






**Cambois Connection – Marine Scheme
Environmental Statement – Volume 2
ES Chapter 3: EIA Methodology**

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004-002
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	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004-002
Classification: Final		
Status: Final		Rev: A01

Contents


3. EIA METHODOLOGY	4
3.1. INTRODUCTION.....	4
3.2. LEGISLATION, POLICY AND GUIDANCE.....	4
3.3. SCOPING AND CONSULTATION.....	5
3.4. OVERVIEW OF THE METHODOLOGY.....	11
3.5. REFERENCES.....	29

Tables

TABLE 3.1 SUMMARY OF KEY CONSULTATION QUERIES RAISED FOR EIA METHODOLOGY (MD-LOT, 2023A; MMO, 2023A).....	7
TABLE 3.2 EIA REGULATIONS REQUIREMENTS ADDRESSED IN THE MARINE SCHEME ES	14
TABLE 3.3 IMPACT TERMINOLOGY RELEVANT TO THE MARINE SCHEME ES.....	19
TABLE 3.4 IMPACT MAGNITUDE.....	20
TABLE 3.5 RECEPTOR SENSITIVITY.....	21
TABLE 3.6 SIGNIFICANCE OF EFFECTS MATRIX.....	22
TABLE 3.7 DEFINITION OF CONSEQUENCE OF EFFECT AND ASSOCIATED SIGNIFICANCE	22


Plates

PLATE 3.1 EIA METHODOLOGY.....	12
PLATE 3.2 ASSESSMENT OF EFFECTS PROCESS.....	16
PLATE 3.3 SOURCE-PATHWAY-RECEPTOR MODEL.....	18
PLATE 3.4 PROCESS TO ASSESS CUMULATIVE EFFECTS.....	26

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Rev: A01
Classification: Final		
Status: Final		

Acronyms

Acronym	Description
BBWF	Berwick Bank Wind Farm
BBWFL	Berwick Bank Wind Farm Limited
BERR	Department for Business Enterprise & Regulatory Reform (now the Department for Energy Security and Net Zero)
BSI	British Standards Institute
Cefas	Centre for the Environment, Fisheries and Aquaculture Science
CEA	Cumulative Effects Assessment
DMRB	Design Manual for Roads and Bridges
EEA	European Economic Area
EGL	Eastern Green Link
EIA	Environmental Impact Assessment
ES	Environmental Statement
IEMA	Institute of Environmental Management and Assessment
JNCC	Joint Nature Conservation Committee
MDS	Maximum Design Scenario
MLWS	Mean Low Water Springs
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MD-LOT	Marine Directorate Licensing and Operations Team
NCC	Northumberland County Council
NSIP	Nationally Significant Infrastructure Project
PINS	Planning Inspectorate
NS	NatureScot
WFD	Water Framework Directive
ZOI	Zone of Influence

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Rev: A01
Classification: Final		
Status: Final		

3. EIA Methodology


3.1. Introduction

1. This Environmental Statement (ES) has been developed to support the Marine Licence applications for the Marine Scheme of the Cambois Connection, in accordance with the requirements of the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) (hereinafter referred to as the Environmental Impact Assessment (EIA) Regulations).
2. Volume 2, Chapter 2: Policy and Legislative Context provides further details on the EIA Regulations and Volume 2, Chapter 5: Project Description provides a detailed description of the Marine Scheme which comprises the offshore components of the Project seaward of Mean High Water Springs (MHWS).
3. Following formal engagement with the Marine Management Organisation (MMO) and Marine Directorate Licensing Operations Team (MD-LOT) in 2022, it was agreed in writing that an EIA for the Marine Scheme would be carried out via Screening by Agreement (under Regulation 5 of the EIA Regulations) with the MMO and by following these principles (for a voluntary EIA) with MD-LOT. It was also agreed through formal engagement and the EIA Scoping process for the Marine Scheme (MMO, 2023; MD-LOT, 2023a) that one ES would be used in support of both Marine Applications to the MMO and MD-LOT.
4. This chapter of the ES presents the EIA methodology used for the assessment of likely significant effects of the Marine Scheme on physical, biological and human environment receptors throughout all phases of the Marine Scheme (construction, operation and maintenance, and decommissioning). It describes the approach that has been employed to determine impact magnitude, receptor sensitivity, and the assessment of the likely significance of effects, including for inter-related effects, cumulative effects and transboundary effects. Building on the information included within the Scoping Report prepared for the Marine Scheme, the Chapter also sets out the applied approach to mitigation.
5. A separate Onshore Scheme ES is being prepared by the Applicant under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) in respect of a planning application for consent under the Town and Country Planning Act 1990 (Section 57). The Onshore ES will present an assessment of the likely significant effects of the Onshore Scheme, that is infrastructure and activities required as part of the Cambois Connection landward of Mean Low Water Springs (MLWS), on physical, biological and human environment receptors.

3.2. Legislation, Policy and Guidance

3.2.1. Legislation and Policy

6. The following legislation and policy have been used to inform the EIA methodology. The legislation and policy are detailed fully within Volume 2, Chapter 2: Policy and Legislative Context:
 - EU Council Directive 2011/92/EU as amended by Council Directive 2014/52/EU ('the EIA Directive') and the EIA Regulations;
 - EU Council Directive 2009/147/EC ('the Birds Directive') and EU Council Directive 92/43/EEC ('the Habitats Directive'); which have been transposed into UK law as the 'Habitats Regulations' which comprise of the following of relevance to the Marine Scheme:

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Classification: Final
Status: Final		Rev: A01

- The Conservation of Offshore Marine Habitats and Species Regulations 2017; and
- The Conservation of Habitats and Species Regulations 2017 (as amended).
- Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 which amended the Habitats Regulations; and
- The Wildlife and Countryside Act 1981.


3.2.2. Guidance

7. This Marine Scheme ES has been developed in accordance with relevant industry guidance, including the Institute of Environmental Management and Assessment (IEMA) guidance on impact assessment, which states that the EIA should “*follow a clear progression, from the characterisation of ‘impact’ to the assessment of the significance of the effects taking into account the evaluation of the sensitivity and value of the receptors*” (IEMA, 2016(b)). In addition to chapter specific guidance, the following standard industry guidance has been used to inform this ES:

- Nature Conservation Considerations and Environmental Best Practice for subsea cable for English Inshore and UK Offshore Water (JNCC and Natural England, 2022);
- Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in Britain and Ireland – Terrestrial, Freshwater, Coastal and marine (CIEEM, updated April 2022);
- Natural England and JNCC advice on key sensitivities of habitats and Marine Protected Areas in English Waters to offshore wind farm cabling within Proposed Round 4 leasing areas (JNCC and Natural England, 2019);
- IEMA Impact Assessment Strategy (IEMA, 2019)
- Design Manual for Roads and Bridges (DMRB), Introduction to environmental assessment (LA101) (2019a);
- DMRB, Environmental assessment and monitoring (LA104) (2019b);
- UK Planning Inspectorate Advice Note Seventeen: Cumulative Effects Assessment (PINS, 2019);
- A Handbook on Environmental Impact Assessment: Guidance for Competent Authorities, Consultees and others involved in the EIA Process in Scotland (NatureScot, 2018);
- Delivering Proportionate EIA (IEMA, 2017);
- Assessing Greenhouse Gas Emissions and Evaluating their Significance (IEMA, 2022);
- The State of Environmental Impact Assessment Practice in the UK (IEMA, 2016a);
- EIA Guidance for Offshore Renewable Energy Projects – Guidebook (BSI, 2015);
- Environmental Impact Assessment Guide to Shaping Quality Development (IEMA, 2015);
- UK Planning Inspectorate Advice Note Twelve: Transboundary Impacts (PINS, 2015);
- UK Planning Inspectorate Advice Note Nine: Rochdale Envelope (PINS, 2012);
- Guidelines for Data Acquisition to support Marine Environmental Assessments of Offshore Renewable Energy Projects (Cefas, 2012);
- General advice on assessing potential impacts of and mitigation for human activities on MCZ features, using existing regulation and legislation (JNCC and Natural England, 2011); and
- Review of Cabling Techniques and Environmental Effects applicable to the Offshore Windfarm Industry (BERR, 2008).

