



White Cross Offshore Wind Farm ES Addendum

Appendix P: Mitigation Register



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Glossary of Acronyms

Acronym	Definition
ADD	Acoustic Deterrent Device
AEZ	Archaeological Exclusion Zone
AIS	Automatic Identification System
ALDFG	Abandoned, Lost or otherwise Discarded Fishing Gear
ALO	Agricultural Liaison Officer
BMP	Best Management Practice
BWM	Ballast Water and Sediments
CBRA	Cable Burial Risk Assessment
CDM	Construction Design Management
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CNVMP	Construction Noise and Vibration Management Plan
CGOC	Coastguard Operations Centre
CoCP	Code of Construction Practice
COLREGS	International Convention for the Prevention of Collision at Sea
COSHH	Control of Substances Hazardous to Health
CTMP	Construction Traffic Management Plan
DAS	Design and Access
DCC	Devon County Council
DECC	Department for Energy and Climate Change
DPF	Diesel Particulate Filters
DSC	Digital Selective Calling
EA	Environment Agency
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EMF	Electromagnetic Frequency
EPSL	European Protected Species Licence
ERCOP	Emergency Response Co-Operation Plan
ES	Environmental Statement
EU	European Union
FFL	Finished Floor Level
FLO	Fisheries Liaison Officer

Acronym	Definition
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables Group
GPP	Guidance for Pollution Prevention
GPS	Global Positioning System
HE	Historic England
HET	Historic Environment Team
HGV	Heavy Goods Vehicle
HLC	Historic Landscape Character
HVAC	High Voltage Alternate Cable
IEC	International Electrotechnical Commission
IEMA	Institute of Environmental Management and Assessment
INNS	Invasive Non-Native Species
LLFA	Lead Local Flood Authority
MA	Monitoring Area
MAIB	Marine Accident Investigation Branch
MARPOL	The International Convention for the Prevention of Pollution from Ships
MCA	Maritime and Coastguard Agency
ML	Marine Licence
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMMP	Marine Mammal Mitigation Plan
MMO	Marine Management Organisation
MMOb	Marine Mammal Observers
MMP	Materials Management Plan
MW	Megawatt
NRMM	Non-Road Mobile Machinery
NVSR	Noise and Vibration Sensitive Receptors
OLEMP	Outline Landscape and Ecology Management Plan
OREI	Offshore Renewable Energy Installation
ORPAD	Offshore Renewables Protocol for Archaeological Discoveries
OUNMP	Outline Underwater Noise Monitoring Plan
PAD	Protocol for Archaeological Discoveries
PEMMP	Project Environmental Monitoring and Mitigation Plan
PPE	Personal Protective Equipment
PPG	Pollution Prevention Guidelines

Acronym	Definition
PRA	Preliminary Risk Assessment
PTS	Physical and Auditory Injury
ROV	Remotely Operated Vehicle
RPA	Root Protection Area
RYA	Royal Yachting Association
SAC	Special Area of Conservation
SAR	Search and Rescue
SCV	Small Commercial Vehicle
SIP	Site Integrity Plan
SMP	Soil Management Plan
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System
TAEZ	Temporary Archaeological Exclusion Zones
TCPA	Town and Country Planning Act 1990
THLS	Trinity House
TMCo	Traffic Management Coordinator
UK	United Kingdom
UKC	Under Keel Clearance
UKHO	United Kingdom Hydrographic Office
UWS	Unconfirmed Wildlife Site
UXO	Unexploded Ordnance
VHF	Very High Frequency
WCOWL	White Cross Offshore Windfarm Limited
WSI	Written Scheme of Investigation
WTG	Wind Turbine Generator

Glossary of Terminology

Defined Term	Description
Applicant	White Cross Offshore Windfarm Limited
Cumulative effects	The effect of the Onshore Project taken together with similar effects from a number of different projects, on the same single receptor/resource. Cumulative Effects are those that result from changes caused by other past, present or reasonably foreseeable actions together with the Onshore Project.
Environmental Impact Assessment (EIA)	Assessment of the potential impact of the proposed Project on the physical, biological and human environment during construction, operation and decommissioning.
Export Cable Corridor	The area in which the export cables will be laid, either from the Offshore Substation or the inter-array cable junction box (if no offshore substation), to the NG Onshore Substation comprising both the Offshore Export Cable Corridor and Onshore Export Cable Corridor.
In-combination effects	In-combination effects are those effects that may arise from the development proposed in combination with other plans and projects proposed/consented but not yet built and operational.
Landfall	Where the offshore export cables come ashore.
Mean high water springs	The average tidal height throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean low water springs	The average tidal height throughout a year of two successive low waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean sea level	The average tidal height over a long period of time.
Mitigation	<p>Mitigation measures have been proposed where the assessment identifies that an aspect of the development is likely to give rise to significant environmental impacts, and discussed with the relevant authorities and stakeholders in order to avoid, prevent or reduce impacts to acceptable levels.</p> <p>For the purposes of the EIA, two types of mitigation are defined:</p> <ul style="list-style-type: none"> • Embedded mitigation: consisting of mitigation measures that are identified and adopted as part of the evolution of the project design, and form part of the project design that is assessed in the EIA. • Additional mitigation: consisting of mitigation measures that are identified during the EIA process specifically to reduce or eliminate any predicted significant impacts. Additional mitigation is therefore subsequently adopted by WCOWL as the EIA process progresses.

Defined Term	Description
National Grid Onshore Substation	Part of an electrical transmission and distribution system. Substations transform voltage from high to low, or the reverse by means of the electrical transformers.
National Grid Connection Point	The point at which the White Cross Offshore Windfarm connects into the distribution network at East Yelland substation and the distributed electricity network. From East Yelland substation electricity is transmitted to Alverdiscott where it enters the national transmission network.
Offshore Development Area	The Windfarm Site (including wind turbine generators, substructures, mooring lines, seabed anchors, inter-array cables and Offshore Substation Platform (as applicable)) and Offshore Export Cable Corridor to MHWS at the Landfall. This encompasses the part of the project that is the focus of this application and Environmental Statement and the parts of the project consented under Section 36 of the Electricity Act and the Marine and Coastal Access Act 2009.
Offshore Export Cables	The cables which bring electricity from the Offshore Substation Platform or the inter-array cables junction box to the Landfall.
Offshore Export Cable Corridor	The proposed offshore area in which the export cables will be laid, from Offshore Substation Platform or the inter-array cable junction box to the Landfall.
Offshore Infrastructure	All of the offshore infrastructure including wind turbine generators, substructures, mooring lines, seabed anchors, Offshore Substation Platform and all cable types (export and inter-array). This encompasses the infrastructure that is the focus of this application and Environmental Statement and the parts of the project consented under Section 36 of the Electricity Act and the Marine and Coastal Access Act 2009.
the Offshore Project	The Offshore Project for the offshore Section 36 and Marine Licence application includes all elements offshore of MHWS. This includes the infrastructure within the windfarm site (e.g. wind turbine generators, substructures, mooring lines, seabed anchors, inter-array cables and Offshore Substation Platform (as applicable)) and all infrastructure associated with the export cable route and landfall (up to MHWS) including the cables and associated cable protection (if required).
Onshore Development Area	The onshore area above MLWS including the underground onshore export cables connecting to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland. The onshore development area will form part of a separate Planning application to the Local Planning Authority (LPA) under the Town and Country Planning Act 1990.
Onshore Export Cables	The cables which bring electricity from MLWS at the Landfall to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland.

Defined Term	Description
Onshore Export Cable Corridor	The proposed onshore area in which the export cables will be laid, from MLWS at the Landfall to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland.
Onshore Infrastructure	The combined name for all infrastructure associated with the Project from MLWS at the Landfall to the NG grid connection point at East Yelland. The onshore infrastructure will form part of a separate Planning application to the Local Planning Authority (LPA) under the Town and Country Planning Act 1990.
the Onshore Project	The Onshore Project for the onshore TCPA application includes all elements onshore of MLWS. This includes the infrastructure associated with the offshore export cable (from MLWS), landfall, onshore export cable and associated infrastructure and new onshore substation (if required).
the Project	the Project is a proposed floating offshore windfarm called White Cross located in the Celtic Sea with a capacity of up to 100MW. It encompasses the project as a whole, i.e. all onshore and offshore infrastructure and activities associated with the Project.
Project Design Envelope	A description of the range of possible elements that make up the Project design options under consideration. The Project Design Envelope, or 'Rochdale Envelope' is used to define the Project for Environmental Impact Assessment (EIA) purposes when the exact parameters are not yet known but a bounded range of parameters are known for each key project aspect.
Safety zones	A marine zone outlined for the purposes of safety around a possibly hazardous installation or works / construction area
Service operation vessel	A vessel that provides accommodation, workshops and equipment for the transfer of personnel to turbine during OMS. Vessels in service today are typically up to 85m long with accommodation for about 60 people.
White Cross Offshore Windfarm	Up to 100MW capacity offshore windfarm including associated onshore and offshore infrastructure
White Cross Offshore Windfarm Limited	White Cross Offshore Windfarm Ltd (WCOWL) is a joint venture between Cobra Instalaciones Servicios, S.A., and Flotation Energy Ltd.
White Cross Onshore Substation	A new substation built specifically for the White Cross project. It is required to ensure electrical power produced by the offshore windfarm is compliant with NG electrical requirements at the grid connection point at East Yelland.
Wind Turbine Generators (WTG)	The wind turbine generators convert wind energy into electrical power. Key components include the rotor blades, nacelle (housing for electrical generator and other electrical and control equipment) and tower. The final selection of project wind turbine model will be made post-consent application.

Defined Term	Description
Windfarm Site	The area within which the wind turbines, Offshore Substation Platform and inter-array cables will be present.
Works completion date	Date at which construction works are deemed to be complete and the windfarm is handed to the operations team. In reality, this may take place over a period of time.

1. Introduction

1. White Cross Offshore Windfarm is a proposed floating offshore windfarm located in the Celtic Sea with a capacity of up to 100MW. The Onshore Project is a separate Town and Country Planning Act 1990 (TCPA) application to the Offshore Project components, which have been submitted as a separate Section 36 (under the Electricity Act 1989) and Marine Licence (ML) application to the Marine Management Organisation (MMO) following the MMO confirming that they would not consent the Onshore Infrastructure of the Windfarm Project.
2. This Mitigation Register presents the mitigation and commitments set out within both the Onshore Project (entailing all components of the project landward of Mean Low Water Springs (MLWS)) and the Offshore Project (entailing all components of the project seaward of Mean High Water Springs (MHWS)).
3. The Onshore Project includes the infrastructure associated with the Landfall at Saunton Sands (to MLWS) where the onshore elements connect to the Offshore Project infrastructure, Onshore Export Cable (including joint bays and link boxes), Taw Estuary Crossing, a new White Cross Onshore Substation, and an Interconnecting Cable to the Grid Connection Point at the existing East Yelland Substation. The Offshore Project includes the infrastructure within the Windfarm Site (e.g., wind turbine generators, substructures, mooring lines, seabed anchors, inter-array cables and Offshore Substation Platform (as applicable)) and all infrastructure associated with the offshore export cable, Landfall (up to MHWS) and the crossing underneath the Taw Estuary (from MHWS to MHWS).
4. The Windfarm Site is located over 52km off the North Cornwall and North Devon coast (west-north-west of Hartland Point). The Offshore Export Cable will connect the Offshore Substation Platform (if needed) to shore. The Export Cable will come ashore at a Landfall at Saunton Sands on the North Devon Coast, and then be routed underground to the East Yelland Substation where it connects into the distribution network. Prior to connecting to the East Yelland Substation the cable will connect to a new White Cross Onshore Substation. A full description of the Onshore Project is given in **Chapter 5: Project Description**.

1.1 Purpose of this Document

5. This document lists the mitigation identified as required in the Environment Impact Assessment (EIA) for both the Onshore Project Environmental Statement (ES) and Offshore Project ES.
6. Where an impact assessment identifies that an aspect of the development is likely to give rise to significant environmental effects, mitigation measures have been considered and discussed with the statutory consultees in order to avoid

impacts or reduce them to acceptable levels and, if possible, to enhance the environment.

7. For the purposes of the EIA, two types of mitigation have been defined:
 - Embedded mitigation: consisting of mitigation measures that are identified and adopted as part of the evolution of the Onshore Project design and are included and assessed in the EIA¹. Embedded mitigation is considered when predicting the magnitude of impact and is therefore taken into account prior to the evaluation of significance; and,
 - Additional mitigation: consisting of mitigation measures that are identified during the EIA process specifically to reduce or eliminate any predicted significant effects. Additional mitigation has therefore been subsequently adopted as a commitment of the Onshore Project².
8. This document identifies both embedded and additional mitigation.
9. In some circumstances it may be necessary to detail monitoring requirements as part of the mitigation measures identified. Monitoring may be appropriate to confirm the assumptions that the assessment is reliant upon (i.e., continue to monitor baseline conditions) and / or to confirm the efficacy of mitigation measures implemented. Monitoring undertaken would be proportionate and directly relevant to the findings of the impact assessment, i.e., it should not be monitoring for the sake of monitoring. This document includes monitoring requirements within the relevant mitigation measures set out in **Table 1** and **Table 2**.
10. The schedules presented in **Section 2** list all the measures proposed on a topic-by-topic basis and signposts where the commitments made in the ES are secured in the associated documents.
11. This document details all mitigation associated with the Project as a whole (i.e. the Onshore Project and the Offshore Project). To avoid repetition, the Onshore Project ES chapters, that are predominantly relevant to infrastructure and activities above MHWS, are included within **Table 1**. The Offshore Project ES chapters, that are predominantly relevant with infrastructure and activities below MHWS, are included within **Table 2**.

¹ Considers primary and tertiary mitigation as defined by Institute of Environmental Management and Assessment (IEMA).

² Considers secondary mitigation as defined by IEMA.

12. The Onshore Project ES chapters to which **Section 2** and **Table 1** relate are as follows:

- **Ground Conditions and Contamination**
- **Air Quality**
- **Water Resources and Flood Risk**
- **Land Use**
- **Onshore Ecology and Ornithology**
- **Onshore Archaeology and Cultural Heritage**
- **Noise and Vibration**
- **Traffic and Transport**
- **Onshore Landscape and Visual Amenity**
- **Socio-economics (including Tourism and Recreation)**
- **Human Health.**

13. The Offshore Project ES chapters to which **Section 2** and **Table 2** relate are as follows:

- **Marine Geology, Oceanography and Physical Processes**
- **Marine Water and Sediment Quality**
- **Benthic and Intertidal Ecology**
- **Fish and Shellfish Ecology**
- **Marine Mammal and Marine Turtle Ecology**
- **Offshore Ornithology**
- **Commercial Fisheries**
- **Shipping and Navigation**
- **Marine Archaeology and Cultural Heritage**
- **Civil and Military Aviation**
- **Infrastructure and Other Users**
- **Offshore Seascape, Landscape and Visual Amenity.**

2. Onshore and Offshore Project Mitigation Measures

14. The mitigation measures for the Onshore Project are outlined in **Table 1**.

15. The mitigation measures for the Offshore Project are outlined in **Table 2**.

Table 1 Onshore Project Mitigation Measures

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
Ground Conditions and Contamination							
12.1	ES Chapter 12, Section 12.3.4	Embedded	All construction activities	Potential sources of ground contamination	<p>The Development and adherence to a Construction Environmental Management Plan (CEMP). The CEMP would be regularly reviewed and updated both prior to and during the construction works. The CEMP would be informed by the findings of any pre-construction ground investigations and include an assessment of the potential risks to human health and controlled waters receptors. Based on that risk assessment, appropriate working methods would be developed to avoid, minimise, or mitigate impacts relating to construction. The risk mitigation strategies incorporated into the CEMP would include:</p> <ul style="list-style-type: none"> ▪ Use of Personal Protective Equipment (PPE) ▪ Provision of welfare facilities ▪ Monitoring of works including air quality and odour ▪ Implementation of relevant good working practices including stockpile management and dust suppression activities to reduce the risk relating to the creation and inhalation of wind-blown dusts. <p>The CEMP would incorporate legislative requirements including the Construction Design Management (CDM) Regulations (2015), Health and Safety at Work Act (1974) and Control of Substances Hazardous to Health (COSHH) Regulations.</p> <p>In addition, a plan for dealing with unexpected contamination would be developed as part of the CEMP. This plan would also incorporate the Environment Agency best practice guidelines for pollution prevention, which have been withdrawn from use but still provide a useful best practice guide and include:</p> <ul style="list-style-type: none"> ▪ Environment Agency Pollution Prevention Guidance (PPG) 01 – Understanding your environmental responsibilities ▪ Environment Agency PPG 05 – Works and maintenance near water ▪ Environment Agency PPG 06 – Working at construction and demolition preventing pollution guidance ▪ Environment Agency PPG 08 – Safe storage and disposal of used oils ▪ Environment Agency PPG 21 – Pollution incident response planning ▪ Environment Agency PPG 22 – Dealing with spills. <p>In areas that have been identified as potential areas of contamination within the Preliminary Risk Assessment (PRA) or encountered during construction works, perched waters within made ground or groundwater from dewatering activities would be collected within a tank or lagoon prior to any treatment or discharge. This wastewater shall either be:</p> <ul style="list-style-type: none"> ▪ Discharged to foul sewer under a trade effluent consent agreed with the local water company or supplier, or 	Minimises the potential for effects from all onshore components of the project	CEMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<ul style="list-style-type: none"> Discharged to surface water under an environmental permit issued by the Environment Agency. <p>An on-site treatment plant may be required to treat the wastewater prior to disposal in order to meet discharge limits set by either the Environment Agency or local water company.</p>		
12.2	ES Chapter 12, Section 12.3.4	Embedded	Export Cable installation	Potential sources of ground contamination	The route of the Onshore Export Cable Corridor has been determined as part of a detailed site selection process (see Chapter 4: Site Selection and Assessment of Alternatives). The route of the Onshore Export Cable Corridor has been designed to avoid potential sources of contamination where possible.	Minimise the potential for ground contamination	Embedded mitigation
12.3	ES Chapter 12, Section 12.3.4	Embedded	Export Cable installation	Contamination of groundwater	Ground investigations and hydrogeological risk assessments meeting the requirements of the Environment Agency's approach to groundwater protection (Environment Agency, 2018) would be undertaken at each trenchless crossing location.	Minimise the potential for contamination of groundwater	Embedded mitigation
12.4	ES Chapter 12, Section 12.3.4	Embedded	Construction of White Cross Onshore Substation	Pollution of groundwater from leaks and spills	Informed by the CEMP, oil water sumps will be utilised within the White Cross Onshore Substation to reduce the potential for leaks and spills impacting groundwater quality.	Minimise the potential for groundwater contamination from leaks and spills	CEMP
12.5	ES Chapter 12, Section 12.3.4	Additional	All construction activities	Potential contamination from chemicals and site waste	<p>Adoption of a CL:AIRE Industry Code of Practice to manage the re-use and disposal of excavated soils within the Onshore Project area would also be incorporated as an additional mitigation measure in the CEMP, this would aid in maximising sustainability and provide an audit trail to demonstrate the appropriate use of materials. A Materials Management Plan (MMP) would be drafted in advance of any construction works, this would include chemical screening criteria in order to ensure that imported and/or reused materials are chemically suitable for use. If materials identified as containing asbestos are identified, then a specialist contractor would be employed to aid in its removal from Onshore Project area, in line with current legislation.</p> <p>The MMP would form part of the final CEMP to be submitted post consent.</p> <p>A Site Waste Management Plan (SWMP) will be developed post-consent to ensure the proper handling and protocols are in place to deal with any wastes generated. The plan will record the following information as a minimum:</p> <ul style="list-style-type: none"> The types and quantities of waste generated The management approach for each waste type (Reuse, Recycle, Recover, Dispose) including any treatment The storage arrangements for each waste type The site waste monitoring and reporting arrangements Waste carrier details and waste management/disposal facilities. 	Reduces the risk of ground and groundwater contamination from chemicals and site waste	CEMP MMP SWMP
12.6	ES Addendum,	Embedded	Oils, fuels and	Potential	The CEMP would include specific measures that are protective of controlled	Reduces the risk	CEMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
	OCEMP, Section 5.9		chemicals	contamination from oils, fuels and chemicals	<p>waters in relation to the storage of fuels, oils, lubricants, wastewater, and other chemicals during the works. This would include:</p> <ul style="list-style-type: none"> ▪ Storing all fuels, oils, lubricants, wastewater and other chemicals in suitable containers with impermeable bunds that have at least 110% of the total stored capacity. Any damaged containers would be removed from site. ▪ No storage of any potential contaminative within the footprint of excavations. ▪ Oils and chemicals must be clearly labelled, and the Principal Contractor should retain an up-to-date hazardous substance register. ▪ Activities involving the handling of large quantities of hazardous materials, such as deliveries and refuelling, should have detailed method statements in place and be undertaken by designated and trained personnel. ▪ Oil and fuel storage tanks must be robust and provide adequate secondary containment and be located in designated areas, taking into account security, the location of sensitive receptors and pathways such as drains and watercourses, and safe access and egress for plant and manual handling. ▪ Spill response materials would be provided nearby and be readily accessible, with project personnel trained in spill response. ▪ Refuelling would take place in a dedicated impermeable area, using a bunded bowser. Biodegradable oils are to be used where possible. ▪ Spill kits will be available on the site at all times as well as sand bags and stop logs for deployment in case of accidental spillages. ▪ In circumstances of inclement weather, the areas of work would be evaluated by the Environmental Clerk of Works (ECOW) with the Site Manager, and construction would either be suspended, or the ground protected by a trackway system. 	of contamination from oils, fuels and chemicals	Chemical Risk Assessment
12.7	ES Addendum, OCEMP, Section 5.9.1	Embedded	Control of Substances Hazardous to Health (COSHH)	Potential contamination from hazardous substances	The Principal Contractor is responsible for ensuring that all materials ordered or brought to site listed as hazardous under the COSHH Regulations are accompanied with a hazardous information sheet. The Principal Contractor will comply with the COSHH Regulations.	Reduces the risk of contamination from hazardous substances	CEMP
12.8	Es Addendum, Outline Decommissioning Programme	Embedded	Waste management	Potential contamination from waste materials	<p>The basic principles of waste management will underlie the decommissioning programme. Waste will be managed:</p> <ul style="list-style-type: none"> • Without endangering human health and harming the environment • Without risk to water, air, soil, plants or animals • Without causing a nuisance through noise or odours • Without adversely affecting the countryside or places of special interest. 	Minimises potential contamination from waste materials	Outline Decommissioning Programme

