	IN	IN	OUT	OUT	OUT	-	-	-	-	-	-
Changes in distribution of prey species	-	-	-	-	-	-	-	-	-	IN	OUT	OUT	IN	IN	IN
Electromagnetic changes /Barrier to species movement	-	-	-	-	IN	-	-	IN	-	-	-	-	-	OUT	-
Visual / physical disturbance or displacement	-	-	-	-	-	-	-	-	-	IN	IN	IN	OUT	OUT	OUT

Potential Impact	Physical Environment			Intertidal and Subtidal Benthic Ecology			Fish and Shellfish			Intertidal and Marine Ornithology			Marine Mammals and Marine Reptiles		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Temperature increase	OUT	OUT	OUT	-	IN	-	-	IN	-	-	-	-	-	OUT	-
Collision risk	-	-	-	-	-	-	OUT	OUT	OUT	-	-	-	OUT	OUT	OUT
Accidental spills	OUT	OUT	OUT	OUT	OUT	OUT	-	-	-	OUT	OUT	OUT	OUT	OUT	OUT
Modifications to tidal and wave regimes and associated impacts to morphological features	IN	OUT	OUT	-	-	-	-	-	-	-	-	-	-	-	-
Release of contaminated sediments	IN	OUT	OUT	-	-	-	-	-	-	-	-	-	-	-	-
Seabed loss	-	-	-	-	-	-	-	-	-	-	-	-	IN	IN	IN

Key: C = construction, O&M = operation and maintenance, D = decommissioning, - = Non-applicable

Table 4-3: Scoping Summary - Socio-Economic

Potential Impact	Commercial Fisheries			Shipping & Navigation			Other Marine Users			Marine Archaeology		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Temporary restricted access to fishing ground (including required static gear clearance)	IN	IN	IN	-	-	-	-	-	-	-	-	-
Temporary displacement of fishing activity into other areas	IN	IN	IN	-	-	-	-	-	-	-	-	-
Loss of grounds	-	IN	-	-	-	-	-	-	-	-	-	-
Changes in distribution of target species	IN	IN	IN	-	-	-	-	-	-	-	-	-
Temporary increase and deposition of suspended sediments	IN	OUT	OUT	-	-	-	-	-	-	-	-	-

Potential Impact	Commercial Fisheries			Shipping & Navigation			Other Marine Users			Marine Archaeology		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Interaction with other seabed infrastructure	-	-	-	-	-	-	OUT	OUT	OUT	-	-	-
Occupancy of seabed – below seabed	-	-	-	-	-	-	-	IN	-	-	-	-
Occupancy of seabed – on seabed	-	-	-	-	-	-	-	IN	-	-	-	-
Direct impacts to marine archaeology assets, resulting in damage and/or loss	-	-	-	-	-	-	-	-	-	IN	IN	IN
Indirect impacts to marine archaeology assets, resulting in damage, loss, relocation and/or destabilisation	-	-	-	-	-	-	-	-	-	IN	IN	IN
Vessel collisions	-	-	-	IN	IN	IN	-	-	-	-	-	-
Impact on human safety due to reduced visibility	-	-	-	IN	IN	IN	-	-	-	-	-	-
Anchor strike/drag	-	-	-	IN	IN	IN	-	-	-	-	-	-
Fishing gear snagging	-	-	-	IN	IN	IN	-	-	-	-	-	-
Displacement of vessels	-	-	-	IN	IN	IN	-	-	-	-	-	-
Reduction in under keel clearance	-	-	-	IN	IN	IN	-	-	-	-	-	-
Interference with marine navigational equipment	-	-	-	OUT	IN	OUT	-	-	-	-	-	-

Key: C = construction, O&M = operation and maintenance, D = decommissioning, - = Non-applicable

4.4.2. Characterisation of the Baseline Environment

To appraise the potential impacts of the Proposed Development it was necessary to characterise the physical, biological, and socio-economic baseline conditions. A study area has been defined for each topic linked to the Zone of Influence (ZoI) for the potential effects of the Proposed Development. These are separately described in the technical appraisal in **Chapters 5** to **14** of this MEAp.