3.3. Scoping and Consultation

8. The Marine Scheme Scoping Report (Berwick Bank Wind Farm Limited (BBWFL), 2022a), submitted to the MMO and MD-LOT in November 2022, outlined the proposed methodologies, including for project alone, inter-related, cumulative and transboundary effects assessments, to

	<p align="center">Cambois Connection – Marine Scheme</p> <p align="center">ES Chapter 3: EIA Methodology</p>	<p>Doc No: A100796-S01-A-REPT-004–002</p>
<p>Classification: Final</p>		<p>Rev: A01</p>
<p>Status: Final</p>		

allow consultees to comment on the approach proposed. Table 3.1 summarises the key queries raised through consultation regarding EIA methodology and how these queries have been addressed. Consultation regarding the proposed scope, approach and methodology for technical assessments is summarised and considered within the technical ES chapters (Volume 2, Chapters 7 to 15).




	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004-002
Classification: Final	Status: Final	

Table 3.1 Summary of key consultation queries raised for EIA methodology (MD-LOT, 2023a; MMO, 2023a)


Summary of Consultation	Response
<p>MD-LOT Scoping Opinion</p> <p>The Scottish Ministers are aware the Applicant has sought separate Scoping Opinions from the MMO in respect of works in English waters and from Northumberland County Council (NCC) for the associated onshore transmission works. It is essential that the EIA Reports concerning works in English waters and onshore works will be available at the time that the EIA Report for the Proposed Works is being considered so that all the information relating to the project as a ‘whole’ is presented.</p>	<p>Works related to the Marine Scheme in both Scottish and English waters are covered fully within this ES. The Applicant has structured the ES Chapters so that the assessment is presented clearly to both MD-LOT and the MMO for Scottish and English waters respectively – this is discussed further below.</p> <p>The ‘onshore works’ (e.g. the Onshore Scheme as defined above and in Volume 2, Chapter 5: Project Description) has been included within the Cumulative Effects Assessment (CEA) for the Marine Scheme; this is reported in full within each of the technical assessments (Chapter 7 to 15).</p> <p>As agreed through the Scoping process, the Onshore Scheme was included within the CEA long list. In accordance with the guidance detailed above, projects which are reasonably well described and sufficiently advanced to provide information on which to base a meaningful and robust assessment should be included in the CEA.</p> <p>At the time of writing, the Applicant’s planning application for consent under the Town and Country Planning Act 1990 has not yet been submitted to NCC. However, there is a suitable level of information available upon which to base the CEA. Principally, this is available through the publicly available Scoping Report for the Onshore Scheme (BBWFL, 2022b) however the Applicant has also facilitated proactive discussion within the project teams leading both schemes. This has enabled a meaningful assessment of the potential cumulative effects arising from the Marine Scheme and the Onshore Scheme together, further information is provided in Volume 3, Appendix 3.5.</p> <p>There is a necessary level of overlap between the Marine Scheme and the Onshore Scheme within the intertidal zone, between MHWS and MLWS, where there will be elements of both schemes. The Marine Scheme ES assesses impacts of all Project infrastructure located seawards of MHWS, and the Onshore Scheme ES will assess impacts of all Project infrastructure located landwards of MLWS.</p>

	<p style="text-align: center;">Cambois Connection – Marine Scheme</p> <p style="text-align: center;">ES Chapter 3: EIA Methodology</p>	<p>Doc No: A100796-S01-A-REPT-004-002</p>
<p>Classification: Final</p>		<p>Rev: A01</p>
<p>Status: Final</p>		

Summary of Consultation	Response
<p>The EIA Report for the Proposed Works must consider the cumulative impacts with the onshore works.</p>	<p>The relevant regulatory bodies for the area where the two schemes interact (NCC and MMO) have been involved in detailed discussions regarding this area of overlap. Please see above.</p>
<p>The EIA Report for the Proposed Works must either be submitted as a combined EIA Report with the works in English waters, or must consider the cumulative impacts with the works in English waters.</p>	<p>This ES assesses the potential impacts of the Marine Scheme. Therefore, in accordance with the Scoping Opinion, a single EIA has been carried out and presented in a single ES, supporting the applications to MD-LOT and the MMO.</p> <p>In line with pre-application discussions with MD-LOT and the MMO and the approach provided for feedback as part of Scoping, a single EIA provides benefits in terms of consistency to the impact assessment, as well as streamlining the licencing and consenting process for regulatory bodies.</p> <p>To aid the regulators, this ES clearly identifies which geographical jurisdiction elements of the Marine Scheme are relevant to (e.g., within Scottish waters, within English waters, or within both). This includes the technical chapters (Volume 2, Chapters 7 to 15) which clearly outline which elements of the Marine Scheme and subsequent predicted impacts and likely significant effects apply to Scottish waters and which apply to English waters.</p>
<p>For any combined EIA Report, it must be made clear which elements of the EIA Report apply to works in Scottish waters and which apply to English waters.</p>	<p>As above, to aid the regulators, this ES clearly identifies which geographical jurisdiction elements of the Marine Scheme are relevant to (e.g., within Scottish waters, within English waters, or within both). This includes the technical chapters (Volume 2, Chapters 7 to 15) which clearly outline which elements of the Marine Scheme and subsequent predicted impacts and likely significant effects apply to Scottish waters and which apply to English waters.</p>
<p>The Scottish Ministers note the Applicant’s intention to apply a ‘Design Envelope’ approach. Where the details of the Proposed Works cannot be defined precisely, the Applicant will apply a worst case scenario, as set out in section 3.2 of the Scoping Report.</p>	<p>Volume 2, Chapter 5: Project Description provides a detailed description of the Marine Scheme including the maximum design scenario (MDS) for each element of the proposed works. Acknowledging that the MDS may differ between the receiving receptor or impact pathway, each technical ES chapter (Volume 2, Chapters 7 to 15),</p>

	<p align="center">Cambois Connection – Marine Scheme</p> <p align="center">ES Chapter 3: EIA Methodology</p>	<p>Doc No: A100796-S01-A-REPT-004-002</p>
<p>Classification: Final</p>		<p>Rev: A01</p>
<p>Status: Final</p>		

Summary of Consultation	Response
<p>The Scottish Ministers advise that the Applicant must make every attempt to narrow the range of options. Where flexibility in the design envelope is required, this must be defined within the EIA Report and the reasons for requiring such flexibility clearly stated. At the time of application, the parameters of the Proposed Works should not be so wide-ranging as to represent effectively different projects. To address any uncertainty, the EIA Report must consider the potential impacts associated with each of the different scenarios. The criteria for selecting the worst case and the most likely scenario, together with the potential impacts arising from these, must also be described. The parameters of the Proposed Works must be clearly and consistently defined in the application/s for the marine licence/s and the accompanying EIA Report.</p>	<p>within each technical assessment chapter of the ES the MDS for the impact assessment is set out in full. This approach is detailed further in section 3.4.3.</p> <p>Due care has been taken to ensure the parameters of the MDS are sufficiently defined and allow flexibility only where necessary, such as to respond to emerging environmental and engineering survey data (i.e., the pre-installation survey), and technological advances. This is reported on and justified in full within Volume 2, Chapter 5: Project Description.</p>
<p>Any embedded mitigation relied upon for the purposes of the assessment should be clearly and accurately explained in detail within the EIA Report. The likely efficacy of the mitigation proposed should be explained with reference to residual effects. The EIA Report must identify and describe any proposed monitoring of significant adverse effects and how the results of such monitoring would be utilised to inform any necessary remedial actions.</p>	<p>This approach has been undertaken as detailed in section 3.4.4.</p>
<p>The EIA Report should clearly demonstrate how the Applicant has had regard to the mitigation hierarchy, including giving consideration to the avoidance of key receptors. The Applicant includes sections in the Scoping Report on ‘designed in measures’ which summarise the mitigation and monitoring commitments in relation to each receptor. Many of the commitments are to management or mitigation plans, however limited detail is provided regarding the content of these plans. The Scottish Ministers advise that where the mitigation is envisaged to form part of a management or mitigation plan, the EIA Report must set out these plans or the reliance on these in sufficient detail so the significance of the residual effect can be assessed and evaluated. This should also include identification of any monitoring and remedial actions (if relevant) in the event that predicted residual effects differ to actual monitored outcomes. Commitment to develop plans without sufficient detail is not considered to be suitable mitigation in itself.</p>	<p>As above, the approach that has been undertaken with regards to the mitigation hierarchy and how these fits into the assessment of impacts and effects is detailed in section 3.4.4.</p> <p>Volume 2, Chapter 17: Summary of Mitigation and Commitments sets out all the specific mitigation measures that the Applicant has committed to adopting in relation to potential impacts resulting from the Marine Scheme, including detail on where these form part of a management plan.</p>

