SMart Wind Limited

Hornsea Offshore Wind Farm
Project One – Environmental Statement

Volume 4
Annex 4.3.5 – Code of Construction Practice

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## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Designated site</td>
<td>An area listed under an International Convention, European Directive, or a piece of UK legislation due to its nature conservation or landscape value.</td>
</tr>
<tr>
<td>Development Consent Order (DCO)</td>
<td>A legal order granting development consent for one or more nationally significant infrastructure projects.</td>
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<tr>
<td>EIA Regulations</td>
<td>In the context of this document, the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.</td>
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<tr>
<td>Environment Agency (EA)</td>
<td>The EA is a non-departmental public body of the Department for Environment and Rural Affairs and an Assembly Government Sponsored Body of the Welsh Government that serves England and Wales.</td>
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<tr>
<td>Flood Zone 1</td>
<td>This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (&lt;=0.1%).</td>
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<tr>
<td>Helicopter Main Route (HMR)</td>
<td>Routes which are established to facilitate safe helicopter flights in Instrument Flight Rules (IFR) conditions (i.e. when flight cannot be completed in visual conditions).</td>
</tr>
<tr>
<td>Hoarding</td>
<td>A fencing system used to enclose a building site whilst construction takes place. They are typically solid (made from timber, metal or composite panels) and have vehicular and/or pedestrian access points.</td>
</tr>
<tr>
<td>Onshore Fisheries Liaison Officer (OFLO)</td>
<td>Fisheries Liaison Officer based onshore with the role of keeping local and international fishermen informed of on-going work within the area, including marine surveys.</td>
</tr>
<tr>
<td>Overarching National Policy Statement for Energy (NPS EN-1)</td>
<td>A document setting out national policy against which proposals for major energy projects will be assessed and decided on.</td>
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<tr>
<td>Permeability</td>
<td>A measure of the ability of a material (such as rock) to transmit fluids (liquids or gases).</td>
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<tr>
<td>Porosity</td>
<td>A porous material contains voids such as pores, joints or fissures within a solid framework or matrix. The voids allow fluids (liquids or gases) to move through the material.</td>
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<tr>
<td>Principal aquifer</td>
<td>Layers of rock or drift deposits that have a high inter-granular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifers.</td>
</tr>
<tr>
<td>Putrescible waste</td>
<td>Solid waste that contains organic materials (such as food waste) capable of being decomposed by microorganisms.</td>
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### Term | Definition
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Secondary Aquifer | Permeable layers of rock or drift deposit capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally.
Scour | Erosion holes around the foundations of offshore wind turbines and infrastructure created by tidal currents.
Southern North Sea Offshore Wind Forum (SNSOWF) | Southern North Sea Offshore Wind Farm comprising representatives from Dogger Bank, Hornsea and East Anglia Round 3 Zones, was established in 2011 to share and discuss information on agreed topics in relation to cumulative impacts of development and to provide a meaningful forum for cross dissemination of information, thinking and ideas relevant to cumulative impacts.
Strategic Flood Risk Assessment | A Strategic Flood Risk Assessment looks at flood risk at a strategic level on a local planning authority scale.
Waste Hierarchy Principle | A classification of waste management options in order of their environmental impact.

### Acronym | Full term
--- | ---
AEZ | Archaeological Exclusion Zone
CDM | Construction (Design and Management) Regulations 2007
CEMP | Construction Environmental Management Plan
CoCP | Code of Construction Practice
cSAC | Candidate SAC
DB | Drainage Board
DCO | Development Consent Order
DIO | Defence Infrastructure Organisation
EA | Environment Agency
ECoW | Ecological Clerk of Works
EIA | Environmental Impact Assessment
EMF | Electromagnetic Field
EPS | European Protected Species
ERCoP | Emergency Response Co-operation Plan
ES | Environmental Statement
FRA | