Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

Schedule of Mitigation

June 2018

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Revision	A

Contents

1 Introduction

1.1 Overview

1.1.1 Thanet Extension Offshore Wind Farm (the Project) is a proposed extension to the existing Thanet Offshore Wind Farm off the Kent Coast. The Project is being development by Vattenfall Wind Power Ltd (VWPL).

1.1.2 Consent is being sought from the Secretary of State for Business, Environment and Industrial Strategy. Subject to approval, it is anticipated that the construction of the offshore wind farm and associated onshore electrical infrastructure will take up to four years to complete.

1.1.3 Vattenfall Wind Power Ltd is submitting an application to the Planning Inspectorate (PINS), on behalf of the Secretary of State for Energy and Climate Change, for a Development Consent Order (DCO) for the Project under the Planning Act 2008. The Project would form an extension around the existing Thanet Offshore Wind Farm and would connect to the National Grid substation at Richborough, and would comprise offshore and onshore export cable circuits, landfall infrastructure, an onshore substation and onward connection works at the National Grid substation at Richborough.

1.1.4 All terms, acronyms and abbreviations used within this Strategy are explained on first use, and / or set out in full within the Glossary appearing in the Environmental Statement – Application Document 6.1.1 *et seq*.

1.2 Purpose of this Strategy

1.2.1 This Strategy forms part of the application to PINS for a DCO for the Thanet Extension project. Its purpose is to map the mitigation measures identified within the Environmental Statement (Application Document 6.1.1 *et seq*).

1.3 Scope of this Strategy

1.3.1 This Strategy relates to both the offshore elements of the proposed development, seaward of Mean Low Water (MLW), and the onshore elements of the proposed development, landward of MLW.

1.4 Structure of this Strategy

1.4.1 Within the remainder of this document:

1.4.2 Section 2 sets out those items of mitigation referred to within the offshore volume (Volume 2) of the Environmental Statement (Application Document 6.2.1 *et seq*), and identifies where within the draft DCO, Deemed Marine Licence, or other supporting documents those items of mitigation are secured;

1.4.3 Section 3 sets out those items of mitigation referred to within the onshore volume (Volume 3) of the Environmental Statement (Application Document 6.3.1 *et seq*), and identifies where within the draft DCO and supporting documents those items of mitigation are secured;

1.5 Monitoring

1.5.1 Monitoring will form a central part of certain elements of mitigation which are proposed in respect of the proposed development. All relevant monitoring will be conducted in accordance with the monitoring provisions of the various onshore and offshore construction and operational management plans to be approved by the relevant authorities pursuant to the Requirements of the draft DCO, or the Conditions of the Deemed Marine Licence(s) which forms Schedule 11 and 12 to the draft DCO.

2 Schedules of Mitigation

Mitigation reference	Chapter	Phase/section	Type	Mitigation	ES reference	Where secured	DCO reference
				CHAPTER 2.1 OFFSHORE PROJECT DESCRIPTION			
1.1				There are no relevant mitigation measures for chapter 1 of this volume, any routing or planning of the design as a result of other receptors is addressed in their respective sections.			
				CHAPTER 2.2 MARINE GEOLOGY, OCEANOGRAPHY AND PHYSICAL PROCESSES			
2.1	Marine Geology, Oceanography and Physical Processes	General	Embedded mitigation	Careful routing of the offshore cable route to largely avoid minimise interaction with features within areas of designated areas of seabed.	Volume 2, Chapter 2, Table 2.17	Biogenic Reef Mitigation Plan	Provided for through biogenic reef condition as this is the only sensitive seabed.
2.2	Marine Geology, Oceanography and Physical Processes	Construction	Embedded mitigation	Duration of time between trench excavation, cable lay and trench backfill operations at the landfall is to be kept to a minimum (i.e. where possible practicable to be undertaken within one tidal cycle) so as to limit disruption to coastal processes.	Volume 2, Chapter 2, Table 2.17	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12 (g); Schedule 12, Part 2, Condition 11 (g).
2.3	Marine Geology, Oceanography and Physical Processes	Construction	Embedded mitigation	The Cable Installation Plan will set out measures to minimise adverse impacts to potentially sensitive receptors. It will also set out appropriate cable burial depth in accordance with industry good practice, minimising the risk of cable exposure.	Volume 2, Chapter 2, Table 2.17	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12 (g); Schedule 12, Part 2, Condition 11 (g).
2.4	Marine Geology, Oceanography and Physical Processes	Operation	Embedded mitigation	Where burial depth cannot be achieved, cable armouring will be implemented (e.g. mattressing, rock placement etc). The suitability of installing rock mattresses for cable protection will be investigated, based on (*inter alia*) the seabed current data at the location of interest and the assessed risk of impact damage.	Volume 2, Chapter 2, Table 2.17	Scour and Cable Protection Plan	Schedule 11, Part 2, Condition 12 (e); Schedule 12, Part 2, Condition 11 (e).
2.5	Marine Geology, Oceanography and Physical Processes	Operation	Embedded mitigation	Where scour protection is absent and where the hydrodynamic/ seabed geology allow, scour has the potential to form around WTG foundations. this may lead to the release of material into suspension (higher turbidity) and a change to seabed habitat immediately adjacent to the structure. This will be reduced with the introduction of scour protection, where necessary.	Volume 2, Chapter 2, Table 2.17	Scour and Cable Protection Plan	Schedule 11, Part 2, Condition 12 (e); Schedule 12, Part 2, Condition 11 (e).
2.6	Marine Geology, Oceanography and Physical Processes	Construction and Operation	Additional mitigation	Completion of cable specification and installation plan to mitigate against impacts to designated coastal features.	Volume 2, Chapter 2, Table 2.22	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12(g); Schedule 12, Part 2, Condition 11 (g).
				CHAPTER 2.3 MARINE WATER QUALITY AND SEDIMENT QUALITY			
3.1	Marine Water Quality and Sediemnt Quality	General	Embedded mitigation	Constraint analyses has been used in development of the boundary to ensure the impact on the environment and other marine users are minimised. The development boundary has been specifically kept south of the disused hoverport to prevent any interactions with this known source of contamination.	Volume 2, Chapter 3, Table 3.10	Authorised Design Plan	Schedule 1, Part 1.
3.2	Marine Water Quality and Sediemnt Quality	Construction	Embedded mitigation	A Project Environment Management Plan (PEMP) will be produced and followed to cover the construction and O&M phases of Thanet Extension. The PEMP will incorporate plans to cover accidental spills, potential contaminant release and include key emergency contact details (e.g. MMO, MCA and the project site coordinator). To ensure that potential for contaminant release is controlled, measures will be put in place such as storing all chemical in secure designated areas with imperable bunding; and double skinning of pipes and tanks containing hazardous.	Volume 2, Chapter 3, Table 3.10	Project Environment Management Plan	Schedule 11, Part 2, Condition 12 (d); Schedule 12, Part 2, Condition 11 (d).
3.3	Marine Water Quality and Sediemnt Quality	Construction	Embedded mitigation	For landfall options 2 and 3, prior to cable installation works commencing a cofferdam would be installed at the seaward interface of the landfall works to act as a barrier to tidal inundation, and as a preventative barrier for the release of any contaminants associated with the landfill area.	Volume 2, Chapter 3, Table 3.10	Contaminated Land and Groundwater Plan	Schedule 1; Part 3, Requirement 20.
3.4	Marine Water Quality and Sediemnt Quality	Construction	Embedded mitigation	If HDD is used a creation of a temporary mud lagoon will be installed in the landward drilling entry which will use a closed-circuit mud management system where the mud is constantly pumped out of the pit processing. At the exit pit containment areas, some bentonite will be collected and subsequently removed. This approach will ensure that impacts to the surrounding intertidal receptors will be kept to a minimum.	Volume 2, Chapter 3, Table 3.10	Contaminated Land and Groundwater Plan	Schedule 1; Part 3, Requirement 20.
3.5	Marine Water Quality and Sediemnt Quality	Operation	Embedded mitigation	Where burial depth cannot be achieved, cable armouring will be implemented (e.g. mattressing, rock placement etc). The suitability of installing rock mattresses for cable protection will be investigated, based on (inter alia) the seabed current data at the location of interest and the assessed risk of impact damage.	Volume 2, Chapter 3, Table 3.10	Scour and Cable Protection Plan	Schedule 11, Part 2, Condition 12 (e); Schedule 12, Part 2, Condition 11 (e).

Mitigation reference	Chapter	Phase/section	Type	Mitigation	ES reference	Where secured	DCO reference
3.6	Marine Water Quality and Sediemnt Quality	Operation	Embedded mitigation	Where scour protection is absent and where the hydrodynamic/ seabed geology allow, scour has the potential to form around WTG foundations. this may lead to the release of material into suspension (higher turbidity) and a change to seabed habitat immediately adjacent to the structure. this will be reduced with the introduction of scour protection, where necessary.	Volume 2, Chapter 3, Table 3.10	Scour and Cable Protection Plan	Schedule 11, Part 2, Condition 12 (e); Schedule 12, Part 2, Condition 11 (e).
3.7	Marine Water Quality and Sediemnt Quality	Decommissioning	Embedded mitigation	A Decommissioning Programme will be developed to cover the decommissioning phase.	Volume 2, Chapter 3, Table 3.10	Decommisioning Programme	Schedule 1, Part 3, Requirement 9.
3.8	Marine Water Quality and Sediemnt Quality	Operation	Additional mitigation	Control of accidental releases or spills of construction material or chemicals.	Volume 2, Chapter 3, Table 3.10	Project Environmental Monitoring Plan	Schedule 11, Part 2, Condition 12 (d); Schedule 12, Part 2, Condition 11 (d).
				CHAPTER 2.4 OFFSHORE ORNITHOLOGY			
4.1	Offshore Ornithology	General	Embedded mitigation	The original (pre-scoping) site boundary was reduced in size in order that the 4 km buffer surrounding it did not extend into the Outer Thames Estuary SPA, thus distancing Thanet Extension from this European site. Following the formal Section 42 consultation process the array boundary has been further reduced with the benefit of minimising interactions with sensitive receptors inclusive of those relating to offshore ornithology, and the Outer Thames Estuary SPA in particular.	Volume 2, Chapter 4, Table 4.10	Authorised Design Plan	Schedule 1, Part 1.
				CHAPTER 2.5 BENTHIC SUBTIDAL AND INTERTIDAL ECOLOGY			
5.1	Benthic Subtidal and Intertidal Ecology	General	Embedded mitigation	The development boundary selection was made following a series of constraints analyses, with the array area and OECC route selected to ensure the impacts on the environment and other marine users are minimised.	Volume 2, Chapter 5, Table 5.11	Authorised Design Plan	Schedule 1, Part 1.
5.2	Benthic Subtidal and Intertidal Ecology	General	Embedded mitigation	In Principle Annex I Biogenic Reef Mitigation Plan	Volume 2, Chapter 5, Table 5.12	Biogenic Reef Mitigation Plan	Schedule 11, Part 2, Condition 15 (2) (a); Schedule 12, Part 2, Condition 14 (2)(a).
5.3	Benthic Subtidal and Intertidal Ecology	Construction	Embedded mitigation	Ecological Clerk of Works (ECoW) to oversee construction in the intertidal; Phase 1 walkover survey to be undertaken prior to construction to feed into a Saltmarsh Mitigation and Reinstatement Plan.	Volume 2, Chapter 5, Table 5.11	Saltmarsh Mitigation and Reinstatement Plan	Schedule 12, Part 2, Condition 14 (2)(b)
5.4	Benthic Subtidal and Intertidal Ecology	Construction	Embedded mitigation	Production of a PEMP which incorporates plans to cover accidental spills, potential contaminant release. Typical measures will be incorprated such as only using chemicals approved by Cefas under the Offshore Chemicals Regulations 2002; all chemicals will be stored in secure areas with impermeable bunding and double skinning of pipes and tanks containing hazardous materials.	Volume 2, Chapter 5, Table 5.11	Project Environment Management Plan	Schedule 11, Part 2, Condition 12 (d); Schedule 12, Part 2, Condition 11 (d).
5.5	Benthic Subtidal and Intertidal Ecology	Operation	Embedded mitigation	Burial of inter-array and export cables to a maximum target burial depth of 3m; and cable protection where sufficient burial is not possible.	Volume 2, Chapter 5, Table 5.11	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12(g); Schedule 12, Part 2, Condition 11 (g).
5.6	Benthic Subtidal and Intertidal Ecology	Decommissioning	Embedded mitigation	Production of a Decommissioning Programme to cover the decommissioning Phase.	Volume 2, Chapter 5, Table 5.11	Decommisioning Programme	Schedule 1, Part 3, Requirement 9.
				CHAPTER 2.6 FISH AND SHELLFISH ECOLOGY			
6.1	Fish and Shellfish	General	Embedded mitigation	Following constraint analayses the development boundary selection was made to ensure the impacts on the environment and other marine users were minimised.	Volume 2, Chapter 6, Table 6.8	Authorised Design Plan	Schedule 1, Part 1.
6.2	Fish and Shellfish	Construction	Embedded mitigation	Production of a PEMP which incorporates plans to cover accidental spills, potential contaminant release. Typical measures will be incorprated such as only using chemicals approved by Cefas under the Offshore Chemicals Regulations 2002; all chemicals will be stored in secure areas with impermeable bunding and double skinning of pipes and tanks containing hazardous materials.	Volume 2, Chapter 6, Table 6.8	Project Environment Management Plan	Schedule 11, Part 2, Condition 12 (d); Schedule 12, Part 2, Condition 11 (d).
6.3	Fish and Shellfish	Construction	Embedded mitigation	During piling operations soft start will be used with lower hammer energies (10%) before increasing energies to higher levels.	Volume 2, Chapter 6, Table 6.8	Construction Method Statement	Schedule 11, Part 2, Condition 12, (c)(ii);Schedule 12, Part 2, Condition 11, (c)(ii).
6.4	Fish and Shellfish	Operation	Embedded mitigation	Burial of inter-array and export cables to a maximum target burial depth of 3m; and cable protection where sufficient burial is not possible.	Volume 2, Chapter 6, Table 6.8	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12 (e); Schedule 12, Part 2, Condition 11 (e).
6.5	Fish and Shellfish	Decommissioning	Embedded mitigation	A Decommissioning Programme will be developed to cover the decommissioning phase.	Volume 2, Chapter 6, Table 6.8	Decommisioning Programme	Schedule 1, Part 3, Requirement 9.
				CHAPTER 2.7 MARINE MAMMALS			
7.1	Marine Mammals	General	Embedded mitigation	Codes of conduct will be developed for vessel operators.	Volume 2, Chapter 7, Table 7.15	Project Environment Management Plan	Schedule 11, Part 2, Condition 12 (d); Schedule 12, Part 2, Condition 11 (d).

Mitigation reference	Chapter	Phase/section	Type	Mitigation	ES reference	Where secured	DCO reference
7.2	Marine Mammals	Construction	Embedded mitigation	Monopiles: One-hour soft start for all piling activities (commencing at a maximum of 200kJ for 8 and 10 MW WTGs, and 250 kJ for 12+ MW WTGs. Strike rate will also ramp up from 15 blows per minute during soft start to a maximum of 30 blows per minute during full piling. Jackets: One-hour soft start commencing at 270 kJ, strike rate increasing from 15 to 30 blows per minute.	Volume 2, Chapter 7, Table 7.15	Construction Method Statement	Schedule 11, Part 2, Condition 12, (c)(ii); Schedule 12, Part 2, Condition 11 (c) (ii).
7.3	Marine Mammals	Construction	Embedded mitigation	The exact details of the mitigation required during UXO detonation will be agreed at such time as detailed information is available on the location, number and size of the detonations required. However, Marine Mammal Mitigation Protocol (MMMP) will include visual monitoring and the deployment of Acoustic Deterrent Devices (ADDs) prior to the detonation of UXOs. A soft-start approach may also be suitable.	Volume 2, Chapter 7, Table 7.15	Marine Mammal Mitigation Protcol	Schedule 11, Part 2, Condition 12, (f).
7.4	Marine Mammals	Construction	Embedded mitigation	OSS: One-hour soft stard commencing at 270 kJ ramping up to 2,700 kJ, increasing strike rate from 20 to 30 blows per minute, regardless of foundation type.	Volume 2, Chapter 7, Table 7.15	Construction Method Statement	Schedule 11, Part 2, Condition 12, (c)(ii); Schedule 12, Part 2, Condition 11 (c) (ii).
7.5	Marine Mammals	Construction	Embedded mitigation	Production of a MMMP to cover the construction phase which will outline the soft-start procedures, monitoring, and any other agreed mitigation options to reduce risk to marine mammals in close proximity to piling operations.	Volume 2, Chapter 7, Table 7.15	Marine Mammal Mitigation Protcol	Schedule 11, Part 2, Condition 12, (c)(ii); Schedule 12, Part 2, Condition 11 (c) (ii).
7.6	Marine Mammals	Construction	Embedded mitigation	Production of a PEMP which incorporates plans to cover accidental spills, potential contaminant release.	Volume 2, Chapter 7, Table 7.15	Project Environment Management Plan	Schedule 11, Part 2, Condition 12 (d); Schedule 12, Part 2, Condition 11 (d).