	<p align="center">Cambois Connection – Marine Scheme</p> <p align="center">ES Chapter 3: EIA Methodology</p>	<p>Doc No: A100796-S01-A-REPT-004-002</p>
<p>Classification: Final</p>		<p>Rev: A01</p>
<p>Status: Final</p>		


Summary of Consultation	Response
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MMO Scoping Opinion

<p>Pursuant to regulation 5 of the Regulations, it was agreed between the MMO and SSE Renewables Limited that the proposed works constitute an EIA development under Schedule A2, paragraph 21 of the Regulations, specifically: Schedule A2 paragraph 21: 'Installations for the harnessing of wind power for energy production (wind farms)' of The Marine Works EIA Regulations 2007 ("the Regulations"). Therefore, the application required for the proposed works for a marine licence under Part 4 of the Marine and Coastal Access Act 2009 ("the Act") will be accompanied by an Environmental Statement ("ES").</p>	<p>Noted; this ES has been submitted to the MMO in support of the Marine Licence Application for the Marine Scheme in English waters.</p>
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<p>It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES.</p>	<p>As detailed in section 3.4.9 and in line with the EIA Regulations, this ES considers the effects that are likely to result from the Marine Scheme cumulatively and in combination with other projects and activities that are being, have been or will be carried out.</p>
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<p>An impact assessment should identify, describe, and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information):: a) existing completed projects, b) approved but uncompleted projects, c) ongoing activities, d) plans or projects for which an application has been made and which are under consideration by the consenting authorities and e) plans or projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.</p>	<p>The information referenced by the MMO regarding the tiered approach followed by East Englia Three is welcome. As agreed during the Scoping process (MMO 2023a; MD-LOT, 2023a), the CEA has been informed by a range of guidance and best-practice including the UK Planning Inspectorate Advice Note Seventeen: Cumulative Effects Assessment (PINS, 2019).</p>
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	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004-002
Classification: Final		
Status: Final		Rev:

3.4. Overview of the Methodology

9. EIA is a systematic process which identifies the potential impacts of a development and then seeks to avoid, reduce or offset any likely significant effects through mitigation measures where possible. The EIA process is both iterative and cyclic and has been completed in tandem with project design. Where potential impacts were identified during initial route selection as part of early stage design, options for avoiding or reducing those impacts (mitigation) were incorporated into the design of the Marine Scheme (designed-in measures). Where avoidance of impacts was not practicable (e.g. through design), reduction or offsetting of the likely significant effects through other mitigation measures (including secondary and tertiary measures) were proposed. See section 3.4.4 for the approach mitigation within this ES. Consultation, a vital component of the EIA process, has been undertaken during the course of the EIA and has contributed both to the identification of potential impacts and the development of mitigation measures. Further information regarding consultation and engagement undertaken for the Marine Scheme can be found in Volume 2, Chapter 4: Stakeholder Consultation and Engagement.
10. Where practicable, environmental considerations have been integrated into the design of the Marine Scheme, i.e., through route refinement and optioneering, as further detailed in Volume 2, Chapter 6: Route Appraisal and Consideration of Alternatives.
11. This Marine Scheme ES identifies the likely significant environmental effects (adverse and beneficial) on the physical, biological and human environment and, where any adverse effects are identified, project-specific mitigation measures have been adopted to avoid, minimise, reduce, or offset such adverse environmental effects. Similarly, where there is the potential for the Marine Scheme to benefit the environment, measures have been put in place to *maximise* these benefits, where practicable.
12. The EIA methodology for the Marine Scheme has followed the process outlined in Plate 3.1 which is detailed fully in the sections below.

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004-002
	Classification: Final	Status: Final

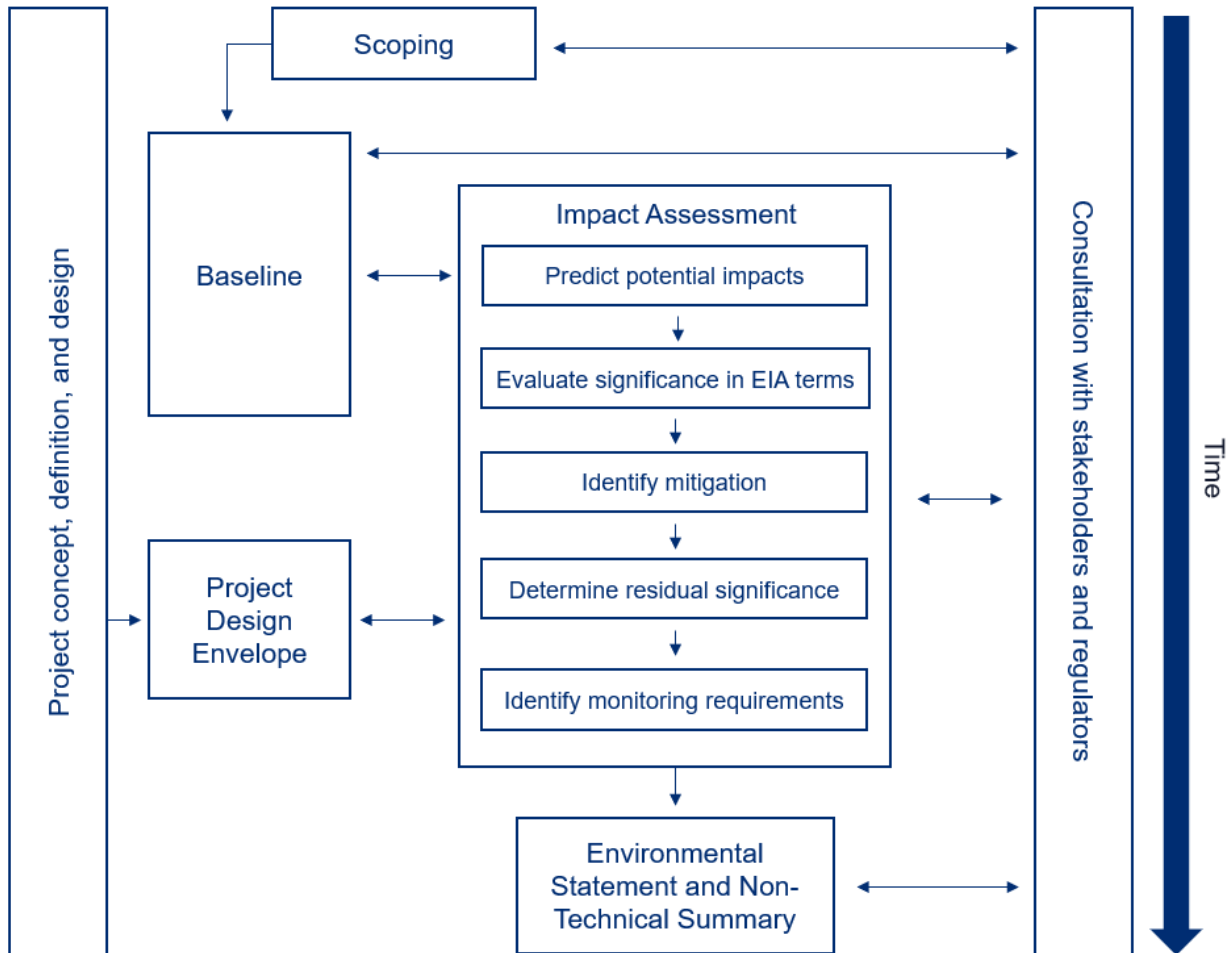



Plate 3.1 EIA Methodology

3.4.1. EIA Scoping

13. A Scoping Report for the Marine Scheme (BBWFL, 2022a) was submitted to the MMO and MD-LOT in November 2022 in accordance with Part 3, Regulation 13 of the EIA Regulations (the 'Scoping Report').
14. The objective of the Scoping Report was to engage with the regulators, statutory and non-statutory consultees in the EIA process, inviting them to provide relevant information and to comment on the proposed approach to the EIA, to ensure that a robust and proportionate ES is submitted in support of the Marine Licence Applications to MD-LOT and the MMO. In order to engage in an informed manner, the Scoping Report provided information on:
 - The Marine Scheme, including the Offshore Export Cables and the Landfall;
 - The proposed outline approach to understand further the baseline conditions and address the potential environmental impacts through the EIA process;
 - The topics to be scoped into the EIA, where potentially significant impacts may result from the Marine Scheme on the physical, biological and human environment; and

