Environmental Impact Assessment Report
Volume 1, Chapter 34: Summary

MarramWind Offshore Wind Farm

December 2025

MarramWind

Document code:	MAR-GEN-ENV-REP-WSP-000024
Contractor document number:	852346-WEIS-IA-O1-RP-S5-379354
Version:	Final for Submission
Date:	08/12/2025
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34. Summary

34.1 Introduction

34.1.1.1 This Chapter of the Environmental Impact Assessment (EIA) Report provides a summary of the likely significant effects for each chapter.

34.2 Chapter 6: Marine Geology, Oceanography and Physical Processes

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34.3 Chapter 7: Marine Water and Sediment Quality

34.3.1.1 There are no residual likely significant effects on the marine water and sediment quality receptors assessed in the marine water and sediment quality chapter.

34.4 Chapter 8: Underwater Noise

34.4.1.1 The implications of underwater noise described in the underwater noise chapter, where these may be perceptible to ecological receptors are described and assessed as relevant in **Chapter 10: Benthic, Epibenthic and Intertidal Ecology**, **Chapter 11: Marine Mammals**, **Chapter 13: Fish Ecology**, **Chapter 14: Commercial Fisheries,** and **Chapter 30: Socio-Economics**.

34.5 Chapter 9: Electromagnetic Fields

34.5.1.1 A quantitative analysis of electromagnetic fields (EMF) from the Project's operational stage (including for live maintenance) has been undertaken to determine the worst case fields of electro-magnetism that may be experienced by ecological receptors present or passing by the location of the Project's electrical cables. This has been considered in relation to the array and offshore export cables, which have been used as a worst-case scenario that is considered applicable to EMF in both the marine and terrestrial aquatic environments.

34.5.1.2 The modelling results are summarised within **Table 34.1** and indicate that the 525 kilovolts (kV) voltage scenario would be the worst-case as the field extends horizontally for 11 metres (m) before being attenuated to the 50 microtesla µT background level, and the vertical field extends 7m around any single pole of the 525kV bipole cables.

Table 34.1 Summary of EMF modelling results

Voltage scenario	Horizontal attenuation distance to 50μT background (m)	Vertical attenuation distance to 50μT background (m)
66kV	0.8	0.7
275kV	1.15	1.0
320kV	1.1	1.1
525kV	11.0	7.0

34.5.1.3 The implications of the EMF described in the electromagnetic fields chapter, where these may be perceptible to ecological receptors are described and assessed as relevant in **Chapter 10: Benthic, Epibenthic and Intertidal Ecology**, **Chapter 11: Marine Mammals**, **Chapter 12: Offshore and Intertidal Ornithology**, **Chapter 13: Fish Ecology**, **Chapter 14: Commercial Fisheries,** and **Chapter 23 Terrestrial Ecology and Ornithology**.

34.6 Chapter 10: Benthic, Epibenthic and Intertidal Ecology

34.6.1.1 **Table 34.2** presents a summary of the residual likely significant effects on benthic, epibenthic and intertidal ecology receptors assessed in **Chapter 10: Benthic, Epibenthic and Intertidal Ecology**.

Table 34.2 Summary of assessment of residual likely significant effects for benthic, epibenthic and intertidal ecology

Activity and potential effect	Receptor	Embedded environmental measures	Sensitivity	Magnitude	Significance	Additional mitigation measures	Assessment of residual likely significant effects
Construction							
Impact C1: Disturbance of seabed	Habitats of conservation importance. Species of conservation importance.	M-028 M-054 M-055 M-056	**High**	**Low**	**Minor Adverse** (**Not Significant**) to **Moderate Adverse** (**Potentially Significant**).	It is considered that these impacts are highly unlikely to prove significant effects.	**Minor Adverse** (**Not Significant**).
Operation and maintenance (O&M)							
Impact O1: Disturbance of seabed habitat	Habitats of conservation importance. Species of conservation importance.	M-121	**High**	**Negligible** to **low**	**Minor Adverse** (**Not Significant**) to **Moderate Adverse** (**Potentially Significant**).	It is considered that these impacts are highly unlikely to prove significant effects.	**Minor Adverse** (**Not Significant**).
Impact O4: Long-term habitat loss	Subtidal habitats. Habitats of conservation importance.	M-121	**High**	**Low**	**Moderate Adverse** (**Potentially Significant**).	It is considered that these impacts are highly unlikely to prove	**Moderate Adverse** (**Not Significant**).

Activity and potential effect	Receptor	Embedded environmental measures	Sensitivity	Magnitude	Significance	Additional mitigation measures	Assessment of residual likely significant effects
	Species of conservation importance.					significant effects.	
Impact O5: Colonisation of hard substrates	Habitats of conservation importance.	-	**High**	**Low**	**Moderate Adverse** (**Potentially Significant**).	It is considered that these impacts are highly unlikely to prove significant effects.	**Moderate Adverse** (**Not Significant**).
	Species of conservation importance.	-	**High**	**Low**	**Moderate Adverse** (**Potentially Significant**).	It is considered that these impacts are highly unlikely to prove significant effects.	**Moderate Adverse** (**Not Significant**).

34.7 Chapter 11: Marine Mammals

34.7.1.1 There are no residual likely significant effects on the marine mammal receptors assessed in the marine mammals chapter.