Mitigation reference	Chapter	Phase/section	Type	Mitigation	ES reference	Where secured	DCO reference
7.8	Marine Mammals	Operation	Embedded mitigation	Cable burial to a minimum target depth of 1m (where possibble and subject to risk assessment).	Volume 2, Chapter 7, Table 7.15	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12(g); Schedule 12, Part 2, Condition 11 (g).
7.9	Marine Mammals	Decommissioning	Embedded mitigation	Embedded mitigation measures implemented in the Decommissioning Phase are likely to be similar to those implemented during the Construction Phase.	Volume 2, Chapter 7, Table 7.15	Decommisioning Programme	Schedule 1, Part 3, Requirement 9.
				CHAPTER 2.8 OFFSHORE DESIGNATED SITES			
8.1	Offshore Designated Sites	General	Embedded mitigation	Careful positioning of all infrastructure where possible to minimise interaction with designated sites features.	Volume 2, Chapter 8, Table 8.5	Authorised Design Plan	Schedule 1, Part 1.
8.2	Offshore Designated Sites	General	Embedded mitigation	The pre-scoping site boundary was reduced in size order that the 4km buffer around it did not extend into the Outer Thames Estuary SPA.	Volume 2, Chapter 8, Table 8.6	Authorised Design Plan	Schedule 1, Part 1.
8.3	Offshore Designated Sites	Construction	Embedded mtigation	Seasonal restriction on construction in the intertidal zone will be implemented between October and March to prevent impacts on overwintering birds.	Volume 2, Chapter 8, Table 8.6	Construction Programme and Monitoring Plan	Schedule 1, Part 3, Requirement 24.
8.4	Offshore designated sites	Construction	Embedded mitigation	A Biogenic Reef Mitigation Plan will be develped and agreed with the relevant stakeholders prior to construction.	Volume 2, Chapter 8, Table 8.7	Biogenic Reef Mitigation Plan	Schedule 11, Part 2, Condition 15 (2) (a); Schedule 12, Part 2, Condition 14 (2)(a).
8.5	Offshore designated sites	Construction	Embedded mitigation	A Saltmarsh Mitigation and Reinstatement Plan will be developed and agreed with the relevant stakeholders prior to construction.	Volume 2, Chapter 8, Table 8.7	Saltmarsh Mitigation and Reinstatement Plan	Schedule 12, Part 2, Condition 14 (2)(b).
8.6	Offshore designated sites	Construction	Embedded mitigation	Development of a MMMP which will outline the soft-start procedure, monitoring and any other ageed mitigation measures deemed necessary for pile driving and UXO.	Volume 2, Chapter 8, Table 8.7	Marine Mammal Mitigation Protcol	Schedule 11, Part 2, Condition 12, (c)(ii); Schedule 12, Part 2, Condition 11 (c) (ii).
				SECTION 2.9 COMMERCIAL FISHERIES			
9.1	Commercial Fisheries	General	Embedded mitigation	Development of the Fisheries Coexistence Plan which details commitment from Thanet Extension and the Thanet Fisheries Association for cooperation throughout all phases of the project.	Volume 2, Chapter 9, Table 9.11	Provided under Project Environmental Monitoring Plan	Schedule 11, Part 2, Condition 12 (v); Schedule 12, Part 2, Condition 11 (v).
9.2	Commercial Fisheries	General	Embedded mitigation	Regular liason on planned activites and timescales for potential exclusion from the site.	Volume 2, Chapter 9, Table 9.11	Provided under Project Environmental Monitoring Plan	Schedule 11, Part 2, Condition 12 (v); Schedule 12, Part 2, Condition 11 (v).
9.3	Commercial Fisheries	General	Embedded mitigation	Issuing of Notices to Mariners to relevant fisheries stakeholders by the retained Fisheries Liaison Officer (FLO).	Volume 2, Chapter 9, Table 9.10	Standard NtMs	Schedule 11, Part 2, Condition 12 (iv); Schedule 12, Part 2, Condition 11 (iv).
9.4	Commercial Fisheries	Construction	Embedded mitigation	All cables within the inter-array and offshore export cable corridor may be buried where possible, to the maximum required depth (3m) to prevent damage to and from fishing gear.	Volume 2, Chapter 9, Table 9.10	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12 (g); Schedule 12, Part 2, Condition 10 (g).
9.5	Commercial Fisheries	Construction	Embedded mitigation	Compliance of contractors with the developer's standard offshore policies. All vessels will adhere to International Regulations for Prevention of Collisions at Sea (COLREGS).	Volume 2, Chapter 9, Table 9.10	Standard requirment	N/A
9.6	Commercial Fisheries	Operation	Embedded mitigation	All dropped objects will be recorded and items recovered, where practicable.	Volume 2, Chapter 9, Table 9.11	Dropped Object Procedure Form	Schedule 11, Part 2, Condition 10(10); Schedule 12, Part 2, Condition 9 (10).
9.7	Commercial Fisheries	Decommissioning	Embedded mitigation	Compliance of contractors with the developer's standard offshore policies. All vessels will adhere to International Regulations for Prevention of Collisions at Sea (COLREGS).	Volume 2, Chapter 9, Table 9.12	Standard requirement	N/A

Mitigation reference	Chapter	Phase/section	Type	Mitigation	ES reference	Where secured	DCO reference
				SECTION 2.10 SHIPPING AND NAVIGATION			
10.1	Shipping and Navigation	Construction	Embedded mitigation	Formal consultation on the PEIR and NRA the project array boundary has been reduced by a quarter in the north-west corner to reduced interaction with shipping and navigation receptors.	Volume 2, Chapter 10, Table 10.8	Authorised Design Plan	Schedule 1, Part 1.
10.2	Shipping and Navigation	Construction	Embedded mitigation	Following formal consultation on the PEIR and draft NRA the OECC boundary has been amended in proximity to Ramsgate harbour and the approach channel to reduce interaction with shipping and navigation receptors.	Volume 2, Chapter 10, Table 10.8	Authorised Design Plan	Schedule 1, Part 1.
10.3	Shipping and Navigation	Construction, Operation and Decommissioing	Embedded mitigation	Information dissemination via Notice to Mariners and Navigation Information Broadcasts to ensure construction/decommissioning and maintenance activities are widely known and passage plans are assessed accordingly.	Volume 2, Chapter 10, Table 10.8	Standard NtMs	Schedule 11, Part 2, Condition 7 (8)(9); Schedule 12, Part 2, Condition 5 (8)(9)
10.4	Shipping and Navigation	Construction, Operation and Decommissioing	Embedded mitigation	WTGs will be marked in accordance with Marine Guidance Notes (MGN) 543 and to comply with International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) standards.	Volume 2, Chapter 10, Table 10.8	Lighting Plan	Schedule 11, Part 2, Condition 8 and Condition 13 (5); Schedule 12, Part 2, Condition 6 and Condition 12 (4).
10.5	Shipping and Navigation	Construction, Operation and Decommissioing	Embedded mitigation	Emergency Response Co-operation Plans (ERCoP) to outline general safety procedures and provide guidance on emergency response procedures to include emergency rotor shut down guidance in the event of SAR operations.	Volume 2, Chapter 10, Table 10.8	Emergency Response Co-operation Plan	Schedule 11, Part 2, Condition 13 (5); Schedule 12, Part 2, Condition 12 (4).
10.6	Shipping and Navigation	Construction, Operation and Decommissioing	Embedded mitigation	Inclusion of Thanet Extension and its associated cable routes on navigational charts so vessels are aware of areas to be avoided.	Volume 2, Chapter 10, Table 10.8	Standard requirement	Schedule 11, Part 2, Condition 7 (10) and Condition 12 (a) Schedule 12, Part 2, Condition 5(10) and Condition 11(a).
10.7	Shipping and Navigation	Construction, Operation and Decommissioing	Embedded mitigation	Suitable vessels to be selected for construction/decommissioning and maintenance and personnel to receive suitable training. All those involved in construction/decommissioning, operational and maintenance operations are to be trained and competent persons. Use of appropriate Personal Protective Equipment (PPE) by personnel.	Volume 2, Chapter 10, Table 10.8	Standard requirement	Schedule 11, Part 2, Condition 5 (10); Schedule 12, Part 2, Condition 4 (10).
10.8	Shipping and Navigation	Construction, Operation and Decommissioing	Embedded mitigation	Incidents and near misses are reported and investigated by developer and operators.	Volume 2, Chapter 10, Table 10.8	Standard requirement	Schedule 11, Part 2, Condition 12 (d)(i); Schedule 12, Part 2, Condition 11 (d)(i).
10.9	Shipping and Navigation	Construction, Operation and Decommissioing	Embedded mitigation	Layout Plan to be submitted to MCA/HMCG for approval prior to construction.	Volume 2, Chapter 10, Table 10.8	Layout Plan	Schedule 11, Part 2, Condition 12 (a); Schedule 12, Part 2, Condition 11 (a).
10.10	Shipping and Navigation	Construction, Operation and Decommissioing	Embedded mitigation	All those involved in construction/decommissioning, operation and maintenance operations are to be trained and competent persons, using appropriate PPE, with appropriate qualifications given their activities.	Volume 2, Chapter 10, Table 10.8	Standard requirement.	N/A
10.11	Shipping and Navigation	Construction, Operation and Decommissioing	Embedded mitigation	Continuous watch of site by radar, AIS, VHF, DSC and CCTV during construction/decommissioning as appropriate	Volume 2, Chapter 10, Table 10.8	Standard requirement.	N/A
10.12	Shipping and Navigation	Construction, Operation and Decommissioning	Embedded mitigation	Ensure communication is upheld and construction/decommissioning is effectively coordinated to ensure best practice and reduce risks.	Volume 2, Chapter 10, Table 10.8	Standard requirement.	N/A