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					The well-established waste hierarchy for managing and disposing of waste will also be followed. With preventing waste being the preferred option and sending waste to landfill being the last resort. WCOWL will seek to optimise the reuse and recycling of the materials resulting from the eventual decommissioning of WCOW.		
Air Quality							
13.1	ES Chapter 13, Section 13.3.6	Embedded	All construction activities	Various impacts on human and environmental receptors	<p>The Onshore Project has undergone an extensive site selection process which has involved incorporating environmental considerations along with the engineering design requirements.</p> <p>Considerations include (but are not limited to) adhering to the Horlock Rules (for explanation see Chapter 4: Site Selection and Assessment of Alternatives) for the White Cross Onshore Substation and associated infrastructure, a preference for the shortest route length (where practical) and developing construction methodologies to minimise potential impacts.</p> <p>Key principles that have informed the location of the Onshore Export Cable Corridor include:</p> <ul style="list-style-type: none"> Preference for the shortest onshore cable corridors to minimise the overall footprint and the number of receptors that will be affected Avoiding key constraints, where possible Avoid avoiding populated areas, where possible. <p>Consideration has been given to the following constraints:</p> <ul style="list-style-type: none"> Sites designated for nature conservation Residential properties Other infrastructure (e.g., buried cables, railways, roads). 	Reduces the effect on key constraints, populated areas, and designated sites	Embedded mitigation
13.2	ES Chapter 13, Section 13.3.6	Embedded	Dusty construction activities	Potential impacts relating to dust from construction activities	<p>The Project will commit to the implementation of best practice dust mitigation measures. However, a project-specific dust assessment has been undertaken, taking into consideration the specific activities which will be carried out and the sensitivity of nearby receptors. This has resulted in the identification of site-specific mitigation measures.</p> <p>Mitigation measures include minimising the production and transmission of dust from construction activities, and the requirement to carry out regular visual on-site and off-site inspections of dust deposition levels, so that appropriate action can be taken in the event of any issues being identified. Mitigation will be outlined in the Construction Traffic Management Plan (CTMP).</p> <p>Develop and implement a Dust Management Plan (DMP) this will form part of the CEMP), which may include measures to control other emissions, approved by the local authority.</p>	Minimise potential impacts relating to dust.	DMP as part of the final CEMP CTMP
13.3	ES Chapter 13, Section 13.3.6	Embedded	Non-Road Mobile Machinery (NRMM)	Potential impacts relating to NRMM and	The following mitigation measures specific to NRMM will be outlined within the Project's Construction Environmental Management Plan (CEMP) which will be available as part of the statutory consultation and will be secured within the	Minimise potential impacts relating	CEMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
				air quality	<p>final CEMP submitted post-consent.</p> <p>NRMM and plant should be well maintained. If any emissions of dark smoke occur, then the relevant machinery should stop immediately, and any problem rectified. In addition, the following controls should apply to NRMM:</p> <ul style="list-style-type: none"> All NRMM should use fuel equivalent to ultralow sulphur diesel (fuel meeting the specification within EN590:2004) where practicable All NRMM should comply with the appropriate NRMM regulations All NRMM would be fitted with Diesel Particulate Filters (DPF) conforming to defined and demonstrated filtration efficiency (load/duty cycle permitting) The ongoing conformity of plant retrofitted with DPF, to a defined performance standard, should be ensured through a programme of onsite checks Fuel conservation measures should be implemented, including instructions to (i) throttle down or switch off idle construction equipment; (ii) switch off the engines of trucks while they are waiting to access the site and while they are being loaded or unloaded and (iii) ensure equipment is properly maintained to ensure efficient fuel consumption. <p>Consideration should also be given to the siting of NRMM within the working area. Where practicable, locating generators and plant at the greatest distance from receptors will reduce the potential for air quality effects.</p>	to NRMM and air quality	
13.4	ES Addendum, OCEMP, Section 5.15.1	Embedded	Institute of Air Quality Management best practice measures - communication	Impacts relating to various human and environmental receptors	<p>Measures to be secured within the final CEMP.</p> <ul style="list-style-type: none"> Develop and implement a stakeholder communications plan that includes community engagement before work commences on site Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager Display the head or regional office contact information. 	Minimise the impacts to various human and environmental receptors	CEMP
13.5	ES Addendum, OCEMP, Section 5.15.1	Embedded	Institute of Air Quality Management best practice measures – dust management	Impacts from dust relating to various human and environmental receptors	<p>Measures to be secured within the final CEMP.</p> <ul style="list-style-type: none"> Develop and implement a Dust Management Plan (DMP) (this will form part of the CEMP), which may include measures to control other emissions, approved by the local authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site 	Minimise the dust related impacts to human and environmental receptors	CEMP DMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<ul style="list-style-type: none"> ▪ Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken ▪ Make the complaints log available to the local authority when it is requested ▪ Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook ▪ Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes ▪ Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of site boundary, with cleaning to be provided if necessary ▪ Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when it is requested ▪ The frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions ▪ Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible ▪ Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site ▪ Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period ▪ Avoid site runoff of water or mud ▪ Keep site fencing, barriers and scaffolding clean using wet methods ▪ Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover. 		
13.6	ES Addendum, OCEMP, Section 5.15.1	Embedded	Institute of Air Quality Management best practice measures	Impacts from relating to various human and	Measures to be secured within the final CEMP. <ul style="list-style-type: none"> ▪ Manage stockpiles to prevent wind whipping 	Minimise impacts from human and environmental	CEMP CTMP TP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
				environmental receptors	<ul style="list-style-type: none"> ▪ Ensure all vehicles switch off engines when stationary - no idling vehicles ▪ Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable ▪ Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate) ▪ Produce a CTMP to manage the sustainable delivery of goods and materials. Further details provided in Appendix 19.B: Outline Construction Traffic Management Plan of the Onshore ES ▪ Implement a Travel Plan (TP) that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing). Further details provided in Chapter 19: Traffic and Transport ▪ Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems ▪ Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate ▪ Use enclosed chutes and conveyors and covered skips ▪ Minimise drop heights from handling equipment and use fine water sprays on such equipment wherever appropriate ▪ Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods ▪ Avoid bonfires and burning of waste materials 	receptors	
13.7	ES Addendum, OCEMP, Section 5.15.1	Embedded	Institute of Air Quality Management best practice measures - construction	Impacts from relating to various human and environmental receptors	<p>Measures to be secured within the final CEMP.</p> <ul style="list-style-type: none"> ▪ Construction: <ul style="list-style-type: none"> ○ Ensure sand and other aggregates are stored in appropriate manner to minimise dust generation for example the use of bunded areas ○ Avoid scabbling (roughening of concrete surfaces) if possible ○ Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery 	Minimise impacts from human and environmental receptors	CEMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<ul style="list-style-type: none"> ○ For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust. ▪ Earthworks: <ul style="list-style-type: none"> ○ Manage earthworks and exposed areas/soil stockpiles to stabilise surfaces ○ Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. ▪ Trackout: <ul style="list-style-type: none"> ○ Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site ○ Avoid dry sweeping of large areas ○ Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport ○ Inspect -site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable ○ Record all inspections of haul routes and any subsequent action in a site logbook ○ Install hard surfaced haul routes where practicable, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and are regularly cleaned ○ Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits ○ Locate access gates at least 10m from receptors where possible. 		
Water Resources and Flood Risk							
14.1	ES Chapter 14, Section 14.3.4	Embedded	Cable crossings beneath watercourses	Impact on watercourses	The River Taw estuary and Boundary Drain will be crossed using trenchless techniques, such as HDD or Direct Pipe, to avoid direct interaction with the channel and associated statutory designations (SSSI, SAC, Shellfish Waters).	Avoid impacts arising from trenching on watercourses	Embedded mitigation
14.2	ES Chapter 14, Section 14.3.4	Embedded	Ground disturbance	Impact on sediment supply to watercourses	<p>Under the flood risk activities permitting regime (e.g. Land Drainage Act 1991), any activities within 8m of a Main River or flood defence will need to be permitted; this increases to 16m if the Main River is tidal. In addition, a permit is also required for any "quarrying or excavation" within 16m of any Main River or flood defence. These buffer distances will be implemented to avoid locating construction compounds, stockpiles and permanent infrastructure too close to a watercourse.</p> <p>The entry and exit pits and associated compounds for the Taw Estuary Crossing will be positioned beyond 16m of the banks of the estuary. Other trenchless crossings will be kept to beyond 8m/16m where possible.</p>	Minimise the impacts on sediment supply to watercourses	Embedded mitigation
14.3	ES Chapter 14,	Embedded	White Cross Onshore Substation	Impact of contaminants on	Operational drainage at the White Cross Onshore Substation would be developed according to the principles of the sustainable drainage system	Minimise the potential	Embedded

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
	Section 14.3.4		and trenchless crossings	surface and groundwaters	<p>(SuDS) discharge hierarchy. The aim will be to discharge clean surface water runoff as high up the following hierarchy of drainage options as reasonably practicable: i) into the ground (infiltration); ii) to a surface water body; iii) to a surface water sewer, highway drain or another drainage system; or iv) to a combined sewer. This will include attenuation and hydrocarbon interceptors to prevent the entry of contaminants (including oils and fine sediment).</p> <p>Foul drainage (from construction welfare facilities) will be collected through mains connection to an existing mains sewer (if such a connection is available) or collected in a septic tank and transported off site for disposal at a licensed facility with appropriate treatment capacity within its existing permit. The principal contractor will be responsible for obtaining any permits from the regulator associated with the use of septic tanks or other effluent/washout water treatment facilities. Waste sludge from septic tanks and effluents from cesspits and sewage holding tanks must be removed by a suitably licensed and registered waste carrier in accordance with Duty of Care requirements. In addition they will be responsible for monitoring and recording specified volumetric, quality or reference conditions, to demonstrate compliance.</p> <p>Inert drilling fluid will be used for trenchless technique (bentonite) and cable ducting will be inert.</p> <p>Best practice guidance will also be followed:</p> <ul style="list-style-type: none"> Construction activities will adhere to industry good practice measures as detailed in the Environment Agency's Pollution Prevention Guidance (PPG) notes (PPG1, PPG5, PPG8 and PPG21). Although Environment Agency (EA) PPG notes have been revoked, they have been updated as Guidance for Pollution Prevention (GPP notes) (Metegs, 2022) and can be used to establish best practice. Construction Industry Research and Information Association (CIRIA) best practice (Control of water pollution from construction sites: Guidance for consultants and contractors (C532) (2001)) will also be adhered to. 	impacts on surface and groundwater via pollution prevention measures	mitigation Drainage Strategy CEMP
14.4	ES Chapter 14, Section 14.3.4	Embedded	Surface water runoff	Impacts from changes in surface water runoff	<p>Changes in surface water runoff resulting from the increase in impermeable area following construction of the Onshore Export Cable Corridor, and particularly the White Cross Onshore Substation, would be attenuated and discharged at a controlled rate. The methodology will be developed in consultation with the Lead Local Flood Authority (LLFA) and the Environment Agency, and potentially South West Water (if a connection to their drainage infrastructure is required during construction of the White Cross Onshore Substation). A Construction Surface Water and Drainage Plan will be developed as part of the CEMP in agreement with the relevant regulators.</p> <p>During construction, installation of the onshore export cables would be designed such that it will be bounded by parallel drainage channels (one on each side) to intercept drainage within the working width. Additional drainage channels would be installed to intercept water from the cable trench. This</p>	Minimise the impacts from surface water runoff	Construction Surface Water and Drainage Plan developed as part of the final CEMP Drainage Strategy

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<p>would be discharged at a controlled rate into local ditches or drains via temporary interceptor drains. Depending upon the precise location, water from the channels would be infiltrated or discharged into the existing drainage network.</p> <p>Construction drainage would be developed and implemented to minimise water within the cable trench and ensure ongoing drainage of surrounding land. If water enters the trenches during installation from surface runoff of groundwater seepage, this would be pumped via settling tanks, sediment basins or mobile treatment facilities to remove sediment, before being discharged into local ditches or drains via temporary interceptor drains.</p>		
14.5	ES Chapter 14, Section 14.3.4	Embedded	Groundwater flows	Impacts on groundwater flows	<p>Ground investigations and a hydrogeological risk assessment meeting the requirements of the Environment Agency's approach to groundwater protection (Environment Agency, 2018), will be undertaken at each trenchless technique crossing location.</p> <p>A written scheme dealing with contamination of any land and groundwater will be submitted and approved by the Local Planning Authority before construction activities commence.</p> <p>To protect groundwater bodies, excavation will be shallow (<2 m), except where below road or rail infrastructure and water bodies, where it may be deeper.</p>	Minimise the impacts on groundwater flows	<p>Embedded mitigation</p> <p>Hydrogeological Risk Assessment</p>
14.6	ES Addendum, OCEMP, Section 5.8	Embedded	HDD drilling fluid	Impacts on surface and groundwater receptors	<p>The HDD drilling fluid comprises bentonite (a natural mined clay) as the primary base which will be delivered to site as a dried and finely ground inert powder, and rehydrated in a mix tank with potable water. The fluids handling system will be bunded to mitigate any drilling fluid releases. A mud reception pit, situated at the entry point of the HDD will create a first holding area for drilling fluid. From there, the drilling fluid will be transported by slurry pumps to the recycling unit to separate drilling fluid from cuttings. Recycled drilling fluid will be stored in tanks to be used in each drilling/reaming phase. The Outline Bentonite Management Plan included in Annex 3 sets out the specific onshore mitigation / remediation measures in the unlikely event of bentonite frac-out (deemed low risk), such as having sandbagging, silt fencing and annular pressure monitoring in place during the HDD drilling works.</p>	Minimise the impacts on surface and groundwater receptors	<p>CEMP</p> <p>Bentonite Management Plan</p>
14.7	ES Addendum, OCEMP, Section 5.13	Embedded	Haul road drainage	Impacts on surface and groundwater receptors	<p>During construction, the haul road will be bound by parallel drainage channels (one on each side) to intercept drainage within the working width. Depending on the precise location, water from the channels will be infiltrated or discharged into the local drainage network via temporary interceptor drains and / or silt traps. Mitigation measures and pollution prevention controls must be maintained and monitored on a regular basis. A record of inspections of mitigation measures and any required maintenance carried out by the Contractor must be maintained. Other mitigations such as marking out of sensitive areas, tool box talks, ECoW supervision and use of low ground bearing pressure plant or trackway / bogmats will be detailed in the CEMP.</p>	Minimise the impacts on surface and groundwater receptors	<p>CEMP</p>
14.8	ES Addendum, OCEMP, Section	Embedded	Water abstraction	Impacts on local water resources	<p>The Principal Contractor is responsible for obtaining from the regulator (such as the Environment Agency), in advance of use, any permits for the use of</p>	Minimise the impacts on local	<p>CEMP</p>

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
	5.14				abstracted water during the construction related activities and for monitoring and recording associated abstraction rates or other licence requirements to demonstrate compliance.	water resources	
14.9	ES Addendum, Appendix D: Flood Risk Assessment, Section 1.10.2	Embedded	Onshore substation	Impacts from tidal flooding	A 50 year development lifetime, as noted in Section 1.8.1 of Appendix D of the Onshore ES , tidal Still Water Levels, assuming the Upper End climate change allowance are likely to be 6.43mAOD during the 1 in 200 year (0.5% AP) event has been used. The Onshore Substation should be set at a minimum level of 300mm above the water level for the 1 in 200 year (0.5% Annual Probability) event. On this basis utilising the Upper End allowance for the Onshore Substation, in 2075, the Finished Floor Level (FFL) would need to be set 300mm above the 6.43mAOD Still Water Level. This would result in a FFL of 6.73mAOD	Minimise the risk of impacts from tidal flooding	Embedded mitigation
14.10	ES Addendum, Appendix D: Flood Risk Assessment, Section 1.10.3	Additional	Flood warning and evacuation	Impacts from flooding on site workers and users	<p>While construction work is taking place on site, site workers and users will be required to monitor local weather forecasts and ensure there is an evacuation route in place in the event that tidal or surface water flooding occurs.</p> <p>The Principal Contractor will be required to sign up to receive relevant flood warnings and alerts, including Floodline.</p> <p>Flood warning and evacuation plans should be produced for the construction phase of the Onshore Export Cable Corridor, specifically related to construction works where personnel or materials may be located, even temporarily, within Flood Zones 2 and 3</p> <p>All personnel should be made aware of any access routes which are located within Flood Zones 2 and 3 and any flood warnings issued for those areas, should result in the relevant access routes being cleared of all project personnel and, where possible, all project plant / materials.</p> <p>A site-specific flood warning and evacuation plan should include practical steps during the construction phase for the Onshore Export Cable Corridor and Onshore Substation. It should be easy to communicate and consider delegated responsibility, or whether personnel are likely to require additional support during a flood event. Additionally, it is anticipated that the Onshore Substation will require a comprehensive flood warning and evacuation plan, once operational, including the following aspects:</p> <ul style="list-style-type: none"> ▪ A list of important contacts, including Floodline, utilities companies and insurance providers ▪ A description or map showing locations of service shut off points ▪ Basic strategies for protecting property, including moving assets to safety where possible, turning off / isolating services and moving to safety ▪ Safe access and egress routes <p>During construction, contractors and management should liaise with Devon County Council, as the LLFA, and the Environment Agency so they are aware of any forecast related to heavy rainfall events</p>	Minimise the risk of impacts from flooding on site workers and users	Flood Warning and Evacuation Plan