34.8 Chapter 12: Offshore and Intertidal Ornithology

34.8.1.1 **Table 34.3** presents the residual likely significant effects on offshore and intertidal ornithology receptors assessed in **Chapter 12: Offshore and Intertidal Ornithology**.

Table 34.3 Summary of assessment of residual likely significant effects for offshore and intertidal ornithology

Receptor	Sensitivity or value	Activity and potential effect	Embedded environmental measures	Magnitude of effect	Assessment of residual likely significant effects
Operation and maintenance					
Guillemot	**Medium**	Distributional responses (Option Agreement Area (OAA)).	N/A	**Low** to **medium**	**Moderate Adverse** (**Significant**).

34.9 Chapter 13: Fish Ecology

34.9.1.1 There are no residual likely significant effects on the fish ecology receptors assessed in the fish ecology chapter.

34.10 Chapter 14: Commercial Fisheries

34.10.1.1 **Table 34.4** presents a summary of the residual likely significant effects on the commercial fisheries receptors assessed in **Chapter 14: Commercial Fisheries**.

Table 34.4 Summary of assessment of residual likely significant effects for commercial fisheries

Activity and potential effect	Receptor	Embedded environmental measures	Sensitivity	Magnitude	Significance	Additional mitigation measures	Assessment of residual likely significant effects
Construction							
Impact C1: Reduction in access to, or exclusion from established fishing grounds within the OAA	United Kingdom (UK) demersal otter trawl.	M-029 M-030 M-031 M-038 M-039 M-048 M-049 M-050 M-051 M-052 M-053 M-054 M-106 M-120 M-122	**Medium**	**Medium**	**Moderate Adverse** (**Significant**).	M-219 M-220 M-221 M-222	**Moderate Adverse** (**Significant**).
Impact C2: Reduction in access to, or exclusion from established fishing grounds within the offshore export cable corridor	UK demersal otter trawl.	M-029 M-030 M-031 M-038 M-039 M-048 M-049 M-050 M-051 M-052 M-053	**Medium**	**Medium**	**Moderate Adverse** (**Significant**).	M-218 M-219 M-220 M-221 M-222	**Minor Adverse** (**Not Significant**).
	Uk demersal seine.		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).
	UK scallop dredge.		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).
	UK potting.		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).

Activity and potential effect	Receptor	Embedded environmental measures	Sensitivity	Magnitude	Significance	Additional mitigation measures	Assessment of residual likely significant effects
		M-054 M-106 M-120 M-122 M-218 M-219 M-220 M-221 M-222					
Impact C3: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	UK demersal otter trawl.	M-029 M-030 M-031 M-038 M-039 M-048 M-049 M-050 M-051 M-052 M-053 M-054 M-106 M-120 M-122 M-218 M-219 M-220 M-221 M-222	**Medium**	**Medium**	**Moderate Adverse** (**Significant**).	M-218 M-219 M-220 M-221 M-222	**Minor Adverse** (**Not Significant**).
	UK demersal seine.		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).
	UK scallop dredge.		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).
	UK potting.		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).

Activity and potential effect	Receptor	Embedded environmental measures	Sensitivity	Magnitude	Significance	Additional mitigation measures	Assessment of residual likely significant effects
O&M							
Impact O1: Reduction in access to, or exclusion from established fishing grounds within the OAA	UK demersal otter trawl.	M-029 M-030 M-031 M-038 M-039 M-048 M-049 M-050 M-051 M-052 M-053 M-054 M-106 M-120 M-122 M-219 M-220 M-221 M-222	**Medium**	**Medium**	**Moderate Adverse** (**Significant**).	M-219 M-220 M-221 M-222	**Moderate Adverse** (**Significant**).
Impact O3: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	UK demersal otter trawl.	M-029 M-030 M-031 M-038 M-039 M-048 M-049 M-050 M-051 M-052 M-053	**Medium**	**Medium**	**Moderate Adverse** (**Significant**).	M-218 M-219 M-220 M-221 M-222	**Minor Adverse** (**Not Significant**).

Activity and potential effect	Receptor	Embedded environmental measures	Sensitivity	Magnitude	Significance	Additional mitigation measures	Assessment of residual likely significant effects
		M-054 M-106 M-120 M-122 M-218 M-219 M-220 M-221 M-222					
Decommissioning							
Impact D1: Reduction in access to, or exclusion from established fishing grounds within the OAA	UK demersal otter trawl	M-029 M-030 M-031 M-038 M-039 M-048 M-049 M-050 M-051 M-052 M-053 M-054 M-106 M-120 M-122 M-218 M-219 M-220 M-221 M-222	**Medium**	**Medium**	**Moderate Adverse** (**Significant**).	M-219 M-220 M-221 M-222	**Moderate Adverse** (**Significant**).

Activity and potential effect	Receptor	Embedded environmental measures	Sensitivity	Magnitude	Significance	Additional mitigation measures	Assessment of residual likely significant effects
Impact D2: Reduction in access to, or exclusion from established fishing grounds within the offshore export cable corridor	UK demersal otter trawl	M-029 M-030 M-031 M-038 M-039 M-048 M-049 M-050 M-051 M-052 M-053 M-054 M-106 M-120 M-122 M-218 M-219 M-220 M-221 M-222	**Medium**	**Medium**	**Moderate Adverse** (**Significant**).	M-218 M-219 M-220 M-221 M-222	**Minor Adverse** (**Not Significant**).
	Uk demersal seine		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).
	UK scallop dredge		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).
	UK potting		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).
Impact D3: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	UK demersal otter trawl	M-029 M-030 M-031 M-038 M-039 M-048 M-049 M-050 M-051 M-052 M-053 M-054	**Medium**	**Medium**	**Moderate Adverse** (**Significant**).	M-218 M-219 M-220 M-221 M-222	**Minor Adverse** (**Not Significant**).
	UK demersal seine		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).
	UK scallop dredge		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).
	UK potting		**Medium**	**Medium**	**Moderate Adverse** (**Significant**).		**Minor Adverse** (**Not Significant**).

Activity and potential effect	Receptor	Embedded environmental measures	Sensitivity	Magnitude	Significance	Additional mitigation measures	Assessment of residual likely significant effects
		M-106 M-120 M-122 M-218 M-219 M-220 M-221 M-222.					

34.11 Chapter 15: Shipping and Navigation

34.11.1.1 **Table 34.3** presents a summary of the residual likely significant effects on the shipping and navigation receptors assessed in the shipping and navigation chapter.

Table 34.5 Summary of assessment of residual likely significant effects for shipping and navigation

Receptor	Aspect of the Project	Activity and potential effect	Embedded environmental measures	Frequency of occurrence	Severity of consequence	Assessment of residual likely significant effects
Construction						
All vessels	OAA	Increased vessel to vessel collision risk between third-party vessels.	M-029 M-030 M-031 M-033 M-038 M-039 M-043 M-045 M-047 M-048 M-049 M-054 M-118 M-120	**Reasonably Probable**	**Moderate**	**Tolerable with Mitigation**
	Offshore export cable corridor.			**Remote**	**Moderate**	**Tolerable with Mitigation**
	Reactive compensation platform (RCP) search area.			**Remote**	**Moderate**	**Tolerable with Mitigation**
All vessels	OAA	Vessel to vessel collision risk between a third-party vessel and a project vessel.	M-029 M-030 M-031 M-033 M-038 M-039 M-043 M-045 M-047 M-048 M-049 M-054	**Remote**	**Moderate**	**Tolerable with Mitigation**
	Offshore export cable corridor.			**Extremely Unlikely**	**Moderate**	**Broadly Acceptable**
	RCP search area.			**Extremely Unlikely**	**Moderate**	**Broadly Acceptable**

Receptor	Aspect of the Project	Activity and potential effect	Embedded environmental measures	Frequency of occurrence	Severity of consequence	Assessment of residual likely significant effects
			M-118 M-120			
All vessels and port related services	OAA	Reduced access to local ports, harbours and marinas.	M-030 M-033 M-039 M-040 M-045 M-048 M-049 M-120	**Extremely Unlikely**	**Minor**	**Broadly Acceptable**
	Offshore export cable corridor.			**Reasonably Probable**	**Minor**	**Tolerable with Mitigation**
	RCP search area.			**Negligible**	**Minor**	**Broadly Acceptable**
All vessels	OAA	Loss of station.	M-030 M-031 M-038 M-039 M-044 M-046 M-048 M-120.	**Extremely Unlikely**	**Moderate**	**Broadly Acceptable**
O&M						
All vessels	OAA	Increased vessel to vessel collision risk between third-party vessels.	M-029 M-030 M-031 M-033 M-038 M-039 M-043 M-045 M-047 M-048	**Reasonably Probable**	**Moderate**	**Tolerable with Mitigation**
	Offshore export cable corridor.			**Extremely Unlikely**	**Moderate**	**Broadly Acceptable**
	RCP search area.			**Remote**	**Moderate**	**Tolerable with Mitigation**

Receptor	Aspect of the Project	Activity and potential effect	Embedded environmental measures	Frequency of occurrence	Severity of consequence	Assessment of residual likely significant effects
			M-049 M-054 M-122			
All vessels	OAA	Vessel to vessel collision risk between a third-party vessel and a project vessel.	M-029 M-030 M-031 M-033 M-038 M-039 M-040 M-043 M-045 M-047 M-048 M-049 M-054 M-122	**Remote**	**Moderate**	**Tolerable with Mitigation**
	Offshore export cable corridor.			**Negligible**	**Moderate**	**Broadly Acceptable**
	RCP search area.			**Extremely Unlikely**	**Moderate**	**Broadly Acceptable**
All vessels and port related services	OAA	Reduced access to local ports, harbours and marinas.	M-030 M-033 M-039 M-040 M-045 M-048 M-049 M-122	**Extremely Unlikely**	**Minor**	**Broadly Acceptable**
	Offshore export cable corridor.			**Remote**	**Minor**	**Broadly Acceptable**
	RCP search area.			**Negligible**	**Minor**	**Broadly Acceptable**
All vessels	OAA	Loss of station.	M-030 M-031 M-038 M-039 M-044	**Remote**	**Moderate**	**Tolerable with Mitigation**