Mitigation reference	Chapter	Phase/section	Type	Mitigation	ES reference	Where secured	DCO reference
10.13	Shipping and Navigation	Construction, Operation and Decommissioning	Embedded mitigation	Minimum safe air clearance (between MHWS and WTG rotors) of 22 m in accordance with MGN 543 to mitigate against ship contact risk.	Volume 2, Chapter 10, Table 10.8	Design Plan	Schedule 11, Part 2, Condition 13 (5); Schedule 12, Part 2, Condition 12 (4).
10.14	Shipping and Navigation	Construction, Operation and Decommissioning	Embedded mitigation	Inter-array and export cables will adhere to the appropriate burial depths which will reduce risk associated with cable snagging and ensure an appropriate UKC is maintained.	Volume 2, Chapter 10, Table 10.8	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12 (g); Schedule 12, Part 2, Condition 10 (g).
10.15	Shipping and Navigation	Construction, Operation and Decommissioning	Embedded mitigation	Cable Burial Risk Assessment to determine level of protection or burial along cable route. Protection should not exceed 5% Under Keel Clearance (UKC).	Volume 2, Chapter 10, Table 10.8	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12 (g); Schedule 12, Part 2, Condition 10 (g).
10.16	Shipping and Navigation	Construction, Operation and Decommissioning	Embedded mitigation	Periodic inspections to be undertaken over the cables life to ensure that the cable does not become exposed.	Volume 2, Chapter 10, Table 10.8	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12 (g); Schedule 12, Part 2, Condition 10 (g).
10.17	Shipping and Navigation	Construction and Decommissioning	Additional mitigation	Adopted safety zones to reduce collision risk.	Volume 2, Chapter 10, Table 10.11	Standard Requirement	N/A
10.18	Shipping and Navigation	Construction and Decommissioning	Additional mitigation	Use of Guard Vessel(s) to reduce collision risk.	Volume 2, Chapter 10, Table 10.11	Standard Requirement	N/A
10.19	Shipping and Navigation	Construction and Decommissioning	Additional mitigation	Cooperation during Cable Laying with Port of Ramsgate.	Volume 2, Chapter 10, Table 10.11	Standard NtMs	Schedule 11, Part 2, Condition 7 (8)(9); Schedule 12, Part 2, Condition 4(8)(9)
10.21	Shipping and Navigation	Construction, Operation and Decommissioning	Additional mitigation	Relocation of buoyage where necessary.	Volume 2, Chapter 10, Table 10.11	Standard NtMs	Schedule 11, Part 2, Condition 8; Schedule 12, Part 2, Condition 6.
10.22	Shipping and Navigation	Construction, Operation and Decommissioning	Additional mitigation	Development of a Co-operation Plan with the Port of London Authority	Volume 2, Chapter 10, Table 10.11	Co-operation Plan	Schedule 11, Part 2, Condition 7; Schedule 12. Part 2, Condition 5
				SECTION 2.11 INFRASTRUCTURE AND OTHER MARINE USERS			

Mitigation reference	Chapter	Phase/section	Type	Mitigation	ES reference	Where secured	DCO reference
11.1	Infrastructure and Other Marine Users	General	Embedded mitigation	Promulgation of information including regular Notices to Mariners, navigational aids and marine chart updates.	Volume 2, Chapter 11, Table 11.12	Standard NtMs	Schedule 11, Part 2, Condition 7 (8)(9); Schedule 12, Part 2, Condition 4(8)(9)
11.2	Infrastructure and Other Marine Users	Construction	Embedded mitigation	500m safety zones around WTGs and OSS during construction, 50m safety zones may sought for incomplete structures where construction is temporarily paused.	Volume 2, Chapter 11, Table 11.12	Standard Requirement	N/A
11.3	Infrastructure and Other Marine Users	Construction	Embedded mitigation	500m advisory safety distances will be recommended around vessels undertaking construction activities. Guard vessle in operation to ensure other users do not enter safety zones.	Volume 2, Chapter 11, Table 11.12	Standard Requirement	N/A
11.4	Infrastructure and Other Marine Users	Construction	Embedded mitigation	Cable crossings will be designed in line with best practice and will ensure suitable protection is proffered to both the exisitng asset(s) and the proposed project.	Volume 2, Chapter 11, Table 11.12	Cable Specification and Installation and Monitoring Plan	Schedule 11, Part 2, Condition 12 (g); Schedule 12, Part 2, Condition 10 (g).
11.5	Infrastructure and Other Marine Users	Construction	Embedded mitigation	Standard industry techniques will be used to ensure no operational impacts to other subsea cables during operation.	Volume 2, Chapter 11, Table 11.12	Standard requirement	N/A
11.6	Infrastructure and Other Marine Users	Construction	Embedded mitigation	One or more guard vessels will be present and maintain a position close to maintenance vessels. Guard vessels will monitor tracks of passing vessels and any potential interaction with construction vessels.	Volume 2, Chapter 11, Table 11.12	Standard requirement	Schedule 11, Part 2, Condition 8; Schedule 12, Part 2, Condition 6.
11.7	Infrastructure and Other Marine Users	Operation	Embedded mitigation	500m advisory safety distance will be recommended around vessels undertaking major maintenance activities. Guard vessels will be used to ensure other users do not enter safety zones.	Volume 2, Chapter 11, Table 11.12	Standard Requirement	N/A
11.8	Infrastructure and Other Marine Users	Decommissioning	Embedded mitigation	Consultation prior to the expiry of consent to determine appropriate safey buffers around decommissioning vessels.	Volume 2, Chapter 11, Table 11.12	Decommisioning Programme	Schedule 1, Part 3, Requirement 10.
				SECTION 2.12 SEASCAPE, LANDSCAPE AND VISUAL			
12.1	Seascape, Landscape and Visual	General	Embedded mitigation	The north-western extent of the wind farm area boundary was modfied to reduce the lateral extent of the offshore WTG array to mitigate the potential effects relating to the visual merging of TOWF and London Array.	Volume 2, Chapter 12, Table 12.12	Design Plan	Schedule 11, Part 2, Condition 12(1)(a); Schedule 12, Condition 10 (a).
12.2	Seascape, Landscape and Visual	General	Embedded mitigation	The offshore wind farm area has been reduced at its north-western corner to reduce the partial enclosure of the north of the Sandwich and Pegwell Bay character area, comprising the distinctive open aspects to the Thame Estuary and North Sea if this character area resulting in a larger separation will be viewed between the coast and the offshore WTG array.	Volume 2, Chapter 12, Table 12.12	Design Plan	Schedule 11, Part 2, Condition 12(1)(a); Schedule 12, Condition 10 (a).
				SECTION 2.13 OFFSHORE ARCHAEOLOGY			
13.1	Offshore Archaeology	General	Embedded mitigation	Production of a Written Scheme of Investigation (WSI);	Volume 2, Chapter 13, Table 13.12	Written Scheme of Archaeological Investigation	Schedule 11, Part 2, Condition 12; Schedule 12, Part 2, Condition 10.
13.2	Offshore Archaeology	General	Embedded mitigation	Recommendation of Archaeological Exclusion Zones around features of archaeological interest.	Volume 2, Chapter 13, Table 13.12	Written Scheme of Archaeological Investigation	Schedule 11, Part 2, Condition 12; Schedule 12, Part 2, Condition 10.
13.3	Offshore Archaeology	Construction, Operation and Decommissioning	Embedded mitigation	Archaeological input at the planning stages of any further survey, and archaeological review of any additional ROV, diver and geophysical/geotechnical data;	Volume 2, Chapter 13, Table 13.12	Written Scheme of Archaeological Investigation	Schedule 11, Part 2, Condition 12; Schedule 12, Part 2, Condition 10.
13.6	Offshore Archaeology	Construction, Operation and Decommissioning	Additional mitigation	Offshore Renewabes Procedure for Archaeological Discoveries (ORPAD) to be followed for unexpected discoveries.	Volume 2, Chapter 13, Table 13.17	Written Scheme of Archaeological Investigation	Schedule 11, Part 2, Condition 12; Schedule 12, Part 2, Condition 10.