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
14.11	ES Addendum, Appendix G: Hydrogeological Risk Assessment, Section 3.2.6	Additional	Excavation and earthworks for entry/exit pits; trenchless crossing bores; surface runoff	Impacts on surface water and groundwater	<ul style="list-style-type: none"> Prevent silt generation through use of silt trapping. Contain and treat silty water on site – such as by using silt fences at the toe of the stockpiles and at the low end of the excavation and let the water trickle out from the lower end of the silt fence through the grass. Divert silty water into non-sensitive areas away from watercourses to allow dispersal and diffuse drainage, this will be done by either pumping through siltbuster unit or by forming grass channels to direct the water away from sensitive receptors. 	Minimise the impacts on surface water and groundwater	CEMP
14.12	ES Addendum, Appendix G: Hydrogeological Risk Assessment, Section 3.2.6	Additional	Over-pumping in the excavations	Impacts on surface water and groundwater	<ul style="list-style-type: none"> Discharge locations for temporary discharges during construction will be agreed with the Environment Agency, Lead Local Flood Authority (LLFA) and IDB, and discharge is at a controlled rate in accordance with the approved discharge rate. The Contractor will undertake consultation with the Environment Agency prior to any dewatering activities occurring within all locations of trenchless crossings covered by this document to determine the appropriate disposal option for these arisings. 	Minimise the impacts on surface water and groundwater	Agreement with the EA, LLFA and IDB.
14.15	ES Addendum, Appendix G: Hydrogeological Risk Assessment, Section 3.2.6	Additional	Creation of new pathways for contamination as a result of excavations and Trenchless drilling	Impacts on groundwater	<ul style="list-style-type: none"> No discharge to ground of any water abstracted from the excavations during construction activities. Water is to be discharged via settlement lagoons. 	Minimise the impacts on groundwater	CEMP
14.16	ES Addendum, Appendix G: Hydrogeological Risk Assessment, Section 3.2.6	Additional	Dewatering	Impacts on surface water and groundwater	<ul style="list-style-type: none"> Use groundwater monitoring during dewatering to ensure no adverse impacts on surface water flows or downstream surface water abstractions. Divert pumped water to surface water, including surface watercourses. Irrigate adjacent Designated Sites by absorption wells, irrigation systems or infiltration ditches. It is usually sufficient to carry out the discharge of drainage water within the depression cone. Use principle of closing water circuits and the concept of compensation measures. Works and measures will be undertaken under an EA permit and thus will be agreed with the Environment Agency during the permit application process. 	Minimise the impacts on surface water and groundwater	EA Permit
14.17	ES Addendum, Outline Bentonite Management Plan	Embedded	HDD drilling fluid	Impacts on surface and groundwater receptors	<p>Mitigation measures to reduce the risk of breakout from drilling fluid to the surface during drilling:</p> <ul style="list-style-type: none"> Detail design of the cable landfall, showing geological layers and intended drill path 	Minimise impacts on surface and groundwater	Bentonite Management Plan

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<ul style="list-style-type: none"> ▪ HDD design has sufficient depth below surface for the expected ground conditions ▪ Hydro fracture analysis and calculation ▪ Monitoring of drilling fluid returns and volumes to warn of inadequate hole cleaning ▪ Drilling fluid to be of sufficient viscosity and properties for the ground being drilled ▪ Real time downhole annular pressure monitoring to warn of over pressurising by drilling fluid (Pressure set by hydro fracture calculation) ▪ Have lost circulation materials on site to seal and contain any breakout. This will include sandbags and silt fencing to minimise any ground suffocation. 	receptors	
14.18	ES Addendum, Outline Bentonite Management Plan	Embedded	HDD drilling fluid	Impacts on surface and groundwater receptors	<p>The following sequence shall be followed following a breakout:</p> <ol style="list-style-type: none"> 1. Once the break out / frac out location has been identified the priority is personal safety and then containment. 2. The drilling activity will be immediately stopped – therefore the fluid decreases in pressure, stopping further fluids migrating to surface. 3. Locate the frac out / break out (15 to 30 minutes) 4. Most surface breakouts are quantifiable in litres of fluid and contained using straw bales and silt fencing to contain the fluid (15 to 30 minutes) 5. The drill fluid is then covered with absorbent granules to increase the viscosity to enable the drilling fluid to become a thick clay that can be removed from surface (15 minutes) 6. All of the drilling fluid at surface level can and will be removed back to the drilling compound (60 minutes) 7. In the extremely unlikely (Due to prior planning as identified above) event of a larger break out quantifiable by cubic metres of fluid the priority is always containment. 8. Containment is by the use of silt fencing and straw bales (30 to 60 minutes) 9. Due to the larger volume of fluid to recover a vacuum tanker, or suction pump and hose may be utilised to remove the fluid off the ground. (8 hrs) 10. Remaining deposits would be cleaned and removed from site by hand (60 minutes). 	Minimise impacts on surface and groundwater receptors	Bentonite Management Plan
Land Use							
15.1	ES Chapter 15, Section 15.3.4	Embedded	Site selection	Impacts on residential properties, historic and nature	<p>The Onshore Project has undergone an extensive site selection process which has involved incorporating environmental considerations along with the engineering design requirements (for more information see Chapter 4: Site Selection and Assessment of Alternatives).</p> <p>Land take has been minimised where possible, reducing sterile land parcels and</p>	Minimise the impact on existing infrastructure	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
				designations, and infrastructure	aligning with field boundaries.		
15.2	ES Chapter 15, Section 15.3.4	Embedded	Haul road	Impact on areas from physical disturbance	The Applicant has included a haul road to deliver equipment to the installation site from construction compounds. This will limit physical disturbance to specific areas.	Minimise the physical disturbance on areas	Embedded mitigation
15.3	ES Chapter 15, Section 15.3.4	Embedded	Construction corridor	Impact on soils and drainage	As well as a working easement, the construction corridor will have sufficient space allowed to ensure appropriate soil management and pre-construction drainage.	Minimise the impact on soil or drainage from construction	Embedded mitigation
15.4	ES Chapter 15, Section 15.3.4	Embedded	Topsoil stripping	Impact on soil	Topsoil stripping; appropriate storage and handling of soils according to their characteristics and in appropriate weather conditions; restrict movements of heavy plant vehicles; minimising excavation footprints; Soil Management Plan (SMP); construction method statements for soil handling; private agreements. Topsoil will not be removed from below the spread of trees and hedgerows.	Minimise the impact on soil.	SMP CEMP
15.5	ES Chapter 15, Section 15.3.4	Embedded	Agricultural land	Impacts to agricultural land	Landowner consultation; maintain access for farm vehicles; plan timing of works; implement private agreements. Livestock management including the use of stockproof fencing and rotation of livestock around the works. Provision of an Agricultural Liaison Officer (ALO)	Minimise the impacts to agricultural land	Private agreements ALO
15.6	ES Chapter 15, Section 15.3.4	Embedded	Agricultural drainage	Impacts on agricultural drainage	Implementation of the final CEMP and SMP.	Minimise the impacts on agricultural drainage	CEMP and SMP
15.7	ES Chapter 15, Section 15.3.4	Additional	Agricultural drainage	Impacts on agricultural drainage	Maintaining / reinstating land drainage systems; provision of an ALO and / or local specialised drainage contractor. The CEMP will detail the approach to pre and post-construction drainage plans on agricultural fields.	Minimise the impacts on agricultural drainage	ALO CEMP
15.8	ES Chapter 15, Section 15.3.4	Additional	Users of recreational routes	Impacts to users of recreational routes	Appropriately fenced (unmanned) crossing points; manned crossing points; and temporary alternative routes. Mitigation measures will be outlined in an updated Public Rights of Way Strategy to be provided as part of the final CEMP.	Minimise the impacts to users of recreational routes	Embedded mitigation CEMP Public Rights of Way Strategy
Onshore Ecology and Ornithology							
16.1	ES Chapter 16, Section 16.3.4	Embedded	Designated nature conservation sites	Impacts on designated nature conservation sites	The Onshore Development Area has undergone an extensive site selection process which has involved incorporating environmental considerations in collaboration with the engineering design requirements. The Onshore Export Cable Corridor has been: a) routed to avoid designated nature conservation sites (SAC and SSSIs)	Avoid any overlap with designated nature conservation sites	Embedded mitigation Bentonite Management Plan Updated Cable

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<p>wherever possible, and</p> <p>b) where this is not possible, trenchless installation methods (which will involve below ground installation) will be used for the export cables. This approach has been devised to avoid direct impacts to habitat features within the designated sites within the Onshore Development Area.</p> <p>In relation to trenchless techniques:</p> <ul style="list-style-type: none"> Agreement will be obtained on the trenchless technique methodology and emergency response procedures. Further post-consent geotechnical investigations will be conducted to refine the trenchless technique approach and methods. This will include providing calculations of the pressure required for the relevant sub-surface material the trenchless technique will travel through to prevent frac-out (i.e., the release of inert drilling lubricant to ground surface). This risk of frac-out is considered to be low based on analysis of historical borehole data and desk-based assessment of the geology present in the area; and in view of the measures outlined in Section 1.5.3 of the Taw Estuary Crossing Method Statement (Appendix 5.A: Braunton Burrows and Taw Estuary Crossing Method Statement) to prevent fluid drilling break-out, which will be implemented at all trenchless crossing technique stages. During works continual monitoring of the trenchless technique bore above ground will be undertaken. In the unlikely event of a frac-out, contingency measures will be implemented. These will be adopted at the trenchless crossing and techniques will be agreed before drilling operations commence. Possible containment and clean-up steps are detailed in Section 1.5.4 of the Taw Estuary Crossing Method Statement (Appendix 5.A: Braunton Burrows and Taw Estuary Crossing Method Statement). These will be implemented at all trenchless crossing technique stages. <p>Where open trenching is used (only in the areas outside designated conservation sites), a minimum 5m standoff would be maintained between the Onshore Development Area and adjacent SAC/SSSIs with the exception of one short pinch point where the route is restricted between an existing farm building and the boundary of the SAC/SSSI.</p>		Burial Risk Assessment
16.2	ES Chapter 16, Section 16.3.6	Embedded	Unconfirmed Wildlife Sites (UWS)	Impacts UWS	<p>The extent and duration of works within these habitats has been minimised. Topsoil and subsoil will be extracted and stored separately during construction and reinstated in the correct order following completion of works to maintain soil structure and allow the vegetation to re-establish on completion, informed by the SMP.</p> <p>Topsoil will be stored as per the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, published by DEFRA (2009), as</p>	Minimise the impacts on UWS	SMP CEMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<p>follows:</p> <ul style="list-style-type: none"> An SMP will be prepared to inform the construction works. To prevent compaction of topsoil and subsoil during stockpiling, the stockpiles will be formed by tipping in mounds which will not subsequently be tracked over by vehicles. Stockpiles will be kept free of pernicious weeds. Areas designated for subsoil storage will be stripped of topsoil first. If the topsoil is to be stockpiled for more than six months, the surface of the stockpiles will be seeded with a grass/clover to minimise soil erosion and to help reduce infestation by weeds that might spread seed onto adjacent land. The heaps will not exceed 2m in height for topsoil and 1.3m for subsoil. Topsoil and subsoil will not be allowed to be mixed or cross contaminated with one another or any other unsuitable materials. No soils will be stored within the Root Protection Areas (RPA) of trees or shrubs. Duration of subsoil storage is generally short term (1-2 weeks) for open cable trenches before backfilling. Long term storage will be seeded with legume rich grasses. 		
16.3	ES Chapter 16, Section 16.3.6	Embedded	Cable and haul road crossings: hedgerows	Impacts on hedgerows from construction	<p>Where the Onshore Export Cable Corridor crosses through hedgerows, with the exception of areas where visibility splays are required, the working corridor will be minimised where possible, commonly reduced from the maximum working width of 30m down to 10-20m.</p> <p>Hedgerows outside the 30m working corridor will be unaffected.</p>	Minimise the impacts on hedgerows from construction	Embedded mitigation CEMP
16.4	ES Chapter 16, Section 16.3.6	Embedded	Cable and haul road crossings: watercourses	Impacts on watercourses from construction	<p>All ditches falling within the Onshore Export Cable Corridor would either be crossed using trenchless techniques (such as HDD), to avoid direct interaction with these watercourses, or culverts, temporary bridges or temporary dams will be installed at open ditch crossings.</p> <p>Where dams are used, pipes will be used to maintain water flow across the crossing.</p>	Minimise the impacts on watercourses from construction	Embedded mitigation CEMP
16.5	ES Chapter 16, Section 16.3.6	Embedded	All construction activities and sites	Various impacts from construction activities	<p>CEMP will be implemented to avoid or minimise impacts from all construction activities. This will include ecological site supervision during the works to confirm adherence to constraints and implementation of control measures.</p> <p>The Project will include a pre-commencement site meeting and regular subsequent compliance monitoring visits; these will be undertaken and recorded by a suitably qualified ecologist.</p>	Minimise any impacts from construction activities	CEMP
16.6	ES Chapter 16, Section 16.3.6	Embedded	Pollution prevention	Impacts from pollution on sensitive habitats and	<p>All works will be undertaken in compliance with Pollution Prevention Guidelines. Spillage kits will be present at all plant and machinery locations.</p> <p>No storage facilities for hazardous liquids or chemicals will be located within or in close proximity to designated areas or sensitive habitats.</p>	Reduce the risk of pollution through pollution prevention and	Embedded mitigation Site Waste Management Plan

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
				designated sites	Refuelling and maintenance of all equipment will take place away from waterbodies, intertidal zones and the estuary.	control measures	as part of the final CEMP
16.7	ES Chapter 16, Section 16.3.6	Embedded	Equipment	Impacts from equipment and vehicles	All equipment and vehicles will be fit for purpose and will be subject to daily checks for signs of wear and tear, including leaks of any substance.	Minimise the impacts from equipment and vehicles	Embedded mitigation
16.8	ES Chapter 16, Section 16.3.6	Embedded	Restricted working areas	Impacts on sensitive areas such as the inundated tidal areas of the Taw Estuary	No personnel, equipment or vehicles are to operate within the inundated tidal areas of the Taw Estuary.	Avoid impacts on sensitive areas	Embedded mitigation
16.9	ES Chapter 16, Section 16.3.6	Embedded	Bats	Impacts on bats	Direct impacts on known or potential bat roosts are avoided through the positioning of the Onshore Export Cable Corridor. Hedgerow removal on foraging/ commuting routes has been minimised.	Minimise the impacts on bats	Embedded mitigation
16.10	ES Chapter 16, Section 16.3.6	Embedded	Otters	Impacts on otters	Direct effects on identified holts are avoided through the positioning of the Onshore Export Cable Corridor.	Minimise the impacts on otters	Embedded mitigation
16.11	ES Chapter 16, Section 16.3.6	Embedded	Badgers	Impacts on badgers	Direct effects on identified setts are avoided through the positioning of the Onshore Export Cable Corridor.	Minimise the impacts on badgers	Embedded mitigation
16.12	ES Chapter 16, Section 16.3.6	Embedded	Great crested newt	Impacts on great crested newts	No great crested newt ponds are within the Onshore Export Cable Corridor. Wherever possible, the route has been designed to avoid suitable terrestrial habitat for great crested newts where ponds are located within 250m of a great crested newt breeding pond.	Minimise the impacts on great crested newts	Embedded mitigation
16.13	ES Chapter 16, Section 16.3.6	Additional	Lighting	Impacts from lighting on designated sites and protected species	Artificial lighting requirements associated with the onshore construction works will be minimised where it is required and designed with reference to industry guidance for artificial lighting to avoid an impact on bats and other wildlife. The illumination of habitat features will be avoided at times of year when they could be used by foraging or commuting bats. ECoW will be present on site to ensure that the specified protection and mitigation measures are appropriately understood and implemented. This will be included within the CEMP.	Minimise the impacts from lighting on designated sites and protected species	CEMP Lighting Impact Assessment
16.14	ES Chapter 16, Section 16.3.6	Additional	Water pollution	Impacts from water pollution and physical impacts on watercourses	The CEMP will be developed and agreed with stakeholders to identify the measures needed to avoid, minimise, or mitigate any construction effects on the environment. This will include measures to mitigate the effects associated with watercourse crossings. Appropriate measures which will be applied to all watercourse crossings to ensure best practice is followed and any potential impacts are minimised are detailed in Chapter 14: Water Resources and Flood Risk .	Minimise the impacts from water pollution and physical impacts on watercourses	CEMP
16.15	ES Chapter 16, Section 16.3.6	Additional	Neutral and marshy grassland habitats	Impacts on neutral and	In grassland affected by trenching within Braunton Marsh, which support semi-improved grassland or marshy grassland (as opposed to improved grassland),	Minimise the impacts on	Outline Landscape and Ecology

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
				marshy grassland habitats	management will be carried out to promote re-establishment (reseeding/mowing/weed management) and informed by the Outline Landscape and Ecology Mitigation Plan (OLEMP) and the CEMP. Vegetation establishment will be monitored to ensure that habitats are restored to the desired condition.	neutral and marshy grassland habitats such as Braunton Marsh	Mitigation Plan CEMP
16.16	ES Chapter 16, Section 16.3.6	Additional	Hedgerows	Impacts on hedgerows	<p>Prior to the commencement of any works to a hedgerow, an ECoW will be present on site to ensure that the specified protection and mitigation measures are appropriately understood and implemented.</p> <p>Replacement hedgerow planting will be completed following completion of the construction works. This will be informed by the Outline Landscape and Ecology Management Plan (OLEMP) and CEMP and use of range of locally appropriate native species.</p> <p>Where hedgerow removal is required to provide visibility splays, the hedgerow will be coppiced and allowed to re-establish following completion of construction works.</p>	Minimise the impacts on hedgerows	OLEMP CEMP
16.17	ES Chapter 16, Section 16.3.6	Additional	Bats	Impacts on bats from hedgerow removal	<p>Where hedgerow removal is required to provide visibility splays, temporary mitigation at these locations will include installation of 'fake hedges' (i.e. Heras fencing panels covered with netting) as mitigation for commuting bats to provide the linear-shelter-navigable flight lines function of a hedge. These will be in place throughout the construction period during the active period for bats (April to October). Coppicing will allow rapid recovery and growth of hedgerow on completing of the work.</p> <p>ECoW will be present on site to ensure that the specified protection and mitigation measures are appropriately understood and implemented.</p> <p>This will be included within the CEMP.</p>	Minimise the impacts on bats where hedgerow removal is required	ECoW CEMP
16.18	ES Chapter 16, Section 16.3.6	Additional	Otters	Impacts on otters	<p>The proposed route design is considered sufficiently distant from the holts located to avoid the risk of significant disturbance.</p> <p>Precautionary survey will be carried out to ensure that activity status of all nearby holts is understood and kept up to date.</p> <p>An ECoW will be present on site to ensure that the specified protection and mitigation measures in relation to otters are implemented for any works affecting watercourses.</p> <p>The requirement for obtaining a Natural England licence for any work that could give rise to disturbance will be kept under review, for example, should the status of holts recorded change and breeding holts be located</p>	Minimise the impacts on otters	ECoW
16.19	ES Chapter 16, Section 16.3.6	Additional	Badgers	Impacts on badgers	Precautionary pre-construction updated surveys for badger setts will be carried out in advance of development commencing.	Minimise the impacts on badgers	Suitably qualified and experienced ecologist
16.20	ES Chapter 16, Section 16.3.6	Additional	Breeding birds	Impacts on breeding birds	The removal of vegetation suitable for use by nesting birds will be carried out under ECoW supervision and outside of the bird nesting season. For the majority of species this is between March and August.	Minimise the impacts on breeding birds	Suitably qualified and experienced ecologist