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Classification: Final
Status: Final		Rev: A01


- The topics to be scoped out of the EIA, where significant impacts are not anticipated with consideration of designed in and industry best practice mitigation.
15. The Scoping Opinion for the Marine Scheme was received from MD-LOT on 23 February 2023 and from the MMO on 14 March 2023. This ES incorporates the feedback gained through the Scoping Opinions and subsequent consultation. A summary of the responses to the Scoping Opinions and further consultation is provided in Volume 2, Chapter 4: Stakeholder Consultation and Engagement and each topic chapter includes a summary of the relevant responses.
16. Based on the Scoping Opinions received and the consultation to date, this Marine Scheme ES focuses on the following EIA topics that have been scoped in:
- Offshore physical environment and seabed conditions;
 - Benthic subtidal and intertidal ecology;
 - Fish and shellfish ecology;
 - Offshore and intertidal ornithology;
 - Marine mammals;
 - Commercial fisheries;
 - Shipping and navigation;
 - Marine archaeology and cultural heritage;
 - Other sea users; and
 - Inter-related effects.
17. A greenhouse gas (GHG) assessment is provided in Volume 3, Appendix 5.1: Effects on Climate (Greenhouse Gas) Assessment.
18. The topics ‘scoped out’ for assessment include;
- Seascape, landscape, and visual impact assessment¹;
 - Aviation, military and radar²;
 - Water and sediment quality³;
 - Major accidents and disasters⁴;
 - Population and human health;
 - Air quality; and
 - Socio-economics;
19. Volume 2, Chapter 4: Stakeholder Consultation and Engagement provides information on the justification for the scoped out topics above. Each topic or impact assessment chapter (Volume 2, Chapters 7 to 15) details the impacts or receptors that have been scoped out of the assessment

¹ Landscape and visual impact from the Onshore Scheme is assessed within the Onshore Scheme ES, which will include all elements of the Marine Scheme between MLWS and MHWS (including Landfall installation). As confirmed by the MMO through formal engagement and reported within Volume 2, Chapter 4: Stakeholder Engagement and Consultation, there is no requirement for any form of seascape assessment required for the Marine Scheme.

² Impacts upon military infrastructure and Ministry of Defence interests are assessed in Volume 2, Chapter 15: Other Sea Users.

³ Noting that impacts upon Water Framework Directive (WFD) bodies will be assessed within a dedicated WFD assessment to support the Marine Licence applications, as agreed through formal engagement with the Environment Agency (Environment Agency, 2023).

⁴ Although there will be no dedicated chapter assessing major accidents and disasters, in accordance with the Scoping Opinions, this impact assessment is adequately covered within Volume 2, Chapter 12: Commercial Fisheries and Volume 2, Chapter 13: Shipping and Navigation.

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No:
		A100796-S01-A-REPT-004–002
Classification: Final		
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for that particular topic. The scope of this ES in terms of topic content complies with the requirements set out by the EIA Regulations. Table 3.2 outlines the associated requirements of the EIA Regulations and where these requirements have been considered within this ES.

Table 3.2 EIA Regulations Requirements Addressed in the Marine Scheme ES


EIA Regulations Requirement	Relevant Marine Scheme ES Chapter (Volume 2)
1(a): Population and human health	Chapter 12: Commercial Fisheries Chapter 13: Shipping and Navigation Chapter 15: Other Sea Users
1(b): Biodiversity, with particular attention to species and habitats protected under the EIA Regulations	Chapter 8: Benthic Subtidal and Intertidal Ecology Chapter 9: Fish and Shellfish Ecology Chapter 10: Offshore and Intertidal Ornithology Chapter 11: Marine Mammals
1(c): land, soil, water, air and climate	Chapter 7: Offshore Physical Environment and Seabed Conditions WFD Assessment ³
1(d): material assets, cultural heritage and the landscape	Chapter 12: Commercial Fisheries Chapter 13: Shipping and Navigation Chapter 14: Marine Archaeology and Cultural Heritage Chapter 15: Other Sea Users
1(e): the interaction between the factors referred to in points (a) to (d).	Chapter 16: Inter-related Effects

3.4.2. Intertidal Zone

20. There is overlap between the Marine Scheme, in English Waters and the Onshore Scheme within the intertidal zone, between MHWS and MLWS, where development under each scheme is due to be located. For the avoidance of doubt, this Marine Scheme ES assesses impacts and likely significant effects of Project infrastructure located seawards of MHWS, and the Onshore Scheme ES will assess impacts of all Project infrastructure located landwards of MLWS.
21. As an Open Cut Trench (OCT) solution for bringing the Offshore export Cables ashore at the Landfall is no longer included as an option for the Project (removed from both the Marine Scheme and the Onshore Scheme) there is very limited potential for any interaction with receptors in the intertidal area. This is on the basis that all onshore works associated with the trenchless technology solution will be located landward of MHWS and therefore are assessed in the Cambois Connection Onshore Scheme EIA. This includes an assessment of effects of the onshore works (landward of MWHS) on the intertidal area. The offshore trenchless technology exit pits have an exit point at least 250 m seaward of MLWS, thus completely bypassing the intertidal zone.
22. Volume 3, Appendix 3.5 provides further information regarding the intertidal zone and consideration of the Onshore Scheme within the Marine Scheme ES.

3.4.3. Maximum Design Scenario


23. In accordance with best practice, the Marine Scheme will utilise an MDS approach to inform the EIA. This envelope approach allows a range of parameter values to be presented for each component of the Marine Scheme and ensures that flexibility is retained in the design. The MDS will cover all components of and activities associated with the construction, operation and maintenance, and decommissioning of the Marine Scheme.

	<p align="center">Cambois Connection – Marine Scheme</p> <p align="center">ES Chapter 3: EIA Methodology</p>	<p>Doc No: A100796-S01-A-REPT-004–002</p>
<p>Classification: Final</p>		<p>Rev: A01</p>
<p>Status: Final</p>		

24. Within the EIA, the design parameters which represent the realistic MDS for the impact assessments have been determined on a case-by-case basis, depending on the receptors and impacts being considered in each technical assessment chapter (Volume 2, Chapters 7 to 15). Realistic combinations of design parameters have been considered to ensure that the ‘worst-case’ scenario options are not overly precautionary or unrealistic. Under this approach, the combination of Marine Scheme design options constituting the worst-case scenario may necessarily differ from one receptor to another and from one impact to another. The end result is an EIA which has been based on clearly defined parameters that have defined the range of Marine Scheme design possibilities and hence the likely environmental impacts that could result from the Marine Scheme.
25. Within each technical assessment chapter of the ES the MDS for the impact assessment is set out in full. Given that the assessment has been based on the design option (or combination of options) that represent the greatest realistic potential for impact (and therefore effect) confidence can be held that development of any alternative options within the MDS will give rise to effects that are no greater or worse than those assessed within this ES.

3.4.4. Approach to Mitigation

26. In accordance with the IEMA (2016b) Guide to Delivering Quality Development, mitigation measures can fall into the following classifications:
 - Primary mitigation - measures built into the design of the project which reduce or avoid the likelihood or magnitude of an adverse environmental effect, including location or design. Primary mitigation measures do not require additional action to be taken;
 - Secondary mitigation – are additional measures that require further action post-consent and do not form part of the fundamental design of the project; and
 - Tertiary mitigation – are measures that are required through standard practice or to meet legislative requirements and are independent of the EIA process (i.e. they would be implemented regardless of the findings of the EIA).
27. Primary and tertiary mitigation measures are considered to be ‘built into’ the design of the Marine Scheme.
28. Where a given impact is assessed to result in a likely significant adverse effect in EIA terms, changes are made to the parameters or design of the project, or specific mitigation measures are implemented to avoid, reduce or offset the magnitude of that impact. This process is continued as illustrated in Plate 3.2 until the effect has been reduced to ‘not significant’, or until it is deemed that no further changes or practicable mitigation measures are available in which case the residual effect may be presented as ‘significant in EIA terms’ within the ES.