Mitigation reference	Chapter	Phase/section	Type	Mitigation	ES reference	Where secured	DCO reference
13.7	Offshore Archaeology	Construction, Operation, Decommissioning	Additional mitigation	Archaeological input at the planning stages of any further survey, and archaeological review of any additional ROV, diver and geophysical/geotechnical data;	Volume 2, Chapter 13, Table 13.17	Written Scheme of Archaeological Investigation	Schedule 11, Part 2, Condition 12; Schedule 12, Part 2, Condition 10.
13.8	Offshore Archaeology	Construction, Operation, Decommissioning	Embedded mitigation	Offshore Renewabes Procedure for Archaeological Discoveries (ORPAD) to be followed for unexpected discoveries.	Volume 2, Chapter 13, Table 13.17	Written Scheme of Archaeological Investigation	Schedule 11, Part 2, Condition 12; Schedule 12, Part 2, Condition 10.
				SECTION 2.14 INTER-RELATIONSHIPS			
				There are no relevant mitigation measures for chapter 12 of this volume			
				SECTION 2.15 CONCLUSIONS AND SUMMARY OF KEY ISSUES			
				There are no relevant mitigation measures for chapter 13 of this volume.			

Mitigation reference	Chapter	Phase / section	Type	Mitigation	ES reference	Where secured (Application Document)	DCO reference
				CHAPTER 3.1 PROJECT DESCRIPTION			
1.1				There are no relevant mitigation measures for chapter 1 of this volume.			
				CHAPTER 3.2 LANDSCAPE AND VISUAL			
2.1	Landscape and Visual	Geneal	Embedded mitigation	Primary mitigation in respect of the proposed substation, onshore cable route and landfall has involved the sensitive siting and design of the onshore infrastructure during site selection, to ensure the potential impacts are avoided or reduced.	Volume 3, Chapter 2, Section 2.11	Authorised Design Plan	Schedule 1, Part 1.
2.2	Landscape and Visual	Construction	Embedded mitigation	Implication of Construction Environmental Management Plan (CEMP) for restrictions imposed on the working areas will be put in place to avoid, reduce or offset environmental effects	Volume 3, Chapter 2, Section 2.12	Construction Environmental Management Plan	Schedule 1, Part 3 Requirements 16,17.
2.3	Landscape and Visual	Construction	Embedded mitigation	A Landscape and Ecological Management Plan will be put in place to avoid, reduce or offset environmental effects.	Volume 3, Chapter 2, Section 2.12	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirements 24.
2.5	Landscape and Visual	Construction	Embedded mitigation	Sensitive siting of construction compound areas away from more visible and larger number of receptors.	Volume 3, Chapter 2, Section 2.12	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirements 24.
2.6	Landscape and Visual	Operation	Embedded mitigation	Vegetation and habitat loss across the site would be kept to a minimum and propsoed landscape mitigation planting will ensure that the character of the local area is retained.	Volume 3, Chapter 2, Section 2.12	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirements 24.
2.7	Landscape and Visual	Operation	Embedded mitigation	Screening to intervene views into the substation area as provided by the Screening Planting at the Substation Plan within the LEMP.	Volume 3, Chapter 2, Section 2.12	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirements 24.
2.8	Landscape and Visual	Operation	Embedded mitigation	The restoration of disturbed areas of ground within the working corridor fo the cable route and re-establishment of ground cover	Volume 3, Chapter 2, Section 2.12	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirements 24.
				CHAPTER 3.3 SOCIO-ECONOMICS			
				For the purposes of socio-economic assessment, many of the receptors relate to potential positive impacts (such as employment and GVA creation), and as such no embedded mitigation measures have been included with regards to socio-economics.			
				SECTION 3.4 TOURISM AND RECREATION			
4.1	Tourism and recreation	General	Embedded mitigation	Suitable diversion will be created when there is need for temporary closures.	Volume 3, Chapter 4, Table 4.13	Access management plan	Schedule 1, Part 3, Requirements 15,22.
4.2	Tourism and recreation	General	Embedded mitigation	Careful routing of the onshore cable route to avoid key areas of sensitivity.	Volume 3, Chapter 4, Table 4.13	Authorised Design Plan	Schedule 1, Part 1.
4.3	Tourism and recreation	Construction	Embedded mitigation	Temporary, manned crossing points used to ensure safety of walkers and cyclists around cable construction area.	Volume 3, Chapter 4, Table 4.13	Access management plan	Schedule 1, Part 3, Requirements 15.
4.4	Tourism and recreation	Construction	Embedded mitigation	Rolling construction ensuring only individual sections of land are under construction.	Volume 3, Chapter 4, Table 4.13	Access management plan	Schedule 1, Part 3, Requirements 15.
4.5	Tourism and recreation	Construction	Embedded mitigation	Perimeter fencing will enable continuous use of nearby routes while work is underway.	Volume 3, Chapter 4, Table 4.13	Access management plan	Schedule 1, Part 3, Requirements 15.
4.6	Tourism and recreation	Construction	Embedded mitigation	Where significant routes are intersected by the cable-bund ramps will be constructed with gradients not greater than 1:12, so as to facilitate continued, all-ability access.	Volume 3, Chapter 4, Table 4.13	Access management plan	Schedule 1, Part 3, Requirements 15.
4.7	Tourism and recreation	Operation	Embedded mitigation	Where significant routes are intersected by the cable-bund ramps will be constructed with gradients not greater than 1:12, so as to facilitate continued, all-ability access.	Volume 3, Chapter 4, Table 4.13	Access management plan	Schedule 1, Part 3, Requirements 15.

Mitigation reference	Chapter	Phase / section	Type	Mitigation	ES reference	Where secured (Application Document)	DCO reference
4.8	Tourism and recreation	Operation	Embedded mitigation	The cable run and its infrastructure is designed to require zero maintenance over the O&M period. Inspection will be facilitated at link boxes and test pits, and use of these will not impact on recreation in the vicinity	Volume 3, Chapter 4, Table 4.13	Access management plan	Schedule 1, Part 3, Requirements 15.
4.9	Tourism and recreation	Decommissioning	Embedded mitigation	Cable to be removed via ducts. No extensive works or ground disturbance. Similar mitigation techniques for construction can be used if needed.	Volume 3, Chapter 4, Table 4.13	Decommisioning Programme	Schedule 1, Part 3, Requirment 27.
				CHAPTER 3.5 ONSHORE BIODIVERSITY			
5.1	Onshore biodiversity	General	Embedded mitigation	Careful routeing of the onshore cable route has taken place to avoid key areas of sensitivity where possible, e.g. the terrestrial parts of Sandwich Bay SAC have been avoided. The proposed works at the landfall under Option 2 have been significantly reduced in extent to reduce associated permanent loss of saltmarsh habitat. The introduction of HDD has been brought forward under Option 1 to avoid interaction with the sea wall and areas of saltmarsh, subject to the results of the 2018 SI campaign.	Volume 3, Chapter 5, Table 5.11	Authorised Design Plan	Schedule 1, Part 1.
5.2	Onshore biodiversity	Construction	Embedded mitigation	Where practicable, micro-siting of the final cable alignment and other associated works will be employed so that important receptors are avoided or impacts minimised.	Volume 3, Chapter 5, Table 5.11	Authorised Design Plan	Schedule 1, Part 1.
5.3	Onshore biodiversity	Construction	Embedded mitigation	Protective fencing will be used as necessary to protect retained habitats from inadvertent damage during construction.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.4	Onshore biodiversity	Construction	Embedded mitigation	For cabling and associated works within Stonelees Nature Reserve (and Pegwell Bay Country Park under options 1 and 3i) all excavated soils will be carefully stored and reinstated as soon as possible or, where appropriate, disposed of and replaced within the red line boundary, or at an appropriate location outside the red line boundary with permission from the landowners, with neutral soils in the case of contaminated sediments within Pegwell Bay Country Park. If reinstatement is not possible (e.g. under landfall option 2 – installation of the TJBs and cabling above ground within the country park) the resulting berm would be restored in accordance with the Outline LEMP (Document Ref: 8.7). Any water bodies within Stonelees Nature Reserve that cannot be avoided will be replaced withn RLB or adjacent field subject to landowner agreement.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.5	Onshore biodiversity	Construction	Embedded mitigation	Measures are provided to reinstate and restore saltmarsh habitat providing supporting habitat for non-breeding waterbirds, following construction.	Volume 3, Chapter 5, Table 5.11	Saltmarsh Mitigation and Reinstatement Plan	Schedule 12, Part 2, Condition 13 (2)(b); Schedule 12, Part 2, Condition 15 (1)(a).
5.6	Onshore biodiversity	Construction	Embedded mitigation	A suitably qualified Ecological Clerk of Works (ECoW) will be employed for the duration of the construction period (and any subsequent reinstatement works), although this may not necessarily be a full-time role throughout. The ECoW will oversee the implementation of the LEMP and check that the works comply with applicable wildlife legislation and the relevant commitments made in this ES and associated management plans. The ECoW will provide regular reports to Natural England and other relevant stakeholders throughout the construction period (and subsequent reinstatement).	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.7	Onshore biodiversity	Construction	Embedded mitigation	Due to the time that will have elapsed since the last surveys and the possibility that certain protected or controlled species presence or activity could have changed in the intervening period, or being unable to carry out surveys due to access restrictions, surveys for the following species will be undertaken prior to construction commencing: - Invasive non-native species; - Natterjack toad; - Great crested newt (Pegwell Bay Country Park only); - Breeding birds (focussing on Schedule 1 species); - Badger; - Water vole; and - Otter. The results of the pre-construction surveys would inform the need for any mitigation measures, as set out or required in the LEMP.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.