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					Should any small areas of vegetation require removal during the nesting season they will be preceded by a precautionary nesting bird check by a suitably qualified and experienced ecologist to determine whether nests are present. Should any nests be located, a 10m exclusion zone will be implemented around the nest and will be avoided until nesting is complete. NB the checking for nests is only practical for very small areas of habitat that can be thoroughly searched for nests; it is not suitable for dense areas of scrub or hedgerow, or any extensive areas of habitat. Where physical nesting bird checks are not practical, a suitably qualified and experienced ecologist should carry out an alternative approach, for example monitoring the identified location for a pre-agreed duration to confirm no birds are returning to a potentially active nesting site.		CEMP ECoW
16.21	ES Chapter 16, Section 16.3.6	Additional	Reptiles	Impacts on reptiles	Vegetation clearance during the reptile hibernation period will be carried out using a phased removal approach (walking through, removing in stages to encourage any reptiles present to leave the working area into adjacent habitat). This will be carried out under an ecological watching brief (by an ECoW) and where there is a risk of encountering reptiles.	Minimise the impacts on reptiles	ECoW CEMP
16.22	ES Chapter 16, Section 16.3.6	Additional	Great crested newt	Impacts on great crested newts	The amount of vegetation clearance work within 250m of breeding ponds is minimal, and the risk of an impact on this species is considered to be very low. It is proposed that vegetation clearance will be carried out under a precautionary method statement approach. Where necessary, this will involve precautionary phased removal of vegetation and destructive search (by an ECoW). The need for Natural England European Protected Species Licence (EPSL) licence will be kept under review.	Minimise the impacts on great crested newts	ECoW CEMP
16.23	ES Chapter 16, Section 16.3.6 ES Addendum, OCEMP, Section 5.2.1 Outline Invasive Non-Native Species (INNS) Management Plan (WHX001-FLO-CON-ENV-PLN-0009)	Additional	Invasive species	Impacts from Invasive Non-Native Species (INNS)	Three INNS are present within the Onshore Development Area, including Japanese knotweed, three-cornered garlic and Montbretia. An Outline Invasive Non-Native Species (INNS) Management Plan (WHX001-FLO-CON-ENV-PLN-0009) has been prepared and submitted as Further Environmental Information. This will be further developed post-consent, either as a standalone document or as part of the final CEMP, and will include as a minimum: <ul style="list-style-type: none"> ▪ A plan of all INNS locations and extents. ▪ A protocol for avoiding INNS or removing where necessary, and for managing the waste generated ▪ Good site practice measures for managing the spread of invasive species during works at or near to watercourses ▪ A requirement for an ECoW and details of their responsibilities with respect to INNS. ▪ A requirement to report the location of any new INNS encountered during construction with appropriate standoffs implemented. 	Minimise the impacts from INNS	INNS Management Plan CEMP
16.24	ES Appendix 16.R: Arboricultural Impact	Embedded	Trees/hedgerows	Impacts to trees/hedgerows	Impacts to trees and hedgerows will be mitigated by implementing the following measures: <ul style="list-style-type: none"> ▪ Arboricultural monitoring and supervision: Will be implemented through 	Minimise the impacts to trees/hedgerows	Embedded mitigation ACoW/ECoW

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
	Assessment				<p>the appointment of a suitably qualified and experienced arboriculturist to attend meetings and site visits, undertake monitoring and advise on ad-hoc arboricultural matters. A further Arboricultural Clerk of Works (ACoW) or ECoW will be nominated to be responsible for arboricultural matters on site.</p> <ul style="list-style-type: none"> Use of Construction exclusion zones Tree protection fencing Root protection areas 		
16.25	ES Appendix 16.A: Biodiversity Net Gain Assessment ES Addendum, Appendix N: Outline Landscape and Ecological Management Plan, Section 1.3.11.2	Embedded	On site enhancement	Impacts on biodiversity from the construction of the Onshore Project	<p>Options to overcome the biodiversity unit deficit on-site include future management of retained habitats within the Onshore Development Area to deliver further enhancement, which may be possible. For example:</p> <ul style="list-style-type: none"> Modifying the grassland management regimes Creation of new hedgerows on field boundaries where none currently exist Reinstating pre-existing gaps in hedgerows and carrying out supplementary planting of existing species-poor hedgerows to increase diversity. Enhancement of ditches and streams through localised improvements to the geomorphology and in-channel habitats (e.g., by replacing re-sectioned banks with more natural profiles that are typical of the natural geomorphology of the watercourse) to increase structural diversity. Enhancement and management of woodland and scrub habitats, including (where appropriate) selective thinning of existing trees and planting of new understorey trees to improve structural diversity, creation of glades, and enhancement of standing and fallen deadwood habitats. Creation and management of new areas of woodland and native scrub habitat on areas of existing low distinctiveness habitat. 	Enhancement of the on-site development area, increasing biodiversity	Embedded mitigation CEMP
16.26	ES Addendum, OCEMP, Section 5.2	Additional	Overwintering birds	Impacts on overwintering birds around the Taw Estuary during construction	<p>Precautionary mitigation management will be carried out in a selected field at Braunton marshes to ensure suitable alternative habitat is available for overwintering birds around the Taw Estuary during construction. This area will be secured as mitigation through a formal agreement between WCOWL and the landowner and the effectiveness of the proposed roost habitat will be monitored during the construction works as detailed in Appendix K: Approach to Lapwing Mitigation of the ES Addendum. The area surrounding the proposed drilling compound on the south side of the estuary will be screened to minimise disturbance and works will be undertaken outside the winter period where possible.</p>	Minimise the impacts to overwintering birds.	CEMP
16.27	ES Addendum, Appendix O: Lighting Impact	Embedded	Lighting design measures	Impacts from lighting on human and	<p>The proposed outline lighting for the Onshore Substation and temporary compounds have been designed such that it complies with the restrictions outlined in ILP GN01/21 for Environmental Zone E2 and follow the principles</p>	Minimise the impacts from lighting on	CEMP Lighting Impact

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
	Assessment, Section 4.2.3.2			environmental receptors during construction and operation	<p>recommended in ILP GN08/23 Bats and Artificial Lighting at Night Guidance Note 8 Bats and Artificial Lighting.</p> <p>The relevant forms of obtrusive light identified for this assessment, likely to affect local ecological and human receptors around the Onshore Substation and Temporary Construction Compounds, have been minimised where feasible through selection of lighting units with LED light sources, which have:</p> <ul style="list-style-type: none"> directional light source with zero upward light ratio (no light spill above horizontal), right and good optical distribution lower intensity warmer colour temperature (3000K or lower) / higher spectral power / peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats for the Onshore Substation good colour rendition capability of being fitted with shields, hood, cowl, or louvres to limit obtrusive light (to be implemented as the last resort when all options have been explored and exhausted) dimming capability, energy efficient and compatible with effective lighting control system. <p>Mounting heights between 3m and 7.5m (not to exceed the maximum height of the substation building) and 8.5m at each temporary construction compound have been utilised to minimise spill and glare visibility.</p> <p>Lighting calculation has been modelled such that main beam angle direction towards any potential observer is no greater than 70 degrees to limit glare. Lighting installation to ensure the beaming angle range mentioned in Section 4.2.3.2 of Appendix O: Lighting Impact Assessment of the ES Addendum is implemented.</p> <p>Timing and phasing of construction activities to minimise proposed lighting during dark hours. In the limited areas where 24-hour working is required, low-light levels and reduced blue colour content will be maintained.</p> <p>Creation of a buffer zone of low illuminance (minimum 10m of unlit vegetation) adjacent to potential bat habitats near the Onshore Substation and Temporary Construction Compounds. These areas will be agreed with the relevant stakeholders.</p>	human and environmental receptors	Assessment
16.28	Outline Decommissioning Programme	Additional	Decommissioning activities	Impacts on the restoration of the site	<p>The initial programme should describe how it is proposed to restore the site, as far as possible and desirable, to the condition that it was in prior to construction of the installation. Again, this will meet any requirements in place at the point of decommissioning, both offshore and onshore.</p> <p>The requirement to deliver a 10% Biodiversity Net Gain (BNG) as set out in the Environment Act 2021 do not apply to the Onshore Project as it was submitted before 12 February 2024. However, WCWOL has committed to the delivery of 10% BNG, which will be secured and managed for a minimum of 30 years (see</p>	Minimise the impacts on the restoration of the site	Decommissioning Programme

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					Appendix 16.A: Biodiversity Net Gain Assessment of the Onshore ES). A biodiversity gain plan, setting out how WCOW will achieve BNG will be submitted to the LPA following approval of the planning permission.		
16.29	Outline Invasive Non-Native Species (INNS) Management Plan (WHX001-FLO-CON-ENV-PLN-0009)	Embedded	Invasive Species	Impacts from INNS	<p>Good site practice and hygiene should ensure the following:</p> <ul style="list-style-type: none"> All staff should be aware of what INNS look like and what their responsibilities are. Awareness training should be undertaken in the form of Toolbox Talks covering INNS Where possible to do so, construction works areas will be micro-sited to avoid areas of identified INNS The ECoW, will oversee the implementation of the final INNS Management Plan onsite. Everyone working on site should clearly understand the role and authority of the ECoW, which will be included within the site induction All areas containing INNS not within the physical working areas to be demarcated to ensure no accidental spread. ECoW will be responsible for ensuring signage and demarcation is maintained Where cross-contamination is possible (i.e., from one part of the site to another or between sites), WCOWL will consider designating vehicles or machinery to specific sites where possible to prevent spread All vehicles and footwear entering working area to be clean on arrival If INNS have been identified during pre-construction survey, and if required by the BioRA, vehicles used to transport infested soils must be thoroughly inspected and appropriately cleaned in a designated area before being used for other work The most appropriate methods of cleaning should be determined by a suitably qualified contractor following a visual inspection. The suitably qualified contractor should supervise the cleaning, which should pay particular attention to tyre treads, wheel arches and any other areas that might retain rhizomes or seeds The designated cleaning area should be within an area of hard standing or covered by a root barrier membrane that can contain and collect the material washed off. The cleaning area must be located so as not to allow material to contaminate drains, ditches or watercourses The material left within the designated area after vehicles have been cleaned must be contained, collected and disposed of along with other contaminated material If soil is imported to the site for landscaping, infilling or embankments, the contractor shall gain documentation from suppliers confirming that it is free from invasive species. 	Minimise impacts from INNS	INNS Management Plan
Onshore Archaeology and Cultural Heritage							
17.1	ES Chapter 17, Section 17.3.5	Embedded	Site selection	Impacts on designated heritage assets,	The site selection process has included consideration of all designated heritage assets and has avoided direct physical impacts upon designated heritage assets as part of the site selection process.	Minimise the impacts on designated	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
				non-designated heritage assets and potential heritage assets	The site selection process has also sought to avoid all direct physical impacts on non-designated and potential heritage assets, wherever possible, using the datasets available at the time of assessment.	heritage assets, non-designated heritage assets and potential heritage assets	
17.2	ES Chapter 17, Section 17.3.5	Embedded	Survey strategy	Various impacts on from ground investigation	The Onshore Project has submitted an Outline Written Scheme of Investigation (WSI) as part of the ES (Appendix 17.F: White Cross Offshore Windfarm Onshore Outline Written Scheme of Investigation) to accompany the application. This document will outline the strategy to undertake additional programmes of survey and evaluation post-consent and will include a range of likely mitigation options and responses to be utilised under various scenarios.	Minimise the impacts from ground investigation	WSI
17.3	ES Appendix 17.E: Outline WSI, Section 1.8	Embedded	Human Remains	Impacts to human remains	Human remains will be excavated and removed only after obtaining the required Ministry of Justice license under the Burials Act 1857, with the Archaeological Contractor responsible for the application. The District Coroner will be promptly notified, and the process will follow the Environmental Health regulations and potential site-specific requirements. Excavation would follow the guidelines, including recording in situ, careful cleaning and packaging, and the retrieval of samples for small bones and biological remains. Additionally, if articulated human remains are found, an on-site visit by a specialist in human skeletal material will verify their identification. Further detail is provided in the WSI.	Minimise the impacts to human remains	WSI
17.4	ES Appendix 17.E: Outline WSI, Section 1.9	Embedded	Treasure	Impacts to treasure	Recovered artifacts deemed Treasure under the Treasure Act 1996 will be managed as per the Act, requiring reporting to H. M. Coroner, and immediate notification to White Cross's project team and the Archaeological Coordinator. Artifacts will be securely stored, with appropriate security measures implemented if removal cannot occur on the discovery day to prevent theft. Further detail is provided in the WSI.	Minimise the impacts to treasure	WSI
17.5	ES Appendix 17.E: Outline WSI, Section 7.4	Embedded	Archaeological monitoring/watching brief	Impacts to archaeological remains/assets	Where appropriate (in locations identified in advance), machine excavation would proceed under archaeological observation, but would not be controlled directly by the nominated on-site archaeologist(s). A contingency period would be included in the works programme to allow investigation and recording of archaeological remains that might be identified, disturbed, or destroyed. Further detail is provided in the WSI	Minimise the impacts to archaeological remains/assets	WSI
17.6	ES Appendix 17.E: Outline WSI, Section 7.4	Embedded	Preservation In-Situ	Impacts to archaeological remains/assets	Where well-preserved and/or significant archaeological remains survive within or along a development site, the local planning authority may state a preference for preservation 'in-situ' of certain remains. This will be through their archaeological advisors, in this case Devon County Council (DCC) Historic Environment Team (HET). Where opportunities remain for preserving sites in situ through the pre-construction and construction stages, these would be considered on a case by case, site by site and area by area basis. This would be determined in further discussion with North Devon Council and DCC HET/ Historic England (HE) (as required). As part of the post-consent detailed design phase, further consideration would be given, where possible, to micro-siting (within the confines of the project boundary). This will seek to minimise impact upon those areas of highest sub-surface archaeological potential, within the	Minimise the impacts to archaeological remains/assets	WSI