Receptor	Aspect of the Project	Activity and potential effect	Embedded environmental measures	Frequency of occurrence	Severity of consequence	Assessment of residual likely significant effects
			M-046 M-048 M-122			
All vessels	OAA	Creation of vessel to structure allision risk (including powered, drifting and internal).	M-030 M-031 M-033 M-038 M-039 M-040 M-043 M-045 M-046 M-047 M-048 M-049 M-122	**Remote**	**Moderate**	**Tolerable with Mitigation**
	RCP search area.			**Remote**	**Moderate**	**Tolerable with Mitigation**
All vessels	OAA	Reduction of under keel clearance as a result of cable protection, dynamic cables and mooring lines.	M-029 M-031 M-033 M-043 M-044 M-045 M-047 M-048 M-049 M-054 M-122	**Negligible**	**Moderate**	**Broadly Acceptable**
	Offshore export cable corridor.			**Extremely Unlikely**	**Moderate**	**Broadly Acceptable**
All vessels	OAA		M-029 M-030	**Negligible**	**Minor**	**Broadly Acceptable**

Receptor	Aspect of the Project	Activity and potential effect	Embedded environmental measures	Frequency of occurrence	Severity of consequence	Assessment of residual likely significant effects
	Offshore export cable corridor.	Anchor interaction with mooring lines and subsea cables.	M-031 M-033 M-039 M-043 M-044 M-045 M-047 M-048 M-049 M-054 M-122	**Extremely Unlikely**	**Minor**	**Broadly Acceptable**
All vessels and emergency responders	Offshore Project as a whole.	Reduction of emergency response capability including SAR access.	M-033 M-038 M-039 M-040 M-043 M-045 M-047 M-049 M-122	**Remote**	**Serious**	**Tolerable with Mitigation**
Decommissioning						
All vessels	OAA	Increased vessel to vessel collision risk between third-party vessels.	M-029 M-030 M-031 M-033 M-038 M-039 M-043 M-045 M-047	**Reasonably Probable**	**Moderate**	**Tolerable with Mitigation**
	Offshore export cable corridor.			**Remote**	**Moderate**	**Tolerable with Mitigation**
	RCP search area.			**Remote**	**Moderate**	**Tolerable with Mitigation**

Receptor	Aspect of the Project	Activity and potential effect	Embedded environmental measures	Frequency of occurrence	Severity of consequence	Assessment of residual likely significant effects
			M-048 M-049 M-054 M-106 M-118			
All vessels	OAA	Vessel to vessel collision risk between a third-party vessel and a project vessel.	M-029 M-030 M-031 M-033 M-038 M-039 M-040 M-043 M-045 M-047 M-048 M-049 M-054 M-106 M-118	**Remote**	**Moderate**	**Tolerable with Mitigation**
	Offshore export cable corridor.			**Extremely Unlikely**	**Moderate**	**Broadly Acceptable**
	RCP search area.			**Extremely Unlikely**	**Moderate**	**Broadly Acceptable**
All vessels and port related services	OAA	Reduced access to local ports, harbours and marinas.	M-030 M-033 M-039 M-040 M-045 M-048 M-049 M-106	**Extremely Unlikely**	**Minor**	**Broadly Acceptable**
	Offshore export cable corridor.			**Reasonably Probable**	**Minor**	**Tolerable with Mitigation**
	RCP search area.			**Negligible**	**Minor**	**Broadly Acceptable**
All vessels	OAA	Loss of station.	M-030 M-031	**Extremely Unlikely**	**Moderate**	**Broadly Acceptable**

Receptor	Aspect of the Project	Activity and potential effect	Embedded environmental measures	Frequency of occurrence	Severity of consequence	Assessment of residual likely significant effects
			M-038 M-039 M-044 M-046 M-048 M-106.			

34.12 Chapter 16: Marine Archaeology and Cultural Heritage

34.12.1.1 **Table 34.4** presents a summary of the residual likely significant effects on marine archaeology and cultural heritage receptors assessed in **Chapter 16: Marine Archaeology and Cultural Heritage**.

Table 34.6 Summary of assessment of residual likely significant effects for marine archaeology and cultural heritage

Receptor	Sensitivity or value	Activity and potential effect	Embedded environmental measures	Magnitude of effect	Assessment of residual likely significant effects
Construction					
Unknown potential remains of all periods	**High**	Impact C2: Potential permanent loss or disturbance of paleoenvironmental and archaeological remains during construction within the OAA (including wind turbine generator (WTG) floating units (including platforms and station keeping system) and array cables.	M-034	**Medium**	**Significant**
		Impact C2: Potential permanent loss or disturbance of palaeoenvironmental and archaeological remains during construction within the offshore export cable corridor.			
O&M					
Unknown potential remains of all periods	**High**	Impact O1: Potential harm from disturbance to historic assets in close proximity to the site arising from maintenance of the offshore export cables.	M-034	**Medium**	**Significant**
		Impact O2: Potential harm from disturbance to wrecks in close proximity to the site arising from altered seabed conditions, for example. scour or differential deposition of sediments within the Offshore Red Line Boundary (OAA and offshore export cable corridor).		**Low**	**Significant**

34.13 Chapter 17: Seascape, Landscape and Visual

34.13.1.1 All offshore components of the Project have been scoped out of the seascape, landscape and visual assessment.

34.14 Chapter 18: Infrastructure and Other Marine Users

34.14.1.1 **Table 34.4** presents a summary of the residual likely significant effects on infrastructure and other marine users receptors assessed in **Chapter 18: Infrastructure and Other Marine Users**.