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Classification: Final
Status: Final		Rev: A01

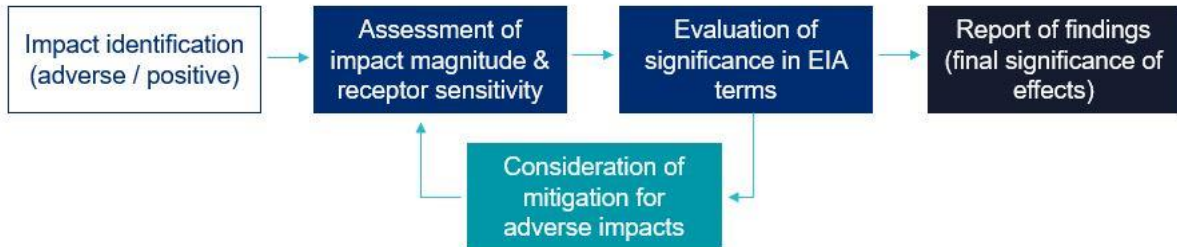



Plate 3.2 Assessment of effects process

3.4.4.1. DESIGNED IN MEASURES (PRIMARY MITIGATION)

29. IEMA (2016b) describe Primary (inherent) mitigation as: “*Modification to the location or design of the development made during the pre-application phase that are an inherent part of the project, and do not require additional action to be taken*”
30. Primary mitigation has been referred to as “designed in measures” within this Marine Scheme ES.
31. As part of the Marine Scheme design process, a number of designed in measures have been considered to reduce the potential for impacts to the environment. These are considered inherently part of the design and have therefore been considered in the assessment undertaken as part of each ES technical chapter (Volume 2, Chapter 7 to 15).
32. The designed in measures for the Marine Scheme are inherent in the reduction of potential impacts to the environment by, for example, refining the route of the Offshore Export Cable Corridor to avoid the Farnes East Marine Conservation Zone (MCZ), which is outlined further in Volume 2, Chapter 6: Route Appraisal and Consideration of Alternatives.

3.4.4.2. SECONDARY MITIGATION

33. IEMA (2016b) describe Secondary (foreseeable) mitigation as: “*Actions that will require further activity in order to achieve the anticipated outcome. These may be imposed as part of the planning consent, or through inclusion in the Environmental Statement*”.
34. Secondary mitigation is considered as additional measures that are implemented to further reduce environmental effects to ‘not significant’ levels where the initial assessment concludes there is the potential for a significant adverse effect to occur.
35. Consistent with standard industry practice and accepted methodology for EIA, a standard hierarchical approach has been adopted when identifying mitigation requirements; this is summarised below:
 - **Avoid or Prevent:** Measures which avoid creating impacts from the outset. For example, careful siting of infrastructure to avoid direct impacts on receptors, or scheduling of works outside sensitive ecological windows (i.e., breeding season);
 - **Reduce:** Measures taken to reduce the duration, magnitude and/or extent of impacts that cannot be completely avoided. For example, limiting vessel traffic or restricting construction works to reduce underwater noise; and
 - **Offset:** Measures implemented to compensate for any likely significant adverse effects that cannot be appropriately avoided or reduced. For example, seagrass planting to create habitat for fish nurseries to offset likely significant effects on specific fish species.

	<p align="center">Cambois Connection – Marine Scheme</p> <p align="center">ES Chapter 3: EIA Methodology</p>	<p>Doc No: A100796-S01-A-REPT-004–002</p>
<p>Classification: Final</p>		<p>Rev: A01</p>
<p>Status: Final</p>		


36. After the consideration of any secondary mitigation measures, the residual significance of an effect is considered.

3.4.4.3. TERTIARY MITIGATION

37. IEMA (2016b) describe Tertiary (inexorable) mitigation as: “*Actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirement, or actions that are considered to be standard practices used to manage commonly occurring environmental effects*”.
38. Tertiary mitigation are measures which will be implemented regardless of the design process and the EIA, for example, regulations derived from The International Convention for the Prevention of Pollution from Ships (MARPOL). These measures include actions that will be undertaken to meet existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects (IEMA, 2016b). Tertiary mitigation is therefore considered ‘designed in’ measures, in line with primary mitigation.

3.4.5. Characterising the Baseline Environment

39. The environmental baseline conditions which exist within the topic specific study areas of the Marine Scheme have been established to assess the potential impacts and likely significant effects arising from the Marine Scheme.
40. As natural processes and/or human activities can affect the baseline, it is important to establish a future baseline. Therefore, in addition to characterisation of the current baseline environment, the potential evolution of the baseline conditions in the study areas throughout the lifetime of the Marine Scheme has been determined. The purpose of this it to understand potential state of the environment at the time the Marine Scheme will be constructed and operational, and also to establish the state of the environment should the Marine Scheme not be constructed (the ‘Future Baseline Scenario’). This has been based on publicly available information, research and professional judgement, which is used as the baseline for assessing future effects.
41. The characterisation of the environmental baseline for the Marine Scheme has been established through the stages detailed below to establish a robust baseline for each EIA topic:
- Defining the study area for each receptor based on the relevant characteristics of the receptor (e.g. mobility/range);
 - Identifying key environmental and human sensitive receptors in the study areas;
 - Completing primary baseline data collection studies (including surveys and reporting to inform the EIA);
 - Review of secondary sources (desk-based assessment and review of existing information and data local to and/or relevant to the Marine Scheme);
 - Stakeholder engagement (detailed discussions with a range of stakeholders to help expand on the findings from wider field and desk-based studies);
 - Identifying likely or potential impacts that might be expected to arise from the Marine Scheme;
 - Determining if there is sufficient evidence to characterise the environmental baseline in appropriate detail; and
 - Identifying any remaining data gaps or limitations and describing the implications of these on the baseline characterisation and on assessing significance of likely effects.

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Classification: Final
Status: Final		Rev: A01

42. A detailed baseline has been established within each of the technical chapters of this ES based on the stages described above and the outputs from the Scoping Opinions, provided in Volume 3, Appendix 3.2: MD-LOT Scoping Opinion and Appendix 3.3: MMO Scoping Opinion.

3.4.6. Assessment of Impacts and Effects

43. The ‘source-pathway-receptor’ model has been utilised for the identification and assessment of potential effects of the Marine Scheme, as outlined in Plate 3.3 The ‘source-pathway-receptor’ model defines those receptors considered to be at risk from impact from the Marine Scheme; the model is an approach originally developed to help inform land contamination appraisals but that which is now applied throughout industry to benefit EIAs (Environment Agency, 2021). The source represents the origin of an impact (i.e., an activity related to the Marine Scheme), the pathway represents the route through the environment by which the effects of an activity are transmitted, and the receptor is the environment or resource that receives the impact, which then causes an effect on the receptor. Where there is no known ‘pathway’ then no effect is considered to occur, and the impact is scoped out.

44. By way of an example, the construction of the Offshore Export Cables associated with the Marine Scheme (the ‘activity’) will result in seabed disturbance and suspension of sediment (the ‘impact’) with the potential to disturb benthic habitats and species (the ‘effect’), as illustrated in Plate 3.3 below.

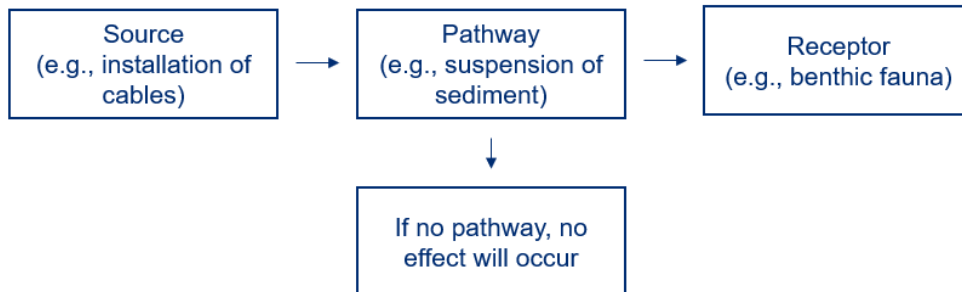



Plate 3.3 Source-pathway-receptor model

45. In the context of this EIA, the terms ‘impact’ and ‘effect’ are not one-and-the-same; their definitions are based on the glossary of the Introduction to Environmental Assessment (Highways England, 2019a) and are provided below:

- **Impact:** Change that is caused by an action. Impacts can be defined as direct, indirect, temporary, irreversible, secondary, cumulative and inter-related (Table 3.3). They can also be either positive or negative, although the relationship between them is not always straightforward; and
- **Effect:** Term used to express the consequence of an impact (expressed as the ‘significance of effect’), which is determined by correlating the magnitude of the impact to the sensitivity of the receptor or resource in accordance with defined significance criteria.