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					confines of engineering and other environmental constraints.		
17.7	ES Appendix 17.E: Outline WSI, Section 7.6	Embedded	Sensitive and precautionary approaches to construction works	Impacts on sensitive archaeological remains/assets	The onshore cable corridor may be more constrained at certain locations and construction works will need to be conducted in a sensitive and controlled manner. Signage and temporary barriers would be required to ensure that no accidental damage or physical interactions occur, in certain instances. Specific constrained areas would be identified in the post-consent detailed design stage. The above measures of precautionary working will likely need to be adopted and would be further detailed in a Construction Stage Plan(s), Contractor Environmental Action Plan(s), or similar.	Minimise the impacts on sensitive archaeological remains/assets	WSI
17.8	ES Appendix 17.E: Outline WSI, Section 7.7	Embedded	Protocol for archaeological discoveries	Impacts on archaeological and cultural heritage assets	For all intrusive groundworks carried out onshore above MHWS where an archaeologist is not present, The Applicant's project team and the relevant appointed Principal Contractor(s) will implement a Protocol for Reporting Archaeological Discoveries (PAD). The PAD would be based on the principles set out in the Offshore Renewables Protocol for Archaeological Discoveries (ORPAD) (The Crown Estate, 2014). ORPAD came into effect in December 2010 (updated in July 2014) and applies to pre-construction, construction, and installation activities in developing offshore renewable energy schemes where an archaeologist is not present on site. The main objective of the protocol is to reduce direct impacts from occurring on currently unrecorded heritage assets. This is done by allowing for the effective reporting of discoveries of archaeological material in a manner that is conducive to construction works. This will ensure that advice, concerning measures to address discoveries, is received, and implemented in a timely and efficient manner. Further detail is provided in the WSI	Minimise the impacts on archaeological and cultural heritage assets	WSI
17.9	ES Appendix 17.E: Outline WSI, Section 7.8	Embedded	Reinstatement of field boundaries and hedgerows	Impacts to the Historic Landscape Character (HLC)	Impact to the HLC of the Onshore Development Area has been minimised through careful route selection. This would be further offset by returning field boundaries/hedgerows to their pre-construction condition and character post-construction, wherever possible, as part of a sensitive programme of backfilling and reinstatement/landscaping. Certain hedgerows and field boundaries (e.g., county and parish boundaries) may require archaeological recording prior to and/or during the construction process and further enhanced provisions made and implemented during backfilling and reinstatement.	Minimise the impacts to the HLC	WSI
17.10	ES Addendum, OCEMP, Section 5.5	Embedded	Production of site specific and final pre-construction and construction mitigation WSIs	Impacts on archaeological and cultural heritage assets	The Principal Contractor is required to prepare site specific WSIs and final pre-construction and construction mitigation WSIs and be agreed with and approved by the relevant planning authority in consultation with DCC HET (and HE, as required) in the post-consent stages of the project.	Minimise the impacts on archaeological and cultural heritage assets	WSI CEMP
17.11	ES Addendum, OCEMP, Section 5.5	Embedded	Tree planting at the proposed substation site	Visual impact to the surrounding landscape	The proposed substation will be sited in an existing industrial area, and tree planting is proposed around it to provide screening to mitigate visual impact on the surrounding landscape during its operation. The details will be set out in the final Landscape and Ecological Management Plan (LEMP) and agreed in advance of construction.	Minimise the visual impacts on the surrounding landscape	CEMP LEMP
17.12	ES Addendum, OCEMP, Section	Embedded	Preservation of the continuity of the	Impacts on cultural heritage	The continuity of the South West Coast Path will be preserved during the construction phase and temporary management measures with diversions and	Minimise the impacts on	CEMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
	5.5		South West Coast Path	assets	local restrictions will be detailed in the CTMP and agreed with the Southwest Coast Path Association, Local Planning Authority, DCC and Natural England in advance of works. Any necessary mitigations and re-instatement works will also be agreed at an early stage and detailed in the CEMP.	cultural heritage assets	CTMP
Noise and Vibration							
18.1	ES Chapter 18, Section 18.3.4	Embedded	Site selection	Impacts on residential properties and other noise and vibration sensitive receptors (NVSRs)	The Onshore Project has been defined following an extensive site selection process, which has accounted for environmental, engineering, planning and land requirements to identify an optimal project location. The site selection process is described in detail in Chapter 4: Site Selection and Assessment of Alternatives of the Onshore ES . The site selection process has included consideration of the nearby residential properties and other NVSRs, and distances to these have been maximised, particularly in relation to the location of the White Cross Onshore Substation.	Minimise the impacts on residential properties and other NVSRs	Embedded mitigation
18.2	ES Chapter 18, Section 18.3.4	Embedded	Construction phase noise and vibration	Impacts on various noise and vibration receptors	Commitment to Best Practicable Means (BPM) implemented during the construction phase, detailed in the Construction Noise and Vibration Management Plan (CNVMP) which will be included as part of the CEMP secured through a planning condition. An CEMP has been submitted with the planning application. If required consent for specific construction works will be sought under Section 61 of the Control of Pollution Act in order to demonstrate that mitigation measures are in place	Minimise the impacts on various noise and vibration receptors	Construction Noise and Vibration Management Plan (CNVMP) as part of the final CEMP
18.3	ES Chapter 18, Section 18.3.4	Embedded	Construction phase road traffic noise	Noise and vibration impact from road and construction traffic	A CTMP will implement traffic and transport mitigation measures. The plan outlines methods to manage peak construction traffic flows and minimise significant traffic and transport impacts. The CTMP will also serve to reduce the associated construction traffic noise and the relative noise change. Traffic management measures are provided in Chapter 19: Traffic and Transport of the Onshore ES .	Minimise the impacts of noise and vibration from road and construction traffic	CTMP
18.4	ES Chapter 18, Section 18.3.4	Embedded	Operational substation noise	Noise impacts from the White Cross Onshore Substation	Noise attenuation would be introduced at six High Voltage Alternate Cable (HVAC) ventilation units located at the northern part of the onshore electrical substation. This would reduce noise levels of five units from 80 dB L_{WA} to 75 dB L_{WA} , and for one unit from 80 dB L_{WA} to 73 dB L_{WA} .	Minimise the noise impacts from the White Cross Onshore Substation	Embedded mitigation
18.5	ES Chapter 18, Section 18.3.4	Embedded	Operational substation vibration	Vibration impacts from the White Cross Onshore Substation	The substation plant will be designed and installed as to minimise vibration transmission from any plant items which might generate vibration. This control of vibration at source is necessary to maximise life of the plant and minimise maintenance. Typically, placing vibration isolation mounts into concrete pads would ensure that ground-borne vibration is not perceptible beyond the immediate area of the substation.	Minimise the vibration impacts from the White Cross Onshore Substation	Embedded mitigation
18.6	ES Chapter 18, Section 18.3.4	Additional	Noise of construction works at the landfall	Noise impacts at the landfall on nearby NVSRs	Temporary screening between the landfall compound and the nearby NVSRs.	Minimise the noise impacts on nearby NVSRs at the landfall	CEMP
18.7	ES Chapter 18,	Additional	Noise of cable corridor	Noise impacts from the cable	Temporary screening between the haul road and NVSRs R14 and R16.	Minimise the noise impacts	CEMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
	Section 18.3.4		construction	corridor construction		on nearby NVSRs from cable corridor construction	
18.8	ES Addendum, OCEMP, Section 5.1	Additional	Construction noise and vibration	Noise and vibration impacts from construction	An Environmental / Ecological Monitoring Plan will be prepared, as required, setting out requirements and responsibilities; this may include noise and vibration monitoring.	Minimise the noise impacts on nearby NVSRs from construction	Environmental / Ecological Monitoring Plan
Traffic and Transport							
19.1	ES Chapter 19, Section 19.3.4	Embedded	CTMP	Various impacts from traffic and transport	An CTMP will be developed. The CTMP contains details of measures to secure embedded mitigation through control, monitor and enforcement of Heavy Goods Vehicle (HGV) movements and provides details of the mechanisms for managing the design of accesses.	Minimise the various impacts from traffic and transport	CTMP
19.2	ES Chapter 19, Section 19.3.4	Embedded	Travel plan	Various impacts from traffic and transport	The CTMP also includes 'Travel Plan' measures to manage the number of single occupancy car trips.	Minimise the various impacts from traffic and transport	CTMP
19.3	ES Chapter 19, Section 19.3.4	Embedded	Timing of deliveries to the landfall area	Impacts from increased traffic movements associated with deliveries at the landfall	Access to the Landfall would be provided from the existing Saunton Sands car park. To minimise the potential conflict with tourist traffic, the Applicant has agreed to all equipment (for drilling) being scheduled to arrive during the winter season and be held within a compound at the car park for the entirety of summer, before being removed in winter. The CTMP contains details of measures to secure this embedded mitigation.	Minimise the impacts from deliveries at the landfall	CTMP
19.4	ES Chapter 19, Section 19.3.4	Embedded	Timing of road works	Impact of increased traffic movements where road works are planned to take place	DCC have highlighted that undertaking road works in the summer could result in potentially significant delays. A CTMP will be developed and will include a commitment to undertaking agreeing the timing of any road works with DCC prior to applying for road space. The only road works required for the Onshore Project would be during the installation/removal of the temporary accesses and crossings.	Minimise the impact of planned road works on construction traffic	CTMP
19.5	ES Chapter 19, Section 19.3.4	Embedded	Strategy for access	Impacts from construction traffic on the local road network	To avoid HGVs accessing narrow local roads including Blind Acres Lane, Moor Lane, Sandy Lane and Vellator Way, access to the section of Onshore Export Cable Corridor south of the B3231 to the River Taw would be provided from a new temporary access from the B3231 (shown within Appendix 19.A: Transport Assessment of the Onshore ES). Vehicles would then travel south along a new temporary haul road towards Sandy Lane. To allow vehicles to continue south of Sandy Lane to the River Taw, HGVs would cross over Sandy Lane at a new access (shown within Appendix 19.A: Transport Assessment of the Onshore ES).	Minimise the impact from construction traffic on the local road network	CTMP
19.6	ES Chapter 19, Section 19.3.4	Additional	CTMP	Various impacts from construction	The CTMP performs a dual function. In addition to securing embedded mitigation, the CTMP contains details of measures to secure additional mitigation through control, monitoring, and enforcement of construction traffic	Minimise the various impacts from	CTMP CEMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
				traffic	<p>movements. It also provides traffic liaison for complaints and a requirement for HGV to display identification. The exact details and associated timescales will be established in consultation with Devon County Council as part of the final CTMP:</p> <ul style="list-style-type: none"> ▪ Appointment of a Traffic Management Coordinator (TMCo) ▪ Obtain technical approval for construction of accesses and crossings ▪ Implement direction signing ▪ Establish monitoring systems: <ul style="list-style-type: none"> ○ Delivery booking system ○ Highway condition ○ Unique vehicle identifier ○ Telephone reporting system. ▪ Agree scope of and undertake pre-commencement highway condition surveys ▪ Agree and implement measures for each access to control the deposition of detritus on the public highway ▪ Inspect the highway for detritus and request regular cleansing as required ▪ Monitoring of CTMP measures: <ul style="list-style-type: none"> ○ HGV trips ○ Accidents and near misses ○ Employee mode share ○ Complaints ▪ Produce monthly monitoring reports ▪ Update condition surveys and agree any remedial works 	construction traffic	TMCo
Onshore Landscape and Visual Amenity							
20.1	ES Chapter 20, Section 20.4.10	Embedded	Onshore export cable corridor – general	Various potential landscape and visual impacts	Project decision to underground the Onshore Export Cable Corridor will notably reduce potential landscape and visual effects. Use of trenchless technique (such as HDD) and careful routeing of the Onshore Export Cable Corridor will minimise loss of trees, hedgerows, and other landscape elements. Micro-siting of the Onshore Export Cable Corridor to avoid loss of trees and hedgerows where practical.	Minimise the various potential landscape and visual impacts	Embedded mitigation
20.2	ES Chapter 20, Section 20.4.10	Embedded	White Cross Onshore Substation - general	Potential landscape and visual impacts	Siting and location of Onshore Infrastructure and design of mitigation planting assists in reducing potential landscape and visual effects.	Minimise the potential landscape and visual impacts	Embedded mitigation
20.3	ES Chapter 20, Section 20.4.10	Embedded	Onshore export cable corridor -	Impacts on trees and	Onshore Export Cable Corridor to avoid loss of trees and hedgerows where practical.	Minimise the impacts on trees	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
			construction	hedgerows		and hedgerows	
20.4	ES Chapter 20, Section 20.4.10	Embedded	Construction compounds - construction	Impacts on trees and hedgerows	Detailed location and layout of sites to avoid loss of trees and hedgerows where practical.	Minimise the impacts on trees and hedgerows	Embedded mitigation
20.5	ES Chapter 20, Section 20.4.10	Embedded	Onshore export cable corridor - construction	Potential landscape and visual impacts	Replacement planting of all removed hedgerows and trees in-situ where the cable route construction results in felling along the Onshore Export Cable Corridor. Planting to be implemented at the end of the construction period. Please see Section 1.3.3 and 1.3.4 of Appendix N: Outline Landscape and Ecological Management Plan of the ES Addendum for further details.	Minimise the potential landscape and visual impacts	Embedded mitigation
20.6	ES Chapter 20, Section 20.4.10	Embedded	White Cross Onshore Substation - construction	Potential landscape and visual impacts	Implementation of mitigation planting around the White Cross Onshore Substation including woodland planting, for screening, hedgerows and scrub for landscape and ecological connectivity. Planting to be implemented at the end of the construction period.	Minimise the potential landscape and visual impacts	Embedded mitigation
20.7	Design and Access (DAS) Appendix B: Design Code	Embedded	White Cross Onshore Substation – architectural form and silhouette	Landscape and visual impacts	<p>Exterior design of buildings should be simple rather than complex in form and elevation, to ensure the development does not become a significant or defining characteristic of the wider fabric, character, and quality of the landscape.</p> <p>All buildings should be of high-quality design and within the defined maximum parameters, complementing the local vernacular, enhancing visual amenity and minimising any adverse impacts on the built environment and neighbouring amenity.</p> <p>Buildings should offer a clean and unbroken silhouette from all external viewpoints.</p> <p>The substation building should not exceed 10m at its tallest point.</p> <p>The substation control building should not exceed 5m at its tallest point.</p>	Minimise the landscape and visual impacts	DAS design code
20.8	DAS Appendix B: Design Code	Embedded	White Cross Onshore Substation – Scale and layout	Landscape and visual impacts	<p>Design should be appropriate and sympathetic to setting in terms of scale, density, massing, height, layout and relationship to buildings and landscape features in the local area.</p> <p>The proposed development should comprise a maximum of two substation buildings to reduce the built form.</p> <p>All electrical equipment should be enclosed within the substation buildings.</p> <p>The maximum parameter for the operational footprint of the onshore substation compound is 5300sqm.</p> <p>Where possible, buildings should be orientated and articulated to minimise the perceived bulk/massing of the buildings and to take advantage of existing and proposed landscape screening.</p>	Minimise the landscape and visual impacts	DAS design code
20.9	DAS Appendix B: Design Code	Embedded	White Cross Onshore Substation – landscaping	Landscape and visual impacts	<p>Landscaping activities should be in accordance with the submitted Outline Landscape and Ecological Management Plan, and any detailed iterations which are submitted post-consent.</p> <p>The proposed landscaping should increase the screening of the substation in sensitive views and provide a connection between different vegetation.</p>	Minimise the landscape and visual impacts	DAS design code

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					All cable routing should be sub-terranean and will therefore not be visible during the operational phase of the development. Any area which has been impacted by the construction of the cable underground should be reinstated with appropriate hedgerow plants and scrub/groundcover planting.		
20.10	DAS Appendix B: Design Code	Embedded	White Cross Onshore Substation – lighting	Landscape and visual impacts	<p>There will be a maximum of 14 spotlight projectors located on the site. 12 of the spotlight projectors are permitted on the perimeter of the substation site. All spotlights should be shorter than the substation building.</p> <p>Proposed lighting should satisfy the fundamental demands for safety and security. However, luminaires should be switched off when not required for safety and security.</p> <p>High performance lighting solutions should be selected that avoid over-lighting thus minimising light pollution, as well as energy efficient solutions that optimise energy use.</p> <p>Light should be directed to avoid reflectance from buildings and structures and to avoid illuminating building facades, as well as away from adjacent sensitive sites wherever possible.</p>	Minimise the landscape and visual impacts	DAS design code
20.11	DAS Appendix B: Design Code	Embedded	White Cross Onshore Substation – appearance and materials	Landscape and visual impacts	<p>Buildings should be constructed in durable materials which are resilient to climate change.</p> <p>Buildings should be constructed in materials complimentary to that of the surrounding industrial and commercial development, which incorporates the use of brickwork and cladding.</p> <p>Exterior design and colours (including hue and tone) for the buildings should be identified based on the surrounding landscape and built form context. Design and colours should be appropriate to these surroundings and seek to simplify the visual appearance of the buildings, as opposed to creating contrast or design feature.</p>	Minimise the landscape and visual impacts	DAS design code
20.12	DAS Appendix B: Design Code	Embedded	White Cross Onshore Substation – Security and access	Landscape and visual impacts	<p>Security of the site should be ensured through the provision of palisade fencing around the site perimeter.</p> <p>The palisade fencing should be a green (RAL 6005) colour and sympathetic to the existing surrounds.</p>	Minimise the landscape and visual impacts	DAS design code
20.13	ES Chapter 20, Section 20.4.10	Embedded	Onshore export cable corridor - operation	Potential landscape and visual impacts	Ongoing management of planting establishment to ensure mitigation potential realised.	Minimise the potential landscape and visual impacts	Embedded mitigation
20.14	ES Chapter 20, Section 20.4.10	Embedded	White Cross Onshore Substation – operation	Potential landscape and visual impacts	Ongoing management of plant establishment to ensure mitigation potential realised. Complimentary building materials, form, colour, and finish for the substation that are consistent with large scale buildings in close proximity.	Minimise the potential landscape and visual impacts	Embedded mitigation
20.15	ES Chapter 20, Section 20.4.10	Embedded	White Cross Onshore Substation – decommissioning	Potential landscape and visual impacts	Protection of landscape elements during decommissioning of the White Cross Onshore Substation to avoid loss to trees, hedgerows, and other landscape elements.	Minimise the potential landscape and	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
						visual impacts	
20.16	ES Addendum, Appendix N: Outline Landscape and Ecological Management Plan, Section 1.4.1	Embedded	Onshore cable corridor planting	Potential landscape and ecological impacts from planting ineffectively	<p>Work would be carried out while weather and soil conditions are suitable for the relevant operations, avoiding periods of frost, strong winds or heavy rainfall. Planting will only take place during the following periods and in line with below guidance:</p> <ul style="list-style-type: none"> Late October to late March - planting of bare root feathered hedgerows and trees. March to April or August to September for sowing of grasses. Adequate watering and weed control will be provided to ensure successful establishment. Any tree coppicing works will not be undertaken during bird nesting and breeding season or will be approved by a suitably qualified ecologist / ECoW prior to works. Where bats are suspected to be present, advice will be provided from a licensed bat specialist and if appropriate, relevant licences obtained before any major tree works or hedge cutting is undertaken. Planting will take place in cultivated and moist friable soils, that are not waterlogged. Planting will not take place in frost or snow-covered soil <p>Only machines and tools suitable for the site conditions and works will be utilised for carrying out the works. Hand tools will be used around trees, hedgerows and in confined spaces where it is impractical to use machinery.</p> <p>The appointed contractor would be responsible for the following:</p> <ul style="list-style-type: none"> Familiarising with the location of any underground services and taking all precautions to avoid any damage occurring to them. Immediately informing the appropriate body should any damage occur. Any claims arising from damage occurring to underground services. 	Minimise the potential landscape and ecological impacts by planting effectively	Embedded mitigation
20.17	ES Addendum Appendix I: Approach to Bat Mitigation, Section 2	Further	Bats	Impacts on bats from hedgerow removal	<p>Where hedgerow removal is required to provide visibility splays, temporary mitigation at these locations will include installation of 'fake hedges' (i.e. Heras fencing panels covered with netting) as mitigation for commuting bats to provide the linear-shelter-navigable flight lines function of a hedge. These will be in place throughout the construction period during the active period for bats (April to October).</p> <p>Monitoring of fake hedges for the duration of the construction period and post-reinstatement of the hedgerow.</p>	Minimise the impacts on bats where hedgerow removal is required	ECoW CEMP
Socio-economics (including Tourism and Recreation)							
21.1	ES Chapter 21, Section 21.3.4	Embedded	Traffic	Impacts from construction	The CTMP contains details of measures to secure embedded mitigation through control, monitor and enforcement of HGV movements and provides details of	Minimise the impact from	CTMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
				traffic on the local road network and car parks	the mechanisms for managing the design of accesses. The CTMP also includes 'Travel Plan' measures to manage the number of single occupancy car trips. In addition, requirements for the use of Saunton Sands car park have been scaled down to avoid impacts on visitors.	construction traffic on the local road network and car parks.	
21.2	ES Chapter 21, Section 21.3.4	Embedded	Spending share	Impacts on the local economy	The applicant is committed, where possible, to maximise the share of its spending benefiting local and national businesses. More details on this are described in Appendix 21.A: Standalone Economic Impact Assessment of the Onshore ES.	Benefit the local economy.	Embedded mitigation
20.3	ES Chapter 21, Section 21.3.4	Embedded	Timing of the works	Impacts on the local road network and the local economy	The timing and phasing of the works and Saunton Sands car park have been selected to reduce the extent of works during peak season, avoiding impacts on visitors and the local road network.	Minimise the impacts on the local road network and the local economy	Embedded mitigation
20.4	ES Chapter 21, Section 21.3.4	Embedded	Siting of the works	Impacts on the local economy	The siting of the works at Saunton Sands car park have been selected to reduce, wherever possible the space required for the works, ensuring as many car park spaces remain usable as possible.	Minimise the impacts on the local economy	Embedded mitigation
20.5	ES Chapter 21, Section 21.3.4	Embedded	Compensation	Impacts on the local economy	Direct compensation to Saunton Sands car park operator will be paid to cover the loss of income for the period in which the works are present within the car park. A business disruption and compensation scheme in place for the White Cross project ahead of the commencement of construction. This scheme will deliver in excess of the statutory compensation code requirements to ensure that no business is worse off as a result of the White Cross construction programme.	Minimise the impacts on the local economy	Embedded mitigation
Human Health							
22.1	ES Chapter 22, Section 22.3.6	Embedded	Site Selection	Disturbance	The Onshore Project has been defined following an extensive site selection process, which has accounted for environmental, engineering, planning and land requirements to identify an optimal project location. The site selection process is described in detail in Chapter 4 Site Selection and Assessment of Alternatives of the Onshore ES.	Minimise disturbance impacts	Embedded mitigation
22.2	ES Chapter 22, Section 22.3.6	Embedded	Electromagnetic Frequency (EMF)	Impacts of EMF from the export cables	Embedded design for EMF comprises the shielding part of the cable which is designed to the ICNIRP guidelines (2010). Embedded mitigation through the burial of cables, as EMF decreases rapidly with distance and by burying the cables, eliminates the magnetic field and creates distance between any receptor at the surface (even directly above the cables).	Minimise the potential impacts of EMF from the export cable	Embedded mitigation
22.3	ES Chapter 22, Section 22.3.6	Embedded	Communication and engagement	Impacts on visitors and recreational routes	Communication and engagement activities to ensure that visitors to Saunton Sands, and to the recreational routes, are aware of the timing and extent of construction and/or operation and maintenance activities in the nearshore/intertidal zone.	Minimise the impacts on visitors and recreational routes	Engagement activities and communication

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
22.4	ES Chapter 22, Section 22.3.6	Embedded	Access	Impacts to access	A CTMP will be developed and includes a commitment to undertaking any road works outside of the summer as well as specifying routes of travel for the construction traffic. Maintaining access to Saunton Sands, and to the recreational routes, during construction and/or operation and maintenance – no closures.	Minimise the impacts to access	CTMP
22.5	ES Chapter 22, Section 22.3.6	Embedded	Health and safety	Health and safety impacts from construction activities on the public	Apply health and safety requirements proportionately: for example, balance the need to protect the public from accessing construction and/or operation and maintenance works with the need to maintain access to Saunton Sands and to the recreational routes.	Minimise the potential health and safety impacts from construction works on the public	Embedded mitigation
22.6	ES Chapter 22, Section 22.3.6	Embedded	Construction and/or operational and maintenance activities	Various impacts from construction, operation, and maintenance activities	Measures set out in the CEMP that limit and manage the timing of construction and/or operation and maintenance activities.	Minimise the impacts from construction, operation, and maintenance activities	CEMP
22.7	ES Chapter 22, Section 22.3.6	Additional	Protective and preventative measures for the protection of public health	Impacts on human health	Take protective and preventative measures for the protection of public health: increase capacity for human intervention if people are attempting or considering self-harm and provide signs and resources. For example, support local initiatives for non-health staff and members of the public to train and/or raise awareness about self-harm; provide signs with information about sources of help.	Minimise the impacts on human health	Embedded mitigation

