



Triton Knoll Offshore Wind Farm Limited Triton Knoll Electrical System

Appendix 17: Mitigation Strategy

Date: 01 February 2016

Appendix 17 of the Applicant's
Response to Deadline 5

Triton Knoll Offshore Wind Farm Limited

Triton Knoll Electrical System

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1. INTRODUCTION AND SUMMARY

Overview

- 1.1 Triton Knoll Offshore Wind Farm Limited (TKOWFL) has submitted an application to the Planning Inspectorate (PINS), on behalf of the Secretary of State for Energy and Climate Change, for a Development Consent Order (DCO) for the Triton Knoll Electrical System (the proposed development) under the Planning Act 2008. The Triton Knoll Electrical System (TKES) would connect the consented Triton Knoll Offshore Wind Farm (TKOWF) to the National Grid substation at Bicker Fen, Boston, and would comprise offshore and onshore export cable circuits, landfall infrastructure, an onshore electrical compound, an onshore substation and works at the Bicker Fen substation.
- 1.2 The TKOWF is located approximately 33km (20.5 miles) east of the Lincolnshire coast. The Secretary of State granted a DCO for the TKOWF on 12th July 2013.
- 1.3 All terms, acronyms and abbreviations used within this Strategy are explained on first use, and / or set out in full within the Glossary appearing in the Environmental Statement – Application Document 6.2.

The Applicant

- 1.4 TKOWFL is a joint venture between two leading international energy companies; RWE Innogy UK Limited and Statkraft UK Limited. RWE Innogy UK is the UK subsidiary of the German renewable energy company RWE Innogy (part of RWE AG), a company with a strong and diversified position in renewable energy development. Statkraft UK Limited is the UK subsidiary of Statkraft Group, Europe's largest generator of renewable energy and the leading power company in Norway.

Project Overview

- 1.5 The components of the TKES, which are needed to connect TKOWF to the National Grid, comprise:
 - Up to six offshore export cable circuits – to transmit the high voltage alternating current (HVAC) electricity from the offshore substations to the transition joint bays at the landfall;

- Landfall infrastructure just north of Anderby Creek, Lincolnshire – including transition joint bays which house the connection between the offshore cables and the onshore cables;
 - Up to six onshore export cable circuits (up to 220 kV) – to transmit the HVAC electricity from the transition joint bays at the landfall to the proposed Triton Knoll Substation via the Intermediate Electrical Compound;
 - An Intermediate Electrical Compound near to Orby Marsh – to provide compensation for reactive power to allow more efficient transmission to minimise losses;
 - A substation near the existing Bicker Fen National Grid Substation – to step-up the voltage to the voltage used by the National Grid and provide additional compensation for reactive power built up over the export transmission;
 - Up to four onshore export cable circuits (400 kV) – to transmit the electricity from the proposed Triton Knoll Substation to the existing National Grid substation at Bicker Fen, Boston; and
 - Unlicensed Works within the existing National Grid substation compound comprising up to two bays each accommodating electrical equipment.
- 1.6 The Order Limits for the Triton Knoll Electrical System are shown on the Order Limits Plans (Application Document 2.1).
- 1.7 Any works at the National Grid substation near Bicker Fen required to connect the power produced by TKOWF will be consented, constructed and operated by National Grid (the ‘Enabling Works’). National Grid has not yet completed the engineering studies necessary to define the Enabling Works required at their existing Bicker Fen substation.

Purpose of this Strategy

- 1.8 This Strategy forms part of the submission for Deadline 5. Its purpose is to update the ExA on the mitigation measures identified within the Environmental Statement (Application Document 6.2) and in the Outline Management Plans.
- 1.9 This document has been updated with the mitigation measures agreed in the documents submitted up to and including Deadline 4, in particular the Application Documents Schedule of Amendments ([REP4-047] Appendix 20 of the Applicant’s response to Deadline 4). The Applicant expects that this document will be updated for

Deadline 7 to incorporate any further agreements when the final Outline Management Plans are submitted.

Scope of this Strategy

- 1.10 This Strategy relates to both the offshore elements of the TKES for the proposed TKOWF, seaward of Mean Low Water (MLW), and the onshore elements of the TKES for the proposed TKOWF, landward of MLW.

Structure of this Strategy

- 1.11 Within the remainder of this document:

- Section 2 sets out those items of mitigation referred to within the offshore volume (Volume 2) of the Environmental Statement (Application Document 6.2) and Outline Management Plans, and identifies where within the draft DCO, Deemed Marine Licence, or other supporting documents those items of mitigation are secured;
- Section 3 sets out those items of mitigation referred to within the onshore volume (Volume 3) of the Environmental Statement (Application Document 6.2) and Outline Management Plans, and identifies where within the draft DCO and supporting documents those items of mitigation are secured;
- Section 4 identifies those items of mitigation referred to within the offshore volume (Volume 2) of the Environmental Statement (Application Document 6.2) and Outline Management Plans which relate expressly to the design of the scheme. Where the design of the proposed development offers embedded mitigation (for example through the avoidance of a designated asset) that is secured through the terms of the consent for development within the draft DCO which would be granted. No further reference is therefore made to where this design mitigation would be secured through the draft DCO or its supporting documents; and
- Section 5 identifies those items of mitigation referred to within the onshore volume (Volume 3) of the Environmental Statement (Application Document 6.2) and Outline Management Plans which relate expressly to the design of the scheme. Where the design of the proposed development offers embedded mitigation (for example through the avoidance of a designated asset) that is secured through the terms of the consent for development within the draft DCO which would be granted. No further reference is therefore made to where this design mitigation would be secured through the draft DCO or its supporting documents.

Monitoring

- Monitoring will form a central part of certain elements of mitigation which are proposed in respect of the TKES. All relevant monitoring will be conducted in accordance with the monitoring provisions of the various onshore and offshore construction and operational management plans to be approved by the relevant authorities pursuant to the Requirements of the draft DCO, or the Conditions of the Deemed Marine Licence which forms Schedule 9 to the draft DCO.

2. OFFSHORE MITIGATION MEASURES

| Mitigation reference | Chapter | Phase/section | Type | Mitigation | ES reference | Where secured | DCO reference |
|----------------------|---------------------------------|-----------------|---------------------|--|----------------------|--|------------------------------------|
| | | | | SECTION 2.1 OFFSHORE PROJECT DESCRIPTION | | | |
| 1.1 | | | | There are no relevant mitigation measures for chapter 1 of this volume | | | |
| | | | | SECTION 2.2 MARINE PHYSICAL ENVIRONMENT | | | |
| 2.2 | Marine physical environment | Construction | Embedded mitigation | The cable route has been selected to avoid sandwaves where possible, and the cable route will be optimised further to avoid sandwave features. However where sandwaves are unavoidable installing the cable to a stable burial depth through the sandwaves areas will minimise the potential for exposure and the requirement for external cable protection and disturbance. | Volume 2, Table 2-11 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 2.3 | Marine physical environment | Construction | Embedded mitigation | Within areas characterised by the presence of chalk at the seabed, ploughing rather than jetting techniques will be used to install the cable. This will minimise levels of chalk held in suspension within the water column. | Volume 2, Table 2-11 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 2.4 | Marine physical environment | Construction | Embedded mitigation | Duration of time between trench excavation, cable lay and trench backfill operations at the landfall is to be kept to a minimum (i.e. to be undertaken within one tidal cycle) so as to limit disruption to coastal processes. | Volume 2, Table 2-11 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 2.5 | Marine physical environment | Construction | Embedded mitigation | No works will be undertaken in the intertidal area between 15 May and 30 September unless a scheme to protect the Bathing Water Quality Directive status, as determined by a review of Environment Agency baseline data prior to construction, has been submitted to and approved in writing by the MMO, following consultation with the Environment Agency. | | Offshore construction method statement | Schedule 9, Part 2, Condition 14 |
| 2.6 | Marine physical environment | Operation | Embedded mitigation | Where burial depth cannot be achieved, cable armouring will be implemented (e.g. concrete mattressing, rock dump, protective aprons or frond matting). The suitability of installing rock or concrete mattresses for cable protection will be investigated, based on (inter alia) the seabed current data at the location of interest and the assessed risk of impact damage. | Volume 2, Table 2-11 | Cable armouring plan | Schedule 9, Part 2, Condition 7(e) |
| | | | | SECTION 2.3 MARINE ORNITHOLOGY | | | |
| 3.1 | | | | There are no relevant mitigation measures for chapter 3 of this volume | | | |
| | | | | SECTION 2.4 INTERTIDAL AND SUBTIDAL ECOLOGY | | | |
| 4.1 | Intertidal and Subtidal Ecology | Operation | Embedded mitigation | Where possible, the export cable will be buried at a depth of at least 1.5 m, in line with EN-3, to limit impacts from EMF. | Volume 2, Table 4-8 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 4.2 | Intertidal and Subtidal Ecology | Decommissioning | Embedded mitigation | Decommissioning activities should be preceded by surveys to assess the extent to which benthic species have colonised hard substrate e.g. cable protection. This information can then be used to enable informed decisions to be made regarding the removal/decommissioning of these structures in light of the amount of colonisation of structures and the importance/value of the communities present. | Volume 2, Table 4-9 | Decommissioning programme | Schedule 9, Part 1, Paragraph 4 |
| | | | | SECTION 2.5 FISH AND SHELLFISH | | | |
| 5.1 | Fish and Shellfish | General | Embedded mitigation | An appropriate Project Environmental Management Plan will be produced and followed to cover the operation and maintenance phase of the Triton Knoll Electrical System. The latter will include planning for accidental spills, address all potential contaminant releases and include key emergency contact details (e.g., Environment Agency (EA), Natural England and Maritime and Coastguard Agency (MCA)). | Volume 2, Table 5-9 | Project Environmental Management Plan | Schedule 9, Part 2, Condition 7(d) |
| 5.2 | Fish and Shellfish | Construction | Embedded mitigation | A Construction Method Statement will be developed and implemented to cover the construction phase. | Volume 2, Table 5-9 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 5.3 | Fish and Shellfish | Operation | Embedded mitigation | TKOWFL will commit to using the Cable Burial Index (CBI). Where it is not possible to ensure that cables will remain buried, cable protection will be installed. | Volume 2, Table 5-9 | Cable armouring plan | Schedule 9, Part 2, Condition 7(e) |
| 5.4 | Fish and Shellfish | Decommissioning | Embedded mitigation | A Decommissioning Plan will be developed to cover the decommissioning phase. | Volume 2, Table 5-9 | Decommissioning programme | Schedule 9, Part 1, Paragraph 4 |

| SECTION 2.6 MARINE MAMMALS | | | | | | | |
|-----------------------------------|-----------------------|-----------------|---------------------|---|---------------------|--|------------------------------------|
| 6.1 | Marine Mammals | Construction | Embedded mitigation | In the eventuality of vessels with ducted propellers being used TKOWFL would agree appropriate mitigation with regulatory authorities in accordance with relevant guidance and best practice at the time (this commitment has been made for work within the TKOWF and will also be adopted for the export cable route and will follow the JNCC (2012) guidance). | Volume 2, Table 6-8 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 6.2 | Marine Mammals | Operation | Embedded mitigation | As above | Volume 2, Table 6-8 | Offshore operations and maintenance plan | Schedule 9, Part 2, Condition 7(j) |
| 6.3 | Marine Mammals | Decommissioning | Embedded mitigation | As above | Volume 2, Table 6-8 | Decommissioning programme | Schedule 9, Part 1, Paragraph 4 |
| SECTION 2.7 OFFSHORE CONSERVATION | | | | | | | |
| 7.1 | Offshore Conservation | Construction | Embedded mitigation | An Annex I mitigation plan will be developed in consultation with the MMO and relevant SNCBs to minimise interaction with Annex I biogenic reef features. | Volume 2, Table 7-9 | Annex I mitigation scheme | Schedule 9, Part 2, Condition 7(h) |
| 7.2 | Offshore Conservation | Construction | Embedded mitigation | In the eventuality of vessels with ducted propellers being used (during construction, repair, maintenance or decommissioning), TKOWFL would agree appropriate mitigation with regulatory authorities in accordance with relevant guidance and best practice at the time (this commitment has been made for work within the TKOWF and will also be adopted for the export cable route and will follow the JNCC (2012) guidance). | Volume 2, Table 7-9 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 7.3 | Offshore Conservation | Construction | Embedded mitigation | Jetting will not be used areas of chalk to reduce potential SSC and interaction with features such as biogenic reefs. | Volume 2, Table 7-9 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 7.4 | Offshore Conservation | Operation | Embedded mitigation | As above with respect to the possible impacts arising from the use of vessels with ducted propellers. | Volume 2, Table 7-9 | Offshore operations and maintenance plan | Schedule 9, Part 2, Condition 7(j) |
| 7.5 | Offshore Conservation | Decommissioning | Embedded mitigation | As above with respect to the possible impacts arising from the use of vessels with ducted propellers. | Volume 2, Table 7-9 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |

| | | | | SECTION 2.8 COMMERCIAL FISHERIES | | | |
|-----|----------------|--------------|---------------------|--|----------------------|--|--|
| 8.1 | Com. Fisheries | General | Embedded mitigation | Promulgation of information including regular notices to mariners, navigational aid and marine charting updates will be utilised in order to ensure sufficient notice for either gear removal and/or avoidance of construction or maintenance areas. | Volume 2, Table 8-10 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |
| 8.2 | Com. Fisheries | General | Embedded mitigation | Appointing a Fisheries Liaison Officer (FLO) during all phases to ensure appropriate and proactive communication. | Volume 2, Table 8-10 | Condition 7 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 7(d)(iv) |
| 8.3 | Com. Fisheries | General | Embedded mitigation | Appointing a Marine Traffic Co-ordinator for all phases to ensure navigational safety. | Volume 2, Table 8-10 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(4)(c) |
| 8.4 | Com. Fisheries | Construction | Embedded mitigation | Reporting of sea bed snags and lost equipment, as well as post-construction debris removal in order to minimise the risk of gear snagging. | Volume 2, Table 8-10 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(4)(c) |
| 8.5 | Com. Fisheries | Construction | Embedded mitigation | Advance warning and accurate location details of construction operations and associated precautionary areas to ensure sufficient notice for either gear removal and/or avoidance of construction areas. | Volume 2, Table 8-10 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |
| 8.6 | Com. Fisheries | Construction | Embedded mitigation | Use of guard vessels, where appropriate to protect construction activities, provide assistance and communicate information to passing vessels. | Volume 2, Table 8-10 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(4)(c) |
| 8.7 | Com. Fisheries | Operation | Embedded mitigation | Sufficient marking of fishing gear and co-ordination with wind farm operators to avoid contact and interference between fishing gear and wind farm vessels/equipment within the operational site. | Volume 2, Table 8-10 | Condition 4 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 4 |
| 8.8 | Com. Fisheries | Operation | Embedded mitigation | Advance warning and accurate location details of maintenance operations to ensure sufficient notice for either gear removal and/or avoidance of maintenance area. | Volume 2, Table 8-10 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |

| | | | | | | | |
|------|----------------|-----------------|---------------------|--|----------------------|--|------------------------------------|
| 8.9 | Com. Fisheries | Operation | Embedded mitigation | Notification of all offshore and seabed structure (locations of cables to be disseminated via Kingfisher Information Service – Cable Awareness (KISCA) Charts) to minimise risk of gear snagging. | Volume 2, Table 8-10 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |
| 8.10 | Com. Fisheries | Operation | Embedded mitigation | In order to minimise risk of gear snagging and the potential for EMF effects, export cables will be buried to a target depth of 1.5m below stable seabed, determined by a cable burial assessment. Cable protection will be employed where adequate burial cannot be achieved. A maximum extent of 0.29km2 is expected. The locations of cable protection will be provided via Notice to Mariners. | Volume 2, Table 8-10 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 8.11 | Com. Fisheries | Decommissioning | Embedded mitigation | Decommissioning plan Prepare a Decommissioning Plan to ensure that any hazards to fishing activities are identified and either removed or marked on charts. | Volume 2, Table 8-10 | Decommissioning programme | Schedule 9, Part 1, Paragraph 4 |
| | | | | SECTION 2.9 SHIPPING AND NAVIGATION | | | |
| 9.1 | Ship. and Nav. | Construction | Embedded mitigation | Vessels used for installation of the proposed development to be manned to ensure safe operation as per International Convention on Standards of Training, Certification and Watch-keeping for Seafarers and in recognition of the tasks for which they are employed. This control is subject to audit. | Volume 2, Table 9-15 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |
| 9.2 | Ship. and Nav. | Construction | Embedded mitigation | In addition to full compliance with the applicable rules of their classification society and relevant requirements of SOLAS and MARPOL, vessels used for installation of the proposed development to be maintained in accordance with an approved planned maintenance system, with particular checks of key equipment to ensure appropriate redundancy. This control is subject to audit. | Volume 2, Table 9-15 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 9.3 | Ship. and Nav. | Construction | Embedded mitigation | Wide promulgation of information to the marine community of cable laying activities with regular updates of progress. | Volume 2, Table 9-15 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |
| 9.4 | Ship. and Nav. | Construction | Embedded mitigation | Procedures for vessels engaged in the installation of the Triton Knoll Electrical System are to include operations in restricted visibility; these procedures being additional to compliance with the Colregs. | Volume 2, Table 9-15 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 9.5 | Ship. and Nav. | Construction | Embedded mitigation | Vessels used for installation of the proposed development are to operate in accordance with the agreed Project Environmental Management Plan (PEMMP). | Volume 2, Table 9-15 | Project Environmental Management Plan | Schedule 9, Part 2, Condition 7(d) |
| 9.6 | Ship. and Nav. | Construction | Embedded mitigation | One or more guard vessels will be present and maintain position close to the cable laying vessel(s). Guard vessels will monitor tracks of passing vessels, compliance with the Colregs and potential interaction with the project's vessels. | Volume 2, Table 9-15 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 9.7 | Ship. and Nav. | Construction | Embedded mitigation | Protocols will be developed to identify and react to a potential close quarter situation with a passing vessel. | Volume 2, Table 9-15 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 9.8 | Ship. and Nav. | Construction | Embedded mitigation | Information promulgated to mariners would include requests for passing vessels to avoid close quarter situations with and to avoid passing cable installation craft at high speed. | Volume 2, Table 9-15 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |
| 9.9 | Ship. and Nav. | Construction | Embedded mitigation | In the event of a navigational mark (such as a buoy) being required to temporarily mark a subsea structure, details of it will be widely promulgated to the marine community. | Volume 2, Table 9-15 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |
| 9.1 | Ship. and Nav. | Construction | Embedded mitigation | Details of any locations where newly laid cable that has not yet been buried or protected will be promulgated to the marine community. | Volume 2, Table 9-15 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |
| 9.11 | Ship. and Nav. | Operation | Embedded mitigation | It is intended that cables will be buried in accordance with a Cable Burial Assessment (CBA) that reflects the types and sizes of vessels navigating above the cables. Where burial cannot be achieved, alternative protection will be provided. | Volume 2, Table 9-15 | Cable armouring plan | Schedule 9, Part 2, Condition 7(e) |
| 9.12 | Ship. and Nav. | Decommissioning | Embedded mitigation | As construction | Volume 2, Table 9-15 | Decommissioning programme | Schedule 9, Part 1, Paragraph 4 |
| | | | | SECTION 2.10 OTHER MARINE USERS | | | |

| | | | | | | | |
|------|-------------------------------------|-----------------|---------------------|---|-----------------------|---|------------------------------------|
| 10.1 | Other Marine Users - offshore cable | General | Embedded mitigation | Promulgation of information including regular notices to mariners, navigational aids and marine charting updates will be utilised. | Volume 2, Table 10-11 | Condition 2 of the Deemed Marine Licence | Schedule 9, Part 2, Condition 2 |
| 10.2 | Other Marine Users - offshore cable | Construction | Embedded mitigation | The crossing or laying of marine export cables from Triton Knoll Electrical System over or adjacent to existing or future pipelines will be subject to pipeline crossing/proximity agreements between TKOWFL and the pipeline operators, prior to the start of the construction phase. | Volume 2, Table 10-11 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 10.3 | Other Marine Users - offshore cable | Construction | Embedded mitigation | One or more guard vessels will be present and maintain position close to the cable laying vessel(s). Guard vessels will monitor tracks of passing vessels, compliance with the Colregs and potential interaction with the project's vessels. Appropriate safety buffers around construction vessels will be maintained. | Volume 2, Table 10-11 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 10.4 | Other Marine Users - landfall | Construction | Embedded mitigation | In order to avoid damage to sea defences, HDD, drilling or tunnelling under sea defences will be carried out to connect offshore export cables to the onshore portion of the development. | Volume 2, Table 10-11 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 10.5 | Other Marine Users | Operation | Embedded mitigation | One or more guard vessels will be present and maintain position close to maintenance vessel(s). Guard vessels will monitor tracks of passing vessels, compliance with the Colregs and potential interaction with the project's vessels. | Volume 2, Table 10-11 | Offshore construction method statement | Schedule 9, Part 2, Condition 7(c) |
| 10.6 | Other Marine Users | Decommissioning | Embedded mitigation | Prior to the expiry of any consent granted for Triton Knoll Electrical System, consultation with DECC and any other relevant bodies would be carried out to determine appropriate safety buffers to be maintained around decommissioning vessels. | Volume 2, Table 10-11 | Decommissioning programme | Schedule 9, Part 1, Paragraph 4 |
| | | | | SECTION 2.11 MARINE HISTORIC ENVIRONMENT | | | |
| 11.1 | Marine Historic Environment | Construction | Embedded mitigation | Avoidance of known wrecks through implementation of appropriate buffers | Volume 2, Table 11-14 | Offshore Written Scheme of Investigations | Schedule 9, Part 2, Condition 7(g) |
| 11.2 | Marine Historic Environment | Construction | Embedded mitigation | Design of scheme layout to minimise impact to geophysical anomalies of potential anthropogenic origin and archaeological interest | Volume 2, Table 11-14 | Offshore Written Scheme of Investigations | Schedule 9, Part 2, Condition 7(g) |
| 11.3 | Marine Historic Environment | Construction | Embedded mitigation | Preservation by record where preservation in situ not possible | Volume 2, Table 11-14 | Offshore Written Scheme of Investigations | Schedule 9, Part 2, Condition 7(g) |
| 11.4 | Marine Historic Environment | Construction | Embedded mitigation | Archaeological assessment of further geophysical data and/or geotechnical assessment of cores to identify potential prehistoric sites | Volume 2, Table 11-14 | Offshore Written Scheme of Investigations | Schedule 9, Part 2, Condition 7(g) |
| 11.5 | Marine Historic Environment | Construction | Embedded mitigation | Implementation of formal protocol to deal with unknown sites and material encountered during course of development | Volume 2, Table 11-14 | Offshore Written Scheme of Investigations | Schedule 9, Part 2, Condition 7(g) |
| 11.6 | Marine Historic Environment | Construction | Embedded mitigation | Watching briefs where seabed material is brought to the surface and if trenching is undertaken in the intertidal zone | Volume 2, Table 11-14 | Offshore Written Scheme of Investigations | Schedule 9, Part 2, Condition 7(g) |
| 11.7 | Marine Historic Environment | Construction | Embedded mitigation | Archaeological assessment of additional geophysical data to monitor sites following construction | Volume 2, Table 11-14 | Offshore Written Scheme of Investigations | Schedule 9, Part 2, Condition 7(g) |
| 11.8 | Marine Historic Environment | Operation | Embedded mitigation | Avoidance of known sites through implementation of appropriate buffers | Volume 2, Table 11-14 | Offshore Written Scheme of Investigations | Schedule 9, Part 2, Condition 7(g) |
| 11.9 | Marine Historic Environment | Operation | Embedded mitigation | Archaeological assessment of additional geophysical data to monitor sites during the working life of the cable. | Volume 2, Table 11-14 | Offshore Written Scheme of Investigations | Schedule 9, Part 2, Condition 7(g) |

| | | | | | | | |
|-------|-----------------------------|-----------------|---------------------|--|-----------------------|---------------------------|---------------------------------|
| 11.10 | Marine Historic Environment | Decommissioning | Embedded mitigation | Provision made for methods of removal to minimise further impact Avoidance of known sites through implementation of appropriate buffers | Volume 2, Table 11-14 | Decommissioning programme | Schedule 9, Part 1, Paragraph 4 |
| | | | | SECTION 2.12 INTER-RELATIONSHIPS | | | |
| 12.1 | | | | There are no relevant mitigation measures for chapter 12 of this volume | | | |
| | | | | SECTION 2.13 CONCLUSIONS AND SUMMARY OF KEY ISSUES | | | |
| 13.1 | | | | There are no relevant mitigation measures for chapter 13 of this volume | | | |

3. ONSHORE MITIGATION MEASURES

SECTION 3 - ONSHORE MITIGATION

| Mitigation reference | Chapter | Phase / section | Type | Mitigation | ES reference | Where secured (Application Document) | DCO reference |
|----------------------|----------|---|---------------------|--|---------------------|--|-------------------|
| | | | | SECTION 3.1 INTRODUCTION | | | |
| 1.1 | | | | There are no relevant mitigation measures for chapter 1 of this volume | | | |
| | | | | SECTION 3.2 LANDSCAPE AND VISUAL | | | |
| 2.1 | LVIA | Construction - Intermediate Electrical Compound | Embedded mitigation | The use of artificial light will be minimised to that required for safe working with down lighting to minimise light scatter in accordance with the CoCP (see Outline Artificial Light Emissions Plan, Application Document 8.7.6). | Volume 3 Table 2-14 | Outline Artificial Light Emissions Plan (8.7.6) Section 2 | Requirement 14 |
| 2.2 | LVIA | Construction - Substation | Embedded mitigation | The use of artificial light will be minimised to that required for safe working with down lighting to minimise light scatter in accordance with the CoCP (see Outline Artificial Light Emissions Plan, Application Document 8.7.6). | Volume 3 Table 2-14 | Outline Artificial Light Emissions Plan (8.7.6) Section 2 | Requirement 14 |
| 2.3 | LVIA | Construction - National Grid Substation | Embedded mitigation | The use of artificial light will be minimised to that required for safe working with down lighting to minimise light scatter in accordance with the CoCP (see Outline Artificial Light Emissions Plan, Application Document 8.7.6). | Volume 3 Table 2-14 | Outline Artificial Light Emissions Plan (8.7.6) Section 2 | Requirement 14 |
| 2.4 | LVIA | Construction - onshore cable | Embedded mitigation | A pre-construction walkover survey of the working area will be undertaken by an appropriately experienced arboriculturalist and the guidance set out in BS 5837:2012 Trees in Relation to Construction will be adhered to where applicable. The survey will define specific mitigation measures required for all trees situated in or adjacent to the working width, including measures such as the erection of protective fencing in order to minimise the impacts on trees and their roots. | Volume 3 Table 2-14 | Outline Construction Method Statement Revision C Paragraph 5.13 | Requirement 14 |
| 2.5 | LVIA | Construction - onshore cable | Embedded mitigation | Hedgerow in proximity to the working width will be protected from disruption and if necessary protection fences will be erected to ensure that roots remain undisturbed. | Volume 3 Table 2-14 | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.2 | Requirement 14 |
| 2.6 | LVIA | Construction - onshore cable | Embedded mitigation | Trenchless techniques (Horizontal directional drilling (HDD), microbore or pipejacking) will be adopted at the location of certain sensitive landscape elements, for example: the sand dunes at the landfall point; rivers and drains; and certain lines of trees (i.e. trees which are adjacent to drainage. Drilling under such features avoids the loss or damage to these features. The full list of such features is provided within the Crossing Schedule (Document 8.3). | Volume 3 Table 2-14 | Crossing Schedule 8.3 | Requirement 5(11) |
| 2.7 | LVIA | Construction - onshore cable | Embedded mitigation | The use of artificial light will be minimised to that required for safe working with down lighting to minimise light scatter in accordance with the CoCP (see Outline Artificial Light Emissions Plan, Application Document 8.7.6). | Volume 3 Table 2-14 | Outline Artificial Light Emissions Plan (8.7.6) Section 2 | Requirement 14 |
| 2.8 | LVIA | Construction - onshore cable | Embedded mitigation | Agricultural fields will be restored to their previous condition. Topsoil will be prepared and seeded using an appropriate seed mix or returned to arable cultivation. | Volume 3 Table 2-14 | Outline Soil Management Plan Revision B Paragraph 5.10 | Requirement 14 |
| 2.9 | LVIA | Construction - onshore cable | Embedded mitigation | Land drains within the cable route, which may be temporarily affected by construction operations, will also be restored following completion of construction. This is important to ensure that the growth of trees and hedgerows is not affected by changes to the surface water drainage system. | Volume 3 Table 2-14 | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.16 | Requirement 14 |
| 2.10 | LVIA | Construction - onshore cable | Embedded mitigation | Hedgerows which will have been removed will be replanted, including on the cable route. With the exception of the very short section of 400 kV circuits to the south of the existing National Grid Substation at Bicker Fen, trees will not be planted on or within 6 m of the edge of the cable trench to avoid the risk of damage to the cable by tree roots. However, the route has sought to avoid groups of trees where possible with only limited losses likely. Further details of these measures are provided within Document 8.8: Outline Landscape Strategy and Ecological Management Plan | Volume 3 Table 2-14 | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.18 | Requirement 14 |
| 2.11 | LVIA | Construction - onshore cable | Embedded mitigation | Considering the landfall point specifically, the beach area at Anderby Creek will be returned as far as is practicable to its original condition. Further details of these measures are provided within the Outline Construction Method Statement Revision C | Volume 3 Table 2-14 | Outline Construction Method Statement Revision C Paragraph 4.9 | Requirement 14 |
| 2.12 | LVIA | Construction - onshore cable | Embedded mitigation | Restoration will seek to replace vegetation lost with the same species which are identified within the Phase I habitat survey as far as is practicable. Further details of these measures are provided within Document 8.8: Outline Landscape Strategy and Ecological Management Plan | Volume 3 Table 2-14 | Outline Construction Method Statement Revision C Paragraph 2.53 | Requirement 14 |
| 2.13 | LVIA | Decommissioning - all elements | Embedded mitigation | The onshore cable will be removed, for which access will be required to the transition joint bays at the landfall and the cable joint pits only. However, the underground ducting will remain in place, avoiding the requirement for excavation works which will minimise landscape and visual effects. | Volume 3 Table 2-14 | This would be secured in the onshore decommissioning plan to be submitted under Requirement 21 | Requirement 21 |
| | | | | SECTION 3.3 SOCIO-ECONOMICS | | | |
| 3.1 | Socio Ec | General | Embedded mitigation | Use of HDD or another appropriate trenchless technique at appropriate locations (see onshore Crossing Schedule Application Document 8.3). | Volume 3 Table 3-8 | Crossing Schedule 8.3 | Requirement 5(11) |
| 3.2 | Socio Ec | General | Embedded mitigation | Use of best practice methods | Volume 3 Table 3-8 | Outline Construction Method Statement Revision C Paragraph 2.51 | Requirement 14 |

SECTION 3 - ONSHORE MITIGATION

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| 3.3 | Socio Ec | General | Embedded mitigation | Ongoing liaison-with statutory and non-statutory consultees, stakeholders and the general public. | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.5 | Requirement 14 |
| 3.4 | Socio Ec | General | Embedded mitigation | Normal working operations will not take place on a Sunday | | Outline Soil Management Plan Revision B Paragraph 3.5 | Requirement 14 |
| 3.5 | Socio Ec | General | Embedded mitigation | In accordance with Requirement 5(11) of the Development Consent Order, at least 3 months prior to the commencement of the first stage of the onshore cable works a plan detailing the indicative sequencing of the onshore cable works, including landfall works, will be submitted to the relevant Planning Authorities. Based on the information available at the time, the plan will provide information on the commencement of work in each stage of the onshore cable route, including landfall, and the anticipated duration of works. The plan will be updated when significant changes are made and provided to the relevant Planning Authorities. At the same time as the plan is provided to the Planning Authorities details from it will be communicated more widely, including: <ul style="list-style-type: none"> Placed on the Triton Knoll Website; Distributed by the Agricultural Liaison Officer to relevant landowners and tenants; Available at, and actively communicated at, any public liaison events, including Local Liaison Committee events | | Outline Communications Plan (8.7.10) Paragraph 2.10 to 2.12 | Requirement 14 |
| 3.6 | Socio Ec | Construction - Landfall | Embedded mitigation | Local employers and suppliers will be informed of the proposed construction works and participation of local and regional companies in the tendering process will be encouraged. | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.9 | Requirement 14 |
| 3.7 | Socio Ec | Construction - Landfall | Embedded mitigation | The burial of the onshore cable under the sand dunes will be undertaken using trenchless techniques. | Volume 3 Table 3-8 | Construction Method Statement Revision C Paragraph 4.2 | Requirement 14 |
| 3.8 | Socio Ec | Construction - Landfall | Embedded mitigation | With the exception of Hutt/10/4, all PRoW will kept open or diverted within the Proposed Development Boundary, to minimise impact for users. | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.6 | Requirement 14 |
| 3.9 | Socio Ec | Construction - Landfall | Embedded mitigation | PROW closures / diversions will be communicated to Lincolnshire County Council and other relevant organisations, including Parish Councils. Information will include the duration and proposed alternative routes. A PROW Diversion Plan has been prepared as part of the DCO application (Application Document 2.7) | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.7 | Requirement 14 |
| 3.10 | Socio Ec | Construction - Landfall | Embedded mitigation | Nearby caravan parks, chalet sites etc. will be informed of construction activities which may affect their usual operations and activities, such as access, opening hours, and planned events. | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.8 | Requirement 14 |
| 3.11 | Socio Ec | Construction - Landfall | Embedded mitigation | The use of artificial light will be minimised to that required for safe working with down lighting to minimise light scatter in accordance with the CoCP (see Outline Artificial Light Emissions Plan, Application Document 8.7.6) | Volume 3 Table 3-8 | Outline Artificial Light Emissions Plan (8.7.6) Section 2 | Requirement 14 |
| 3.12 | Socio Ec | Construction - Onshore cable | Embedded mitigation | Local employers and suppliers will be informed of the proposed construction works and participation of local and regional companies in the tendering process will be encouraged. | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.9 | Requirement 14 |
| 3.13 | Socio Ec | Construction - Onshore cable | Embedded mitigation | All PRoW will kept open or diverted within the Proposed Development Boundary, to minimise impact for users. | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.6 and Outline Construction Method Statement Revision C Paragraph 3.3 | Requirement 14 |
| 3.14 | Socio Ec | Construction - Onshore cable | Embedded mitigation | PROW closures / diversions will be communicated to Lincolnshire County Council and other relevant organisations, including Parish Councils. Information will include the duration and proposed alternative routes. A PROW Diversion Plan has been prepared as part of the DCO application (Application Document 2.7) | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.7 | Requirement 14 |
| 3.15 | Socio Ec | Construction - Onshore cable | Embedded mitigation | Nearby caravan parks, chalet sites etc. will be informed of construction activities which may affect their usual operations and activities, such as access, opening hours, and planned events. | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.8 | Requirement 14 |
| 3.16 | Socio Ec | Construction - IEC | Embedded mitigation | Local employers and suppliers will be informed of the proposed construction works and participation of local and regional companies in the tendering process will be encouraged. | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.9 | Requirement 14 |
| 3.17 | Socio Ec | Construction - IEC | Embedded mitigation | Nearby caravan parks, chalet sites etc. will be informed of construction activities which may affect their usual operations and activities, such as access, opening hours, and planned events. | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.8 | Requirement 14 |
| 3.18 | Socio Ec | Construction - Substation | Embedded mitigation | Local employers and suppliers will be informed of the proposed construction works and participation of local and regional companies in the tendering process will be encouraged. | Volume 3 Table 3-8 | Outline Communications Plan (8.7.10) Paragraph 2.9 | Requirement 14 |
| SECTION 3.4 TERRESTRIAL ECOLOGY | | | | | | | |
| 4.1 | Terrestrial ecology | Construction | Embedded mitigation | Areas of habitat disturbed along the cable route will be restored to equivalent habitat condition post-construction. Restoration will seek to replace vegetation with the same species identified in the extended Phase 1 habitat survey as far as is practicable. At construction compounds important neighbouring habitats the use of signage, fencing and workforce briefings will be used to prevent incursion by construction machinery and the workforce. | Volume 3 Table 4-17 | Outline Construction Method Statement Revision C Paragraphs 2.53 and 2.10 | Requirement 14 |

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| 4.2 | Terrestrial ecology | Construction | Embedded mitigation | The protection, restoration and reinstatement of habitats (including re-seeding if required). | Volume 3 Table 4-17 | Outline Construction Method Statement Revision C Paragraphs 2.52 to 2.53 | Requirement 14 |
| 4.3 | Terrestrial ecology | Construction | Embedded mitigation | A reduced working width (maximum 30 m) will be used when crossing ecologically sensitive water courses (e.g. known water vole habitat) and hedgerows. | Volume 3 Table 4-17 | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.17 | Requirement 14 |
| 4.4 | Terrestrial ecology | Construction | Embedded mitigation | Where possible any tree, scrub or hedgerow removal required to facilitate the development will be carried out outside the breeding bird season (removal undertaken between September and February inclusive). If this is not possible the vegetation shall be checked by an ecologist prior to removal to ensure no nesting birds are present and appropriate measures are in place to protect other sensitive species encountered. | Volume 3 Table 4-17 | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.22 | Requirement 14 |
| 4.5 | Terrestrial ecology | Construction | Embedded mitigation | Working widths will be reduced to 30 m for hedgerow crossings. Removal will take place in advance of cable installation works beginning in each section. Once cable installation works have been completed in each section, cut brush will be replaced within the gap created to maintain linear structure and function as an ecological corridor. This brush will remain in-situ for the remainder of the construction phase, unless cable testing activity requires access to be taken. If access is required an ecologist will check the brush to ensure no nesting birds are present prior to removal. The brush will be used during the restoration phase as a framework to protect newly planted hedging plants and maintain connectivity as the newly planted hedgerow matures. | | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.19 | Requirement 14 |
| 4.6 | Terrestrial ecology | Construction | Embedded mitigation | Hedgerow in proximity to the working width will be protected from disruption and if necessary protection fences will be erected to ensure that roots remain undisturbed. | Volume 3 Table 2-14 | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.20 | Requirement 14 |
| 4.7 | Terrestrial ecology | Construction | Embedded mitigation | Where hedgerows crossings are designed with a trenchless crossing technique, working widths will be reduced to around to 10m to accommodate the haul road and an appropriate buffer. | | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.21 | Requirement 14 |
| 4.8 | Terrestrial ecology | Construction | Embedded mitigation | During the cable duct installation phase the Ecological Clerk of Works will determine, on a case by case basis, whether it is necessary to put in temporary measures to provide a linear feature along which bats may commute. If the habitat, and bat survey results (undertaken as part of the application), suggest that the hedgerow may be acting as a major commuting route temporary chestnut paling fencing (or similar) will be placed in the gap at the end of each working day to maintain the integrity of the linear feature. | | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.24 | Requirement 14 |
| 4.9 | Terrestrial ecology | Construction | Embedded mitigation | During the restoration phase the lengths of removed hedgerow will be replaced with native plantings. Further hedgerow planting will also take place within existing gaps in hedgerows within the onshore development area. This measure leading to an increase in the overall length of hedgerow present within the area. | | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.25 | Requirement 14 |
| 4.10 | Terrestrial ecology | Construction | Embedded mitigation | Trenchless techniques (HDD/ microbore or pipe jacking) will be employed for the installation of the cable ducts at the location of ecological sensitive receptors including the three locally designated sites that are to be crossed (Huttoft Bank Dunes LWS Old River Lynn LWS and South Forty Foot Drain LWS), rivers and major drains and certain lines of trees (HDD / microbore or pipe jacking) locations provided in Crossing Schedule (Document 8.3) | Volume 3 Table 4-17 | Crossing Schedule 8.3 | Requirement 5(11) |
| 4.11 | Terrestrial ecology | Construction | Embedded mitigation | A draft licence application for the closure of a badger sett will be required prior to submission of the EIA. This will enable a letter of no impediment to be granted by Natural England for works that will affect a badger sett. Natural England have agreed that no other licences will be required, at pre-submission stage, for European or other nationally protected species. The badger licence will include production of a species specific method statement. Further surveys for badgers will be undertaken prior to commencement of ground works to ensure compliance with relevant legislation | Volume 3 Table 4-17 | Outline Construction Method Statement Revision C Paragraph 2.36 | Requirement 14 |
| 4.12 | Terrestrial ecology | Construction | Embedded mitigation | Further surveys will be undertaken prior to commencement of ground works to ensure compliance with relevant legislation (e.g. WCA). | Volume 3 Table 4-17 | Outline Construction Method Statement Revision C Paragraph 2.37 | Requirement 14 |
| 4.13 | Terrestrial ecology | Construction | Embedded mitigation | An Ecological Clerk of Works (ECoW) shall be employed for the duration of the project to ensure species specific mitigation method statements and plans are implemented effectively. | Volume 3 Table 4-17 | Outline Construction Method Statement Revision C Paragraph 2.38 | Requirement 14 |
| 4.14 | Terrestrial ecology | Construction | Embedded mitigation | Pollution will be controlled during construction works by following appropriate Environment Agency Guidelines. This will minimise damage to habitats and/or food resources used by fauna and prevent direct toxic effects on individual animals. | Volume 3 Table 4-17 | Outline Construction Method Statement Revision C Paragraph 2.39 | Requirement 14 |
| 4.15 | Terrestrial ecology | Construction | Embedded mitigation | The specific measures to be undertaken in specified areas of coastal grazing marsh during the construction in Sites 2 to 7 are described in Appendix 1. | | Outline Construction Method Statement Revision C Paragraph 5.14 | Requirement 14 |
| 4.16 | Terrestrial ecology | Construction | Embedded mitigation | The made ground to be constructed to house the TJBs will provide an opportunity to establish wild flower rich grassland in an area currently being used for crop production. The types of flora to be established in this area would be determined following a survey of the areas of grassland in adjacent areas of the Lincolnshire Coastal Country Park, with the aim of expanding the area of existing habitat. Approximately 0.5 ha of grassland will be established and managed annually, both to ensure access to the TJBs is maintained and to benefit the habitat. Depending on the seed mix chosen it is likely that the grassland would be mechanically cut annually with spot control of perennial weeds (such as creeping thistle, ragwort, broad-leaved dock etc.) undertaken to prevent both degradation of the grassland and contamination by perennial weed seeds of adjacent fields. The final specification of the seed mix and the annual management would be provided in the Ecological Management Plan as detailed in Requirement 13 of the draft DCO (document reference 3.1). | | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 6.26 | Requirement 14 |
| 4.17 | Terrestrial ecology | Construction | Embedded mitigation | Use of artificial light will be minimised to that required for safe working with down lighting to minimise light scatter. | Volume 3 Table 4-17 | Outline Artificial Light Emissions Plan (8.7.6) Section 2 | Requirement 14 |

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| 4.18 | Terrestrial ecology | Operation | Embedded mitigation | Each plant in the proposed mitigation planting will be subject to a 10 year management and maintenance programme as secured in Requirement 7(2) of the draft DCO (document reference 3.1). An outline programme for the aftercare and monitoring is set out as follows: • Year 1 details of start date, seed mix, details of planting, tree/shrub numbers and preliminary survival. Maintenance scheme, weeding, pruning, watering, feeding, etc. as required. • Year 2 observation on the condition and growth of trees/shrubs, survival and replacement programme, details of any natural colonisation. Maintenance scheme carried out. • Year 3 and 4 observations on condition and growth of trees/shrubs, survival and replacement programme, maintenance scheme carried out focusing on weeding requirements, tree stake removal. • Year 5 observations on condition and growth of trees, and maintenance scheme carried out, site report reviewing progress and proposals for management during period to year 10. • Years 5 to 10 observations on condition and growth of trees, and maintenance scheme carried out. Survival and replacement programme as required. | | Outline Landscape Strategy and Ecological Management Plan Revision B Paragraph 7.14 | Requirement 14 |
| 4.19 | Terrestrial ecology | Decommissioning | Embedded mitigation | Reinstatement to habitats to former land use following methods outlined above. | Volume 3 Table 4-17 | This would be secured in the onshore decommissioning plan to be submitted under Requirement 21 | Requirement 21 |
| SECTION 3.5 LAND USE, AGRICULTURE AND SOILS | | | | | | | |
| 5.1 | Land use | Construction | Embedded mitigation | Stabilised Cement Bound Sand will be packed around the ducts in order to aid heat dissipation. | Volume 3 Table 5-7 | Outline Construction Method Statement Revision C Paragraph 5.3 | Requirement 14 |
| 5.2 | Land use | Construction | Embedded mitigation | Where required, crossing points will be used in suitable places in order that livestock and vehicles can cross the working width. | Volume 3 Table 5-7 | Outline Construction Method Statement Revision C Paragraph 2.18 | Requirement 14 |
| 5.3 | Land use | Construction | Embedded mitigation | General disruption impacts will be mitigated early in the construction planning process by allowing a sufficient time period between the serving of notice for entry and the commencement of on-site activities; this will allow farmers and landowners time to adapt their working practices in anticipation of the works . | Volume 3 Table 5-7 | Outline Construction Method Statement Revision C Paragraph 2.25 | Requirement 14 |
| 5.4 | Land use | Construction | Embedded mitigation | In relation to temporary land take requirements TKOWFL will liaise with landowners to agree commercial terms with affected parties including any loss of ongoing payments or fines relating to agr-environmental stewardship schemes. | Volume 3 Table 5-7 | These matters will be secured through any land agreement with affected landowners, or the provisions within the draft Order relating to the compulsory acquisition of rights or land | Part 5, where applicable |
| 5.5 | Land use | Construction | Embedded mitigation | All soil handling, storage, replacement and management will be undertaken in accordance with best practice (DEFRA, 2009). | Volume 3 Table 5-7 | Outline Soil Management Plan Revision B Paragraph 5.1 | Requirement 14 |
| 5.6 | Land use | Construction | Embedded mitigation | A Soil Management Plan (SMP) will be prepared in advance of construction to ensure protection, conservation and reinstatement of soil material, its physical and chemical properties and functional capacity for agricultural use. Mitigation measures to be captured in the SMP comprise the following: • Topsoil from areas currently in agricultural use to be stripped before the start of general construction works, with priority focussed on those areas of highest grade Best and Most Versatile (BMV) land; • Soils shall be categorised on the basis of their origin, and type/texture, and stockpiled/stored accordingly; topsoil's shall be stored separately from subsoil's; • Transportation of soils to be kept to the absolute minimum to reduce the risk of contamination between fields; • Soils suitable for reuse as part of wider mitigation (e.g. planting areas) to be reused in a broadly similar location to their origin, and stored for the shortest amount of time permissible; and • Any surplus soils to be disposed of in an appropriate manner off-site. | Volume 3 Table 5-7 | Outline Soil Management Plan Revision B Paragraph 5.1 | Requirement 14 |
| 5.7 | Land use | Construction | Embedded mitigation | Soil sampling will be undertaken along the cable route to identify and describe the physical and nutrient characteristics of the existing soil profiles. | | Outline Soil Management Plan Revision B Paragraph 2.12 | Requirement 14 |
| 5.8 | Land use | Construction | Embedded mitigation | Plant and traffic movements will be confined to designated routes to minimise the potential for soil disturbance, compaction and indirect contamination. Tracked equipment will be used wherever possible to reduce compaction. | | Outline Soil Management Plan Revision B Paragraph 5.3 | Requirement 14 |
| 5.9 | Land use | Construction | Embedded mitigation | Stripping will generally be undertaken by an excavator positioned on the surface of the topsoil, and to the maximum topsoil depth without disturbing or removing the subsoil. Topsoil's will be stripped directly to store when in a dry and friable condition. Field tests will be provided to the contractors to determine when soils are in a suitable moisture condition for handling. Multiple handling of topsoil will be avoided. | | Outline Soil Management Plan Revision B Paragraph 5.4 | Requirement 14 |
| 5.10 | Land use | Construction | Embedded mitigation | Subsoil's will be stripped directly to store when in a dry and friable condition. Field tests will be provided to the contractors to determine when soils are in a suitable moisture condition for stripping. Multiple handling of subsoil will be avoided. | | Outline Soil Management Plan Revision B Paragraph 5.5 | Requirement 14 |
| 5.11 | Land use | Construction | Embedded mitigation | The stripped topsoil and excavation subsoil will be stored within the working width. Topsoil may be stored on the existing surface but subsoil will be stored on land that has been stripped of topsoil. The ground where the soil stores will be placed will be free from vegetation and waste, and positioned away from tree crowns, watercourses and ditches. To ensure soil stores are located away from runoff, cut off ditches will be used to divert water to a suitable drainage system. | | Outline Soil Management Plan Revision B Paragraph 5.6 | Requirement 14 |
| 5.12 | Land use | Construction | Embedded mitigation | Effective programming will ensure soil is stored for the minimum time possible. Where soil is to be stored for over 6 months it will be seeded with a rapid-growing grass to minimise erosion | | Outline Soil Management Plan Revision B Paragraph 5.7 | Requirement 14 |

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| 5.13 | Land use | Construction | Embedded mitigation | Soil storage areas will be maintained in line with Defra best practice guidelines (Defra, 2009). Examples of soils protection measures include: <ul style="list-style-type: none"> • Covering of stored soil to prevent weed growth; • Sowing of ground cover e.g. dense grass swards • Regular strimming of weed growth to prevent seeding; • Herbicide applications (pre- or post-emergence); and • Mechanical control of weed seedlings. | | Outline Soil Management Plan Revision B Paragraph 3.11 | Requirement 14 |
| 5.14 | Land use | Construction | Embedded mitigation | A temporary haul road, typically 6 m in width, will be constructed within the cable corridor working width on land that has been stripped of topsoil. | | Outline Soil Management Plan Revision B Paragraph 3.12 | Requirement 14 |
| 5.15 | Land use | Construction | Embedded mitigation | Disturbed ground will be reinstated with the stored subsoil following trenching. If necessary, the subsoil will be ripped prior to aid natural structure and drainage. Topsoil will be replaced above the installed trenches once the High Voltage testing has been successfully completed, in order to return the land to its previous condition as soon as possible. Topsoil will be spread in such a way as to ensure that it does not become compacted. | | Outline Soil Management Plan Revision B Paragraph 3.16 to 3.17 | Requirement 14 |
| 5.16 | Land use | Construction | Embedded mitigation | At the end of construction soils will be returned in a condition at least equivalent to those recorded in the pre-entry record of condition. It is therefore not anticipated that an aftercare plan over and above the landowners usual working of the soil will be required. However if there is a loss in crop yield in the areas affected by construction once the land has been reinstated the landowner is protected by the compensation mechanism included in paragraph 4.10 and an investigation will be undertaken into the condition of the soil and appropriate action undertaken to put right any issue. If this is required it will take the form of a post-construction survey of the soils using the same approach as the pre-construction surveys and will include a control sample. | | Outline Soil Management Plan Revision B Paragraph 5.11 | Requirement 14 |
| 5.17 | Land use | Construction | Embedded mitigation | Plant and traffic movements will be confined to designated routes (e.g. haul routes and vehicle access routes) to minimise the potential for soil disturbance, compaction and indirect contamination.. | Volume 3 Table 5-7 | Outline Traffic Management Plan (8.9) | Requirement 18 |
| 5.18 | Land use | Construction | Embedded mitigation | Measures contained in relevant DEFRA and Environment Agency best practice guidance on the control and removal of invasive weed species will be implemented. | Volume 3 Table 5-7 | Outline Construction Method Statement Revision C Paragraph 2.46 | Requirement 14 |
| 5.19 | Land use | Construction | Embedded mitigation | The mains work contractor will cease work and advise the Animal Health Regional Office should animal bones be discovered which indicate a potential burial site. | Volume 3 Table 5-7 | Outline Construction Method Statement Revision C Paragraph 2.45 | Requirement 14 |
| 5.20 | Land use | Construction | Embedded mitigation | At least one suitably qualified Agricultural Liaison Officers (ALO) will be appointed, more will be appointed if required to be the point of contact with the landowners / occupiers along the cable route, to work with the Applicant and the landowners/occupiers to manage the construction and operation of the proposed development and to ensure that good communications are maintained with landowners and tenants affected by the works | | Outline Soil Management Plan Revision B Paragraphs 2.1 to 2.3 | Requirement 14 |
| 5.21 | Land use | Construction | Embedded mitigation | Agricultural Liaison Officers will have the following skills and experience, as appropriate to their role and as necessary during the particular phase of the project: <ul style="list-style-type: none"> • Knowledge and experience of working in a similar role for large linear projects. • Experience of contact with land owners. • Knowledge of compulsory acquisition process if required. • Knowledge of Local Authority planning process and requirements. | | Outline Soil Management Plan Revision B Paragraph 2.3 | Requirement 14 |
| 5.22 | Land use | Construction | Embedded mitigation | The Applicant will update stakeholders of the status of the ALO on a quarterly basis through the procedures established in the Communication Plan secured as part of the Code of Construction practice. | | Outline Soil Management Plan Revision B Paragraph 2.4 | Requirement 14 |
| 5.23 | Land use | Construction | Embedded mitigation | The ALO role will be undertaken prior to the determination of the TKES DCO application by the Applicant's project team. Formal appointment of the ALO will take place prior to the commencement of pre-construction activities and detailed design planning, to ensure that landowners and occupiers are fully engaged in these processes well in advance. The ALO will be briefed by the Applicant's project team, and have access to all relevant background information. | | Outline Soil Management Plan Revision B Paragraph 2.5 | Requirement 14 |
| 5.24 | Land use | Construction | Embedded mitigation | An ALO will meet with the Land Interest Group, or equivalent, every three months, and more frequently if required, to discuss matters arising during the pre-construction and construction of the proposed development. | | Outline Soil Management Plan Revision B Paragraph 2.6 | Requirement 14 |
| 5.25 | Land use | Construction | Embedded mitigation | A member of the ALO team will be available at all times during working hours or as appropriate, depending on program activities, such as during 24 hour construction activities, to give advice to landowners, the Applicant's project team manager and surveyors should they require it. This resource will not be limited, and may be contracted to a group or company to achieve continuity throughout. | | Outline Soil Management Plan Revision B Paragraph 2.7 | Requirement 14 |
| 5.26 | Land use | Construction | Embedded mitigation | A nominated ALO will be the primary contact for the landowners and occupiers in relation to consultation and discussions regarding the management of restrictive covenants for the lifetime of the project. Information in relation to the process of management of restrictive covenants will be issued to landowners and occupiers every year. Landowners may request necessary consent for activities captured by the restrictive covenant by telephone, email or in writing. Consent, including any restrictions on working practices, will be provided by the cable operator in writing as soon as practicable and representatives of the cable operator may need to be present on site to monitor works. | | Outline Soil Management Plan Revision B Paragraph 2.8 | Requirement 14 |
| 5.27 | Land use | Construction | Embedded mitigation | The ALO will be responsible for providing the following plans to landowners and tenants as relevant to their landholding: <ul style="list-style-type: none"> • Prior to the start of the construction works on their landholding, cable installation plans showing the proposed locations of the cable trenches, soil storage areas, temporary haul road, joint bays and link boxes within the Order limits; and • Following the installation of the cable circuits on their landholding, "as built" plans showing the location of cable ducts, joint bays, link boxes and cable safety zones and within the Order land the extent of the easement and restrictive covenant over their land. • The as built plans will not necessarily accord with the cable installation plans as it may be necessary for changes to be made to the cable installation plans to accommodate unforeseen site or engineering constraints. In the event that changes are needed to the cable installation plans the ALO will provide revised plans to the landowners and tenants. | | Outline Soil Management Plan Revision B Paragraph 2.9 | Requirement 14 |
| 5.28 | Land use | Construction | Embedded mitigation | The ALO will ensure that information on existing agricultural management and soil/land conditions is obtained, recorded and verified by way of a detailed pre-construction condition survey. Soil sampling will be undertaken along the cable route to prevent the translocation of soil diseases etc. | | Outline Soil Management Plan Revision B Paragraph 2.10 | Requirement 14 |