46. There is the potential for the Marine Scheme to have both adverse and beneficial impacts on the environment. The impact identification will consider whether a potential impact is considered adverse or positive, direct or indirect, temporary or permanent. The assessment process will then consider the significance of the resulting effect on the environment, either beneficial or adverse, using the process outlined in the sections below.

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Classification: Final
Status: Final		Rev: A01


47. Table 3.3 provides the definitions of the impact terminology used throughout this ES.

Table 3.3 Impact terminology relevant to the Marine Scheme ES

Impact terminology	Definition
Direct Impact	Impacts which result from a direct interaction between the Marine Scheme and relevant environmental receptors.
Indirect Impact	Impacts on relevant environmental receptors which are not as a direct result of the Marine Scheme, but which may still require consideration (this can include complex pathways or activities carried out off-site, for example).
Cumulative Impacts ⁵	Impacts which result from the cumulative effect of past, present, or reasonably foreseeable developments, together with the Marine Scheme.
Inter-related Impacts	Inter-related impacts refer to the inter-relations between topics within an EIA which, when considered in their completeness, may lead to environmental effects by virtue of different (increased) pressures on receptors.
Beneficial Impact	An impact which would result in an improvement to the baseline environment.
Adverse Impact	An impact which would result in a deterioration to the baseline environment.

48. For the impacts scoped into the EIA, the ES will describe the significance of the effect expected to result from the Marine Scheme using a standard EIA methodology. The method discussed in the following sections has been developed by reference to the latest EIA guidance as outlined in section 3.2.2. Topic-specific guidance is listed in the technical assessment chapters where these have informed the assessment methodology.
49. The assessment process will consider the potential magnitude of change to the baseline conditions arising from Marine Scheme and the sensitivity of the particular receptor under consideration, as well as any primary mitigation measures (as defined in section 3.4.4).
50. One exception where a topic deviates from the generic approach is the Shipping and Navigation (Volume 2, Chapter 13). The Shipping and Navigation impact assessment will be assessed quantitatively in line with Marine Guidance Note (MGN) 654, the International Maritime Organization (IMO) Formal Safety Assessment (FSA), and relevant EIA guidance. Additionally, the greenhouse gas assessment for the Marine Scheme (Volume 3, Appendix 5.1) follows the methodology outlined by IEMA (2020 and 2022)).
51. For consistency and to aid with review of conclusions in this Marine Scheme ES, where a topic-specific assessment does deviate from ‘generic’ assessments of significance, a professional judgment relating to a conclusion of ‘significant’ or ‘not significant’ is still provided.

⁵ The term cumulative assessment is used throughout this ES as defined. To avoid confusion, the term ‘in-combination’ which is suitable in the context of Habitats Regulations Appraisal requirements, is not used within this ES.

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Rev: A01
Classification: Final		
Status: Final		

3.4.6.1. IMPACT MAGNITUDE


52. The EIA also considers the magnitude of change associated with a given impact from the Marine Scheme during the construction, operation and maintenance or decommissioning phase. The main factors which will typically influence this consideration include:
- Spatial extent of change, that is the geographical area over which the impact or effect may occur;
 - Duration of change, that is the period of time over which the impact will occur;
 - Frequency of change, that is the number of times the impact will occur over the project lifespan; and
 - Reversibility of change, e.g. whether recovery or counteraction is possible through mitigation.
53. The EIA considers the magnitude of each potential impact. The broad impact magnitude criteria are summarised in Table 3.4 which is developed from standard industry practice as summarised in section 3.2.2 Where technical assessments deviate from the criteria outlined below due to receptor specific considerations, for example, this will be clearly stated within the chapters. In particular, the duration of impacts relates to the period of time over which the impact will occur and is related to factors such as species lifecycle and Project timeframes.

Table 3.4 Impact magnitude

Impact magnitude	Criteria
High	The impact occurs over a large spatial extent resulting in widespread, and/or long-term, permanent changes in baseline conditions or affects a proportion of a receptor population. The impact is very likely to occur and/or will occur at a high frequency or intensity.
Medium	The impact occurs over a local to regional spatial extent and/or a short- to medium-term change to baseline conditions or affects a moderate proportion of a receptor population. The impact is likely to occur and/or will occur at a moderate frequency or intensity.
Low	The impact is localised and/or temporary or short-term, leading to a detectable change in baseline conditions or a noticeable effect on a small proportion of a receptor population. The impact is unlikely to occur or may occur but at low frequency or intensity.
Negligible	The impact is highly localised and/or short-term, with full rapid recovery expected to result in very slight or imperceptible changes to baseline conditions or a receptor population. The impact is very unlikely to occur; if it does, it will occur at a very low frequency or intensity.

3.4.6.2. RECEPTOR SENSITIVITY

54. Receptors are defined as the elements of the receiving environment that is impacted, and could be a component of the physical, ecological or human environment. The sensitivity of a receptor to an impact is based on the following factors:
- Tolerance to change: ability to withstand / accommodate an impact;
 - Recoverability: ability to recover from an impact (i.e., ability to return to baseline state);
 - Adaptability: ability to avoid or adapt to an impact; and
 - Value: importance (e.g., based on conservation value / protected status or economic value).

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No:
		A100796-S01-A-REPT-004–002
Classification: Final		
Status: Final		Rev: A01

55. The sensitivity value given to a receptor is typically determined by balancing considerations of these factors as detailed in Table 3.5. It is important to note that sensitivity of individual receptors may vary slightly within this wider framework based on topic-specific factors; where this is the case, it has been reported within each of the technical assessments (Chapter 7 to 15).

Table 3.5 Receptor sensitivity

Sensitivity	Definition
Very High	Very high importance and rarity, international receptor with no capability to ‘absorb’ or accommodate change and no ability to recover or adapt.
High	High importance and rarity, international and/or national receptor and very limited capability to ‘absorb’ or accommodate change without fundamentally altering the character of the receptor.
Medium	High or medium importance and rarity, regional receptor with some capacity to absorb or accommodate change without significantly altering character, however some damage to the receptor is anticipated to occur.
Low	Low or medium importance and rarity and the receptor is considered tolerant to change without significant detriment to its character; some limited or minor change may occur.
Negligible	Very low importance and rarity, local receptor and is tolerant to change with no effect on its fundamental character.

3.4.6.3. EVALUATING SIGNIFICANCE OF EFFECT

56. Considering the impact magnitude and the sensitivity of a receptor, the significance of the effect can be ascertained based on baseline information, professional judgment, and stakeholder advice. A defined methodology and the significance of effect matrix (Table 3.6) have been used in each ES technical chapter (Volume 2, Chapters 7 to 15) to ensure consistency when evaluating the significance of effects. For effects assessed as minor to moderate, professional judgement has been applied to determine if the effect is significant in terms of the EIA regulations.
57. The general assessment matrix followed for this ES is included in Table 3.6. Within this ES, any effect with a significance of moderate or greater is considered 'significant' in terms of the EIA regulations. However, significance has been assessed based on the prevailing topic-specific assessment methodology throughout this ES and using professional judgement where appropriate. Deviations from this matrix are set out within the relevant technical chapters of this ES (Chapter 7 to 15, Volume 2).
58. The significance of effect matrix approach described above is consistent with the suite of guidance discussed in section 3.2. Minor refinements have been made to reflect both the nature of the Marine Scheme and to promote greater proportionality.
- Where a magnitude of ‘negligible’ is identified the effect will always be not significant; and
 - Receptors of negligible importance, value or sensitivity will not be assessed further within the EIA as the resultant effect will always be not significant.


	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Classification: Final
Status: Final		Rev: A01

Table 3.6 Significance of effects matrix

		Magnitude of Impact			
		Negligible	Low	Medium	High
Sensitivity of Receptor	Negligible	Negligible	Negligible to Minor	Negligible to Minor	Minor
	Low	Negligible to Minor	Negligible to Minor	Minor	Minor to Moderate
	Medium	Negligible to Minor	Minor	Moderate	Moderate to Major
	High	Minor	Minor to Moderate	Moderate to Major	Major
	Very High	Minor	Moderate to Major	Major	Major

59. A typical categorisation of effect significance is shown below in Table 3.7, noting that effects can be both beneficial or adverse. Any effect with a significance of moderate or greater is considered 'significant' in terms of the EIA regulations, and effects identified as minor or negligible are considered to be 'not significant' in terms of the EIA regulations.