Mitigation reference	Chapter	Phase / section	Type	Mitigation	ES reference	Where secured (Application Document)	DCO reference
5.8	Onshore biodiversity	Construction	Embedded mitigation	Following broadly similar mitigation measures employed for Nemo Link and Thanet Offshore Wind Farm (TOWF), seasonal restrictions would be implemented to restrict works with potential to cause significant disturbance to non-breeding waterbirds utilising intertidal habitats in Pegwell Bay. These restrictions would apply to all construction works within intertidal habitats and at the shoreline , i.e. within any coffer dam at the proposed landfall location (as required under options 2 and 3 for the landfall). This would prevent any works taking place in these areas during the period October to March inclusive.	Volume 3, Chapter 5, Table 5.11	Construction Programme and Monitoring Plan	Schedule 1, Part 3, Requirement 16.
5.9	Onshore biodiversity	Construction	Embedded mitigation	Any works within 250 m of intertidal habitats that are not covered by seasonal restrictions but are in direct line of sight from intertidal habitats, e.g. works on the TJBs, would only take place during October - March following the erection of screening fencing to avoid visual disturbance to non-breeding waterbirds using intertidal habitats. The details of proposed screening will be provided in the detailed LEMP and will be subject to agreement with Natural England.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.10	Onshore biodiversity	Construction	Embedded mitigation	Mitigation to minimise disturbance to non-breeding waterbirds from displaced visitors would include: - Erection of additional signs to discourage people from entering intertidal habitats during sensitive periods; and - The ECoW (or temporary warden/ natural ambassador) would monitor visitor disturbance to intertidal areas across all parts of Pegwell Bay during the sensitive October to March period and would speak to visitors to discourage them from entering intertidal habitats, if required. Regular reports to Natural England and other relevant stakeholders regarding the outcome of the monitoring and visitor interactions will be provided throughout the construction period. The frequency and format of these updates will be agreed as part of the detailed LEMP.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.11	Onshore biodiversity	Construction	Embedded mitigation	As set out in the OLEMP, a terrestrial invertebrate mitigation strategy (TIMS) will be developed post consent and will form part of the detailed LEMP. The TIMS will be informed by a detailed invertebrate survey of affected areas prior to production and agreement of the detailed LEMP. The TIMS will include specific measures to be employed within Pegwell Bay Country Park and Stonelees Nature Reserve to avoid or reduce effects on: species forming part of the Thanet Coast and Sandwich Bay Ramsar wetland invertebrate assemblage (if present); species forming part of the Sandwich Bay to Hacklinge Marshes SSSI invertebrate assemblage (if present) and any other nationally rare or scarce species which could be significantly affected, for example KWT has highlighted the presence of nationally rare micromoths associated with the plant tansy within Stonelees Nature Reserve. The TIMS will also include measures to ensure that suitable habitat for these species is maintained and enhanced following construction works. The TIMS will also include details of measures to maintain and enhance any important invertebrate populations associated with the ephemeral/ short perennial habitat within the proposed substation site and associated compound and laydown area. These will include the retention and enhancement of an area of 0.4 ha on the eastern side of the substation site. Measures involving the creation and management of ephemeral/ short perennial habitat on open ground within the substation compound, where possible, will also be included.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.12	Onshore biodiversity	Construction	Embedded mitigation	Reasonable measures will be employed to reduce the chances of inadvertently killing or injuring individual viviparous lizards or slow-worms during construction works. Given that large areas of suitable habitat will remain unaffected by the works and most habitats will be reinstated or restored following construction, fencing and translocation are not considered appropriate. Mitigation will therefore involve the management of vegetation (e.g. strimming long grass) to discourage occupation by reptiles and the identification/removal of potential refugia and hibernacula (if present) by	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.13	Onshore biodiversity	Construction	Embedded mitigation	Wherever possible, vegetation which could support nesting birds (all species) will be cleared outside the main bird breeding season (March to August inclusive) to avoid damage to, or destruction of nests. Where this is not possible vegetation to be cleared will be checked for active nests by the ECoW prior to clearance. If active nests are found vegetation clearance in the applicable area will be delayed until the relevant nesting attempt(s) has finished. Surveys for Schedule 1 species and other breeding species of conservation concern which are likely to be particularly sensitive to disturbance, e.g. redshank, will take place prior to and during construction (as required). Avoidance of disturbance to these species whilst nesting will be achieved through the implementation of disturbance-free buffer zones around active nests. The extent of any buffer zones will be species and location-specific and will be determined by the ECoW, taking into consideration relevant guidance and experience from other sites, as appropriate. The ECoW will also monitor nesting attempts to check that the agreed buffer zones are successful.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.14	Onshore biodiversity	Construction	Embedded mitigation	A small number of trees which could potentially be affected by the proposed development were identified as having low potential to support bat roosts (see Volume 5, Annex 5-9 and Annex 5-12, Document Refs: 6.5.5.9 and 6.5.5.12 respectively)). In accordance with current BCT guidelines, if felling of any of these trees is required appropriate precautions will be undertaken during felling.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.15	Onshore biodiversity	Construction	Embedded mitigation	The adoption of a site speed limit of 15mph during construction will reduce the likelihood of accidental injury/killing of mammals by construction traffic. All potentially dangerous substances or materials will be carefully stored to prevent them causing any harm to animals which may enter working areas at night. All excavations greater than 1m depth will either be covered at night or designed to include a ramp to allow animals a means of escape should they fall in.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.16	Onshore biodiversity	Construction	Embedded mitigation	Stands of invasive non-native species, whether existing or identified during pre-construction surveys, will be avoided wherever possible. If avoidance is not possible a detailed mitigation plan will be produced and agreed as part of the CEMP to ensure compliance with the relevant legislation.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan and Code of Construction Practice.	Schedule 1, Part 3, Requirement 24; Schedule 1, Part 3, Requirment 16.

Mitigation reference	Chapter	Phase / section	Type	Mitigation	ES reference	Where secured (Application Document)	DCO reference
5.17	Onshore biodiversity	Construction	Embedded mitigation	Dust control measures that will be implemented during construction to avoid or reduce the potential for significant effects on ecological receptors.	Volume 3, Chapter 5, Table 5.11	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16,17.
5.18	Onshore biodiversity	Construction	Embedded mitigation	A summary of measures that will be employed to avoid or reduce accidental spills and potential contaminant releases in the intertidal environment will be included in the Project Environmental Management Plan (PEMP) and for the onshore enviornment measures will be outlined in the Code of Construction Practice (CoCP).	Volume 3, Chapter 5, Table 5.11	Project Environmental Management Plan and Code of Construction Practice	Schedule 1, Part 3, Requirement 16; Schedule 12, Part 2, Condition 10 (d).
5.19	Onshore biodiversity	Construction	Embedded mitigation	Initial proposals for biodiversity enhancements, as required under relevant planning policy, are provided in the OLEMP . These include: - Creation of additional ponds/ pools; - Creation of reptile refugia/ hibernacula; - Erection of bat and bird boxes; - Scrub management to promote grassland habitat and benefit nightingale; and - Creation of small areas of sacrificial crop (for seed-eating birds).	Volume 3, Chapter 5, Table 5.12	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.
5.20	Onshore biodiversity	Operation	Embedded mitigation	Planned O&M works at the shoreline or within intertidal habitats will avoid the period October to March inclusive (as for construction).	Volume 3, Chapter 5, Table 5.11	Seasonal restriction applicable for planned works.	Schedule 11, Part 2, Condition 12(b).
5.21	Onshore biodiversity	Operation	Embedded mitigation	Planned inspections will follow an agreed methodology, set out in the LEMP, designed to avoid damage to sensitive habitats or disturbance to protected species. Regular inspections of any joint pits located within Stonelees Nature Reserve will be undertaken on foot to avoid damage to retained or reinstated habitats within the onshore parts of the Thanet Coast and Sandwich Bay SPA/ Ramsar and Sandwich Bay to Hacklinge Marshes SSSI. Any maintenance within Stonelees Nature Reserve would only be undertaken following discussions with the relevant Statutory Nature Conservation Bodies. Regular inspections of the TJBs and joint pits within Pegwell Bay Country Park will be undertaken on foot or using a light vehicle only which will be restricted to existing tracks.	Volume 3, Chapter 5, Table 5.11	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24.