No further mitigation measures are required than those proposed in other ES chapters used to inform the health assessment, namely:

- **Chapter 12: Ground Conditions and Contamination**
- **Chapter 13: Air Quality**
- **Chapter 14: Water Resources and Flood Risk**
- **Chapter 15: Land Use**
- **Chapter 18: Noise and Vibration**
- **Chapter 19: Traffic and Transport**
- **Chapter 21: Socio-economics (including Tourism and Recreation).**

Table 2 Offshore Project Mitigation Measures

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
Marine and Coastal Processes							
8.1	ES Chapter 8, Section 8.3.5	Embedded	Cables	Impact on sediment transport and seabed processes	The Applicant will make reasonable endeavours to bury cables, minimising the requirement for cable protection measures and thus effects on sediment transport. Use of external cable protection would be minimised in all cases and no cable protection would be located in the nearshore including at the trenchless technique exit point. Route selection and micro-siting of the cables will be used to avoid areas of seabed that pose a significant challenge to their installation, including for example, areas of sand waves and megaripples. This will minimise the requirement for seabed preparation (levelling) and the associated seabed disturbance.	Minimise the impact on sediment transport and seabed processes	Embedded mitigation
8.2	ES Chapter 8, Section 8.3.5	Embedded	Landfall	Impact on coastal processes at the landfall	Either open-cut trenching or trenchless technique will be used to install the cables at the landfall (up to MHWS). Cables will be buried at sufficient depth to have no effect on coastal processes. Sediment transport would continue as a natural phenomenon driven by waves, which would not be affected by the Offshore Project.	Minimise the impact on coastal processes at the landfall	Embedded mitigation
8.3	ES Addendum, PEMMP, Section 2.2.2	Additional	Seabed	Impact on seabed topography	A geophysical survey to assess any changes in seabed topography. A post-construction survey may be carried out within the Windfarm Site and OECC which could be used to verify desk-based assessment of scour potential. Further surveys may be required if significant differences are found between the scour modelled and recorded. Potential locations subject to monitoring, which may be at a non-consecutive frequency, would be confirmed following completion of detailed design and in consultation with the MMO and SNCBs. Monitoring would end if no impacts are recorded or there is evidence of recovery.	Monitor changes in seabed topography	
Marine Water and Sediment Quality							
9.1	ES Chapter 9, Section 9.3.4	Embedded	Cables	Impact on seabed processes	Route selection and micro-siting of the cables will be used to avoid areas of seabed that pose a significant challenge to their installation, including for example, areas of sand waves and megaripples. This will minimise the requirement for seabed preparation (levelling) and the associated seabed disturbance and resuspension of sediment.	Minimise and avoid where possible impacts on seabed processes	Embedded mitigation
9.2	ES Chapter 9, Section 9.3.4	Embedded	All construction activities	Various impacts associated with vessels involved in construction and operation activities	All vessels involved with construction and operation of The Offshore Project will be required to comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78. A CEMP will also be put in place for the Offshore Project to ensure all works are undertaken in line with best practice for working in the marine environment. Monitoring records in relation to the disposal of grey water, foul water, bilge water or ballast water during the construction phase must be retained.	Minimise the impacts from vessels associated with construction and operation activities	CEMP
9.3	ES Addendum, OCEMP, Section 5.9	Embedded	All construction activities	Various impacts from oils, fuels and chemicals	It is the responsibility of each Principal Contractor to have in place adequate controls for the delivery, storage and use of fuels, oils and chemicals on site, and other materials as required. This includes checks that chemicals to be used offshore comply with relevant regulations.	Minimise the various impacts from oils, fuels and chemicals	CEMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<p>The Principal Contractor must consider the delivery, storage, and handling of hazardous materials, in particular oils and fuels, taking into account the legal requirements and good practice guidelines.</p> <p>Oils and chemicals must be clearly labelled, and the Principal Contractor should retain an up-to-date hazardous substance register. Activities involving the handling of large quantities of hazardous materials, such as deliveries and refuelling, should have detailed method statements in place and be undertaken by designated and trained personnel. A Chemical Risk Assessment has been prepared for the Offshore Project following consultation with the MMO, which must be included in the Principal Contractor CEMP.</p> <p>Oil and fuel storage tanks must be robust and provide adequate secondary containment and be located in designated areas taking into account security, the location of sensitive receptors and pathways such as drains and watercourses, and safe access and egress for plant and manual handling.</p> <p>Spill response materials should be provided nearby and be readily accessible, with project personnel trained in spill response.</p> <p>Should any unexpected ground contamination be encountered, the Principal Contractor is responsible for material being sampled and segregated / disposed of accordingly. WCOWL acknowledges that remediation of any such contaminated land may be controlled by a planning condition and subject to an agreed Remediation Plan and a Material Management Plan (MMP).</p> <p>Offshore, vessels of more than 400 gross tonnes should maintain an oil record book and the sulphur content of fuels must comply with MARPOL Annex VI requirements in relation to Sulphur Emission Control Areas (SECAs) and hold a valid International Oil Pollution Prevention Certificate (IOPP). A Marine Pollution Contingency Plan (MPCP) will be developed post consent.</p> <p>Within the port, fuel and chemical management will be developed following discussions with the port authority. It will be required to be documented in the CEMP and in alignment with the port authority's Oil Spill Contingency Plan.</p>		
9.4	ES Addendum, OCEMP, Section 5.9.1	Embedded	All construction vessels	Various impacts from oils, fuels and chemicals	The Principal Contractor is responsible for ensuring that all materials ordered or brought to site listed as hazardous under the Control of Substances Hazardous to Health (COSHH) Regulations are accompanied with a hazardous information sheet. The Principal Contractor will comply with the COSHH Regulations.	Minimise the various impacts from oils, fuels and chemicals	CEMP
9.5	ES Addendum, Chemical Risk Assessment, Section 3.	Embedded	All project activities	Various impacts from oils, fuels and chemicals	<p>The following measures shall be employed by the Project and their Contractors, and incorporated into associated Method Statements as required:</p> <ul style="list-style-type: none"> The Project will solely utilise chemicals that are included on the List of Notified Chemicals, unless otherwise agreed with the MMO and Cefas through the approval of the relevant Management Plan. Substances and objects to be deposited are inert (or appropriately contained and protected) and shall not contain toxic elements. 	Minimise the various impacts from oils, fuels and chemicals	Chemical Risk Assessment

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<ul style="list-style-type: none"> Suitable bunding (110% of the total volume of any chemical container) and suitable containers shall be utilised to prevent the release of any stored chemicals into the marine environment. Contractors will be expected to produce a chemical inventory detailing how and when relevant chemicals will be used, stored and transported (in accordance with relevant guidance and legislation), which will be made available to the Health, Safety and Environmental Manager for approval. On board the vessels, the Vessel Master will be ultimately responsible for ensuring that chemicals are adequately stored, and that the manufacturer's instructions for the storage, handling and use of the chemical are complied with. <p>Materials Safety Data Sheets (MSDS) and Control of Substances Hazardous to Health (COSHH) forms for each chemical shall be present on the vessels where they are stored and/or used. These data sheets also contain control measures to minimise the risk to the marine environment should they be released.</p>		
9.6	ES Addendum, Chemical Risk Assessment, Section 5.	Embedded	All project activities	Various impacts from oils, fuels and chemicals	<p>Method statements shall fully describe the environmental management aspects of storage, spill management and waste disposal arrangements, as described below:</p> <ul style="list-style-type: none"> All hazardous materials will be clearly labelled, identifiable and accounted for. Hazardous substances will not be tampered with. All hazardous materials shall be stored using impermeable primary and secondary containment. The storage areas for all drums and totes must be bunded and capable of containing at least 110% of the total volume stored within the container. Where drums are transported, bunding must be at least 110% of the total volume of the material being transported. Where drums are temporarily in use in an area outside of any dedicated storage area, spill containment must be at least 110% of the total stored volume. Impermeable bunded chemical storage areas shall be provided at each work front as required. Mobile temporary bunding units and drip trays shall be used at construction work fronts. Spill prevention equipment, including spill kits/plant nappies shall be provided at all locations where a risk of spill is identified. All drums shall be stored in vertical position at all times, including when in use. Only chemicals that don't react with each other shall be stored together, incompatible chemicals must be stored separately; for example, acids and alkalis shall not be stored within the same storage container. This will prevent the release of quantities of toxic gases in the event of accidental mixing; and acids and organic chemicals shall 	Minimise the various impacts from oils, fuels and chemicals	Chemical Risk Assessment

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<p>not be stored at the same location. This should prevent a fire or explosion in the event of accidental mixing.</p> <ul style="list-style-type: none"> For chemicals on vessels/Crew Transfer Vessels a nominated individual shall be responsible for ensuring that all chemicals are adequately stored and protected. 		
Benthic and Intertidal Ecology							
10.1	ES Chapter 10, Section 10.3.4	Embedded	Landfall	Impacts on species and habitats at the landfall	<p>Trenchless technology will be used to avoid intertidal areas completely or open trenching designed to avoid impacts.</p> <p>One of the main uncertainties in the Landfall construction methodology is the depth to which the cables should be buried across the beach. At the Landfall (up to MHWS), the beach sand overlies bedrock, but the depth to the bedrock is not known. It is important to define the depth of burial, so that over the design lifetime of the cables (minimum 25 year), the risk of exposure is reduced if beach levels lower (potentially because of sea-level rise) into the future. A Cable Burial Risk Assessment will be completed to accurately define the preferred burial depth to mitigate future exposure.</p>	Avoid or minimise the impacts on species and habitats at the landfall	Cable Burial Risk Assessment
10.2	ES Chapter 10, Section 10.3.4	Embedded	Cable corridor crossing of the Taw-Torridge Estuary SSSI	Impacts on the Taw-Torridge SSSI	<p>Trenchless techniques will be used.</p> <p>As the entry and exit areas for the trenchless technique used to cross the estuary are above Mean High-Water Springs (MHWS), the assessment will be carried out in the White Cross Onshore Project.</p>	Avoid impacts on the Taw-Torridge SSSI	Embedded mitigation
10.3	ES Chapter 10, Section 10.3.4	Embedded	Guidance and measures	Various impacts on benthic and intertidal ecology	<p>The Project Environmental Monitoring and Mitigation Plan (PEMMP) will be agreed prior to the start of construction which will include biosecurity measures following relevant regulations and guidance such as:</p> <ul style="list-style-type: none"> International Convention for the Prevention of Pollution from Ships (MARPOL). The MARPOL sets out appropriate vessel maintenance The Environmental Damage (Prevention and Remediation (England) Regulations 2015, which set out a polluter pays principle where the operators who cause a risk of significant damage or cause significant damage to land, water or biodiversity will have the responsibility to prevent damage occurring, or if the damage does occur will have the duty to reinstate the environment to the original condition The International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention), which provide global regulations to control the transfer of potentially invasive species 	Minimise the various impacts on benthic and intertidal ecology	PEMMP
10.4	ES Addendum, OCEMP, Section 5.3	Additional	Guidance and measures	Various impacts on protected areas and features	<p>The Offshore Project's ES identifies areas of conservation / protection and sets out mitigation as appropriate. The CEMP should include the measures to be adopted. This will enable communication of awareness of any sensitive areas (such as Bideford to Foreland Point Marine Conservation Zone (MCZ)) and potential protected features (e.g., reefs) to the project team. The procedures</p>	Minimise the various impacts on protected areas and features	CEMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					to be adopted in the event of an incident in proximity to these features should also be set out in the CEMP. The Principal Contractor's CEMP will align with the PEMMP. It will be required to consider, and make mitigation provisions for, potential seabed and sediment movement impacts. The CEMP will also set out requirements for monitoring benthic habitats as appropriate.		
10.5	ES Addendum, OCEMP, Section 5.7	Additional	Guidance and measures	Dropped objects in the marine environment	A Dropped Objects into the Marine Environment Plan or similar should feature as a component of the Principal Contractor's CEMP. This may be a specific condition of consent. This procedure should detail the proposed recovery for both floating and non-floating objects and the reporting and documenting of the incident to the project Team and the regulator. The procedure will be required to be reviewed by the Project team prior to the Principal Contractor commencing work.	Minimise the impacts of dropped objects in the marine environment	CEMP
10.6	ES Addendum, PEMMP, Section 2.4.2	Additional	Post-construction	Colonisation of introduced artificial substrate including INNS	O&M ROV maintenance visits will take place regularly. It is possible that monitoring of marine growth build-up on semi-submersible structures can be included in the scope of these surveys. However, it is not possible to offer further detail on the feasibility of identifying INNS at this stage. Therefore, at this time only a commitment to investigate the feasibility of this monitoring is possible. The Invasive Non-Native Species (INNS) Plan details the measures to be undertaken. Antifoulant will be used on the substructures as a mitigation measure. Each effect will be managed with standard and best practice methodologies.	Minimise potential colonisation of introduced artificial substrate including INNS	PEMMP
Fish and Shellfish Ecology							
11.1	ES Chapter 11, Section 11.3.4	Embedded	Entanglement hazards	Impacts of Abandoned Lost or otherwise Discarded Fishing Gear (ALDFG) and other potential entanglement hazards	Annual monitoring of anchor/moorings will be undertaken during the lifetime of the Offshore Project. Remotely operated vehicles (ROVs) will be used to identify any entanglement hazards such as ALDFG snagged on Project substructures.	Minimise the impacts of ALDFG and other entanglement hazards	Embedded mitigation
11.2	ES Chapter 11, Section 11.3.4	Embedded	Cables and cable burial	Impact of EMF from the export cable	The target burial depth is 1.5m where possible (recognised industry good practice and reducing effects of EMF), with a burial depth range of 0.5m – 3m. A detailed Cable Burial Risk Assessment (CBRA) will also be required, to confirm the extent to which cable burial can be achieved. Where it is not possible to achieve cable burial, additional cable protection (rock placement, concrete mattresses or grout bags) may be required, and this will also increase the minimum distance between the cable and a migratory fish. Cables will be specified to reduce EMF emissions, as per industry standards and best practice, such as the relevant IEC (International Electrotechnical Commission) specifications.	Minimise the impact of EMF from the export cable	Cable Burial Risk Assessment
11.3	ES Chapter 11, Section 11.3.4	Embedded	Construction noise	Impacts from construction noise on fish and shellfish	A draft Marine Mammal Mitigation Protocol (MMMP) was submitted as part of the Offshore ES (Appendix 12.C: Draft MMMP) and an updated version has been produced (Appendix V: Updated Draft MMMP of the ES Addendum) and will be implemented, which will include proposals for soft	Minimise the impacts from construction	MMMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
	ES Addendum, Appendix V: Draft MMMP				<p>start and ramp-up of piling. A soft start and ramp up protocol for pile driving would allow mobile species to move away from the area of highest noise impact.</p> <p>The MMMP details the required mitigation measures to minimise the potential risk of physical and auditory injury (PTS) to marine mammals as a result of underwater noise during Unexploded Ordinance (UXO) clearance and piling. Any mitigation beneficial to marine mammals would also potentially reduce impacts on fish.</p>	noise on fish and shellfish	
11.4	ES Addendum, PEMMP, Section 2.5.2	Additional	Operational Noise	Impacts from operational noise on fish and shellfish	Underwater operational noise monitoring is proposed, as detailed in the Outline Underwater Noise Monitoring Plan (OUNMP). Although this is predominantly to understand if novel FLOW technology emits noise that could cause behavioural changes in marine mammals, the results of such monitoring will also aid future fish and shellfish assessments for FLOW projects. Noise monitoring will be undertaken using hydrophone technology specifically designed to collect noise measurements in high flow tidal sites.	Monitor and minimise impacts from operational noise on fish and shellfish	PEMMP
Marine Mammal and Marine Turtle Ecology							
12.1	ES Chapter 12, Section 12.4.4	Embedded	Monitoring of entanglement for asset integrity	Impact of debris on causing entanglement	Monitoring of all dynamic cables, mooring lines and Wind Turbine Generators (WTGs) will be undertaken throughout the operation and maintenance phase of the Offshore Project to ensure there is no risk to the infrastructure of caught debris in the mooring lines and cables. This will likely be done by use of a Remotely Operated Vehicle (ROV). In the case of any fishing gear / debris caught in the Offshore Projects infrastructure, it will be removed	Minimise the impact of debris causing entanglement	Embedded mitigation
12.2	ES Chapter 12, Section 12.4.4	Embedded	UXO clearance	Potential impact of UXO clearance on marine mammals and marine turtles	<p>The hierarchy of UXO clearance techniques, in order of preference, are:</p> <ul style="list-style-type: none"> ▪ Avoid (through micro-siting) ▪ Move UXO without clearing it (if safe to do so) ▪ Remove the UXO without clearing it (if safe to do so) ▪ Low-order deflagration if above options not suitable / unsafe ▪ High-order clearance, if low-order deflagration not possible, or in the unlikely event that low-order deflagration was unsuccessful. 	Minimise the potential impact of UXO clearance on marine mammals and marine turtles	Embedded mitigation
12.3	ES Chapter 12, Section 12.4.4	Embedded	EMF	Impact of EMF	<p>Cables will be buried to a target depth of 0.5-3.0m. This is a similar range to the Department for Energy and Climate Change (DECC) Guidelines (2011) which advise a 0.6m-1.5m depth to reduce the potential for effects relating to EMF.</p> <p>Cables will be specified to reduce EMF emissions as per industry standards and best practice such as the relevant IEC specifications.</p> <p>Further detail on target burial depths are provided in Appendix U: Updated Cable Burial Risk Assessment (CBRA) of the ES Addendum.</p>	Minimise the impact of EMF	Embedded mitigation
12.4	ES Chapter 12, Section 12.4.4	Additional	Soft start and ramp up	Impact of underwater construction noise	Each piling event would commence with a soft-start at a lower hammer energy followed, by a gradual ramp-up for at least 20 minutes to the maximum hammer energy required (the maximum hammer energy is only likely to be required at a few of the piling installation locations). The soft-start and ramp-	Minimise the impact of underwater construction noise	MMMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					up allows mobile species to move away from the area before the maximum hammer energy with the greatest noise impact area is reached. The soft-start and ramp-up procedure, along with other mitigation measures for piling, will be detailed in the MMMP for Piling.		
12.5	ES Chapter 12, Section 12.4.4	Additional	UXO	Impact of UXO clearance on marine mammals and marine turtles	A draft MMMP (Appendix 12.C: Draft MMMP , updated and provided as Appendix V of the ES Addendum) will be drawn up for UXO clearance, which will ensure there are adequate mitigation measures to minimise the risk of any physical or permanent auditory injury to marine mammals and marine turtles as a result of UXO clearance. Low noise alternatives to high order detonations will be prioritised when developing protocols to clear UXOs.	Minimise the impacts of UXO clearance on marine mammals and marine turtles	MMMP
12.6	ES Chapter 12, Section 12.4.4	Additional	Water quality	Impact of pollution	As outlined in Chapter 9: Marine Sediment and Water Quality of the Offshore ES , the Applicant is committed to the use of best practice techniques and due diligence regarding the potential for pollution throughout all construction, operation and maintenance, and decommissioning activities.	Minimise the impact pollution	Best practice techniques
12.6	ES Chapter 12, Section 12.4.4	Additional	Piling activities	Impacts associated with piling	<p>The MMMP for piling will be developed in the pre-construction period and based upon best available information, methodologies, industry best practice, latest scientific understanding, current guidance and detailed project design. The MMMP for piling will be developed in consultation with the relevant SNCBs and the MMO, detailing the proposed mitigation measures to reduce the risk of any physical or PTS to marine mammals and marine turtles during all piling operations.</p> <p>Establishment of a Monitoring Area (MA) with a minimum 500m radius</p> <ul style="list-style-type: none"> The observation of the MA will be conducted by trained, dedicated and (at least one) experienced Marine Mammal Observers (MMOb) during daylight hours and when conditions allow suitable visibility (visibility of entire MA; sea state 4 or less) Deployment of Passive Acoustic Monitoring devices in the MA during poor visibility or at night. <p>The activation of Acoustic Deterrent Devices (ADD). Soft-start and ramp-up. Procedure for breaks in piling. Piling at night / poor visibility.</p> <p>Bubble curtains (and other noise at source reducing technologies) will be considered, however, it is unlikely they will be feasible for the Offshore Project given the specific environmental parameters of the site (notably the water depth).</p> <p>Reports detail the piling activity and mitigation measures will be prepared for all piling activity, including but not limited to:</p> <ul style="list-style-type: none"> A record of piling operations detailing date, location, times (including soft-starts and ramp-up) and any technical or other issues for each pile 	Minimise the impacts of piling	MMMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<ul style="list-style-type: none"> A record of mitigation measures such as ADD deployment and activation, detailing date, location, times and any operational issues A record of all occasions when piling occurred, including details of the activities used to ensure the MA is established and any occasions when piling activity was delayed or stopped due to presence of marine mammals or marine turtles. Any relevant details on the efficiency of the marine mammal and marine turtle exclusion methodology. A record of marine mammal and marine turtle observations, conditions, description of any marine mammal or marine turtle sightings and any actions taken. Details of any problems encountered during the piling process including instances of non-compliance with the agreed piling and / or mitigation protocol. <p>The final MMMP will detail the communication protocol to ensure that all marine mammal and marine turtle mitigation measures, including any delays in commencing piling due to marine mammals and marine turtles being present in the area, are successfully undertaken for all piling activity.</p>		
12.7	ES Chapter 12, Section 12.4.4	Additional	UXO	Impacts associated with UXO clearance	<p>A detailed MMMP will be prepared for UXO clearance during the pre-construction phase. The MMMP for UXO clearance will ensure there are adequate mitigation measures to minimise the risk of any physical or permanent auditory injury to marine mammals and marine turtles as a result of UXO clearance.</p> <p>The MMMP for UXO clearance will be developed in the pre-construction period, when there is more detailed information on the UXO clearance which could be required and the most suitable mitigation measures, based upon best available information and methodologies at that time. The MMMP for UXO clearance will be prepared in consultation with the MMO and relevant SNCBs.</p> <p>The MMMP for UXO clearance will include details of all the required mitigation measures to minimise the potential risk of PTS as a result of underwater noise during UXO clearance, for example, this would consider the options, suitability and effectiveness of mitigation measures such as, but not limited to:</p> <ul style="list-style-type: none"> Low-order clearance techniques, such as deflagration All UXO clearance to take place in daylight and, when possible, in favourable conditions with good visibility (sea state 3 or less) Establishment of a monitoring area with minimum of 1km radius. The observation of the monitoring area will be by dedicated and trained marine mammal observers (MMObs) during daylight hours and suitable visibility The activation of ADD 	Minimise the impacts associated with UXO clearance	MMMP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<ul style="list-style-type: none"> The controlled explosions of the UXO will be undertaken by specialist contractors, using the minimum amount of explosive required in order to achieve safe disposal of the UXO Other UXO clearance techniques, such as avoidance of UXO; or relocation of UXO. <p>If more than one high-order detonation is required, other measures such as the use of scare charges; or multiple detonations, if UXO are located in close proximity, will also be considered in consultation with the MMO and SNCBs.</p> <p>UXO clearance is not included in the ES application, as currently not enough detailed information is available. Therefore, UXO clearance will be assessed through a separate Marine Licence (ML) application post consent.</p>		
12.8	ES Chapter 12, Section 12.4.4	Additional	Vessel collision	Impact of vessel movements on marine mammals and marine turtles	<p>Vessel movements, where possible, will follow set vessel routes and hence areas where marine mammals and marine turtles are accustomed to vessels, in order to reduce any increased collision risk.</p> <p>All vessel movements will be kept to the minimum number that is required to reduce any potential collision risk.</p> <p>Additionally, vessel operators will follow best practice guidance to reduce any risk of collisions with marine mammals and marine turtles, such as following the Cornwall Marine and Coastal Code for Vessels.</p> <p>All vessels will be transiting within 2km of the coast or through an SAC designated for seals will travel less than 14 knots to further reduce the potential for collision risk.</p> <p>All vessels transiting to and from the Windfarm Site outside of SACs designated for seals and beyond 2km from a coast should minimise speed where practical to further reduce the potential for collision risk</p> <p>No vessel will transit within 600m of any known seal haul out site at any time, or within 2km of Lundy.</p>	Minimise the risk of impacts from vessel movements	MMMP
12.9	ES Chapter 12, Section 12.4.4	Additional	Bristol Channel Approaches SAC	Various impact on the Bristol Channel Approaches SAC	<p>In addition to the MMMPs for piling and UXO clearance, a Site Integrity Plan (SIP) for the Bristol Channel Approaches SAC (solely designated for harbour porpoise) will be developed. The SIP will set out the approach to deliver any Project mitigation or management measures to reduce the potential for any significant disturbance of harbour porpoise in relation to the Bristol Channel Approaches SAC conservation objectives.</p> <p>The SIP is an adaptive management tool, which can be used to ensure that the most adequate, effective, and appropriate measures, if required, are put in place to reduce the significant disturbance of harbour porpoise in the Bristol Channel Approaches SAC.</p> <p>The SIP will be developed in the pre-construction period and will be based upon best available information and methodologies at that time, in consultation with the relevant SNCBs and the MMO.</p>	Minimise the impacts on the Bristol Channel Approaches SAC	MMMP and SIP