Table 3.7 Definition of consequence of effect and associated significance

Category	Definition	Significance
Major	A fundamental change to the environment or receptor, resulting in a significant effect.	Significant
Moderate	A material but non-fundamental change to the environment or receptor, resulting in a possible significant effect.	Significant
Minor	A detectable but non-material change to the environment or receptor resulting in no significant effect or small-scale temporary changes.	Not Significant
Negligible	No detectable change to the environment or receptor resulting in no significant effect.	Not Significant

60. Where the impact assessment identifies that an activity of the Marine Scheme is likely to give rise to significant effects, secondary mitigation measures, above and beyond any designed in or tertiary mitigation (as defined in section 3.4.4) will be incorporated into the assessment process so far as practicable to avoid impacts or reduce them to acceptable levels. At this point the impact is reassessed, considering all mitigations to determine the residual effect. Residual effects are defined as the effects remaining once all mitigation measures have been taken into consideration.


3.4.6.4. GEOGRAPHICAL SCOPE OF IMPACTS

61. The Marine Scheme is located across both Scottish (offshore) waters and English waters (territorial from MHWS and offshore) and the impact assessments acknowledge the specific legislative and/or procedural requirements within each geography. In accordance with the requirements of the EIA Regulations, the assessment is of the works comprising the Marine Scheme, and the works within each jurisdiction area clearly identified for the benefit of the reader. The assessments generally

 Classification: Final	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
Status: Final		Rev: A01

follow a north to south approach, considering impacts along the route of the Marine Scheme (including with relation to specific designated sites in Scottish and English waters, as required).

62. Chapter 5: Project Description presents the divide of Marine Scheme infrastructure within Scottish and English waters; this includes a summary of parameters for each Marine Licence application (such as rock volumes / footprint) and where there is no difference and where the same value is used, this is made clear. The aim of this approach is to avoid unnecessary duplication and repetition where the information being presented is the same in Scottish and English waters, in order to help rationalise the conclusions of the impact assessment for the MMO and MD-LOT (and relevant stakeholders) and therefore to streamline consultation on the ES.
63. The impact assessments within the technical ES chapters (Volume 2, Chapters 7 to 15) have been structured accordingly to aid this. Following the identification of the study area applicable to each EIA topic via figures depicting the boundaries of the Marine Scheme in relation to Scottish and English waters, and characterization of the baseline, a summary table presents the key receptors taken forward for assessment and whether they are located in Scottish waters, English waters, or within both. The baseline is not fully divided by geography where there is no difference between the environment in Scottish and English waters, however where there is difference, geographically distinct features (designated sites, wrecks, specific habitat types etc.) are highlighted in terms of whether they are in Scottish/English waters in the baseline. For other features (such as marine mammal density and fishing effort) where there is not the resolution to split between the jurisdictions or where a receptor is highly mobile and not spatially confined (such as marine mammals, ornithological features and fish and shellfish), the baseline will be presented for the whole study area and the summary table in the baseline section will mark these receptors as relevant in both Scottish and English waters.
64. The description of impacts and assessment of effects provides the impacts and assessment of effects arising from the Marine Scheme, and, where relevant, the impact and assessment of effects arising from the Marine Scheme located within Scottish and/or English waters. This latter stage will **only** be undertaken in the instance that the significance of effect is considered to be different between geographies. For example, in the instance that the impact magnitude is higher or lower in Scottish waters than it is in English waters. Accordingly, where no geographical distinction between impact and assessment of effects is stated, the impact and assessment is applicable to both the Scottish and English locations of the Marine Scheme.
65. Each chapter also clearly explains the approach taken from a cumulative effects assessment perspective. This includes setting out each neighboring project that forms part of the cumulative assessment for each EIA topic. The description of impacts and assessment of effects provides the impacts and assessment of effects arising from the Marine Scheme cumulatively with each neighboring project screened in. Depending on the EIA topic and the location of the screened-in projects, the cumulative assessment also sets out the impact and assessment of effects arising from the Marine Scheme located within Scottish waters or English waters cumulatively with those other projects. For example, cumulative impacts with the Onshore Scheme will for many EIA topics (e.g. those with geographically distinct features such as specific habitat types) be only relevant for the part of the Marine Scheme located in English Waters as the Onshore Scheme spatially overlaps with the Marine Scheme in the intertidal area, whereas cumulative effects with BBWF will, for many EIA topics, be only relevant for the part of the Marine Scheme located in Scottish waters as the BBWF array area overlaps spatially. Equally, where no geographical distinction is made in the impacts and assessment of cumulative effects, the cumulative effect assessment and its outcome is applicable to both Scottish and English waters. Where the description of impacts and assessment of effects for the Marine Scheme in either English or Scottish waters is split out from the other because the assessment of effects is different, the assessment of cumulative impacts and effects includes the assessment of the effects of the Marine Scheme in the other jurisdiction as well as

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Classification: Final
Status: Final		Rev: A01

other relevant projects. Full detail on the methodology and approach used for the cumulative effects assessment is provided in section 3.4.9.

3.4.7. Monitoring

66. Recommendations for monitoring are included in the relevant technical chapters. Monitoring proposals are linked to clearly defined criteria.

3.4.8. Inter-Related Effects

67. Assessment of inter-related effects is required under the EIA Regulations, which are defined as the potential effects of multiple impacts affecting one receptor (Highways England, 2019b). The assessment of inter-related effects is provided in Volume 2, Chapter 16: Inter-related Effects Assessment.

68. The inter-related effects assessment considers effects from the Marine Scheme, and not those from other projects cumulatively with the Marine Scheme. These latter effects are considered within the Cumulative Effects Assessment (CEA).

69. There are two main types of inter-related effects:


- **Project Lifetime Effects:** these are effects which occur over time at more than one phase of the Marine Scheme (i.e., construction, operation and maintenance, decommissioning) and may interact together to potentially create a more significant effect on a specific receptor when compared to if only assessed in isolation; and
- **Receptor-Led Effects:** these are effects which may interact spatially and/or temporally resulting in the potential for inter-related effects on a specific receptor. Receptor-led inter-related effects may be short term, temporary or incorporate longer-term, potentially permanent effects. For example, where potential impacts on a key prey resource (e.g. sandeels from multiple impact pathways such as habitat disturbance), results in a greater impact on the receptor species than one impact pathway alone.

70. An assessment of inter-related effects has been undertaken as part of the EIA for the Marine Scheme, as presented within Volume 2, Chapter 16; this has been conducted in a focused manner. Rather than an assessment for every individual receptor considered within the EIA, receptors have been grouped, and 'scoped' in or out based on those receptor groups having the potential for significant inter-related effects. This approach follows the methodology outlined at Scoping.

71. Each of the technical chapters of the Marine Scheme ES were reviewed to identify potentially sensitive receptors, or receptor groups, that require assessment of the likely significant effects on these receptors or receptor groups. An assessment was then undertaken to identify where individual effects have the potential to create inter-related effects on receptors, or receptor groups, when combined, for project lifetime and receptor-led effects. A conclusion was then made on the likely significant inter-related effects.

72. The methodology follows that outlined in section 2.4.6 above; identification of receptor, or receptor group, sensitivity; consideration of impact magnitude; and evaluation of significance of effect.

73. Where it is deemed that an effect cannot contribute to any inter-related effects, topic-specific assessments identify that the significance of the effect is 'negligible across all stages of the project'. Such effects will not be considered further within the inter-related effects assessment.

	<p align="center">Cambois Connection – Marine Scheme</p> <p align="center">ES Chapter 3: EIA Methodology</p>	<p>Doc No: A100796-S01-A-REPT-004–002</p>
<p>Classification: Final</p>		<p>Rev: A01</p>
<p>Status: Final</p>		

3.4.9. Cumulative Effects Assessment

3.4.9.1. LEGISLATION AND POLICY

74. As well as considering impacts from the Marine Scheme alone, the EIA Regulations require a consideration of potential impacts that could occur cumulatively with other relevant projects, plans and activities, that could result in a cumulative effect. The assessment of cumulative effects is required under several key pieces of legislation and policy; this includes:


- The Marine Policy Statement (DEFRA, 2011) which sets out that when considering potential benefits and adverse effects, decision makers should also consider ‘multiple and cumulative impacts of proposals in the light of other projects and activities’;
- Under Schedule 3 (Part 5) of The Marine Works (EIA) Regulations (2007) (as amended); and
- Both Scotland’s National Marine Plan (Scottish Government, 2015) and the North East Inshore and North East Offshore Marine Plan (MMO, 2021) set out that cumulative effects should be addressed in marine decision making.