Characterisation of the baseline for each technical discipline with the respective study areas was developed using some or all of the following information:

- Review of primary baseline studies for relevant receptors (field survey);
- Review of additional specialist baseline studies (desk-based technical reviews);
- Detailed review of all secondary sources for all receptors (i.e., existing documentation and literature); and
- Stakeholder consultation.

The following limitations or assumptions are also noted (where applicable) for all technical disciplines:

- Third party and publicly available information is assumed correct at the time of publication;
- Baseline conditions are accurate at the time of physical surveys but due to the dynamic nature of the environment, conditions may change before or during the construction and operation phases of the Proposed Development (although the effects of the natural variation are included in the MEA); and
- The RLB within which the Proposed Development will be constructed will not be subject to force majeure events resulting in a significant shift from the existing baseline.

4.4.3. Assessment of Potential Pressures

Impacts have been established based on industry experience and consultation with relevant stakeholders. To assess impacts on the environment, especially at European sites, NatureScot and Natural England's advice on operations have been considered. The list of marine pressures established by the Joint Nature Conservation Committee (JNCC) Marine Pressures-Activities Database v1.5 (JNCC, 2022) and FeAST (FeAST 2025) were also evaluated. These lists do not include impacts on social or human receptors.

For each impact a ZoI – the spatial extent over which the pathway could affect the receptor – has been established. This has been undertaken quantitatively where possible, or qualitatively based on evidence from analogous projects, post-construction monitoring data and peer-review publications and scientific literature.

Receptors that occur outside the ZoI, and are unlikely to, or cannot travel to the ZoI, have been scoped out. Mobile receptors which could travel into the ZoI have been scoped in.

Where several activities (sources) result in the same impact, or the construction technique has not been determined, the maximum spatial extent has been assumed.

4.4.4. Assessment of Effects

The definition of the types of effects are given in **Table 4-4**. Potential effects are presented within the MEAp as 'significance of effect', which takes into account the magnitude of an impact in combination with the importance and/ or the sensitivity of the receptor or resource, in line with defined significance criteria provided in **Table 4-5**.

Table 4-4: Definitions of effects

Type of Effect	Definition
Direct	Result from a direct interaction between the Proposed Development activities and the receiving environment.
Indirect	Effects on the environment, which are not a direct result of the proposed Development activities, often produced away from the activity or as a result of a complex pathway.
Cumulative	Effects that result from incremental changes caused by other present or reasonably foreseeable actions together with the Proposed Development (European Commission 1999). Generally considered to be the same effect but from different projects e.g., underwater noise from two separate projects combining to affect marine mammals.
Beneficial	An effect that is considered to represent an improvement on the baseline condition or introduces a new desirable factor (CIEEM 2018).
Adverse	An impact that is considered to represent an adverse change from the baseline condition or introduces a new undesirable factor (CIEEM 2018).

The assessment process considers the following:

- The magnitude of the impact.
- The sensitivity of the receptor to the impact.
- The probability that the impact will result in a given effect.
- The significance of the resulting likely environmental effect.
- The level of certainty inherent within the assessment.

4.4.4.1. The Magnitude of Impact

The magnitude of an impact provides a useful initial measure of the likelihood of an environmental effect arising. Magnitude is defined for the purposes of assessment via four factors:

- **Extent:** The area over which an impact occurs.
- **Duration:** The time for which the impact occurs.
- **Frequency:** How often the impact occurs.
- **Severity:** The degree of change relative to the baseline level.

The magnitude criteria used for assessment is defined in each topic chapter.

4.4.4.2. The Sensitivity of Receptors

The sensitivity of the receptor is a function of its capacity to accommodate change and reflects its ability to recover if it is affected. The sensitivity of the receptor is therefore quantified via the following factors:

- **Value:** A measure of the receptor's importance, rarity and worth.
- **Adaptability:** The degree to which a receptor can avoid or adapt to an impact.
- **Tolerance:** The ability of a receptor to accommodate temporary or permanent change without a significant adverse impact.
- **Recoverability:** The temporal scale over and extent to which a receptor will recover following an impact.