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| 5.29 | Land use | Construction | Embedded mitigation | A topographic survey will be undertaken where existing surface features exist. | | Outline Soil Management Plan Revision B Paragraph 2.11 | Requirement 14 |
| 5.30 | Land use | Construction | Embedded mitigation | Soil sampling will be undertaken along the cable route to identify and describe the physical and nutrient characteristics of the existing soil profiles. | | Outline Soil Management Plan Revision B Paragraph 2.12 | Requirement 14 |
| 5.31 | Land use | Construction | Embedded mitigation | A risk assessment will be undertaken to identify the risk of translocation of soil diseases etc. i.e. arable land soil/blights and appropriate action taken. | | Outline Soil Management Plan Revision B Paragraph 2.13 | Requirement 14 |
| 5.32 | Land use | Construction | Embedded mitigation | The condition survey will identify for each soil horizon (topsoil, upper subsoil and lower subsoil), the depth, texture, colour, mottling, stone content, consistency and structure. Soils should be described according to the methods and terminology contained in the Soil Survey Field Handbook. Topsoil samples will also be taken for laboratory analysis of pH, organic matter content and major nutrients (phosphorus, potassium, nitrogen and magnesium). | | Outline Soil Management Plan Revision B Paragraph 2.14 | Requirement 14 |
| 5.33 | Land use | Construction | Embedded mitigation | A drainage survey will be undertaken to establish the exact nature of the as known existing field drainage system and drainage outfalls including any associated farm drainage that may be affected by the scheme. The drainage survey will identify the provision of any temporary drainage requirements and/or diversions as well as confirm the required cable burial depth. The drainage survey will make use of existing drainage patterns to ensure the full implications of the scheme are understood. | | Outline Soil Management Plan Revision B Paragraph 2.15 | Requirement 14 |
| 5.34 | Land use | Construction | Embedded mitigation | As part of the condition survey, and in addition to addressing matters relating to soils and other factors including the following will also be recorded: <ul style="list-style-type: none"> • existing crop regimes; • the position and condition of field boundaries; • the condition of existing access arrangements; • the location of private water supplies (as far as reasonable investigations allow); • the type of agriculture taking place; • the yield of crops; • the quality of grazing land; and • the existing weed burden. | | Outline Soil Management Plan Revision B Paragraph 2.16 | Requirement 14 |
| 5.35 | Land use | Construction | Embedded mitigation | Liaison with affected landowners and tenants will be undertaken to identify potential constraints and barriers to construction and identify the provision of any temporary drainage requirements and/or diversions | | Outline Soil Management Plan Revision B Paragraph 2.17 | Requirement 14 |
| 5.36 | Land use | Construction | Embedded mitigation | A written pre-entry record of condition will include photographs and sections dealing with soils and drainage, for each affected landowner. The pre-entry record of condition will be provided to the landowner and occupier and any identified reasonable omissions will be corrected. | | Outline Soil Management Plan Revision B Paragraph 2.18 | Requirement 14 |
| 5.37 | Land use | Construction | Embedded mitigation | Information collected during pre-construction surveys will be stored in the Triton Knoll document management system to facilitate ongoing use and access during construction and operation phases. The information stored in the Triton Knoll document management system will be updated when appropriate. | | Outline Soil Management Plan Revision B Paragraph 2.19 | Requirement 14 |
| 5.38 | Land use | Construction | Embedded mitigation | The commencement of construction will reflect ALO agreements made with affected parties to minimise disruption, where possible, to existing farming regimes and timings of activities (e.g. cropping). | | Outline Soil Management Plan Revision B Paragraph 2.20 | Requirement 14 |
| 5.39 | Land use | Construction | Embedded mitigation | The ALO will undertake site inspections during construction to monitor working practices and ensure landowners' and farmers' reasonable requirements are fulfilled. The ALO will also be responsible for agreeing reinstatement measures following completion of the works. | | Outline Soil Management Plan Revision B Paragraph 2.21 | Requirement 14 |
| 5.40 | Land use | Construction | Embedded mitigation | Prior to construction, a thermal resistivity survey will be undertaken along the cable route to determine surface temperature and soil thermal resistivity. | | Outline Soil Management Plan Revision B Paragraph 2.22 | Requirement 14 |
| 5.41 | Land use | Construction | Embedded mitigation | The findings of the survey will be used by the TKOWFL engineering team to ensure that the soil that will surround the cable has appropriate physical properties. Any areas where alternative fill material may be necessary will be identified at this stage. | | Outline Soil Management Plan Revision B Paragraph 2.23 | Requirement 14 |
| 5.42 | Land use | Construction | Embedded mitigation | The ALO will be responsible for ensuring that the location, orientation and grouping of link boxes are informed, subject to overriding constraints, through discussions with the landowner. | | Outline Soil Management Plan Revision B Paragraph 2.24 | Requirement 14 |
| 5.43 | Land use | Construction | Embedded mitigation | Following the completion of all cable construction works, the land within the working width will be fully reinstated as near as practically possible to its former condition. | Volume 3 Table 5-7 | Outline Construction Method Statement Revision C Paragraph 2.50 | Requirement 14 |
| 5.44 | Land use | Construction | Embedded mitigation | Any hedgerow sections removed during the works will be replanted, with all field boundary and stock fences reinstated. | Volume 3 Table 5-7 | Outline Construction Method Statement Revision C Paragraph 2.50 | Requirement 14 |
| 5.45 | Land use | Construction | Embedded mitigation | All potentially affected utility providers will be contacted and the location of existing services will be accurately identified on the ground prior to construction. | Volume 3 Table 5-7 | Outline Construction Method Statement Revision C Paragraph 2.31 | Requirement 14 |
| 5.46 | Land use | Construction | Embedded mitigation | TKOWFL will undertake all utility crossings in accordance with the standards defined by the utility owner/operator. | Volume 3 Table 5-7 | Outline Construction Method Statement Revision C Paragraph 2.34 | Requirement 14 |
| 5.47 | Land use | Construction | Embedded mitigation | Cable ducts will be laid at a minimum depth of 1.2 m below the ground surface in agricultural land. | | Outline Construction Method Statement Revision C Paragraph 5.5 | Requirement 14 |
| 5.48 | Land use | Construction | Embedded mitigation | Cables will be buried to a sufficient depth to allow maintenance and repair of drainage systems to be carried out in a safe and controlled manner. | | Outline Construction Method Statement Revision C Paragraph 5.5 | Requirement 14 |

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| 5.49 | Land use | Construction | Embedded mitigation | Burial depth may be shallower at points where cables transition areas where burial depth is shallower than for agricultural land, such as approaches to substation compounds. | | Outline Construction Method Statement Revision C Paragraph 5.5 | Requirement 14 |
| 5.50 | Land use | Construction | Embedded mitigation | A drainage survey will be undertaken to establish the exact nature of the as known existing field drainage system and drainage outfalls including any associated farm drainage that may be affected by the scheme. The drainage survey will identify the provision of any temporary drainage requirements and/or diversions as well as confirm the required cable burial depth. The drainage survey will make use of existing drainage patterns to ensure the full implications of the scheme are understood. | | Outline Soil Management Plan Revision B Paragraph 2.15 | Requirement 14 |
| 5.51 | Land use | Construction | Embedded mitigation | Existing land drains, where encountered during construction, will be appropriately marked. Temporary drainage will be installed within the cable corridor working width to intercept existing field drains and ditches in order to maintain the integrity of the existing field-drainage system during construction. | | Outline Soil Management Plan Revision B Paragraph 4.1 | Requirement 14 |
| 5.52 | Land use | Construction | Embedded mitigation | Particular care will be taken to ensure that the existing land drainage system is not compromised as a result of construction. Land drainage systems will be maintained during construction and reinstated on completion. Temporary cut-off drains will be installed parallel to the trench-line, before the start of construction, to intercept groundwater before it reaches the trench. | | Outline Soil Management Plan Revision B Paragraph 4.2 | Requirement 14 |
| 5.53 | Land use | Construction | Embedded mitigation | Drainage systems will be reinstated to the Landowner's reasonable satisfaction (and to the reasonable satisfaction of the Occupier, if applicable, and where this does not conflict with the Landowner's reasonable satisfaction), ensuring that the drainage system is put back in a condition that is at least as effective as the previous condition, and that the restoration follows best practice for field drainage installations, and takes into account site specific conditions. | | Outline Soil Management Plan Revision B Paragraph 4.3 | Requirement 14 |
| 5.54 | Land use | Construction | Embedded mitigation | The landowner will be consulted prior to the installation of the cable ducts, on the design, including layout, falls, pipe sizes, pipe types and outfall, of any land drainage works required during construction, and on the design and timing of any land drainage works required for the subsequent restoration of the land. This process will take due regard of any local knowledge appropriate to individual circumstances. | | Outline Soil Management Plan Revision B Paragraph 4.4 | Requirement 14 |
| 5.55 | Land use | Construction | Embedded mitigation | The services of a suitably qualified drainage consultant (either internal or consultant) will be employed by the Applicant to act as an independent drainage expert during the detailed design process, prior to the commencement of construction. | | Outline Soil Management Plan Revision B Paragraph 4.5 | Requirement 14 |
| 5.56 | Land use | Construction | Embedded mitigation | A dispute resolution process will be established including an independent expert for drainage design and implementation. | | Outline Soil Management Plan Revision B Paragraph 4.6 | Requirement 14 |
| 5.57 | Land use | Construction | Embedded mitigation | Landowners will be provided with the opportunity to inspect land drainage works as they progress. Records of existing and remedial drainage will be made by the Applicant and copies provided to the Landowner (and the Occupier, if applicable) after installation of the cables. | | Outline Soil Management Plan Revision B Paragraph 4.7 | Requirement 14 |
| 5.58 | Land use | Construction | Embedded mitigation | During construction all reasonable care will be taken to minimise physical damage to the landowners land and adjacent land resulting from the pumping of water from the construction trenches (if required), in wet conditions. Any water will be pumped into existing and appropriate drainage channels. | | Outline Soil Management Plan Revision B Paragraph 4.8 | Requirement 14 |
| 5.59 | Land use | Construction | Embedded mitigation | The location of drains cut or disturbed by the construction works will be photographed, given a unique number and logged using GPRS coordinates. | | Outline Soil Management Plan Revision B Paragraph 4.9 | Requirement 14 |
| 5.60 | Land use | Construction | Embedded mitigation | The Applicant will compensate the Occupier on a proven business loss basis for any damages or losses caused as a direct result of the use of, or access to or from, the Easement Strip, subject to receipt and approval of a claim submitted in a format as requested by the Applicant. | | Outline Soil Management Plan Revision B Paragraph 4.10 | Requirement 14 |
| 5.61 | Land use | Construction | Embedded mitigation | All drainage works can be carried out within the Order Limits, however where it is reasonable for the reinstatement of drainage to take place outside of the order limits it will be done subject to the agreement of the landowner. Where reinstatement of drainage outside of the Order Limits offers a more economic method of achieving requirements, it will be done subject to the agreement of the landowner. | | Outline Soil Management Plan Revision B Paragraph 4.11 to 4.12 | Requirement 14 |
| 5.62 | Land use | Construction | Embedded mitigation | The backfill material used to set the cable ducts will be of similar permeability to the surrounding soils and is designed to remain in-situ (i.e. water movement does not create voids). This will prevent preferential drainage pathways being created (i.e. by providing a more permeable medium), but will still maintain the current level of drainage due to the amount of CBS being small compared to the amount of subsoil in each field." | | Outline Construction Method Statement Revision C Paragraph 5.3 | Requirement 14 |
| 5.63 | Land use | Construction | Embedded mitigation | During construction, accurate records using GPRS co-ordinates will be taken of the location of all installed infrastructure, including records of existing and remedial drainage, and of the cable safety zones. Once installation is complete, as-built plans will be produced and provided to the landowners and tenants in respect of their landholdings. The as-built plans will also record the corresponding extent of the easement and the restrictive covenant over that part of their landholding that is required for the authorised project. | | Outline Soil Management Plan Revision B Paragraph 3.18 | Requirement 14 |
| 5.64 | Land use | Operation | Embedded mitigation | In relation to permanent land take requirements TKOWFL will discuss with affected parties and secure commercial terms with them. | Volume 3 Table 5-7 | These matters will be secured through any land agreement with affected landowners, or the provisions within the draft Order relating to the compulsory acquisition of rights or land | Part 5, where applicable |
| 5.65 | Land use | Operation | Embedded mitigation | Any permanent restriction of certain activities above the cable will be discussed with affected landowners and secured in the commercial terms with them. | Volume 3 Table 5-7 | These matters will be secured through any land agreement with affected landowners, or the provisions within the draft Order relating to the compulsory acquisition of rights or land | Part 5, where applicable |

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| 5.66 | Land use | Operation | Embedded mitigation | TKOWFL will discuss with affected parties and secure commercial terms with them including the loss of any ongoing payments or fines relating to agri-environmental stewardship schemes that may be affected by the permanent land restrictions or any cable maintenance or repair work. | Volume 3 Table 5-7 | These matters will be secured through any land agreement with affected landowners, or the provisions within the draft Order relating to the compulsory acquisition of rights or land | Part 5, where applicable |
| 5.67 | Land use | Decommissioning | Embedded mitigation | Any new legislation or guidelines published prior to decommissioning will be adhered to and incorporated into mitigation design prior to any decommissioning taking place. | Volume 3 Table 5-7 | This would be secured in the onshore decommissioning plan to be submitted under Requirement 21 | Requirement 21 |
| 5.68 | Land use | Construction | Additional mitigation | Additional specific mitigation options proposed to minimise the impact on LCGM in certain areas. | Volume 3 Paragraphs 5.74, 5.90 and 5.118 | Outline Construction Method Statement Revision C Paragraph 2.40 | Requirement 14 |
| SECTION 3.6 GEOLOGY, HYDROGEOLOGY AND GROUND CONDITIONS | | | | | | | |
| 6.1 | Geology | General | Embedded mitigation | Use of HDD/ microbore /pipe jacking at appropriate locations (Crossing Schedule (Document 8.3) | Volume 3 Table 6-7 | Crossing Schedule 8.3 | Requirement 5(11) |
| 6.2 | Geology | General | Embedded mitigation | Relevant legislation will be adhered to on site to reduce the risk of contamination. Further details are provided within the Outline Construction Environmental Management Plan (Application Document 8.7.9). | Volume 3 Table 6-7 | Outline Construction Environmental Management Plan (8.7.9) Paragraph 2.19 | Requirement 14 |
| 6.3 | Geology | General | Embedded mitigation | The following EA Pollution Prevention Guidance (PPGs) will be followed on site to prevent pollution. Further details of these measures are provided within the Outline Construction Environmental Management Plan (Application Document 8.7.9). | Volume 3 Table 6-7 | Outline Construction Environmental Management Plan (8.7.9) Paragraph 2.20 | Requirement 14 |
| 6.4 | Geology | Construction | Embedded mitigation | The cable and HDD/microbore/pipe-jacking sections when located above Chalk strata will be positioned so as not to intersect with that strata and the principal aquifer and provide preferential migration pathways for contaminants. The detailed methodology of the construction techniques to be addressed and agreed with the EA and Local Planning Authority (LPA) and the necessary consents obtained, if required. | Volume 3 Table 6-7 | Outline Construction Method Statement Revision C Paragraph 5.4 | Requirement 14 |
| 6.5 | Geology | Construction | Embedded mitigation | Clay stanks or other vertical barriers constructed within trench excavations, where deemed necessary, to prevent the creation of preferential migration pathways for contaminants (where suspected). | Volume 3 Table 6-7 | Outline Construction Method Statement Revision C Paragraph 5.5 | Requirement 14 |
| 6.6 | Geology | Construction | Embedded mitigation | Subsoil's will be placed and 'naturally' consolidated (to the same as the surroundings) within the trench excavations and in reverse order to its removal. Where there is excess subsoil within an area, soils will be spread over the working width and in agreement with the landowner. | Volume 3 Table 6-7 | Outline Soil Management Plan Revision B Paragraph 5.10 | Requirement 14 |
| 6.7 | Geology | Construction | Embedded mitigation | Ground investigation for geotechnical and or environmental purposes would be undertaken pre-construction at key points including the Intermediate Electrical Compound, Substation and where surface water, road and rail crossings occur. Investigations may also be required if the proposed development passes in close proximity to a landfill or other as yet un-identified contaminant source. | Volume 3 Table 6-7 | Outline Construction Method Statement Revision C Paragraph 2.44 | Requirement 14 |