Table 34.7 Summary of assessment of residual likely significant effects for infrastructure and other marine users

Receptor	Sensitivity or value	Activity and potential effect	Embedded environmental measures	Magnitude of effect	Significance	Additional measures	Assessment of residual likely significant effects
Construction							
Hywind Scotland Pilot Park	**High**	Temporary obstruction to subsea cables from pre-construction activities, offshore export cable corridor installation and increased presence of vessels.	M-029 M-030 M-031 M-038 M-039 M-044 M-054 M-120 M-186 M-187	**Low**	**Moderate** (**Potential Significant**).	The Applicant would liaise with the developers on already agreed safety measures and timings of work should the programme for decommissioning for Hywind Scotland Pilot Park be maintained.	**Minor** (**Not Significant**).
Operation and maintenance							
Hywind Scotland Pilot Park	**High**	Temporary obstruction to offshore wind farm from increased presence of vessels and MCR for the offshore export cable corridor.	M-030 M-031 M-038 M-039 M-044 M-050 M-186	**Low**	**Moderate** (**Potential Significant**).	The Applicant would liaise with the developers on already agreed safety measures and timings of work should the programme for decommissioning for Hywind Scotland Pilot Park be maintained.	**Minor** (**Not Significant**).

34.15 Chapter 19: Ground Conditions and Contamination

34.15.1.1 There are no residual likely significant effects on the ground conditions and contamination receptors assessed in the ground conditions and contamination chapter.

34.16 Chapter 20: Water Resources and Flood Risk

34.16.1.1 There are no residual likely significant effects on the water resource and flood risk receptors assessed in the water resources and flood risk chapter.

34.17 Chapter 21: Air Quality

34.17.1.1 There are no residual likely significant effects on the air quality receptors assessed in the air quality chapter.

34.18 Chapter 22: Land Use

34.18.1.1 There are no residual likely significant effects on the land use receptors assessed in the land use chapter.

34.19 Chapter 23: Terrestrial Ecology and Ornithology

34.19.1.1 There are no residual likely significant effects on the terrestrial ecology and ornithology receptors assessed in the terrestrial ecology and ornithology chapter.

34.20 Chapter 24: Onshore Archaeology and Cultural Heritage

34.20.1.1 There are no residual likely significant effects on the onshore archaeology and cultural heritage receptors assessed in the onshore archaeology and cultural heritage chapter.

34.21 Chapter 25: Onshore Noise and Vibration

34.21.1.1 There are no residual likely significant effects on the noise and vibration receptors assessed in the onshore noise and vibration chapter.

34.22 Chapter 26: Traffic and Transport

34.22.1.1 There are no residual likely significant effects on the traffic and transport receptors assessed in the traffic and transport chapter.

34.23 Chapter 27: Landscape and Visual

34.23.1.1 A summary of the significant residual effects arising from the construction, O&M and decommissioning stage of the Project are provided in **Table 34.8** in relation to landscape effects and **Table 34.9** in relation to visual effects. Boxes with green shading indicate significant effects. Where the significant effects are neutral / beneficial, the boxes have been left unshaded.

34.23.2 Residual significant effects: landfall(s) and onshore export cable corridor

34.23.2.1 Significant landscape and visual effects resulting from the construction stage are unavoidable, although they would tend to be temporary and reversable. This is because the work to install the onshore export cables, backfill open trenches and undertake agreed landscape planting would be progressed at the earliest opportunity to ensure rapid reinstatement of the landscape during phase 1 of the construction stage.

34.23.2.2 A reduced number of temporary (short- to medium-term) significant effects would continue into phases 2 to 3 due to the continued presence of various construction compounds (landfall(s), trenchless crossing, primary and secondary construction compounds) and smaller scale works at joint bays along the onshore export cable corridor and at landfall transition joint bays.

34.23.2.3 During construction, landscapes along the coast and inland, and the North East Aberdeenshire Coast Special Landscape Area (SLA) would be significantly affected. Views from St Fergus, the A90 (overlapped by the North East 250, The Coastal Trail and core path 215.02), up to 14 minor roads (partly overlapped by local cycle routes / core paths / other footpaths), part of The Formartine and Buchan Way, three core paths, part of Peterhead Golf Course and part of Scotstown Beach would be significantly affected.

34.23.2.4 All of these effects on landscape elements would be mitigated and reduced to **Not Significant** levels of effect during the O&M stage.

34.23.3 Residual significant effects: onshore substations

34.23.3.1 Significant effects resulting from the onshore substations are unavoidable and would persist through the construction and O&M stages due to their height and scale. This would adversely affect the landscape character of existing undesignated agricultural landscape and the views from minor roads crossing this landscape and associated residential properties (assessed further in **Volume 3, Appendix 27.3: Viewpoint Assessment**). Landscape and architectural mitigation as described in **Volume 4: Outline Landscape and Architectural Strategy** is proposed to reduce these effects; subject to the detailed design and implementation it would introduce beneficial effects and provide additional landscape and architectural enhancement with attendant biodiversity and nature conservation improvements.