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
12.10	ES Addendum, PEMMP, Section 2.6.2	Additional	Operational noise	Behavioural disturbance effects from operational noise	Underwater noise profiling and monitoring will be conducted to facilitate understanding of noise contribution to the baseline underwater environment from operational subsea infrastructure (including snapping). The OUNMP provides early monitoring proposals, but final monitoring details will be informed by future consultation with the MMO and relevant SNCBs. The scope of monitoring, programme and the methodology to be submitted to the MMO for approval prior to the pre-construction phase, in accordance with any timescales required by the Marine Licence conditions.	Monitor operational noise to understand noise contribution from subsea infrastructure/subsea piling and minimise behavioural disturbance effects	PEMMP / UNMP
12.11	ES Addendum, OUNMP	Further	Construction noise	Behavioural disturbance effects from construction noise	Underwater noise monitoring during any piling at the Project (including sub-sea piling) would be undertaken in order to validate the predictions of impact to marine mammals and marine turtles (and fish) within Chapter 12: Marine Mammal and Marine Turtle Ecology of the Offshore ES .	Monitor construction noise to understand noise contribution from subsea piling and minimise behavioural disturbance effects	CEMP
Offshore Ornithology							
13.1	ES Chapter 13, Section 13.3.5	Embedded	Entanglement	Impact of birds becoming entangled	Annual monitoring of anchor/moorings will be undertaken during the lifetime of the Offshore Project. Remotely operated vehicles (ROVs) will be used to identify any entanglement hazards such as ALDFG snagged on Project substructures.	Minimise the risk of birds becoming entangled	Embedded mitigation
13.2	ES Addendum, OCEMP, Section 5.4	Additional	Vessels	Impact of birds becoming disturbed from vessels	The CEMP will include the final procedures to be adopted within vessels transit corridors to minimise disturbance to bird species during construction activities. The PEMMP will include procedures for the operation and maintenance phase. Potential impacts on bird species during construction will be mitigated through: <ul style="list-style-type: none"> Restricting vessel movements where possible to existing navigation routes As far as possible maintaining direct transit routes Where it is necessary to go outside of established navigational routes, avoid rafting birds either enroute to the Offshore Development Area from port and/or and where possible avoid disturbance to areas with consistently high bird densities Avoidance of over-revving of engines (to minimise noise disturbance) Briefing of vessel crew on the purpose and implications of these vessel management practices. The Project Team would make maintenance vessel operators aware of the importance of the species and the associated mitigation measures through toolbox talks.	Minimise the risk of birds getting disturbed by vessels	CEMP and PEMMP
Commercial Fisheries							

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
14.1	ES Chapter 14, Section 14.3.4	Embedded	General	Various impacts on commercial fisheries	A CEMP, including an Emergency Spill Response Plan, Waste Management Plan, Marine Mammal Protection Plan, Fisheries Liaison and Co-existence Plan and Fisheries Management and Mitigation Strategy will be developed prior to commencement of works. An updated Outline CEMP is provided in as part of the Further Environmental Information Submission (WHX001-FLO-CON-ENV-PLN-0010).	Minimise the various impacts on commercial fisheries	CEMP including Emergency Spill Response Plan, Waste Management Plan, Marine Mammal Protection Plan, Fisheries Liaison and Co-existence Plan and Fisheries Management and Mitigation Strategy
14.2	ES Chapter 14, Section 14.3.4	Embedded	Liaison	Displacement and disruption	A Fisheries Liaison Officer (FLO) will be appointed for the Construction Phase and as required during the Operation Phase (including maintenance and repair). The Requirements for Decommissioning Phase will be determined following economic and environmental appraisals. Adherence to good practice guidance on the approach to fisheries liaison and mitigation (e.g., FLOWW, 2014; 2015). The Fisheries Liaison and Coexistence Plan (Appendix 14.C of the Offshore ES) will detail the scheduling, approach and stakeholders with whom liaison will be conducted and the content and formats of information to be provided and the process of recording and acting upon feedback from stakeholders.	Minimises risk, displacement, and disruption	Fisheries Liaison and Coexistence Plan
14.3	ES Chapter 14, Section 14.3.4	Embedded	Notification to relevant stakeholders	Displacement and disruption	Notice(s) to Mariners (including Kingfisher) will be issued a week prior to works, Radio Navigational Warnings, NAVTEX and/or broadcast warnings will also be issued a week prior to the commencement of installation works along with direct liaison with relevant stakeholders.	Minimises displacement and disruption	Embedded mitigation
14.4	ES Chapter 14, Section 14.3.4	Embedded	Claims for loss/damage of fishing gear	Risk to gear	Development of a standard procedure for the claim of loss of/or damage to fishing gear.	Minimises risk to gear	Embedded mitigation
14.5	ES Chapter 14, Section 14.3.4	Embedded	Fishing gear	Damage to fishing gear	Development of a procedure for the claim of loss of/or damage to fishing gear.	Minimises risk to gear	Embedded mitigation
14.6.	ES Chapter 14, Section 14.3.4	Embedded	Offshore export cable burial	Displacement and snagging of fishing gear	Minimum cable burial depth of 0.5m, with a maximum cable burial depth of 3m. The use of cable burial will also prevent snagging with fishing gear.	Minimises risk to gear	Embedded mitigation
14.7	ES Chapter 14, Section 14.3.4	Embedded	Cable protection	Displacement and snagging of fishing gear	The use of cable protection will be limited to areas where cables cannot be buried to a sufficient depth and at crossings with 3rd party infrastructure.	Minimises risk to fishing gear	Embedded mitigation
14.8	ES Chapter 14, Section 14.3.4	Embedded	Cable protection charting and dissemination of information	Displacement and snagging of fishing gear	Information on the areas where cable protection is installed will be distributed to relevant representative organisations and stakeholders in appropriate formats for inclusion in charts and information bulletins.	Minimises risk to fishing gear	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
14.9	ES Chapter 14, Section 14.3.4	Embedded	Rock placement	Displacement and snagging of fishing gear	Where rock placement is used for cable protection this will be designed to minimise potential snagging risks such as use of graded rock and 1:3 berm profiles. A vessel able to undertake a targeted placement method will be used.	Minimises risk to fishing gear	Embedded mitigation
14.10	ES Chapter 14, Section 14.3.4	Embedded	Cable exposure	Damage to fishing gear	In the event that cable exposures are identified during the operational phase, the location of these will be published via the standard notices with additional liaison to be undertaken with fisheries stakeholders. Where appropriate, additional temporary measures would also be put in place (e.g., surface marker buoys, use of guard vessels, etc).	Minimises risk to fishing gear	Embedded mitigation
14.11	ES Chapter 14, Section 14.3.4	Embedded	24hr cable installation	Disruption	Installation will normally be a 24-hour operation where viable, minimising overall installation time and, maximising use of fair-weather windows, and to take advantage of vessel and equipment availability.	Minimises disruption	Embedded mitigation
14.12	ES Chapter 14, Section 14.3.4	Embedded	Post-lay and cable burial inspection	Disruption, displacement, and damage to fishing gear	Undertaking of post-lay and cable burial inspection to confirm the burial status of the cables, identify potential seabed hazards associated with installation, and, where appropriate and practicable, undertaking of rectification works.	Minimises disruption and risk to fishing gear	Embedded mitigation
14.13	ES Chapter 14, Section 14.3.4	Additional	Export cable pre-installation and installation works	Displacement, disruption, and damage to fishing gear	In line with FLOWW Guidance, appropriate evidence-based cooperation agreements will be sought with those vessels' owners for the removal of their static gears from the Offshore Export Cable Corridor. Such agreements would include provisions aimed at preventing displacement impacts to other vessels.	Minimises disruption and damage to fishing gear	Evidence-based cooperation agreements with vessel owners
14.14	ES Chapter 14, Section 14.3.4	Additional	Project vessels transits	Disruption and damage to fishing gear	In order to minimise conflicts between project vessels and deployed static fishing gears, project vessel transit routes would, as far as practicable, be designed to avoid important areas of static gear deployment. Project vessel crews would also be briefed on the types and locations of static gears within the vicinity of the Offshore Project.	Minimises disruption and damage to fishing gear	Vessel management measures
14.15	ES Chapter 14, Section 14.3.4	Additional	Boulder relocation	Disruption and displacement	Consultation would be undertaken with fisheries stakeholders prior to the commencement of boulder relocation/removal works. The locations of relocated boulders as specified by the MMO would be provided to stakeholders in the appropriate formats including electronically for installation in vessel Global Positioning System (GPS) plotters.	Minimises disruption and displacement	Consultation with fisheries stakeholders
14.16	ES Chapter 14, Section 14.3.4	Additional	UXO clearance	Disruption and displacement	If UXO clearance is required, the locations of any removal or destruction works will be provided to stakeholders in the appropriate formats.	Minimises disruption and displacement	Fisheries Liaison Officer Notice to Mariners
14.17	ES Chapter 14, Section 14.3.4	Additional	Promulgation of information to fishermen	Disruption	Engagement of a locally experienced FIR to assist the Company Fisheries Liaison Officer.	Minimises disruption	Fisheries Liaison Officer
14.18	ES Chapter 14, Section 14.3.4	Additional	Obstructions on the seabed	Disruption, displacement, and damage to fishing gear	The Offshore Project will have agreed policies with construction contractors aimed at preventing objects being dropped overboard from their vessels as well as ensuring procedures are in place for the recording, notification, and recovery of any accidentally lost objects.	Minimises disruption, displacement, and damage to fishing gear	Agreed policies with construction contractors