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| 6.6 | Geology | Construction | Embedded mitigation | EA guidance on the assessment of risks from potentially contaminated land will be followed on a site-specific basis in line with Contaminated Land Report 11 (CLR11). Further details of these measures are provided within the Outline Construction Environmental Management Plan (Application Document 8.7.9). | Volume 3 Table 6-7 | Outline Construction Environmental Management Plan (8.7.9) Paragraph 2.22 | Requirement 14 |
| 6.7 | Geology | Construction | Embedded mitigation | Work would stop if any previously unidentified contamination is encountered until the nature and concentration of the contaminant(s) are determined and appropriate risk control measures implemented in accordance with the Outline Construction Environmental Management Plan (Application Document 8.7.9). | Volume 3 Table 6-7 | Outline Construction Environmental Management Plan (8.7.9) Paragraph 2.25 | Requirement 14 |
| 6.8 | Geology | Construction | Embedded mitigation | Prior to intrusive investigations commencing appropriate service clearance surveys and utility searches would be undertaken to identify below ground services and utilities to avoid damage to third party property. This would include liaison with the relevant owner/ operator to accurately identify the precise location of services/utilities. | Volume 3 Table 6-7 | Outline Construction Method Statement Revision C Paragraph 2.31 | Requirement 14 |
| 6.9 | Geology | Construction | Embedded mitigation | A Pollution Prevention and Emergency Response Plan (PPERP) will be prepared and will be held on all construction sites to follow in the event of an environmental emergency. Refer to the Outline Pollution Prevention and Emergency Incident Response Plan (Application Document 8.7.8). | Volume 3 Table 6-7 | Outline Pollution Prevention and Emergency Incident Response Plan (8.7.8) | Requirement 14 |
| 6.10 | Geology | Construction | Embedded mitigation | Recycled alternative materials would be encouraged to be used on site. The source of the materials would be from a sustainable source. A 'just-in-time' strategy would be adopted to keep stocks of materials on site to a minimum. Further details of these measures are provided within the Outline Site Waste Management Plan (Application Document 8.7.7). | Volume 3 Table 6-7 | Outline Site Waste Management Plan (8.7.7) Paragraphs 5.3 to 5.5 | Requirement 14 |
| 6.11 | Geology | Construction | Embedded mitigation | Control measures relating to the storage of waste on site will be detailed within a Site Waste Management Plan. Refer to Outline Site Waste Management Plan (Application Document 8.7.7). | Volume 3 Table 6-7 | Outline Site Waste Management Plan (8.7.7) | Requirement 14 |
| 6.12 | Geology | Construction | Embedded mitigation | All fuel and chemical storage will comply with relevant storage regulations. Further details of these measures are provided within the Outline Pollution Prevention and Emergency Incident Response Plan (PPERP) (Application Document 8.7.8). | Volume 3 Table 6-7 | Outline Pollution Prevention and Emergency Incident Response Plan (8.7.8) Paragraph 3.8 | Requirement 14 |
| 6.13 | Geology | Construction | Embedded mitigation | Pollution response contractors, accredited by the UK Spill Association (UKSpill), shall be identified and named in the final PPEIRP, such that, should a spill incident occur for which the construction contractors require assistance with containment and clean-up, one of the named pollution response contractors will be contacted. Spill incidents will be assessed on a case by case basis and a pollution response contractor will be contacted should the Environmental Clerk of Works determine that assistance is necessary. | Volume 3 Table 6-7 | Outline Pollution Prevention and Emergency Incident Response Plan (8.7.8) Paragraph 5.38 | Requirement 14 |
| 6.14 | Geology | Construction | Embedded mitigation | Vehicle checks will be conducted to ensure fuel storage and engine condition is satisfactory and that no fuel or chemical release will occur during site operations. Further detail is provided within the Outline Pollution Prevention and Emergency Incident Response Plan (PPERP) (Application Document 8.7.8). | Volume 3 Table 6-7 | Outline Pollution Prevention and Emergency Incident Response Plan (8.7.8) Paragraph 3.17 | Requirement 14 |
| 6.15 | Geology | Construction | Embedded mitigation | Deep excavations may require de-watering. Water pumped or removed from excavations would be passed through a silt-separator tank or equivalent, and discharge to ground or surface water. An environmental permit would be sought from the EA prior to undertaking such operations. | Volume 3 Table 6-7 | Outline Construction Method Statement Revision C Paragraph 5.5 | Requirement 14 |
| 6.16 | Geology | Construction | Embedded mitigation | Extended excavations would be arranged so as not to create preferential drainage pathways with the potential to cause flooding of lower land. | Volume 3 Table 6-7 | Outline Construction Method Statement Revision C Paragraph 5.5 | Requirement 14 |
| 6.17 | Geology | Construction | Embedded mitigation | Consideration to the inclusion of clay stanks/plugs along trenches should be designed into the cable trench sections to mitigate against the creation of preferential pathways for contaminant migration. | Volume 3 Table 6-7 | Outline Construction Method Statement Revision C Paragraph 5.5 | Requirement 14 |
| 6.18 | Geology | Construction | Embedded mitigation | Potential risks to construction and maintenance workers arising from contamination within soil and groundwater during the construction phase(s) of the proposed development would be controlled under the Construction Design and Management (CDM) Regulation 2015, the requirement to work in accordance with best practice and statutory guidance and the requirement for PPE as standard working practice. | Volume 3 Table 6-7 | Outline Construction Environmental Management Plan (8.7.9) Paragraph 2.27 | Requirement 14 |
| 6.19 | Geology | Construction | Embedded mitigation | Foundation design for the Intermediate Electrical Compound and Substation components will consider artesian groundwater conditions should a piled foundation option be considered. | Volume 3 Table 6-7 | Outline Construction Method Statement Revision C Paragraphs 6.2 and 7.2 | Requirement 14 |
| 6.20 | Geology | Construction | Embedded mitigation | Monitoring would be undertaken of: • Ground and surface water conditions to check for spills or uncontrolled tipped surface spoil; • Oil tanks and associated bunds for leaks; and • Plant containing oils and fuel would be inspected daily and maintained to both prevent and identify leaks. Further details are provided within the Outline Construction Environmental Management Plan (Application Document 8.7.9). | Volume 3 Table 6-7 | Outline Construction Environmental Management Plan (8.7.9) Paragraph 2.28 | Requirement 14 |
| SECTION 3.7 HYDROLOGY AND FLOOD RISK | | | | | | | |

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| 7.1 | Hydrology | Construction - Onshore cable | Embedded mitigation | <p>Obtain appropriate consent for any specified works, being so much of any work or operation authorised by the Order as is in, on under over or within 16m of a drainage work or is otherwise likely to</p> <p>(a) Affect any drainage work or the volumetric rate of flow of water in or flowing to or from any drainage work;</p> <p>(b) Affect the flow, purity or quality of water in any watercourse; or</p> <p>(c) Affect the conservation, distribution or use of water resources.</p> <p>In relation to any consent:-</p> <ul style="list-style-type: none"> • Ensure that runoff from the construction compounds, haul road and any other areas of reduced permeability is kept to IDB specified rate or less (less than 1.4 l.s-1.ha-1 or a de minimis rate of 5 l.s-1) • Any discharge (e.g. from de-watering or vehicle washing) to watercourses will require the consent and appropriate licensing from the Environment Agency and relevant management authority (e.g. IDB); treatment prior to discharge to maintain water quality; and, will likely need to be discharged at the IDB specified rate or less (less than 1.4 l.s-1.ha-1 or a de minimis rate of 5 l.s-1). | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraphs 2.46 and 2.47 | Requirement 14 |
| 7.2 | Hydrology | Construction - IEC and Substation | Embedded mitigation | Piling for foundations must be less than the depth to the underlying chalk aquifer. | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraphs 6.2 | Requirement 14 |

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| 7.3 | Hydrology | Construction - IEC and Substation | Embedded mitigation | As per the drainage strategy referenced in Annex 7-3 (which will inform the surface water drainage scheme), ensure that runoff from the final development, associated construction compounds, temporary and permanent roads and any other areas of reduced permeability is kept to the IDB specified rate or less (less than 1.4 l.s-1.ha-1 or a de minimis rate of 5 l.s-1). Any outfall to local watercourses will be undertaken according to the relevant Byelaws. | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraphs 2.47 and 2.48 | Requirement 14 |
| 7.4 | Hydrology | Construction - NGET Substation | Embedded mitigation | Piling for foundations must be less than the depth to the underlying chalk aquifer. | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraphs 7.2 | Requirement 14 |
| 7.5 | Hydrology | Construction - NGET Substation | Embedded mitigation | As per the drainage strategy referenced in Volume 5, Annex 7-3, ensure that runoff from the final development is managed in line with the existing drainage arrangements for the site. | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraphs 2.47 and 2.48 | Requirement 14 |
| 7.6 | Hydrology | Construction - onshore cable | Embedded mitigation | Trenchless techniques (HDD, pipejacking or microbore) will be used to construct cable beneath sensitive assets such as major watercourses and flood defences. (Crossing Schedule (Document 8.3) | Volume 3 Table 7-10 | Crossing Schedule 8.3 | Requirement 5(11) |
| 7.7 | Hydrology | Construction - onshore cable | Embedded mitigation | Trenchless techniques will be undertaken using experienced contractors adhering to industry best practice. | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraph 2.50 | Requirement 14 |
| 7.8 | Hydrology | Construction - onshore cable | Embedded mitigation | Cable will be buried at a minimum of 2 metres underneath the bottom of flood defences to reduce potential construction effects | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraph 5.9 | Requirement 14 |
| 7.9 | Hydrology | Construction - onshore cable | Embedded mitigation | Where practically possible, HDD, pipejacking or microbore techniques will not be undertaken on sections of defence where other assets such as culvert intersect i.e. not where the defence is inherently weaker. | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraph 5.10 | Requirement 14 |
| 7.10 | Hydrology | Construction - onshore cable | Embedded mitigation | Clay stanks will be used along the cable ducting where necessary to prevent the creation of preferential drainage pathways. | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraph 5.11 | Requirement 14 |
| 7.11 | Hydrology | Construction - Onshore cable, IEC, Substation and NGET substation | Embedded mitigation | Appropriate industry best practice and published guidelines will be followed to reduce pollutant and sediment movement during all aspects of construction through a construction environmental management plan or similar document. Guidelines include, but are not limited to: <ul style="list-style-type: none"> • Environment Agency, Pollution Prevention Guidance Note 6 (PPG6): Pollution Prevention Guidelines – Working at Construction and Demolition Sites • Environment Agency, Pollution Prevention Guidance Note 5 (PPG5): – Working in, near or liable to affect watercourses; • Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors CIRIA (C650); • CIRIA – SuDS Manual | Volume 3 Table 7-10 | Outline Construction Environmental Management Plan (8.7.9) Paragraph 2.35 | Requirement 14 |
| 7.12 | Hydrology | Construction - Onshore cable, IEC, Substation and NGET substation | Embedded mitigation | Construction materials and spoil materials will be positioned in a manner that does not constrain potential flood waters unduly or direct flood waters towards population or industrial centres of high sensitivity. | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraph 2.49 | Requirement 14 |
| 7.13 | Hydrology | Construction - Onshore cable, IEC, Substation and NGET substation | Embedded mitigation | Construction will not be undertaken during very extreme wet weather where erosion of sediments and risk from flooding may increase. | Volume 3 Table 7-10 | Outline Construction Method Statement Revision C Paragraph 2.50 | Requirement 14 |
| 7.14 | Hydrology | Construction - Onshore cable, IEC, Substation and NGET substation | Embedded mitigation | Drainage systems will be reinstated to the Landowner's reasonable satisfaction (and to the reasonable satisfaction of the Occupier, if applicable, and where this does not conflict with the Landowner's reasonable satisfaction), ensuring that the drainage system is put back in a condition that is at least as effective as the previous condition, and that the restoration follows best practice for field drainage installations, and takes into account site specific conditions. | Volume 3 Table 7-10 | Outline Soil Management Plan Revision B Paragraph 4.3 | Requirement 14 |
| 7.15 | Hydrology | Construction - IEC, Substation and NGET substation | Embedded mitigation | Installed oil filled equipment will be banded to ensure that leaks of pollutants does not occur. | Volume 3 Table 7-10 | Outline Pollution Prevention and Emergency Incident Response Plan (8.7.8) Paragraph 3.9 | Requirement 14 |
| 7.16 | Hydrology | Operation - Onshore cable, IEC, Substation and NGET substation | Embedded mitigation | Maintenance and repairs will follow the same rules, regulations and best practice (or updated recommendations as exist) as were followed during construction including obtaining consent from the relevant consenting bodies where repairs are required adjacent to a watercourse (i.e. within 9 metres). | Volume 3 Table 7-10 | Where consent is necessary, that will be governed by the protective provisions within the draft Order | Schedule 8, where applicable |
| 7.17 | Hydrology | Decommissioning - Onshore cable, IEC, Substation and NGET substation | Embedded mitigation | Maintenance and repairs will follow the same rules, regulations and best practice (or updated recommendations as exist) as were followed during construction including complying with the provisions of the bylaws of relevant authorities where repairs are required adjacent to a watercourse (i.e. within 9 metres). | Volume 3 Table 7-10 | This would be secured in the onshore decommissioning plan to be submitted under Requirement 21 | Requirement 21 |
| SECTION 3.8 HISTORIC ENVIRONMENT | | | | | | | |
| 8.1 | Historic Environment | Construction | Embedded mitigation | A Written Scheme of Investigation (WSI) will be implemented. An Outline WSI is provided as Application Document 8.11. | Volume 3 Table 8-7 | Outline Onshore Written Scheme of Investigation (8.11) | Requirement 12 |