34.23.3.2 Additionally, as outlined in **Volume 4: Outline Landscape and Architectural Strategy**, opportunities for potential further mitigation could be undertaken to strengthen the existing landscape pattern of trees, woodland and hedges in the area surrounding the onshore substations and provide increased screening and an enhanced landscape setting to better integrate the development within its landscape context.

34.23.3.3 Decommissioning of the onshore substations would remove significant effects on landscape character whilst leaving a beneficial, landscape legacy of mature woodland, trees and hedgerows.

Table 34.8 Summary of significant residual landscape effects during the construction, O&M and decommissioning

Receptor	Sensitivity	Level of effect during construction			Level of effect during O&M	Level of effect during decommissioning
		Phase 1	Phase 2	Phase 3		
Landfall Option 1a: (includes Lunderton North landfall and onshore export cable corridors L2 and L3)						
LCT 12: Beaches, Dunes and Links	**High to medium.**	**Major to Major / Moderate**.	**Moderate**	**Moderate**	No Effect.	Scoped out of assessment.
LCT 17a: Coastal Agricultural Plain	**Medium**	**Major to Major / Moderate**.	**Not Significant.**	**Not Significant**.	Not significant beneficial effects.	
Landfall Option 1b (includes Lunderton North and South landfall(s) and onshore export cable corridors L2, L3 and L4)						
CCT 3: Deposition Coastline, Open Views	**High**	**Moderate**	**Moderate**	**Moderate**	No Effect.	Scoped out of assessment.
LCT 12: Beaches, Dunes and Links	**High to medium.**	**Major to Major / Moderate.**	**Moderate**	**Moderate**	No Effect.	
LCT 17a: Coastal Agricultural Plain	**Medium**	**Major to Major / Moderate**.	**Not Significant**.	**Not Significant**.	No Effect.	
North East Aberdeenshire Coast SLA	**High to medium**.	**Moderate**	**Moderate**	**Moderate**	No Effect.	

Receptor	Sensitivity	Level of effect during construction			Level of effect during O&M	Level of effect during decommissioning
		Phase 1	Phase 2	Phase 3		
Landfall Option 2: (includes Scotstown, Lunderton North and Lunderton South landfall(s) and onshore export cable corridors L1, L2, L3 and L4)						
CCT 3: Deposition Coastline, Open Views	**High**	**Major to Moderate**.	**Moderate**	**Moderate**	No Effect.	Scoped out of assessment.
LCT 12: Beaches, Dunes and Links	**High to medium.**	**Major to Moderate**.	**Major to Moderate**.	**Major to Moderate**.	No Effect.	
LCT 17a: Coastal Agricultural Plain	**Medium**	**Major to Moderate**.	**Not Significant**.	**Not Significant**.	No Effect.	
North East Aberdeenshire Coast SLA	**High to medium**.	**Major to Moderate**.	**Major to Moderate**.	**Major to Moderate**.	No Effect.	
Onshore export cable corridor zone A – Segment A1						
LCT 17a: Coastal Agricultural Plain	**High to medium**.	**Major to Moderate.** .	**Not Significant**.	**Not Significant**.	**Not Significant** beneficial effects.	Scoped out of assessment.
LCT 17c: A950 / Longside Airfield	**Medium to medium-low**.	**Major / Moderate to Moderate**.	**Not Significant**.	**Not Significant**.	**Major / Moderate.**	
Onshore export cable corridor zone A – Segment A2						
LCT 17c: A950 / Longside Airfield	**Medium**	**Major / Moderate to Moderate**.	**Not Significant**.	**Not Significant**.	**Not Significant** beneficial effects.	Scoped out of assessment.

Receptor	Sensitivity	Level of effect during construction			Level of effect during O&M	Level of effect during decommissioning
		Phase 1	Phase 2	Phase 3		
Onshore substations – Fully enclosed option						
LCT 17a: Coastal Agricultural Plain	**Medium**	**Moderate**	**Moderate**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate.**	Significant effects reversed – leaving beneficial landscape legacy.
LCT 17c: A950 / Longside Airfield	**Medium to low**.	**Moderate**	**Moderate**	**Moderate**.	**Moderate**	
Onshore substations – Partially enclosed option						
LCT 17a: Coastal Agricultural Plain	**Medium**	**Moderate**	**Moderate**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate.**	Significant effects reversed – leaving beneficial landscape legacy.
LCT 17c: A950 / Longside Airfield	**Medium to low**.	**Moderate**	**Moderate**	**Moderate**	**Moderate**	
Onshore export cable corridor zone B						
LCT 17a: Coastal Agricultural Plain	**Medium**	**Major / Moderate.**	**Not Significant**	**Not Significant**	**Not Significant** beneficial effects.	Scoped out of assessment.
LCT 17c: A950 / Longside Airfield	**Medium to low**.	**Moderate**	**Not Significant**	**Not Significant**	No Effect.	