The sensitivity criteria used for assessment is defined in each topic chapter.

4.4.5. The Determination of Effect Significance

The significance of an effect, either adverse or beneficial, has been determined using a combination of the magnitude of the impact and the sensitivity of the receptor. A matrix approach has been used throughout all topic areas to ensure a consistent approach within the assessment this is shown in **Table 4-5.**

The terms assigned to categorise the significance of effects, where they are predicted to occur, can be described as follows:

- **Negligible**: beneficial or adverse - where the Proposed Development would cause no discernible improvement in or deterioration of the existing environment.
- **Minor:** beneficial or adverse - where the Proposed Development would cause a barely perceptible improvement in or deterioration of the existing environment.
- **Moderate**: beneficial or adverse - where the Proposed Development would cause a noticeable improvement or deterioration of the existing environment.
- **Major:** beneficial or adverse - where the Proposed Development would cause a considerable improvement or deterioration of the existing environment.

For example, if the magnitude of the impact is assessed as High (adverse) and the sensitivity of the receptor is assessed as Negligible, then the significance would be Minor (adverse) (**Table 4-5**). Those effects which are assessed as Moderate or Major are considered as Significant effects. Those effects which are assessed as Negligible and Minor are considered as Not Significant effects. Negligible and Minor adverse effects can be adequately controlled by best practice and legal controls and opportunities to reduce the significance of effects further through mitigation may be limited and are unlikely to be cost effective.

Table 4-5: Significance of effect matrix

		Sensitivity			
		High	**Medium**	**Low**	**Negligible**
Adverse magnitude	**High**	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Minor
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Minor	Minor	Negligible	Negligible
Beneficial magnitude	**Negligible**	Minor	Minor	Negligible	Negligible
	Low	Moderate	Minor	Negligible	Negligible
	Medium	Major	Moderate	Minor	Negligible
	High	Major	Major	Moderate	Minor

Predictions of impact are based on the best available data using a combination of professional judgement, expert knowledge and modelling where appropriate. The precautionary principle has been applied to ensure that potential effects are not ascribed unduly low probability of occurrence or low levels of significance. Feasible and cost-effective project specific mitigation has been proposed to avoid, reduce and offset the significance of the effect. Once mitigation has been applied the potential for residual effect has been assessed, and where effects remain this has been subject to measures, such that the remaining effects are reduced to as low as reasonably practicable and that no further mitigation is feasible. Residual effects are those which are predicted to remain following delivery and implementation of all mitigation measures. Residual effects may be not significant or significant.

4.5. Mitigation and Monitoring

Appropriate mitigation measures have been explored to avoid, reduce or offset identified potentially significant effects on the environment. Best practice strategies for mitigation are widely practiced and have been followed when considering the methods of dealing with the environmental impacts of the Proposed Development. The strategy comprises the components listed in **Table 4-6**.

Where changes are required to be made to the design of the Proposed Development during the iterative assessment process, these measures have been clearly identified within the MEAp. The clear inclusion of these measures within the MEAp demonstrates the commitment to these measures. Where required, these measures will be secured by conditions placed on the Marine Licence. By employing this method, the significance of effect presented for each identified impact may be presumed to be representative of the maximum residual effect that the Proposed Development will have, should it be approved and constructed absent any specific mitigation. The Applicant may adopt a phased approach to the construction of the Proposed Development and as such with agreement from MD-LOT may seek to structure the Marine Licence to allow for a phased approach to the discharge of conditions, which is reflected in the assessments within the MEA, and mitigation will be implemented as appropriate for each phase of the Proposed Development's activities.

The assessment has then been repeated for the revised 'maximum adverse scenario' until:

- The effect has been reduced to a level that is not significant; or
- No further changes may reasonably be made to the design parameters in order to reduce the magnitude of the impact, thereby permitting the presentation of an effect that is still significant.

In some instances, additional mitigation measures have been outlined in the topic chapters. Additional mitigation measures may be deemed necessary where:

- An effect is significant, even with embedded mitigation, but additional mitigation measures are available to reduce the level of effect; or
- Mitigation has been proposed but has not yet been agreed with regulators, stakeholders, etc., or it is unproven.