Shipping and Navigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
15.1	ES Chapter 15, Section 15.3.4	Embedded	Notice to Mariners	Disruption	To ensure that the appropriate authorities are informed of works being carried out in waters adjacent to the Offshore Project. To include: <ul style="list-style-type: none"> UK Hydrographic Office (UKHO) Maritime and Coastguard Agency (MCA) Kingfisher Trinity House (TH) Royal Yachting Association (RYA) Local Ports and Harbours Oil and Gas Operators Marine Management Organisation (MMO). 	Minimise disruption	Embedded mitigation
15.2	ES Chapter 15, Section 15.3.4	Embedded	Site marking and charting	Disruption	Site is marked on nautical charts including an appropriate chart note.	Minimise disruption	Embedded mitigation
15.3	ES Chapter 15, Section 15.3.4	Embedded	Safety zone	Disruption and damage to sub-sea equipment and fishing gear	Application and use of safety zones of up to 500m from platform edge (at sea level) during construction/major maintenance and decommissioning phases. Safety zones shall be of appropriate configuration, extent, and application to specified vessels of identified primary risk of sub-sea equipment to fishing and snagging hazard.	Minimise the risk of disruption and damage to sub-sea equipment and fishing gear	Embedded mitigation
15.4	ES Chapter 15, Section 15.3.4, ES Addendum, PEMMP, Section 2.9.2	Embedded	Project information	Damage to fishing equipment, snagging hazard on the cables	Appointment of a Fisheries Liaison and Coexistence Plan (Appendix 14.C of the Offshore ES) providing detailed project information to fishermen, such as site and export cable route location for upload into fish plotters. Post construction geophysical surveys will be used to ensure cables or other exposed subsea elements are not left exposed and/or unmarked in order to, amongst other things; reduce snagging risk to fishing gear.	Minimise the risk of damage to fishing gear and snagging hazard on the cables	Fishing Liaison and Coexistence Plan, PEMMP
15.5	ES Chapter 15, Section 15.3.4	Embedded	Response to incidents	Various emergency impacts	Emergency Response Co-Operation Plan (ERCOP) with agreement of MCA.	Reduction of consequences of incidents	ERCOP
15.6	ES Chapter 15, Section 15.3.4	Embedded	Response to pollution incidents	Impacts from pollution	Measures will be informed by a Marine Pollution Contingency Plan and will ensure that the potential for release of pollutants from construction and operation and maintenance activities is minimised, which will include planning for accidental spills and responding to all potential contaminant releases.	Minimise the potential for the release of pollutants	Marine Pollution Contingency Plan
15.7	ES Chapter 15, Section 15.3.4	Embedded	Periodic Exercises	Increased consequences of incidents	Periodic emergency management and response exercises will be run by the Applicant, in conjunction with Coastguard Operations Centre (CGOC) and Search and Rescue (SAR).	Reduction in the consequences of incidents	Embedded mitigation
15.8	ES Chapter 15, Section 15.3.4	Embedded	Incident investigation and reporting	Increased likelihood of incidence reoccurrence	There are statutory incident reporting requirements and expectations: <ul style="list-style-type: none"> Marine Accident Investigation Branch (MAIB) (Merchant Shipping Act) HSE (RIDDOR) Harbour Authority under Port Marine Safety Code. 	Reduction in the likelihood of incidence reoccurrence	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					Risk assessments to be reviewed following incidents, and additional risk controls identified if appropriate.		
15.9	ES Chapter 15, Section 15.3.4	Embedded	Aids to navigation	Risk of allision with structures	<p>Suitable Aids to Navigation (AtoN) lighting and marking the OWF site shall be undertaken complying with IALA Recommendations G1162 (IALA, 2021), to be finalised and approved in consultation with MCA and TH through an Aids to Navigation Management Plan.</p> <p>Fog horns to alert vessels to the position of structures when visibility is poor. Note planned update to O-139 to include painting reference from waterline (not HAT).</p> <p>WTG informal naming/associated markings shall not interfere with formal AtoN's.</p> <p>Automatic Identification System (AIS) transponders to be placed on periphery corner WTGs</p>	Reduction in the risk of allision with structures	Aids to Navigation Management Plan
15.10	ES Chapter 15, Section 15.3.4	Embedded	Buoyed construction area	Risk of allision with structures or collision with construction vessels	Buoys deployed around construction work in windfarm site in line with TH requirements and may include a combination of cardinal and/or safe water marks. To be finalised and approved in consultation with the Marine and Coastguard Agency (MCA) and Trinity House (THLS) through an Aids to Navigation Management Plan.	Reduction in the risk of allision with structures and collision with construction vessels	Aids to Navigation Management Plan
15.11	ES Chapter 15, Section 15.3.4	Embedded	Hydrographic surveys	Risk of grounding or snagging of cables	MGN 654 requires that hydrographic surveys should fulfil the requirements of the International Hydrographic Organisation (IHO) Order 1a standard, with the final data supplied as a digital full density data set, and survey report to the MCA Hydrography Manager and the UKHO. Further information can be found in MGN 654 Annex 4 supporting document titled 'Hydrographic Guidelines for Offshore Developers'.	Reduction in the risk of grounding or snagging of the cables	Embedded mitigation
15.12	ES Chapter 15, Section 15.3.4	Embedded	Subsea cables	Risk of grounding or snagging of cables	<p>Cable Burial Risk Assessment to be undertaken pre-construction, including consideration of Under Keel Clearance (UKC).</p> <p>All subsea cables will be either fully buried (where ground conditions permit and burial tool performance allows), partially buried (buried but not to target depth) with rock protection, or surface laid with rock protection.</p> <p>Selected methods will be based on the CBRA and the protection will be periodically monitored and maintained as practicable.</p> <p>No more than 5% reduction in water depth (referenced to Chart Datum) will occur at any point on the cable route without prior written approval from the Licensing Authority.</p>	Reduction in the risk of grounding or snagging of the cables	Cable Burial Risk Assessment
15.13	ES Chapter 15, Section 15.3.4	Embedded	Air draught clearance	Risk of allision with structures	Wind turbine blades will have at least 22 m clearance above MHWS. Noting these are floating, not fixed structures.	Minimise the risk of allision with structures	Embedded mitigation
15.14	ES Chapter 15, Section 15.3.4	Embedded	Layout plan and lines of orientation	Risk of allision with structures and ensuring access for SAR	WTG layout plan to be agreed with MCA and TH prior to construction and either maintain two lines of orientation or propose a suitable layout that is acceptable to the MCA/TH.	Minimise the risk of allision with structures	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
15.15	ES Chapter 15, Section 15.3.4	Embedded	Electromagnetic interference	Impacts on navigation and communications equipment	A Cable Specification and Installation Plan will be prepared as part of the Code of Construction Practice (CoCP). This will include the technical specification of offshore electrical circuits, and a desk-based assessment of attenuation of electro-magnetic field strengths, shielding and cable burial depth in accordance with industry good practice.	Reduction in the risk of impacts on navigation and communication equipment	CoCP Cable Specification and Installation Plan
15.16	ES Chapter 15, Section 15.3.4	Embedded	Construction method statement and programme decommissioning plan	Risk of allision with structures or collision with construction vessels	Construction programme and plan to be submitted to MCA and TH for consultation. Where possible, construction to follow linear progression avoiding disparate construction sites across development area. Agreement of a decommissioning plan prior to decommissioning.	Reduction in the risk of allision with structures or collision with construction vessels	Embedded mitigation
15.17	ES Chapter 15, Section 15.3.4	Embedded	Moorings design	Risk of breakout	Adherence with HSE/MCA guidance "Regulatory expectations on moorings for floating wind and marine devices".	Minimise the risk of breakout	Embedded mitigation
15.18	ES Chapter 15, Section 15.3.4	Embedded	Marine operating guidelines	Risk of allision with structures or collision with vessels	Project vessels during construction and co-ordination during operation and maintenance to ensure project vessels do not present unacceptable risks to each other or third parties. Project marine traffic coordination plans to be made available to all maritime users. Information and warnings will be distributed via Notices to Mariners and other appropriate media (e.g. Admiralty Charts and fishermen's awareness charts) to enable vessels and operators to effectively and safely navigate around the windfarm site and activities during the Offshore Export Cable Corridor construction.	Reduction in the risk of allision with structures or collision with vessels	Embedded mitigation
15.19	ES Chapter 15, Section 15.3.4	Embedded	Vessel Standards	Risk of allision with structures or collision with vessels	All work vessels operating on behalf of projects will be required to adhere with the following: <ul style="list-style-type: none"> ▪ MCA Vessel Coding (e.g. Small Commercial vessel (SCV)) ▪ Appropriate Insurance ▪ Crewed by suitably trained/qualified personnel ▪ Automatic Identification System (AIS) (Class A/B) ▪ Very High Frequency (VHF) (Ch16) ▪ Mooring Arrangements. 	Reduction in the risk of allision with structures or collision with vessels	Embedded mitigation
15.20	ES Chapter 15, Section 15.3.4	Embedded	Health and safety	Risk of loss of life	All personnel will wear the correct PPE suitable for the location and role at all times, as defined by the relevant Quality, Health, Safety and Environment (QHSE) documentation. This will include the use of Personal Locator Beacons (PLBs).	Minimise the risk of loss of life	Relevant QHSE documentation
15.21	ES Chapter 15, Section 15.3.4	Embedded	Guard vessels	Risk of allision with structures or collision with vessels	Provision of guard vessel in vicinity of the windfarm site during construction or major maintenance to monitor 3rd party vessel traffic and intervene with warnings as necessary.	Reduction in the risk of allision with structures or collision with vessels	Embedded mitigation
15.22	ES Chapter 15, Section 15.3.4	Embedded	Inspection and maintenance programme	Risk of project asset failure	Regular maintenance regime by the Applicant to check the Offshore Project infrastructure, its fittings and any signs of wear and tear. This should identify any faults which might result in a failure.	Minimise the risk of project asset failure	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
15.23	ES Chapter 15, Section 15.3.4	Embedded	Training	Risk of loss of life	Developers are responsible for ensuring that all staff engaged on operations are competent to carry out the allocated work.	Minimising the risk of loss of life	Embedded mitigation
15.24	ES Chapter 15, Section 15.3.4	Embedded	Compliance with International, UK and Flag State regulations including IMO conventions	Risk of allision with structures or collision with vessels	Compliance by all vessels associated with the proposed project with international maritime regulations as adopted by the relevant flag state (e.g. International Convention for the Prevention of Collision at Sea (COLREGS) (IMO, 1972) and International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974)	Minimising the risk of allision with structures or collision with vessels	Embedded mitigation
15.25	ES Chapter 15, Section 15.3.4	Embedded	Vessel health and safety requirements	Risk of loss of life	As industry standard mitigation, the Applicant will ensure that all Project related vessels meet both IMO conventions for safe operation as well as HSE requirements, where applicable. This shall include the following good practice: <ul style="list-style-type: none"> ▪ Windfarm associated vessels will comply with international maritime regulations ▪ All vessels, regardless of size, will be required to carry AIS equipment on board ▪ All vessels engaged in activities will comply with relevant regulations for their size and class of operation and will be assessed on whether they are appropriate for activities they are required to carry out ▪ All marine operations will be governed by operational limits, tidal conditions, weather conditions, and vessel traffic information ▪ Walk to work solutions will be utilised where relevant. 	Minimising the risk of loss of life	Embedded mitigation
15.26	ES Chapter 15, Section 15.3.4	Embedded	Continuous watch	Slow response to incidents	Continuous watch by multi-channel VHF, including Digital Selective Calling (DSC).	Responding to incidents quickly	Embedded mitigation
15.27	ES Addendum, Section 5.15	Embedded	Emissions to air	Impacts from offshore construction and operations	For offshore construction and operations, vessel emissions must comply with MARPOL Annex VI requirements in relation to ozone depleting substances regulations, nitrogen oxide, sulphur oxide and particulate and volatile organic compounds. Where relevant, vessels shall have a valid International Air Pollution Prevention (IAPP) certificate.	Minimising risk of emissions to air	CEMP
Marine Archaeology and Cultural Heritage							
16.1	ES Chapter 16, Section 16.3.7	Embedded	Known heritage assets	Impacts on known heritage assets	For archaeologically significant anomalies that are clearly identifiable in the survey data and where the extents are largely known, Archaeological Exclusion Zones (AEZs) will be employed. AEZs will remain for the life of the Offshore Project or until ground truthing or higher resolution data determines a reduction in potential significance, or extents.	Minimise the impacts on known heritage assets	Implementation of AEZs
16.2	ES Chapter 16, Section 16.3.7	Embedded	Known heritage assets	Impacts on known heritage assets	Where an anomaly is not visible in the survey data but likely to exist on the seabed at a known position or where the extents of an anomaly are not fully identifiable, Temporary Archaeological Exclusion Zones (TAEZs) will be employed. TAEZs have been identified as highly likely to be altered following	Minimise the impacts on known heritage assets	Implementation of TAEZs

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					higher resolution or full coverage data assessment, however, they will remain in place until alterations have been formally agreed.		
16.3	ES Chapter 16, Section 16.3.7	Embedded	Potential heritage assets	Impacts on potential heritage assets	<p>Avoidance where possible of identified anomalies.</p> <p>Avoidance by micro-siting where possible of previously recorded sites that have not been seen in the geophysical data and at which the presence of surviving material is considered unlikely.</p> <p>Further investigation of any identified anomalies and previously recorded sites that cannot be avoided by micro-siting of design and the application of either embedded mitigation (avoidance) or additional mitigation.</p>	Minimise the impacts on potential heritage assets	Embedded mitigation
16.4	ES Chapter 16, Section 16.3.7	Embedded	Potential heritage assets	Impacts on potential heritage assets	In order to account for unexpected discoveries of archaeological material during construction, operation and decommissioning, a formal protocol will be required. It is recommended that if any objects of possible archaeological interest are encountered, they should be reported using a formal protocol.	Minimise the impacts on potential heritage assets	Embedded mitigation
16.5	ES Addendum, PEMMP, Section 2.10.2	Additional	Marine archaeological and heritage	Impact on archaeological resource	<p>Further pre-construction surveys of the seabed are proposed where construction activity will take place. Survey scopes and data will be reviewed by an accredited archaeologist. Method statements will be drafted for geotechnical surveys by the archaeologist in consultation with Historic England for geoarchaeological assessment of geotechnical material.</p> <p>An Outline Offshore Archaeological Written Scheme of Investigation (WSI) has been compiled (Appendix 16.B of the Offshore ES) which makes provision for all archaeological mitigation that might be required in the pre-construction investigations. Specific requirements relating to monitoring during construction (including protocol for unexpected archaeological discoveries) is detailed in the WSI.</p>	Inform the selection of appropriate mitigation	PEMMP
Civil and Military Aviation							
17.1	ES Chapter 17, Section 17.5	Embedded	Notification of information	Risk to navigation, safety	Appropriate notification to aviation stakeholders, to minimise effects to aviation flight operations (including SAR) would apply to the development of the Offshore Project. These will comply with current guidelines and be agreed with the appropriate stakeholders. Pilots are obliged to plan their flying activities in advance and to be familiar with any en-route obstacles they may encounter.	Minimise the risk to navigation	Embedded mitigation
17.2	ES Chapter 17, Section 17.5	Embedded	Layout and regularity	Risk to navigation, safety	Regularity of layout to minimise effects to aviation flight operations (including SAR) would apply to the development of the Offshore Project. These will comply with current guidelines and be agreed with the appropriate stakeholders. Pilots are obliged to plan their flying activities in advance and to be familiar with any en-route obstacles they may encounter.	Minimise the risk to navigation	Embedded mitigation
17.3	ES Chapter 17, Section 17.5	Embedded	Lighting and marking	Risk to navigation, safety	Appropriate lighting and marking (taking account of MGN 654 (M+F) OREI (MCA, 2021)) to minimise effects to aviation flight operations (including SAR) would apply to the development of the Offshore Project. These will comply with current guidelines and be agreed with the appropriate stakeholders. Pilots	Minimise the risk to navigation	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					are obliged to plan their flying activities in advance and to be familiar with any en-route obstacles they may encounter.		
Infrastructure and Other Users							
18.1	ES Chapter 18, Section 18.3.4	Embedded	Consultation	Disruption and damage to project infrastructure	Owners and operators of infrastructure (other renewable project developers, dredging companies and cable operators) have been and will continue to be consulted by the Applicant, and commercial and technical agreements will be put in place where required ahead of construction.	Minimise disruption and likelihood of damage to project infrastructure	Embedded mitigation
18.2	ES Chapter 18, Section 18.3.4	Embedded	Crossing and proximity to infrastructure and other users	Disruption	Crossing and proximity agreements will be agreed post-consent with the relevant asset owners.	Minimise disruption	Crossing and proximity agreements
18.3	ES Chapter 18, Section 18.3.4	Embedded	Promulgation of information	Risk of collision with structures or collision with vessels	Advance warning and accurate location details of construction, maintenance and decommissioning operations, associated safety zones and advisory passing distances will be given via Notices to Mariners and other appropriate media. This will be secured through the Marine Licence conditions. Relevant shipping and navigation mitigations are described in Chapter 15: Shipping and Navigation of the Offshore ES .	Minimise the risk of collision with structures or collision with vessels	Embedded mitigation
18.4	ES Chapter 18, Section 18.3.4	Embedded	Cables	Risk of snagging and damage to assets	All cables will be installed and maintained in line with standard industry guidance and good practice (e.g., Subsea Cables UK Guidelines, International Cable Protection Committee Recommendations) that provide guidance on proximity of cables to existing assets and coordination with other operators.	Minimise the risk of snagging and damage to assets	Embedded mitigation
18.5	ES Chapter 18, Section 18.3.4	Embedded	Pre-construction surveys	Risk of snagging and damage to fishing gear and assets	Pre-construction surveys will be implemented by the Offshore Project in order to identify any potential hazards within the Windfarm Site. These will include geophysical surveys to identify seabed hazards, such as discarded fishing gear, wrecks or unidentified objects and magnetometer surveys to identify existing subsea cable locations and for the presence of Unexploded Ordnance (UXO) devices. Any identified UXO devices would be avoided through micro-siting or require a subsequent UXO clearance campaign.	Minimise the risk of snagging and damage to fishing gear and assets	Embedded mitigation
Offshore Seascape Landscape and Visual Amenity							
19.1	ES Chapter 19, Section 19.3.4	Embedded	Wind Turbine Generators (WTGs)	Impact to sensitive land-based receptors	The maximum blade tip height has been reduced to 284 m above Mean Sea Level (MSL), from ~345 m above MSL proposed at the Scoping stage. The maximum rotor diameter will be 262 m. This commitment defines the maximum height of WTGs that could be installed. The colour of the WTG tower and blades will be agreed with relevant stakeholders and will likely be RAL 7035 (light grey) from 15 m above water line which provides standard mitigation as a recessive colour in the seascape/sky backdrop. The structure (Floater and Tower) will likely be painted RAL 1023 (traffic yellow) from the Floater Water Line to approximately +15 m above Floater Water Line.	Minimise the impact to sensitive land-based receptors	Embedded mitigation
19.2	ES Chapter 19, Section 19.3.4	Embedded	Lighting	Impact to sensitive land-based receptors	A lighting scheme will be agreed for the aviation lighting of structures (WTGs and Offshore Substation Platforms (OSPs)) with relevant authorities. Given the sensitivity of the night skies within the study area to lighting the Applicant has committed to introduce mitigation for the aviation lighting effects. A detection	Minimise the impact to sensitive land-based receptors	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<p>system will be mounted on the offshore WTGs, and these will detect when visibility is greater than 5km. When this is the case the aviation lights will be dimmed to 10% of the 2000 candela maximum so that the intensity of the light emitted would be 200 candela. This accords with CAA guidance.</p> <p>The reduced intensity above and below the horizontal, as set out in International Civil Aviation Organisation (ICAO), (2018) and described in Section 19.2.1 would also be applicable when the 200 candela lights are operational.</p> <p>Whilst it is not included in the assessment there is also potential for further mitigation to reduce the number of WTGs fitted with aviation lights as Article 223 of the Air Navigation Order 2016 allows the following:</p> <p>“(3) If four or more wind turbine generators are located together in the same group, with the permission of the CAA only those on the periphery of the group need be fitted with a light in accordance with paragraph (2).”</p> <p>This commitment provides for minimising lighting impacts as far practicable, whilst ensuring compliance with legal requirements for lighting and marking the WTGs and OSP.</p> <p>When sensors mounted on WTGs detect the visibility in all directions from every wind turbine is more than 5km aviation warning lights will enable a reduction in lighting intensity from 2000 candela to 200 candela.</p>		
Accidents and Disasters							
26.1	ES Chapter 26, Section 26.5.3.6	Embedded	UXO	Risk of disturbance of UXO	<p>Pre-construction surveys will be implemented by the Offshore Project in order to identify any potential hazards within the Windfarm Site and Offshore Export Cable Corridor. These will include geophysical surveys to identify seabed hazards such as discarded fishing gear or unidentified objects and magnetometer surveys to identify for the presence of UXO devices. Further information on the intended pre-construction campaigns is outlined in Chapter 5: Project Description.</p> <p>A UXO Risk Mitigation Strategy will be developed post-consent:</p> <ul style="list-style-type: none"> Avoidance - a strategy of potential UXO (pUXO) detection and avoidance is proposed as the most cost effective and efficient method of reducing UXO risks to ALARP. By surveying for and avoiding direct or indirect contact with any pUXO (the source of the risk) and by moving any intrusive activity away from such prospective hazards (where practicable), such risks are avoided Removal of risk receptors - an alternative option is to remove the receptor element (of the source-pathway-receptor model), by moving certain sensitive and vulnerable receptors (typically the crews of offshore vessels), to a safe distance from the point of the intrusive activity and thus the pUXO hazard, so that it will diminish sufficiently the prospective blast, fragmentation (the former and latter are through 	Minimised risk of UXO disturbance	Embedded mitigation

Reference	Cross Reference to ES/ES Addendum	Type of Mitigation	Component / Activity	Impact	Mitigation Measure or Commitment	Effect of Mitigation	Means of Implementation
					<p>air effects) and/or shock wave (a through water effect) consequences, in order to reduce UXO risks to ALARP</p> <ul style="list-style-type: none"> ▪ Removal of Threat Sources - Where pUXO cannot be avoided, another alternative option, is to verify pUXO by investigation and where it is confirmed unexploded ordnance (cUXO), to remove it (effectively removing the source element of the source-pathway-receptor model), either by moving it to a position where it can do no harm (but only when it is safe to do so and wherever permit licencing and consent condition allow such actions), and/or by destroying it or otherwise rendering it safe ▪ In high and medium risk zones geophysical UXO survey is recommended prior to the commencement of operations that are planned within the boundaries of the Study Area, in order to provide the basis for a strategy of pUXO avoidance, or for its identification and removal ▪ Surface detection for threat spectrum UXO should consist of either Side Scan Sonar, Multi Beam Echo Sounder and/or Work Class Remotely Operated Vehicle camera search (subject to visibility and resolution, especially in areas where shallow water operations are planned), over the area of proposed operations and prior to their commencement ▪ Sub-surface detection for threat spectrum UXO should also be undertaken ahead of seabed intrusive operations and should consist of magnetometer/gradiometer survey over the area of the proposed operations ▪ Any vessels involved in intrusive works should be equipped with UXO specific Emergency Response plans, so that in the event of an unplanned UXO discovery the vessel Master and/or the offshore superintendent/party chief (or similar) are informed in advance about what safety actions must be taken. 		