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| 8.2 | Historic Environment | Construction | Embedded mitigation | Mitigation measures for implementation during construction phase are guided by initial geophysical survey and targeted trial trenching within the Proposed Development Boundary in order to specify and programme either: -Preservation <i>in situ</i> -Preservation by record These measures will be implemented through the Onshore Written Scheme of Investigation for archaeological assets. An Outline WSI accompanies this application (Application Document 8.11) | Volume 3 Table 8-7 | Outline Onshore Written Scheme of Investigation (8.11) | Requirement 12 |
| 8.3 | Historic Environment | Construction | Embedded mitigation | Positive effects of mitigation occurring as part of/immediately following construction phase include the reinstatement of hedgerows and other field boundaries, and the topographical reinstatement of areas of significant historical 'ridge and furrow' earthworks, which would offset any readily visible impacts to historic landscape character. These measures will be implemented through the Onshore Written Scheme of Investigation for archaeological assets. An Outline WSI accompanies this application (Application Document 8.11) | Volume 3 Table 8-7 | Outline Onshore Written Scheme of Investigation (8.11) | Requirement 12 |
| 8.4 | Historic Environment | Construction | Embedded mitigation | A section of the cable route has been identified as lying within approximately 200 m (at its closest proximity to the proposed development boundary) of a WWII crash site, demarcated by the Sibsey Lancaster Memorial. The cable route section runs north-east from Temporary Construction Compound 14 shown on Figure 1, Map 8 and passes to the south of the memorial. There is a low risk that debris or human remains associated with the crash may be identified during pre-construction survey or construction activities, these would be picked up through the procedures set out in this WSI and any debris would be dealt with in the appropriate manner. Advance consultation with the Ministry of Defence (MoD) will be undertaken in order to inform the WSI for that stage of the onshore works; any human remains encountered shall be dealt with under the requirements of the Protection of Military Remains Act 1986 (the 1986 Act) and consultation with the MoD will ensure the correct licences are obtained in accordance with the 1986 Act. | | Outline Onshore Written Scheme of Investigation (8.11) Paragraphs 2.41 to 2.42 | Requirement 12 |
| SECTION 3.9 TRAFFIC AND ACCESS | | | | | | | |
| 9.1 | Traffic | Construction | Embedded mitigation | Proposed implementation of a travel plan to encourage use of sustainable travel, in particular car-sharing, to minimise the impact on the road network for all elements of construction. | Volume 3 Table 9-16 | Outline Traffic Management Plan (8.9) | Requirement 18 |
| 9.2 | Traffic | Construction | Embedded mitigation | Proposed implementation of an Access Management Plan to secure acceptable design and location of access to temporary working areas, permanent access for the Substation and Intermediate Electrical Compound, and off-site infrastructure improvements to cater for movement of HGV construction traffic, where necessary. | Volume 3 Table 9-16 | Outline Access Management Plan (8.13) | Requirement 8 |
| 9.3 | Traffic | Construction | Embedded mitigation | Proposed use of the temporary haul road from the A158 to serve the Intermediate Electrical Compound to avoid routing HGVs along Marsh Lane through the village of Orby. | Volume 3 Table 9-16 | Outline Traffic Management Plan (8.9) | Requirement 18 |
| 9.4 | Traffic | Construction | Embedded mitigation | Proposed implementation of a Traffic Management Plan to secure appropriate routing of HGV construction for all elements, including details of monitoring and enforcement, management of road crossings, communication with local residents and businesses, and PROW for the cable route. | Volume 3 Table 9-16 | Outline Traffic Management Plan (8.9) | Requirement 18 |
| 9.5 | Traffic | Construction | Embedded mitigation | Trenchless techniques shall be used at all adopted road crossings and an NRSWA Section 50 licence will be procured for every road crossing for the installation of the apparatus. | | Outline Code of Construction Practice (8.6) Paragraph 3.23 | Requirement 14 |
| 9.6 | Traffic | Construction | Embedded mitigation | Access along the private track leading to the Sibsey Lancaster Memorial has the potential to be interrupted by the proposed development, as it crosses the cable corridor. The Applicant will maintain access along this private track, subject to continued agreement from the landowner, by re-routing the access in the same way as set out for the maintenance and temporary PROW diversion of PROW set out in paragraphs 3.8 – 3.14 above, temporarily rerouting the private access within the Order Limits as necessary. | | Outline Construction Method Statement Revision C Paragraph 3.16 | Requirement 14 |
| 9.7 | Traffic | Construction | Embedded mitigation | Road condition surveys for minor roads, B roads and all road crossings will be undertaken and agreed with the Highways Authority. | | Outline Traffic Management Plan (8.9) Paragraph 4.8 | Requirement 14 |
| 9.8 | Traffic | Construction | Embedded mitigation | All TCC's will have sufficient areas available at all times for all vehicles to enter and exit in a forward gear and to be accepted directly. | | Outline Traffic Management Plan (8.9) Paragraph 4.14 | Requirement 15 |
| 9.9 | Traffic | Construction | Embedded mitigation | A typical layout of a road crossing is contained within the outline AMP with details to be agreed with the relevant planning authority, following consultation with the relevant Highway Authority before commencement of construction as part of the AMP | | Outline Traffic Management Plan (8.9) Paragraph 4.17 | Requirement 16 |
| 9.10 | Traffic | Construction | Embedded mitigation | Road crossings will require control measures to ensure safe movement of construction traffic across the public highway as well as maintaining the safety of all other highway users. The TMP will include details of such measures which will include the following: • Additional temporary signage to warn road users of heavy plant crossing the highway; • Additional temporary traffic calming measures for highway users at the crossing point; • Pedestrian arrangements at the crossing point; • Appropriate wheel cleansing facilities at access and road crossing points; • Extent of road-sweeping activity in vicinity of access point; and • Frequency of monitoring of highway condition. | | Outline Traffic Management Plan (8.9) Paragraph 4.18 | Requirement 17 |
| 9.11 | Traffic | Construction | Embedded mitigation | The delivery of transformers will be small in number, though of a size that will require temporary works to accommodate the loads. All temporary works, such as removal of street furniture, will be subject to discussion with relevant authorities and form part of a delivery plan for each abnormal load. Each delivery will be planned in advance, escorted and managed such that any impacts are minimised. Such arrangements will be procured through standard processes with the relevant planning authority, following consultation with the relevant Highway Authority, at the appropriate time. | | Outline Traffic Management Plan (8.9) Paragraph 4.21 | Requirement 18 |
| 9.12 | Traffic | Decommissioning | Embedded mitigation | Proposed implementation of a Traffic Management Plan to secure appropriate routing of HGV movements for the IEC and Substation | Volume 3 Table 9-16 | This would be secured in the onshore decommissioning plan to be submitted under Requirement 21 | Requirement 21 |
| SECTION 3.10 AIR QUALITY | | | | | | | |

SECTION 3 - ONSHORE MITIGATION

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|---|---------------------|-----------------|---------------------|---|--|--|----------------|
| 10.1 | Air Quality | General | Embedded mitigation | Mitigation measures aimed at reducing impacts on air quality, and as referred to within this chapter, will be secured through an Air Quality Management Plan. An Outline Air Quality Management Plan has been provided as Application Document 8.7.4. | Volume 3 Table 10-5 | Outline Air Quality Management Plan (8.7.4) | Requirement 14 |
| 10.2 | Air Quality | Construction | Embedded mitigation | Develop and implement a stakeholder Communications Plan that includes community engagement before work commences on site. An Outline Communications Plan has been included with the application (Document 8.7.10). Display the name and contact details of people accountable/responsible 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. | Volume 3 Table 10-5 | Outline Communications Plan (8.7.10) and Outline Air Quality Management Plan (8.7.4) Paragraph 2.3 | Requirement 14 |
| 10.3 | Air Quality | Construction | Embedded mitigation | Implementation of a Construction Traffic Management Plan to secure appropriate routing of HGV construction for the construction of all elements, management of road crossings and public rights of way for the cable route. An Outline Traffic Management Plan has been included with the application (Document 8.9). | Volume 3 Table 10-5 | Outline Traffic Management Plan (8.9) | Requirement 18 |
| 10.4 | Air Quality | Construction | Embedded mitigation | Implementation of a Construction Travel Plan to encourage use of sustainable travel, in particular car-sharing, to minimise the impact on the road network for all elements of construction. | Volume 3 Table 10-5 | Outline Traffic Management Plan (8.9) | Requirement 18 |
| 10.5 | Air Quality | Construction | Embedded mitigation | Mitigation measures deemed appropriate for sites with a 'medium risk' have been recommended as a precautionary assumption, and are detailed in the Outline Air Quality Management Plan (AQMP) (Document 8.7.4) | Volume 3 Paragraphs 10.58, 10.70 and 10.99 | Outline Air Quality Management Plan (8.7.4) | Requirement 14 |
| 10.6 | Air Quality | Decommissioning | Embedded mitigation | Proposed implementation of a Decommissioning Traffic Management Plan to secure appropriate routing of HGVs for the decommissioning of the Intermediate Electrical Compound and Substation Compound. | Volume 3 Table 10-5 | This would be secured in the onshore decommissioning plan to be submitted under Requirement 21 | Requirement 21 |
| SECTION 3.11 NOISE AND VIBRATION | | | | | | | |
| 11.1 | Noise and Vibration | Construction | Embedded mitigation | Construction activities that generate potentially significant noise levels at the nearest noise sensitive receptors will generally be restricted to the hours of 07:30 to 19:00 on weekdays and 08:00 to 13:00 on Saturdays as detailed in the Code of Construction Practice (Application Document 8.7) . Other construction activities (that are not likely to generate significant levels of noise at the nearest residential properties) may still take place outside of these hours during the standard working hours periods (07:00-19:00 Mon-Sat). It may be necessary to undertake trenchless works outside these hours in very specific circumstances as a bore must be undertaken in one continuous operation. However, night-time working will be avoided wherever possible and the relevant Local Authority will be notified of any works that are necessary outside of the above hours prior to works taking place. | Volume 3 Table 11-7 | Outline Code of Construction Practice (8.7) Paragraph 5.2 | Requirement 14 |
| 11.2 | Noise and Vibration | Construction | Embedded mitigation | All construction activities shall adhere to the best practices outlined in BS 522A8. | Volume 3 Table 11-7 | Outline Noise and Vibration Management Plan Revision B Paragraph 3.6 | Requirement 14 |

SECTION 3 - ONSHORE MITIGATION

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|-------|---------------------|-----------------|---------------------|---|---------------------|---|----------------|
| 11.3 | Noise and Vibration | Construction | Embedded mitigation | All construction equipment will be maintained in good working order and any associated noise attenuation measures such as engine casings and exhaust silencers shall remain fitted at all times. | Volume 3 Table 11-7 | Outline Noise and Vibration Management Plan Revision B Paragraph 3.3 | Requirement 14 |
| 11.4 | Noise and Vibration | Construction | Embedded mitigation | Where flexibility reasonably exists, construction activities will be separated from residential neighbours by the maximum possible distances. | Volume 3 Table 11-7 | Outline Noise and Vibration Management Plan Revision B Paragraph 3.3 | Requirement 14 |
| 11.5 | Noise and Vibration | Construction | Embedded mitigation | A Noise and Vibration Management Plan will be produced prior to the commencement of construction works detailing the measures that will be taken to control and minimise the environmental effects (including noise and vibration) of construction. | Volume 3 Table 11-7 | Outline Noise and Vibration Management Plan Revision B | Requirement 14 |
| 11.6 | Noise and Vibration | Construction | Embedded mitigation | Where a TCC is to be constructed within 100 m of a residential property, temporary noise barriers will be constructed prior to the site preparation of the TCC and will remain in place until the site preparation of the TCC is completed. | Volume 3 Table 11-7 | Outline Noise and Vibration Management Plan Revision B Paragraph 3.10 | Requirement 14 |
| 11.7 | Noise and Vibration | Construction | Embedded mitigation | Sheet steel piling will utilise vibratory piling rather than impact piling in order to reduce the noise levels that will be generated by this activity. | Volume 3 Table 11-7 | Outline Noise and Vibration Management Plan Revision B Paragraph 3.5 | Requirement 14 |
| 11.8 | Noise and Vibration | Construction | Embedded mitigation | Trenchless works will be completed in the shortest reasonably practical timescale. Where possible, trenchless works that are likely to result in significant noise effects at nearby residential receptors will be restricted to daytime working hours on weekdays. No trenchless work will be carried out at locations within 100 m of a residential property during night time hours without the permission of the property resident. No trenchless works will be carried out at locations less than 50m from any residential property at any time. | Volume 3 Table 11-7 | Outline Code of Construction Practice (8.7) Paragraph 5.2 | Requirement 14 |
| 11.9 | Noise and Vibration | Construction | Embedded mitigation | Temporary noise barriers will be installed around trenchless compounds in order to provide screening for sources located at low heights (note however that it is likely to be impractical to provide noise barriers that are high enough to screen the entire HDD drilling rig). | Volume 3 Table 11-7 | Outline Noise and Vibration Management Plan Revision B Paragraph 3.10 | Requirement 14 |
| 11.10 | Noise and Vibration | Construction | Embedded mitigation | Local residents likely to be significantly affected by noise from HDD (or other trenchless techniques) works will be kept informed of the likely period during which the work will take place, the times and durations of planned works and the measures that are being taken to avoid unnecessary noise. | Volume 3 Table 11-7 | Outline Noise and Vibration Management Plan Revision B Paragraph 3.14 | Requirement 14 |
| 11.11 | Noise and Vibration | Construction | Embedded mitigation | Residential properties located further than 100m from trenchless compounds that could experience significant night-time noise levels due to night-time works will be offered temporary re-housing for the duration of those trenchless works. | Volume 3 Table 11-7 | Outline Code of Construction Practice (8.7) Paragraph 5.2 | Requirement 14 |
| 11.12 | Noise and Vibration | Construction | Embedded mitigation | On completion of the trenchless works at a particular location, local residents will be informed that the works are complete and noise impacts due to trenchless works will cease. | Volume 3 Table 11-7 | Outline Noise and Vibration Management Plan Revision B Paragraph 3.15 | Requirement 14 |
| 11.13 | Noise and Vibration | Construction | Embedded mitigation | Noise levels within construction areas will be monitored as part of the standard monitoring procedures that will be employed to ensure construction plant and equipment is operating within expected parameters, and these measurements will be forwarded on to the Local Authorities on request. | | Outline Noise and Vibration Management Plan Revision B Paragraph 3.17 | Requirement 14 |
| 11.14 | Noise and Vibration | Operation | Embedded mitigation | The mitigation measures identified in Annexes 11-2 and 11-3 (Volume 5) will be applied. Noisy items of plant will be housed within sound insulating enclosures wherever required and practicable, with appropriate attenuation fitted to fans, air handling units, cooling equipment etc. as necessary. | Volume 3 Table 11-7 | This would be secured through compliance with the noise limits imposed on the operational phase by Requirement 17 | Requirement 17 |
| 11.15 | Noise and Vibration | Operation | Embedded mitigation | All necessary noise attenuation measures such as enclosures, attenuators etc. will remain fitted to the relevant items of plant at all times whilst the plant is operational. All items of plant will be regularly inspected and maintained. | Volume 3 Table 11-7 | This would be secured through compliance with the noise limits imposed on the operational phase by | Requirement 17 |
| 11.16 | Noise and Vibration | Decommissioning | Embedded mitigation | As above for construction phase, although it should be noted that decommissioning will not require any trenched or trenchless cable route works. | Volume 3 Table 11-7 | This would be secured in the onshore decommissioning plan to be submitted under Requirement 21 | Requirement 21 |
| | | | | SECTION 3.12 INTER-RELATIONSHIPS | | | |
| 12.1 | | | | There are no specific mitigation measures for chapter 12 of this volume beyond those previously addressed. | | | |
| | | | | SECTION 3.13 CONCLUSIONS AND SUMMARY OF KEY ISSUES | | | |
| 13.1 | | | | There are no specific mitigation measures for chapter 13 of this volume beyond those previously addressed. | | | |

4. OFFSHORE DESIGN MITIGATION MEASURES

| Mitigation reference | Chapter | Phase/section | Type | Mitigation | ES reference |
|----------------------|---------------------------------|---------------|---------------------|---|----------------------|
| | | | | SECTION 4.1 OFFSHORE PROJECT DESCRIPTION | |
| 1.1 | | | | There are no relevant mitigation design measures for chapter 1 of this volume | |
| | | | | SECTION 4.2 MARINE PHYSICAL ENVIRONMENT | |
| 2.1 | Marine physical environment | General | Embedded mitigation | Careful routing of the offshore cable route to avoid areas of designated seabed. Of particular relevance to the assessment of effects to the marine physical environment is the position of the landfall. This has been micro-sited to avoid the Chapel Point-Wolla Bank SSSI - a nationally important geological site for its intertidal sediments, which record the evidence of early Holocene sea level change (Natural England, 2014). | Volume 2, Table 2-11 |
| | | | | SECTION 4.3 MARINE ORNITHOLOGY | |
| 3.1 | | | | There are no relevant mitigation design measures for chapter 3 of this volume | |
| | | | | SECTION 4.4 INTERTIDAL AND SUBTIDAL ECOLOGY | |
| 4.1 | Intertidal and Subtidal Ecology | General | Embedded mitigation | The export cable corridor route selection was made following a series of constraints analyses, with the route selected to ensure impacts upon the environment and other marine users are minimised. | Volume 2, Table 4-8 |
| | | | | SECTION 4.5 FISH AND SHELLFISH | |
| 5.1 | | | | There are no relevant mitigation design measures for chapter 5 of this volume | |
| | | | | SECTION 4.6 MARINE MAMMALS | |
| 6.1 | | | | There are no relevant mitigation design measures for chapter 6 of this volume | |
| | | | | SECTION 4.7 OFFSHORE CONSERVATION | |
| 7.1 | Offshore Conservation | Construction | Embedded mitigation | Route optimisation has reduced interaction with sandbank features and will further minimise any interaction with sandwave features and the need for deployment of secondary protection of cables in these areas. | Volume 2, Table 7-9 |
| | | | | SECTION 4.8 COMMERCIAL FISHERIES | |
| 8.1 | | | | There are no relevant mitigation design measures for chapter 8 of this volume | |
| | | | | SECTION 4.9 SHIPPING AND NAVIGATION | |
| 9.1 | | | | There are no relevant mitigation design measures for chapter 9 of this volume | |
| | | | | SECTION 4.10 OTHER MARINE USERS | |
| 10.1 | | | | There are no relevant mitigation design measures for chapter 10 of this volume | |
| | | | | SECTION 4.11 MARINE HISTORIC ENVIRONMENT | |