Where relevant, these additional mitigation measures have been outlined in the topic chapters, after the assessment of significance section.

Table 4-6 outlines the mitigation strategy undertaken in the MEAp.

Table 4-6: Mitigation strategy

Avoidance	Where viable, the Proposed Development will be redesigned to avoid impacts. Avoidance will also be considered during the assessment of alternative routes.
Reduction	Reduction (through the use of mitigation or different techniques) will be considered when all options for the avoidance of impacts have been exhausted or deemed to be impractical. For example, alternative technologies could be considered to reduce impact.
Offset	Where the potential for avoiding and reducing impacts has been exhausted, consideration will be given to providing compensation for residual impacts or undertaking remedial works to make the proposal more environmentally acceptable.

4.5.1. Embedded Mitigation

The Proposed Development has been developed through an iterative process which involved seeking to avoid or reduce potential environmental effects through the appropriate routeing and siting of the project infrastructure. This represents the first opportunity to mitigate potential impacts and effects. Mitigation measures which form part of the design for which consent is sought are an inherent part of the Proposed Development design and have been considered as the 'base case' throughout the appraisal as described in **Chapter 3: Project Description**.

In addition, where clear obligations on the construction, operation and maintenance and decommissioning phases of the Proposed Development are set out within regulation or statutory authority guidance documents, the appraisal has assumed that these are adhered to as part of the Proposed Development design. These obligations are identified as appropriate within **Chapters 5** to **13** of this MEAp.

4.5.2. Specific Mitigation

The appraisal process has identified potentially significant adverse environmental effects and, where necessary, has prescribed project specific mitigation measures to avoid, reduce or offset adverse environmental effects or to maximise environmental benefits. These mitigations are presented within each of the topic chapters of this MEAp, where necessary.

Project specific mitigation measures will be incorporated into post-consent refinement of the Proposed Development. This may include, for example, micro-routeing to avoid sensitive features identified during the MEA process or use of a specific installation method in favour of an alternative type of tool to reduce environmental impacts.

4.5.3. Determining Significance of Residual Effects

Following identification of potentially significant adverse effects, additional Proposed Development specific mitigation measures have been identified (where feasible) and the significance ratings have been re-evaluated to determine their effectiveness and the residual effects on receptors. Where further Proposed Development specific mitigation measures cannot be implemented, a significant effect may remain.

Where the need for monitoring is a requirement following the appraisals in order to verify the predicted impacts and the successful application of all mitigation measures, this will be included within the Proposed Development's Construction Environmental Management Plan (CEMP).

4.6. Cumulative Effects Assessment

A Cumulative Effects Assessment is required as part of a statutory EIA undertaken in accordance with the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended). Cumulative effects are defined as those effects on a receptor that may arise when the Proposed Development is considered together with other existing and/or approved Proposed Developments.

Although the Proposed Development does not require a statutory EIA, the approach to the MEAp and the production of this MEAp chapter will closely follow numerous pieces of relevant EIA guidance and therefore a high-level cumulative effects assessment of impacts has been provided within the MEAp. Standard industry guidance from the Planning Inspectorate (Planning Inspectorate, 2024) and the Institute of Environmental Management and Assessment (IEMA) (IEMA, 2020) for EIA cumulative impacts assessment has been used to inform the cumulative effects assessment for this MEAp. Details of guidance used for the assessment are presented in **Table 4-7.**

Table 4-7: Guidance used to inform the cumulative effects assessment on intertidal and subtidal benthic ecology

Technical Guidance Document	Context
Demystifying Cumulative Effects, Impact Assessment Outlook Journal 2020	Volume 7 of the Impact Assessment Outlook Journal brings together a selection of articles, thought, and opinion pieces on Cumulative Effects in EIA.
Planning Inspectorate Nationally Significant Infrastructure projects: Advice on Cumulative Effects Assessment (2024).	Whilst the Scottish section of the Project (i.e. the Proposed Development) will not be consented through the Development Consent Order regime, relevant guidance on Cumulative Effects Assessment provided by the Planning Inspectorate has been followed.