Mitigation reference	Chapter	Phase / section	Type	Mitigation	ES reference	Where secured (Application Document)	DCO reference
5.22	Onshore biodiversity	Operation	Embedded mitigation	Where unplanned O&M works are required, appropriate mitigation measures would be developed and agreed with relevant consultees prior to works taking place.	Volume 3, Chapter 5, Table 5.11	Operation and Maintenance Plan	Schedule 11, Part 2, Condtion 11 (i); Schedule 12, Part 2, Condition 12, (i)
5.23	Onshore biodiversity	Decommissioning	Embedded mitigation	Embedded mitigation measures implemented in the decommissioning phase are likely to be similar to those implemented during the construction phase and would adhere to relevant good practice and legislation in place at the time of decommissioning.	Volume 3, Chapter 5, Table 5.11	Decommissioing Programme	Schedule 1, Part 3, Requirement 27.
5.24	Onshore biodiversity	Construction	Additional mitigation	Production of a Ringed Plover Mitigation Plan as secured by the Export Cable System dML Condition 12b. Relevant measures may include: pre-construction survey so that favoured areas can be clearly demarcated; measures to minimise working areas; measures to minimise the time that people spend outside vehicles; a watching brief by a suitably qualified ECoW; and/ or cable installation by barge and avoiding low tide periods.	Volume 3, Chapter 5, Section 5.15	Landscape and Ecological Management Plan	Schedule 1, Part 3, Requirement 24;Schedule 11, Part 2, Condition 12 (b).
				CHAPTER 3.6 GROUND CONDITIONS, FLOOD RISK AND LAND USE			
6.1	Ground conditions	General	Embedded mitigation	Production of a CEMP which includes a pollution response plan will be put in place and will recommended buffers and storage of chemicals and oils.	Volume 3, Chapter 6, Table 6.12	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16/ 17.
6.2	Ground conditions	General	Embedded mitigation	Site investigation works to inform final design and potential hazards.	Volume 3, Chapter 6, Table 6.12	Contaminated Land and Groundwater Plan	Schedule 1, Part 3 Requirement 20.
6.3	Ground conditions	General	Embedded mitigation	Temporary cofferdams will be installed or suitable alternative to ensure mitigation against the potential release of leachage during transition joint bay installation (Landfall Options 1 and 3) or at Pegwell Bay.	Volume 3, Chapter 6, Table 6.12	Contaminated Land and Groundwater Plan	Schedule 1, Part 3 Requirement 20.
6.4	Ground conditions	General	Embedded mitigation	The trough would have cable ducts installed to house the cables and would be backfilled with suitable material and then buried and reseeded to create a berm across the country park for Landfall Option 2.	Volume 3, Chapter 6, Table 6.12	Construction Environmental Management Plan	Schedule 1; Part 3, Requirement 16.
6.5	Ground conditions	General	Embedded mitigation	Assessment of settlement of cable ducts within/ on soft ground (i.e. tidal deposits, landfill material) would be undertaken.	Volume 3, Chapter 6, Table 6.12	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16/17.
6.6	Ground conditions	General	Embedded mitigation	For the proposed haul route associated with the onshore cable landfall, it is assumed that bog mats or suitable alternative such as geotextile matting would be utilised in areas of saturated ground.	Volume 3, Chapter 6, Table 6.12	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16/17.

Mitigation reference	Chapter	Phase / section	Type	Mitigation	ES reference	Where secured (Application Document)	DCO reference
6.7	Ground conditions	General	Embedded mitigation	The design has been selected to minimise the number of watercourse crossings to one crossing of the Minster Stream.	Volume 3, Chapter 6, Table 6.12	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16/17.
6.8	Ground conditions	Construction	Embedded mitigation	All works in vicinity of watercourse will receive suitable permissions. No works would be undertaken within 3m of any watercourse (other than watercourse crossings).	Volume 3, Chapter 6, Table 6.12	Surface Water and Drainage Management Plan	Schedule 1; Part 3, Requirement 19.
6.9	Ground conditions	Construction	Embedded mitigation	Where a temporary watercourse crossing is required, appropriate design would be implemented to ensure that flood flow conveyance and sediment transfer conditions are commensurate with those prevailing prior to development.	Volume 3, Chapter 6, Table 6.12	Surface Water and Drainage Management Plan	Schedule 1; Part 3, Requirement 19.
6.10	Ground conditions	Construction	Embedded mitigation	Effective drainage design would be adopted to ensure to ensure that run-off rates are not increased above those prevailing prior to development. Measures will be imposed to prevent any potentially polluted run-off from within the site entering any excavations.	Volume 3, Chapter 6, Table 6.12	Surface Water and Drainage Management Plan	Schedule 1; Part 3, Requirement 19.
6.11	Ground conditions	Construction	Embedded mitigation	For groundwater dewatered from cofferdam excavations and excavations in the landfill the following several measures are put in place to reduce contamination impacts.	Volume 3, Chapter 6, Table 6.12	Contaminated Land and Groundwater Plan	Schedule 1; Part 3, Requirement 20.
6.12	Ground conditions	Construction	Embedded mitigation	All access routes and working area construction materials are to be removed at the end of construction, reinstated with material from the soil stockpiles, and reseeded or replanted.	Volume 3, Chapter 6, Table 6.12	Surface Water and Drainage Management Plan	Schedule 1, Part 3, Requirement 19.
6.13	Ground conditions	Construction	Embedded mitigation	Cross drainage would be provided as necessary at topographic low points to avoid disrupting flow paths and to retain natural surface water flow routes.	Volume 3, Chapter 6, Table 6.12	Surface Water and Drainage Management Plan	Schedule 1, Part 3, Requirement 19
6.14	Ground conditions	Construction	Embedded mitigation	Construction compounds would be surfaced with material with a similar permeability to the existing ground cover (with the exception of fuel storage areas and similar, where pollution containment in the event of a spillage is the priority	Volume 3, Chapter 6, Table 6.12	Contaminated Land and Groundwater Plan	Schedule 1; Part 3, Requirement 20.
6.15	Ground conditions	Construction	Embedded mitigation	Standard gas measures would be put in place, where required based on gas monitoring results.	Volume 3, Chapter 6, Table 6.12	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16/17.
6.16	Ground conditions	Construction	Embedded mitigation	Safety precautions will be implemented through the preparation of a emergency response span within the health and safety documents.	Volume 3, Chapter 6, Table 6.12	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16/17.
6.17	Ground conditions	Construction	Embedded mitigation	Designated areas will be imposed for area of mixing of concrete and washing down of equipment associated with concrete or cementing activity.	Volume 3, Chapter 6, Table 6.12	Contaminated Land and Groundwater Plan	Schedule 1; Part 3, Requirement 21.
6.18	Ground conditions	Construction	Embedded mitigation	Waste and material management strategies will be addressed within the CoCP.	Volume 3, Chapter 6, Table 6.12	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16/17.
6.20	Ground conditions	Construction and Operation	Embedded mitigation	Any imported landscaping material would be clean, inert and free of contaminants and of suitable thickness to prevent any contamination.	Volume 3, Chapter 6, Table 6.12	Contaminated Land and Groundwater Plan	Schedule 1; Part 3, Requirement 20.
6.21	Ground conditions	Operation	Embedded mitigation	Effective drainage principles would be adopted to ensure to ensure that run-off rates are not increased above those prevailing prior to development. A detailed drainage stategy for the proposed substation area would be prepared.	Volume 3, Chapter 6, Table 6.12	Surface Water and Drainage Management Plan	Schedule 1, Part 3, Requirement 19.
6.22	Ground conditions	Operation	Embedded mitigation	If a permanent crossing (for the cable) is required across the EA 'Main River', Minister Stream , the relevant flood management agencies (EA and KCC) would be consulted on the principles of their design and the appropriate permits or consents would be applied for.	Volume 3, Chapter 6, Table 6.12	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16/17.
6.23	Ground conditions	Operation	Embedded mitigation	The construction health and safety file would include information of ground contamination, and would be kept and used to develop risk assessment and method statements, including mitigation measures to address these risks in line with health and safety legislation during the O&M phase.	Volume 3, Chapter 6, Table 6.12	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16/17.
6.24	Ground conditions	Operation	Embedded mitigation	The construction development would implement a mostly impermeable cover, as necessary, based on the findings of the SI on the proposed substation area. O&M plans would be prepared post-DCO covering, as a minimum, details of how blockages would be prevented/ minimised/ detected/ removed, periodic inspection schedules, roles and responsibilities, and details of associated Flood Risk Activity Permit (FRAP)	Volume 3, Chapter 6, Table 6.12	CoCP/ Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 16/17.
6.25	Ground conditions	Decommissioning	Embedded mitigation	Similar mitigation measures are anticipated to be implemented as those embedded into the project design for the construction phase.	Volume 3, Chapter 6, Table 6.12	Decommissioning Plan	Schedule 1, Part 3, Requirement 27.
				CHAPTER 3.7 ONSHORE HISTORIC ENVIRONMENT			
7.1	Historic environment	General	Embedded mitigation	The Red Line Boundary has been defined to exclude designated elements of the anti-invasion defences and to minimise disturbance of the line of the Boarded Groin.	Volume 3, Chapter 7, Table 7.11	Authorised Design Plan	Schedule 1, Part 1.
7.2	Historic environment	Construction	Embedded mitigation	Agreed programme of archaeological work to ensure that any heritage assets or deposits of geoarchaeological interest would be identified and recorded.	Volume 3, Chapter 7, Table 7.11	Written Scheme of Investigation	Schedule 1, Part 3, Requirement 23.
7.3	Historic environment	Operation	Embedded mitigation	Establishment of buffer zone around the designated military structures to avoid immediate juxtaposition of pillbox with soil mounds. This would be secured through agreement of detail design.	Volume 3, Chapter 7, Table 7.11	Written Scheme of Investigation	Schedule 1, Part 3, Requirement 23.
7.4	Historic environment	Operation	Embedded mitigation	Retention of existing screening planting along northern edge of Baypoint club where practicable. Where planting is removed to clear a working area, it should be restored as far as is consistent with constraints regarding planting over and in the vicinity of cabling.	Volume 3, Chapter 7, Table 7.11	Written Scheme of Investigation	Schedule 1, Part 3, Requirement 23.
7.5	Historic environment	Operation	Embedded mitigation	The north-western extent of Red Line Boundary has been reduced, reducing the maximum north-westwards extent of the proposed WTG array. This would increase the perceived separation of the proposed WTGs from heritage assets in some views.	Volume 3, Chapter 7, Table 7.11	Authorised Design Plan	Schedule 1, Part 1.
				CHAPTER 3.8 TRAFFIC AND TRANSPORT			