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| 11.1 | | | | There are no relevant mitigation design measures for chapter 11 of this volume | |
| | | | | SECTION 4.12 INTER-RELATIONSHIPS | |
| 12.1 | | | | There are no relevant mitigation measures for chapter 12 of this volume | |
| | | | | SECTION 4.13 CONCLUSIONS AND SUMMARY OF KEY ISSUES | |
| 13.1 | | | | There are no relevant mitigation measures for chapter 13 of this volume | |

5. ONSHORE DESIGN MITIGATION MEASURES

| Mitigation reference | Chapter | Phase / section | Type | Mitigation | ES reference |
|----------------------|---------|---|---------------------|--|--------------------------------|
| | | | | SECTION 5.1 INTRODUCTION | |
| 1.1 | | | | There are no relevant mitigation design measures for chapter 1 of this volume | |
| | | | | SECTION 5.2 LANDSCAPE AND VISUAL | |
| 2.1 | LVIA | General - project design | Embedded mitigation | Careful routing of the onshore cable route and siting of the IEC and Substation to avoid key areas of landscape sensitivity, such as the Lincolnshire Wolds AONB. | Volume 3 Paragraph 2.29 / 2.30 |
| 2.2 | LVIA | Construction - IEC | Embedded mitigation | The location of the IEC avoids the loss of notable vegetation cover, and loss of landscape elements will be limited to arable crop. The temporary construction compound (TCC4) will be located directly adjacent to the construction operations, limiting its landscape and visual effects. | Volume 3 Table 2-14 |
| 2.3 | LVIA | Construction - Substation | Embedded mitigation | The location of the Substation avoids the loss of notable vegetation cover and loss of landscape elements will be limited to arable crop. The temporary construction compound (TCC 25) will be located directly adjacent to the construction operations, limiting its landscape and visual effects. | Volume 3 Table 2-14 |
| 2.4 | LVIA | Construction - National Grid Substation | Embedded mitigation | The Unlicensed Works will be contained within the existing hard standing and fence-line of the Bicker Fen Substation which avoids the loss of any vegetation. The temporary construction compound (TCC 26) will be located directly adjacent to the construction operations and within the wider existing substation compound. | Volume 3 Table 2-14 |
| 2.5 | LVIA | Construction - onshore cable | Embedded mitigation | The design of the onshore cable route has avoided notable landscape elements, such as groups of trees and hedgerows, where possible. Where loss of a landscape element is unavoidable, the loss has been kept to a practical minimum. | Volume 3 Table 2-14 |
| 2.6 | LVIA | Construction - onshore cable | Embedded mitigation | The storage of materials and vehicles will be required in a number of temporary construction compounds along the proposed onshore cable route. The location of the temporary construction compounds have been selected directly adjacent to: <ul style="list-style-type: none"> • the proposed landfall works on the landward side of the sand dunes (TCC 1) • the proposed cable route; • existing bell-mouth access where available; and • away from notable tree cover . | Volume 3 Table 2-14 |
| 2.7 | LVIA | Construction - onshore cable | Embedded mitigation | The working width during the construction phase will be confined to a corridor of no greater than 60 m to minimise the construction footprint on the landscape (except where a TCC is planned, and in the extent of the cable route which will accommodate the track from the A158 for the construction traffic to the IEC. (That section will be up to 66 m wide). | Volume 3 Table 2-14 |
| 2.8 | LVIA | Construction - onshore cable | Embedded mitigation | In addition, Transition Joint Bays (TJBs) have been located away from the beach area and will be situated within inland of the sand dunes, within the onshore cable corridor in fields. Each TJB will require land raising of up to 1.5 m, however the completed TJBs will appear similar in appearance to earth bunds which are typical within the locality, beside drains, albeit smaller in scale and with two manhole covers (1.1 m2) evident above ground. | Volume 3 Table 2-14 |
| 2.9 | LVIA | Construction - onshore cable | Embedded mitigation | Considering the connection to the existing Bicker Fen Substation, the cable route location and extent has been proposed to minimise loss of existing tree planting which is located on the periphery of the existing Substation compound. The entry of the cable route into the northern extent of the existing Substation compound will require some clearance of existing (albeit relatively recently planted) tree planting. However the cable route has been selected to avoid the creation of direct views through the cable corridor from nearby visual receptors to the north and north-east, such as residential receptors in Bicker Gauntlet. In addition, the working width of the proposed cable route located to the east of the existing Bicker Fen substation has been located away from mature planting adjacent to Vicarage Drive and has been limited to a maximum of 20 m to limit the loss of relatively newly planted tree planting. The operational width of the cable route will be 6 m upon which only shallow rooting species will be planted. This width has been kept to a minimum to ensure that trees (deeper rooting) can be planted within the majority of the working width | Volume 3 Table 2-14 |

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| 2.10 | L VIA | Operation - IEC | Embedded mitigation | The GIS building will be located within the 'Intermediate Electrical Building Siting Limits' as shown on Figure 2-4 and the "siting limits" have been selected to take advantage of a position between existing built developments, a grain store and Skegness Stadium, to avoid it being 'isolated' within the wider arable landscape and therefore minimising the intrusion into the open countryside south of the existing buildings on Marsh Lane and maintaining the existing building line as far as possible. The location of the Intermediate Electrical Compound is also intended to balance with the adjacent geometric field and road pattern. | Volume 3 Table 2-14 |
| 2.11 | L VIA | Operation - IEC | Embedded mitigation | The access road is to be located on the western boundary of the site, running parallel with the adjacent field boundary, therefore maintaining balance with the surrounding field pattern and limiting its landscape and visual effects. | Volume 3 Table 2-14 |
| 2.12 | L VIA | Operation - IEC | Embedded mitigation | Planting has been proposed at the Intermediate Electrical Compound and has been included in the project design. | Volume 3 Table 2-14 |
| 2.13 | L VIA | Operation - Substation | Embedded mitigation | The location of the Substation has been selected to take advantage of its position close to the Forty Foot Drain embankment which provides a screen to views from the west. The location of the Substation is intended to balance with the adjacent geometric field and road pattern and is located close to existing electrical infrastructure such as the National Grid Bicker Fen substation, lines of pylons and Bicker Fen Wind Farm. | Volume 3 Table 2-14 |
| 2.14 | L VIA | Operation - Station | Embedded mitigation | The access road is routed along field boundaries as far as is practicable to maintain balance with the surrounding field pattern and limiting its landscape and visual effects. | Volume 3 Table 2-14 |
| 2.15 | L VIA | Operation - National Grid Station | Embedded mitigation | The location of the Unlicensed Works take advantage of a position within the existing hard standing and fence-line of the Bicker Fen Substation which creates a 'cluster effect' with existing electrical infrastructure. In addition, there will be an overlap between existing and proposed above ground electrical infrastructure, limiting the extension in size of the existing substation and therefore limiting landscape and visual effects. | Volume 3 Table 2-14 |
| 2.16 | L VIA | Operation - National Grid Station | Embedded mitigation | Existing access roads will be utilised and no new routes are required. | Volume 3 Table 2-14 |
| SECTION 5.3 SOCIO-ECONOMICS | | | | | |
| 3.1 | Socio Ec | General | Embedded mitigation | Avoiding settlements | Volume 3 Table 3-8 |
| 3.2 | Socio Ec | General | Embedded mitigation | Cable routing process has given specific regard to avoiding areas of known built development and permanent active use including sport, leisure and recreational facilities; commercial and industrial use (including waste infrastructure); retail; residential; healthcare; education; public/institutions (including museums, galleries etc); and open space (e.g common land, parks). | Volume 3 Table 3-8 |
| SECTION 5.4 TERRESTRIAL ECOLOGY | | | | | |
| 4.1 | Terrestrial ecology | General | Embedded mitigation | Careful routing of the onshore cable route and the positioning of the IEC and Substation to avoid key areas of ecologically sensitive habitat and designated sites for nature conservation. This has been further refined through micro-siting to avoid features identified during survey that may indicate presence of protected species. | Volume 3 Table 4-17 |
| 4.2 | Terrestrial ecology | General | Embedded mitigation | The onshore cable route will be constructed in sections, enabling restriction of the timing of construction activities at specific sections to avoid disturbance to habitats and species at specific times. | Volume 3 Table 4-17 |
| 4.3 | Terrestrial ecology | Construction | Embedded mitigation | The location of the Substation has been carefully selected within an area of arable habitat to avoid damaging ecologically important habitats. | Volume 3 Table 4-17 |
| 4.4 | Terrestrial ecology | Construction | Embedded mitigation | The location of the IEC has been carefully selected within an area of arable habitat to avoid damaging ecologically important habitats. | Volume 3 Table 4-17 |
| 4.5 | Terrestrial ecology | Construction | Embedded mitigation | The location of the Substation has been carefully selected within an area of arable habitat to avoid damaging ecologically important habitats. | Volume 3 Table 4-17 |
| SECTION 5.5 LAND USE, AGRICULTURE AND SOILS | | | | | |

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| 5.1 | Land use | General | Embedded mitigation | Cable routing process has given specific regard to minimising potential impacts on agricultural land through aligning the cable route along the edges of fields where possible, to minimise temporary disruption during construction, and to minimise permanent impacts associated with the location of jointing bay link box man-hole covers. | Volume 3 Table 5-7 |
| SECTION 5.6 GEOLOGY, HYDROGEOLOGY AND GROUND CONDITIONS | | | | | |
| 6.1 | Geology | General | Embedded mitigation | The proposed development alignment has been selected to avoid sites of known contamination, such as historic landfills and areas of industrial activity. | Volume 3 Table 6-7 |
| 6.2 | Geology | Construction | Embedded mitigation | Foundation design for the IEC and Substation components will need to consider artesian groundwater conditions should a piled foundation option be considered. | Volume 3 Table 6-7 |
| 6.3 | Geology | Construction | Embedded mitigation | When designing any foundations (e.g. piling) of the development components, considerations for the use of driven or permanently cased piles should be incorporated into the design to the potential for artesian groundwater. | Volume 3 Table 6-7 |
| SECTION 5.7 HYDROLOGY AND FLOOD RISK | | | | | |
| 7.1 | Hydrology | Design - Onshore cable | Embedded mitigation | Careful routing of the onshore cable route to avoid key areas of sensitivity regarding flood risk, such as settlements, land allocated for significant development. | Volume 3 Table 7-10 |
| 7.2 | Hydrology | Design - IEC and Substation | Embedded mitigation | Above Ground Electrical Infrastructure will be raised above the 0.1% (1 in 1000 year) probability + climate change level, to ensure that the electrical system remains operational at times of flooding. | Volume 3 Table 7-10 |
| SECTION 5.8 HISTORIC ENVIRONMENT | | | | | |
| 8.1 | Historic Environment | General | Embedded mitigation | Detailed design of the cable route in order to avoid all known heritage assets of the highest significance, and concentrations of all other known heritage assets where possible. | Volume 3 Table 8-7 |
| 8.2 | Historic Environment | General | Embedded mitigation | HDD (or other trenchless techniques) of some (usually linear) obstacles on the cable route for engineering purposes will reduce the development impacts on certain heritage assets which happen to be coincidentally located, such as railways, parish boundaries and historic drainage systems. | Volume 3 Table 8-7 |
| 8.3 | Historic Environment | General | Embedded mitigation | Trenchless technique locations outlined in the crossing schedule (Application Document 8.3), will avoid cable trenches crossing 46 known heritage assets although haul roads may still be required and a top-soil strip would need to be undertaken, albeit within a reduced corridor. Impacts can be ameliorated with the use of bog matting. | Volume 3 Table 8-7 |
| 8.4 | Historic Environment | General | Embedded mitigation | Advance geophysical survey and trial trenching embedded in project programme, the scope of which is subject to further discussion with statutory consultees and agreement of targets as described in the Outline WSI (Application Document 8.11). | Volume 3 Table 8-7 |
| SECTION 5.9 TRAFFIC AND ACCESS | | | | | |
| 9.1 | Traffic | Project | Embedded mitigation | Avoiding settlements; Use of trenchless techniques at appropriate locations; consideration of timing of all works to reduce impacts | Volume 3 Table 9-16 |
| 9.2 | Traffic | Construction | Embedded mitigation | Careful location of the temporary construction compounds for the cable route to minimise use of minor roads. | Volume 3 Table 9-16 |
| SECTION 5.10 AIR QUALITY | | | | | |
| 10.1 | AQ | General | DO to secure AQMP. Embedded mitigation. | Project designed to avoid residential dwellings and areas of sensitivity. | Volume 3 Table 10-5 |
| 10.2 | AQ | Construction | Embedded mitigation. | Consideration regarding the location of temporary construction compounds to minimise the use of minor roads. | Volume 3 Table 10-5 |

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| | | | | SECTION 5.11 NOISE AND VIBRATION | |
| 11.1 | Noise and Vibration | Project Design | Embedded mitigation | Routing of the onshore cable route and locations of Intermediate Electrical Compound and Substation to avoid key areas of sensitivity. | Volume 3 Table 11-7 |
| 11.2 | Noise and Vibration | Operation | Embedded mitigation | The cable route between landfall, the Intermediate Electrical Compound and the Substation will consist of buried cable rather than overhead lines, removing the possibility of any operational noise effects from the cable route. | Volume 3 Table 11-7 |
| 11.3 | Noise and Vibration | Operation | Embedded mitigation | Where flexibility exists, the layout of the compounds that accommodate the above ground electrical infrastructure at the Intermediate Electrical Compound and Substation sites will be chosen such that potentially noisy items of plant are separated from residential receptors by the maximum possible distances. | Volume 3 Table 11-7 |
| | | | | SECTION 5.12 INTER-RELATIONSHIPS | |
| 12.1 | | | | There are no specific mitigation design measures for chapter 12 of this volume beyond those previously addressed. | |
| | | | | SECTION 5.13 CONCLUSIONS AND SUMMARY OF KEY ISSUES | |
| 13.1 | | | | There are no specific mitigation design measures for chapter 13 of this volume beyond those previously addressed. | |