4.6.1. Method

Whilst there is no widely accepted methodology for assessing cumulative effects, the Applicant has adopted a stage-based assessment as advised in the Planning Inspectorate Advice on Cumulative Effects Assessment. This approach will make use of professional judgement, considering the specific receptors and project characteristics. **Table 4-8** provides a summary of the Cumulative Effects Assessment stages.

Table 4-8: Summary of planning inspectorate advice on cumulative effects assessment process summary

Stage	Spatial ZoI, distance from the Red Line Boundary (RLB)
Stage 1: Establishing the longlist of other existing and/ or approved development	Each environmental aspect assessment included in the MEA has a ZoI within which the potential for cumulative effects has been considered. These have been established through desk studies and modelling. A desk study of planning applications, development plans and frameworks and other available sources has been completed within this ZoI to form a long list of 'other development'. The ZoI is measured from the RLB of the Proposed Development.
Stage 2: Establishing a shortlist of other existing and, or approved development	Professional judgement from technical specialists has refined the long list of 'other development' to identify those that could give rise to a significant effect cumulatively with the Proposed Development.
Stage 3: Information gathering	Information has been gathered on the 'other development' in the shortlist to inform the assessment.
Stage 4: Assessment	Each of the environmental aspects has completed an assessment of the relevant 'other development' in the shortlist within the relevant ZoI.

4.6.2. Stage 1: Identification of the ZoI and Establishing the Longlist

4.6.2.1. Study area and Zone of Influence

To establish the long list of 'other development' relevant to cumulative effects assessment, a ZoI for each of the environmental aspects has been established through expert opinion and reference to accepted industry guidance and standards relevant to the receptor. ZoI are detailed within each topic specific chapter and detailed the potential maximum extent of an impact.

An initial Study Area relevant to the topic area was selected to identify major developments for the longlist. The Study Area was defined as the area encompassing the maximum ZoI plus any topic specific additional area deemed necessary to capture effects on receptors. This was then refined using the maximum ZoI identified for each receptor to provide the shortlist. Professional judgement was also used to select other developments within the Study Area which may contribute to cumulative effects for the Proposed Development.

4.6.2.2. Identification of relevant projects

The following activities have been considered for the potential to contribute to the cumulative effects assessment for the MEA process:

- Marine aggregate extraction sites
- Dredging sites
- Oil and gas structures and pipelines
- Offshore wind farms (OWFs)
- Cable projects
- Carbon capture and storage and natural gas storage
- Aquaculture
- Tidal energy

- Wave energy
- Other marine licensable activities

The ZoI serves as the search area to identify other plans or projects that may fall within that distance.

Plans and projects have been identified using the following publicly available data sources:

- National Marine Plan interactive (NMPi) tool (Marine Directorate 2025)
- Marine Scotland Marine Licence and Section 36 consent application documentation website (Marine Directorate, 2025a)
- The Crown Estate Scotland Open Data Portal (Crown Estate Scotland, 2024)
- The Marine Management Organisation (MMO) Marine Licensing Portal (MMO, 2016)
- North Sea Transition Authority (NSTA, 2018) Open Data
- European Marine Observation and Data Network (EMODNet) Human Activities, Main Ports, Goods-Passengers-Vessels Traffic (EMODNet, 2025)
- Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) Oil and gas: environmental submissions and determinations (OPRED, 2025)

In accordance with Planning Inspectorate guidance, all proposed projects have been allocated into "Tiers" to reflect their current development status. Note that all surrounding infrastructure that is already operational has been scoped out, since the effects of the maintenance and operational effects of the projects has influenced the baseline assessment. Details of the Tiers for development stages are presented in **Table 4-9.**

A longlist of the identified plans/projects is presented in **Table 4-10**. Each topic specific chapter then presents the shortlist relevant to the topic based on their ZoI. The Tiers are defined by the stage that other plans and projects are at in the development process. The stage a plan or project is at in the development process also defines how much information is available in respect of that plan or project.