3.4.9.2. GUIDANCE

75. There is no single, agreed approach to the completion of a CEA; however, as agreed as part of the Scoping process, the following guidance has been used to help inform the approach to the assessment of cumulative effects:

- Cumulative Effects Assessment (PINS, 2019) provides guidance on the assessment of cumulative effects relevant to Nationally Significant Infrastructure Projects (NSIPs). Whilst the Marine Scheme is not an NSIP, the well-tested and robust methodology is valuable to informing approach to assessment;
- A strategic Framework for Scoping Cumulative Effects (MMO, 2014) provides guidance for the assessment of cumulative effects within the marine environment; and
- Marine Scotland (2018) Offshore wind, wave and tidal energy applications: consenting and licensing manual.

76. As detailed within Advice Note Seventeen (PINS, 2019), this approach follows a systematic and staged process; this is summarised in further detail in Plate 3.4 and within the sections below.

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Classification: Final
Status: Final		Rev: A01

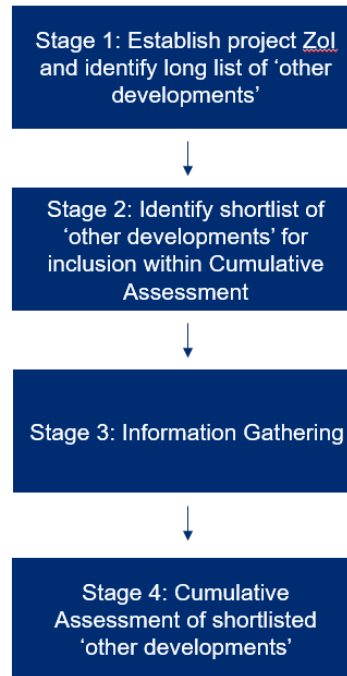


Plate 3.4 Process to assess cumulative effects

77. PINS (2019) recommend that in order to identify a long list of other developments which may result in likely significant effects, the spatial and temporary impacts of a project be determined first. The Zone of Influence (Zol) for each environmental topic considered within this Marine Scheme ES has been used to inform the study area for the cumulative assessment. The largest ZOI of 20 km has been used as the basis for the initial long list of other developments which is considered to appropriately cover the potential Zol for each environmental topic assessed as part of the Marine Scheme.


3.4.9.3. STAGE 1 – INITIAL SCREENING AND ESTABLISHING THE LONG-LIST

78. An initial screening was performed to identify developments with which the Marine Scheme may interact that may result in cumulative effects during construction, operation and maintenance, and decommissioning. The screening considered what detail is currently available regarding current and future developments, as well as the likelihood of a potential interaction. This considered projects that are ‘reasonably foreseeable’ such as:

- Existing projects either built or in construction;
- Consented projects, awaiting implementation; and
- Proposals awaiting determination within the planning process with design information in the public domain (including other renewable energy or subsea transmission developments that requested a Scoping Opinion by 30 April 2023).

79. The CEA has considered all other relevant plans, projects and activities that are publicly available three months prior to submission of the Marine Scheme application.

80. The screening resulted in a long list of potential developments within the 20 km ZOI, as agreed through Scoping. The long list for the CEA is provided in Appendix 3.2, Volume 3 and has been developed using publicly available datasets, such as the public registers from MD-LOT (MD-LOT,

	<p align="center">Cambois Connection – Marine Scheme</p> <p align="center">ES Chapter 3: EIA Methodology</p>	<p>Doc No: A100796-S01-A-REPT-004–002</p>
<p>Classification: Final</p>		<p>Rev: A01</p>
<p>Status: Final</p>		

2023b) and the MMO (2023b), to identify projects and plans in the vicinity of the Marine Scheme. A desk based search of publicly available information was undertaken to compile information such as project name, information source, confidence in project data, scale/capacity, status of the development and construction timescales within the long list.


81. The Onshore Scheme is subject to a consenting process via an application for planning permission to NCC as the local planning authority (LPA) under Section 57 of the Town and Country Planning Act 1990. The Onshore Scheme has been included as a cumulative project within the long list (Appendix 3.2, Volume 3) for the purposes of the Marine Scheme CEA as agreed through Scoping, however Volume 2, Chapter 8: Offshore and Intertidal Ornithology is the only ES topic to take the Onshore Scheme forward within the CEA. This is because of the nature of the ornithological receptors which utilise both onshore and offshore areas, whereas all other receptors considered within the Marine Scheme ES are marine based, and therefore there is no plausible pathway with the Onshore Scheme. Information from the Onshore Scheme ES that is publicly available will be used to inform this assessment.
82. The BBWF application will be included and considered within the CEA as a cumulative project as agreed through Scoping.

3.4.9.4. STAGE 2 – SHORT LISTING

83. The projects included in the long list were reviewed on a topic-by-topic basis based on the knowledge and experience of technical specialists of the topic-specific ZOIs, to identify if there was an impact-receptor-pathway that would result in a cumulative effect.
84. The long list was then reduced to a short list which considered whether the impacts from the Marine Scheme physically overlapped with the impacts from other developments (with consideration of mobile receptors) or temporally overlapped (noting some impacts may only occur during certain phases of the Marine Scheme). Conceptual overlaps were also considered, as defined where an impact has the potential to directly or indirectly affect the receptor being assessed. Projects which are operational at the time of baseline characterisation are screened out of the CEA, as these are considered as part of the EIA baseline.
85. Based on the nature of an EIA topic-specific assessment and dependent on the individual Zol, the consideration of the potential for cumulative effects will vary from topic to topic (this is to be expected based on the variation in geographical extent of potential impact and is in accordance with the guidance noted in section 3.4.9.2 above).


3.4.9.5. ASSESSMENT OF CUMULATIVE EFFECTS

86. The CEA methodology will follow the assessment methodology outlined in sections 3.4.9.1 and 3.4.9.2 above to maintain a level of consistency and so comparisons can be made across technical chapters. Whilst efforts will be made to ensure the CEA is quantitative and consistent across all technical chapters, the approach may differ depending on the nature of the topic, the level of data available for the CEA, the short list for the CEA and other practicalities. Where a wholly quantitative approach is not possible, a level of qualitative assessment using professional judgement will be presented.
87. Where potential effects are assessed as negligible for the Marine Scheme alone, or where a potential effect is highly localised, these will generally not be considered within the CEA as it is not considered that there will be a potential for cumulative effects. This will be confirmed and stated throughout the technical chapters on a topic-specific basis.

	<p align="center">Cambois Connection – Marine Scheme</p> <p align="center">ES Chapter 3: EIA Methodology</p>	<p>Doc No: A100796-S01-A-REPT-004–002</p>
<p>Classification: Final</p>		<p>Rev: A01</p>
<p>Status: Final</p>		

3.4.10. Transboundary Impacts

88. Transboundary impacts arise when a development within one European Economic Area (EEA) state’s territory affects the environment of another EEA state(s). Article 7 of the EU Directive 2011/92/EU (as amended by 2014/52/EU) (‘the EIA Directive’), which is transposed directly into domestic EIA Regulations, requires the assessment of likely possible transboundary impacts.
89. The Applicant has performed a transboundary screening for all potential impacts and pathways on physical, biological, and human receptors with regard to the distance from the Marine Scheme to the boundary of the Exclusive Economic Zone (EEZ) of EEA states in which there may be potential for transboundary impacts.
90. In the following three chapters, potential transboundary impacts are identified and assessed, in line with the approach proposed and agreed at Scoping:
 - Volume 2, Chapter 10: Offshore and Intertidal Ornithology;
 - Volume 2, Chapter 11: Marine Mammals; and
 - Volume 2, Chapter 12: Commercial Fisheries.

	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No: A100796-S01-A-REPT-004–002
		Classification: Final
Status: Final		Rev: A01

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		Classification: Final
Status: Final		Rev: A01

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	Cambois Connection – Marine Scheme ES Chapter 3: EIA Methodology	Doc No:
		A100796-S01-A-REPT-004–002
Classification: Final		
Status: Final		Rev: A01

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