Table 34.9 Summary of significant residual visual effects during the construction, O&M and decommissioning

Receptor	Sensitivity	Level of effect during construction			Level of effect during O&M	Level of effect during decommissioning
		Phase 1	Phase 2	Phase 3		
Landfall Option 1a (includes Lunderton North landfall and onshore export cable corridors L2 and L3)						
A90 / North East 250, The Coastal Trail and core path 215.02	**High**	**Major**	**Major to Major / Moderate.**	**Major to Major / Moderate.**	**Minor**	
2. Road between Kinloch / North Kirkton / St Fergus Church	**Medium**	**Major / Moderate to Moderate.**	**Major / Moderate to Moderate.**	**Major / Moderate to Moderate.**	**Minor**	
3. Rora Moss Circular / Road between Kinloch / Bearhill / Hallmoss Cottage	**High**	**Major to Major / Moderate.**	**Major to Major / Moderate.**	**Major to Major / Moderate.**	**Minor**	
4. Rora Moss Circular / Road / Rora Moss Circular between Ednie / Kincairn / Hallmoss A90	**High**	**Major to Major / Moderate.**	**Major to Major / Moderate.**	**Major to Major / Moderate.**	**Minor**	
Core path 7LD.01.18 / Kirktown Beach Footpath	**High**	**Major / Moderate to Moderate.**	**Major / Moderate to Moderate.**	**Major / Moderate to Moderate.**	**Minor**	

Receptor	Sensitivity	Level of effect during construction			Level of effect during O&M	Level of effect during decommissioning
		Phase 1	Phase 2	Phase 3		
Landfall Option 1b: (includes Lunderton North and South landfall(s) and onshore export cable corridors L2, L3 and L4)						
A90 / North East 250, The Coastal Trail and Core path 215.02	**High**	**Major**	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Minor**	Scoped out of assessment.
2. Road between Kinloch / North Kirkton / St Fergus Church	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor**	
3. Rora Moss Circular / Road / between Kinloch / Bearhill / Hallmoss Cottage	**High**	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Minor**	
4. Rora Moss Circular / Road / between Ednie / Kincairn / Hallmoss A90	**High**	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Minor**	
Core path 7LD.01.18 / Kirktown Beach Footpath	**High**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor**	
Peterhead Golf Course	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor**	

Receptor	Sensitivity	Level of effect during construction			Level of effect during O&M	Level of effect during decommissioning
		Phase 1	Phase 2	Phase 3		
Landfall Option 2: (includes Scotstown, Lunderton North and Lunderton South landfall(s) and onshore export cable corridors L1, L2, L3 and L4)						
A90 / North East 250, The Coastal Trail and Core path 215.02	**High**	**Major**	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Minor**	Scoped out of assessment.
1. Road to Scotstown Beach (also core path 217.01 and L30R)	**High**	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Minor**	
2. Road between Kinloch / North Kirkton / St Fergus Church	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor**	
3. Rora Moss Circular / Road / between Kinloch / Bearhill / Hallmoss Cottage	**High**	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Minor**	
4. Rora Moss Circular / Road / between Ednie / Kincairn / Hallmoss A90	**High**	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Major to Major / Moderate**.	**Minor**	
Core path 7LD.01.18 / Kirktown Beach Footpath	**High**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor**	

Receptor	Sensitivity	Level of effect during construction			Level of effect during O&M	Level of effect during decommissioning
		Phase 1	Phase 2	Phase 3		
Scotstown Beach, St Fergus	**High**	**Major / Moderate**.	**Major / Moderate**.	**Major / Moderate**.	**Minor**	
Peterhead Golf Course	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor**	
Onshore export cable corridor zone A						
5. Road between Torterston Road / Easterton / Inverurgie / Hallmoss	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor**	Scoped out of assessment.
6. Road between Torterston / Torterston Road / Inverurgie	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor**	
7. Torterston Road / A950	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor**	
8. Downiehills Farm Road	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor**	
The Formartine and Buchan Way	**High**	**Major**	No Effect.	No Effect.	**No Effect**.	
Onshore substations						
A950	**Medium**	**Major / Moderate**.	**Major / Moderate**.	**Major / Moderate**.	**Major / Moderate (changing to**	**Not Significant**.

Receptor	Sensitivity	Level of effect during construction			Level of effect during O&M	Level of effect during decommissioning
		Phase 1	Phase 2	Phase 3		
					neutral / beneficial) .	
7. Torterston Road / A950	Medium	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Moderate.	Not Significant.
8. Downiehills Farm Road	Medium	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Moderate.	Not Significant.
9. Minor road east of the onshore substations	Medium	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Major / Moderate to Moderate (changing to neutral / beneficial).	Not Significant.
10. Minor road south of the onshore substations between Stockbridge and Lochside	Medium	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Moderate	Not Significant.
11. Minor road south of the onshore substations to Hillhead of Cocklaw	Medium	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Moderate	Not Significant.
12. Minor road west of the onshore substations	Medium	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Major / Moderate to Moderate.	Moderate	Not Significant.

Receptor	Sensitivity	Level of effect during construction			Level of effect during O&M	Level of effect during decommissioning
		Phase 1	Phase 2	Phase 3		
between A950 and West Toddlehills						
13. Minor road between A950 and Toddlehills	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Moderate**	**Not Significant**.
Onshore export cable corridor zone B						
10. Minor road south of the onshore substations between Stockbridge and Lochside	**Medium**	**Major / Moderate to Moderate**.	**Moderate / Minor**.	**Moderate / Minor**.	**Minor / Negligible**.	Scoped out of assessment.
12. Minor road west of the onshore substations between A950 and West Toddlehills	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor / Negligible**.	
13. Minor road between A950 and Toddlehills	**Medium**	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Major / Moderate to Moderate**.	**Minor / Negligible**.	
14. Minor road between Toddlehill Cottage and Netherton	**Medium**	**Moderate**	**Moderate**	**Moderate**	**Minor / Negligible**.	