Mitigation reference	Chapter	Phase / section	Type	Mitigation	ES reference	Where secured (Application Document)	DCO reference
				All following measures provided for within CoCP - principles for CTMP			
8.1	Traffic and transport	Construction	Embedded mitigation	Implementation of a Construction Traffic Management Plan (CTMP) to manage daily delivery profiles and routeing of HGVs for road close to site.	Volume 3, Chapter 8, Table 8.11	Construction Traffic Management Plan	Schedule 1, Part 3, Requirement 22.
8.2	Traffic and transport	Construction	Embedded mitigation	Where required, PRoWs will be continually managed by a banksman to reduce the impact on users. If necessary, Swept Path Analysis (SPA) will be undertaken to ensure vehicles do not affect road users on the carriageway or footway.	Volume 3, Chapter 8, Table 8.11	Construction Traffic Management Plan	Schedule 1, Part 3, Requirement 22.
8.3	Traffic and transport	Construction	Embedded mitigation	A Staff Travel Plan, where required to manage the arrival and departure profile of staff and encourage sustainable modes of transport, especially car-sharing.	Volume 3, Chapter 8, Table 8.11	Construction Traffic Management Plan	Schedule 1, Part 3, Requirement 22.
8.4	Traffic and transport	Construction	Embedded mitigation	A desk based AIL study has been undertaken to identify appropriate routes to the proposed development from the ports of Tilbury, Dover and Ramsgate, as well as the Stategic Road Newtork (SRN).	Volume 3, Chapter 8, Table 8.11	Construction Traffic Management Plan	Schedule 1, Part 3, Requirement 22.
				CHAPTER 3.9 AIR QUALITY			
	Air Quality	Construction	General	The preparation of an Air Quality Management Plan (AQMP) to reduce the impact of dust in the vicinity of the proposed development.	Volume 3, Chapter 9, Table 9.16	Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 17; Schedule 12, Part 2, Condition 10 (1) (d).
9.1	Air Quality	Construction	Embedded mitigation	Local Air Quality Management (LAQM) (2014) and Thanet District Counsel (TDC) (2018) guidence should be followed and embedded into development plan.	Volume 3, Chapter 9, Table 9.16	Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 17; Schedule 12, Part 2, Condition 10 (1) (d).
9.2	Air Quality	Operation	Embedded mitigation	Principles of good practice should be applied to the proposed development, as set out in chapter 5 of the Environmental Protection UK (EPUK) and IAQM guidence.The proposed development is designed to minimise public exposure to pollution sources.	Volume 3, Chapter 9, Table 9.16	Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 17; Schedule 12, Part 2,
9.3	Air Quality	Decommissioning	Embedded mitigation	Institute of Air Quality Management (IAQM) (2014a) and TDC (2018) suggest standard measures for mitigating the impacts of dust during construction and demolition.	Volume 3, Chapter 9, Table 9.16	Construction Environmental Management Plan	Schedule 1, Part 3 Requirement 17; Schedule 12, Part 2, Condition 10 (1) (d).
				CHAPTER 3.10 NOISE AND VIBRATION			
10.1	Noise and vibration	Construction	Embedded mitigation	Code of Construction Practice to include a Noise and Vibration Management Plan (NVMP).	Volume 3, Chapter 10, Table 10.18	Construction Noise and Vibration Manageement Plan	Schedule 1, Part 3, Requirement 21.
10.2	Noise and vibration	Construction	Embedded mitigation	Manage piling activity to avoid significant effects onshore.	Volume 3, Chapter 10, Table 10.18	Construction Noise and Vibration Manageement Plan	Schedule 1, Part 3, Requirement 21.
				CHAPTER 3.11 AVIATION AND RADAR			
11.1	Aviation and radar	General	Embedded mitigation	Notification to aviation stakeholders of the location and dimension of any wind energy development and the associated construction activities. This information will be passed to the Defence Geographic Centre (DGC) and General Aviation Awareness Council (GAAC) at least 6 weeks in advance of the erection of the first WTG and to follow up on the day with a confirmation that the activitiy has taken place.	Volume 3, Chapter 11, Section 11.8	Radar Line of Site Plan	Schedule 12, Part 2, Condition 6.
11.2	Aviation and radar	General	Embedded mitigation	Appropriate information about the site construction and any associated lighting (where applicable), for example the height and temporary location of construction cranes, should be provided to the UK Aeronautical Information Service (NATS AIS).	Volume 3, Chapter 11, Section 11.8	Standard requiremnt	Schedule 12, Part 2, Condition 6.
11.3	Aviation and radar	General	Embedded mitigation	Mandatory lighting requires followed according to the Air Navigation Order 2016.	Volume 3, Chapter 11, Section 11.8	Standard requiremnt	Schedule 1, Part 3, Requirement 7.

Mitigation reference	Chapter	Phase / section	Type	Mitigation	ES reference	Where secured (Application Document)	DCO reference
11.4	Aviation and radar	General	Embedded mitigation	Standards for Offshore Helicopter landing Areas are abided by.	Volume 3, Chapter 11, Section 11.8	Standard requiremnt	N/A
11.5	Aviation and radar	General	Embedded mitigation	Appropriate liaison will be completed to ensure information on the construction of the wind farm is circulated in a Notice to Airmen (NOTAM) and other appropriate media.	Volume 3, Chapter 11, Section 11.8	Standard requiremnt	Schedule 12, Part 2, Condition 6.
11.6	Aviation and radar	Construction, Operation, Decommissioning	Embedded mitigation	An ERCoP will be produced in conjunction with the MCA. It will detail specific marking and lighting of the WTGs.	Volume 3, Chapter 11, Section 11.8	Emergency Response and Co-operation plan	Schedule 12, Part 2, Requirment 11 (4).
11.7	Aviation and radar	Cumulative	Additional mitigation	The implementation of a Non-Automatic Initiation Zone (NAIZ) software function to the London Southend Airport Primary Surveillance Radar (PSR) system is considered an appropriate mitigation strategy.	Volume 3, Chapter 11, Section 11.8	Aviation Safety Plan	Schedule 1, Part 3, Requirement 8.
				CHAPTER 3.12 INTER-RELATIONSHIPS			
12.1				There are no specific mitigation measures for chapter 12 of this volume beyond those previously addressed.			
				CHAPTER 3.13 CONLUSIONS AND SUMMARY OF KEY ISSUES			
13.1				There are no specific mitigation measures for chapter 13 of this volume beyond those previously addressed.			