Table 4-9: List of TIERs for classifying Project Developments

Tiers	Development Stage
Tier 1	▪ Projects under construction ▪ Projects that have received consent to allow construction ▪ Submitted applications to the relevant licensing authority. ▪ Submitted marine licence application(s) on the MD-LOT public register where the project includes cable works, dredging or seabed deposits
Tier 2	▪ Projects on the MD-LOT public register, and/or the relevant local planning authorities planning portal where the project is classified as 'major development', and a scoping report has been submitted
Tier 3	▪ Projects on the MD-LOT public register, and/or the subject of pre-application discussion with a relevant Local Planning Authority, where a scoping report has not been submitted. Projects registered on the local planning authority's portal classed as major development but do not require EIA. ▪ Identified in the relevant Development Plan (and emerging Development Plans - with appropriate weight being given as they move closer to adoption) recognising that much of the information on any relevant proposals will be limited; and ▪ Identified in other plans and programmes, as appropriate, which set the framework for future development consents or approvals, where such development is reasonably likely to come forward.

4.6.3. Stage 2: Shortlist of Plans and Projects

After Stage 1, Planning Inspectorate advice threshold criteria was applied to the longlist to establish a proportionate shortlist for the next assessment stage. Professional judgement was used to identify whether potential cumulative effects were likely to be significant (beneficial or adverse). Only potential significant effects were taken forward to the next stage of assessment.

The following inclusion / exclusion criteria was used for the assessment:

- **The scale and nature of other developments**: In accordance with the Planning Inspectorate Advice on Cumulative Effects Assessment statutory definitions of major development and EIA screening thresholds may be of assistance when considering the scale and nature of the other existing and, or approved developments identified in the ZoI. Development identified as requiring statutory EIA have been considered further. Developments not identified as statutory EIA have been scoped out of the assessment, except where it was considered that potential significant environmental effects may arise in combination with the Proposed Development.

- **The temporal scope of other development**: Information about other developments including proposed programme of consenting, construction, operation and decommissioning to determine whether there is overlap and any potential for interaction with the Proposed Development has been captured where possible. Where the construction of 'other development' are expected to be completed before construction of the Proposed Development commences, and the effects of those projects are fully determined, effects arising from them are considered as part of the future baseline within individual aspect chapters rather than as part of the cumulative effects assessment.
- **Any other relevant factors**: This considered whether any other factors, such as the sensitivity of the receiving environment or uncertainty in the potential effects merit further assessment of the potential cumulative effects. Professional judgement was used to avoid excluding other developments close to the threshold limits but with characteristics likely to give rise to a significant effect; or which could give rise to a cumulative effect by virtue of its proximity to the Proposed Development. Similarly, professional judgement was applied where other developments were considered to not give rise to discernible effects.

4.6.4. Stage 3: Information Gathering and Identification of Pressures

Further information on the shortlisted developments will be gathered to inform Stage 4: Assessment of Developments from accessible third-party sources within the public domain. This includes

- Proposed design and location information
- Construction and operational timescales
- Results of any environmental assessments completed

Output from Stage 3 will be presented in each of the relevant topic specific chapters.

4.6.5. Stage 4: Assessment

The assessment of developments will examine deviations from the baseline conditions at common receptor(s) for changes introduced by the Proposed Development in conjunction with one or more developments in the shortlist.

The assessment will be based on residual effects identified in the technical aspect assessments of the MEA, as well as available environmental information for 'other developments'.

The Cumulative Effects Assessment will consider the following:

- duration/extent/type of effect;
- frequency of the effect;
- value and resilience of the receptor affected; and
- likely success of mitigation.

By integrating the qualitative assessment with environmental data accessible for other developments, conclusions will be reached regarding the probability of significant cumulative effects, i.e. those over and above, or different to, those identified for the Proposed Development on their own.

The assessments have been undertaken based on information which is available at the time of assessment; all projects in the public domain as of August 2025 have been considered in the assessment. Consequently, there may be information gaps for some of the 'Other Development' proposals. Where this occurs, such gaps will be discussed and acknowledged within the assessment.