34.24 Chapter 28: Climate Resilience

34.24.1.1 There are no residual likely significant effects on the climate resilience receptors assessed in the climate resilience chapter.

34.25 Chapter 29: Greenhouse Gases

34.25.1.1 There are no residual likely significant adverse effects on the greenhouse gases (GHG) receptors assessed in the GHG chapter.

34.25.1.2 The electricity generation from the Project will provide a net benefit in supporting ongoing efforts to decarbonisation generation on the UK national electricity network. The displaced GHG emissions across its operational lifetime are greater than the reported emissions in its construction, O&M and decommissioning.

34.25.1.3 On this basis there is a residual significant beneficial effect of the Project.

34.26 Chapter 30: Socio-Economics

34.26.1.1 **Table 34.10** presents a summary of the residual likely significant effects on the socio-economics receptors assessed in **Chapter 30: Socio-Economics**.

Table 34.10 Summary of assessment of residual likely significant effects for socio-economics

Receptor	Sensitivity or value	Activity and potential effect	Embedded environmental measures	Magnitude of effect	Assessment of residual likely significant effects
Construction					
Potential workers	**High**	Supply of labour to meet Project demand.	M-224	**Medium**	**Significant (beneficial)**
Potential private sector suppliers, including local business	**Medium**	Supply of products and services.	M-225	**High**	**Significant (beneficial)**
Operation and maintenance					
Employment markets	**Medium**	Project demand for labour.	M-224	Medium	**Significant (beneficial)**
Potential workers	**High**	Supply of labour to meet Project demand.	M-224	High	**Significant (beneficial)**
Materials, equipment and services markets	**Medium**	Project demand for products and services.	M-225	Medium	**Significant (beneficial)**
Potential private sector suppliers, including	**Medium**	Supply of products and services.	M-225	Medium	**Significant (beneficial)**

Receptor	Sensitivity or value	Activity and potential effect	Embedded environmental measures	Magnitude of effect	Assessment of residual likely significant effects
local business					
The economy	**Medium**	Economic activity (gross value added) within the local and wider economies.	-	High	**Significant (beneficial)**
Local communities	**Medium**	Socio-cultural and distributional effects.	-	Medium	**Significant (beneficial)**
Decommissioning					
Effects will be subject to a decommissioning plan at the time and are likely to be beneficial with significance that will depend on multiple factors including available local capacity and international market prices.					

34.27 Chapter 31: Civil and Military Aviation

34.27.1.1 **Table 34.7** presents a summary of the residual likely significant effects on civil and military aviation receptors assessed in **Chapter 31: Civil and Military Aviation**.

Table 34.11 Summary of assessment of residual likely significant effects for civil and military aviation

Receptor	Sensitivity or value	Activity and potential effect	Embedded environmental measures	Magnitude of effect	Significance	Additional mitigation measures	Assessment of residual likely significant effects
Operation and maintenance							
NERL Allanshill PSR NERL Perwinnes PSR RRH Buchan AD PSR.	**High**	Impact O3: Impacts from WTGs on civil and military radar.	-	**Medium**	**Major Adverse** (**Significant**).	See paragraphs 31.10.4.12 to 31.10.4.18 of **Chapter 31: Civil and Military Aviation**.	**Minor Adverse** (**Not Significant**).

34.28 Chapter 32: Inter-Related effects

34.28.1.1 There are **No Significant** project-lifetime or receptor-led inter-related effects expected for the Project across all technical aspects, except for the following:

- Commercial fisheries:
  - No inter-related effects of greater significance compared to the effects considered alone were identified for commercial fisheries receptors during the construction, O&M and decommissioning stages of the Project. **Chapter 14: Commercial Fisheries** identifies **Moderate Adverse** (**Significant**) effects on the reduction in access to, or exclusions from established fisheries for UK demersal otter trawl (construction and O&M).
- Landscape and visual:
  - No inter-related effects of greater significance compared to the effects considered alone were identified for landscape and visual receptors during the construction, O&M, and decommissioning stages of the Project. **Chapter 27: Landscape and Visual** identifies **Significant Adverse** effects.

34.28.1.2 It is expected that the combined ecosystem effect from the Project is **Minor Adverse** (**Not Significant**).

34.29 Chapter 33: Cumulative Effects Assessment

34.29.1.1 The following technical aspects have identified **Significant** residual cumulative effects:

- offshore and intertidal ornithology (see Section 33.6.6 of **Chapter 33: Cumulative Effects Assessment**);
- commercial fisheries (see Section 33.6.8 of **Chapter 33: Cumulative Effects Assessment**); and
- landscape and visual (see Section 33.6.20 of **Chapter 33: Cumulative Effects Assessment**).

34.30 Abbreviations

Acronym	Definition
EIA	Environmental Impact Assessment
EMF	Electromagnetic Fields
GHG	Greenhouse Gases
kV	kilovolts
m	metre
O&M	Operation and Maintenance
OAA	Option Agreement Area
RCP	Reactive Compensation Platform
SLA	Special Landscape Area
UK	United Kingdom
WTG	Wind Turbine Generator
µT	microtesla

MarramWind