All shortlisted Tier 1 and Tier 2 'other developments' will be assessed. The assessment for Tier 3 'Other Developments' will be high level in comparison to Tier 1 and 2, owing to the information which will be available

Table 4-10: Longlist of Projects considered

		"Other development" details				
ID	Application Reference	Applicant brief description	Type of Project	Distance from Proposed Development	Status	Tier
1	SCOP-0056	Bowdun OWF, Thistle Wind Partner	OWF	5.78 km	Pre Application-Scoping Report	Tier 2

		"Other development" details				
ID	Application Reference	Applicant brief description	Type of Project	Distance from Proposed Development	Status	Tier
2	00010686	Flora, BP Northeast Offshore Wind	OWF (Innovation and Targeted Oil and Gas leasing round (INTOG))	19.65 km	Application- EPS Licence	Tier 1
3	00010344	Morven Offshore Wind Limited	OWF	1.98 km	Pre Application- Scoping Report	Tier 2
4	00010861	Ossian OWF	OWF	2.66 km	Application – EIA submitted	Tier 1
5	06771 & 06870	NorthConnect	Cable	0 km / crosses	Licence expired	Tier 1
6	00009943	Eastern Green Link 2	Cable	0 km / crosses	Licence granted	Tier 1
7	00011091	Cenos Floating OWF – transmission infrastructure	Export cable	0 km/crosses	Application – EIA submitted	Tier 1
8	SCOP-0066	Aspen Floating OWF – transmission infrastructure	Export cable	0 km/crosses	Pre Application – Scoping Report	Tier 2
9	SCOP- 0020	MarramWind OWF	Export cable	0 km/crosses	Pre Application – Scoping Report	Tier 2
10	00011026	Muir Mhor OWF	OWF	~3 km	Application – EIA submitted	Tier 1

4.7. Transboundary Effects

The Convention on Environmental Impact Assessment in a Transboundary Context (known as the Espoo Convention) sets out the obligations of Parties of the United Nations, which include the UK and Ireland, to assess the environmental impact of certain activities that have the potential to have transboundary effects at an early stage of planning and to notify and consult other States in cases where there is likely to be a significant adverse environmental impact on those States.

The Proposed Development lies wholly in UK waters. Given the distance to the UK Exclusive Economic Zone boundary, there is limited potential for transboundary impacts. Where there is potential for impacts to neighbouring jurisdictions this is addressed in the topic specific chapters. For instance, impacts to fishermen from transboundary regions are considered within **Chapter 12: Commercial Fisheries.**

4.8. Consultation

The Applicant recognises that consultation is a legal obligation and critical activity in the development of a comprehensive and balanced assessment. The Applicant is committed to proactive, open and transparent dialogue and engagement with all stakeholders, regulators, and communities which may be affected by or indeed may affect the Proposed Development.

Engagement 'pre-scoping' focused on providing stakeholders with the opportunity to influence the design of the Proposed Development. Feedback received throughout 2023 has influenced the selection of the proposed landfall and the position of the RLB as stated in **Chapter 2: Project Need and Alternatives**. As the development does not constitute EIA development a non-statutory scoping report was submitted to MD-LOT in January 2024 with responses received in July 2024. Consultees were broadly in agreement with the elements scoped in and out for assessment; a summary of responses is provided within each topic chapter. All feedback received from the MEA Non-Statutory Scoping Opinion issued by MD-LOT and from engagement activities has been recorded and considered in the preparation of this MEAp. This MEAp sets out in each individual topic chapter how the relevant responses to the MEA Non-Statutory Scoping Report and any other engagement have been addressed during the MEA process.

As part of the MEA process, a formal process of Pre-Application Consultation (PAC) has been completed in accordance with the Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013 (the 2013 PAC Regulations). A project website has been created to inform the public about the Proposed Development. It can be viewed at https://www.nationalgrid.com/electricity-transmission/network-and-infrastructure/infrastructure-projects/eastern-green-link-3-and-4 and https://www.ssen-

transmission.co.uk/projects/project-map/eastern-green-link-3/. These websites are used to advise the public on any Proposed Development updates including consultation dates, Proposed Development timeline, and any changes in the design following the various consultations. The PAC ran from the 22nd May 2025 to 6th July 2025. A PAC Report has been provided with the MEAp (CEA, 2025).

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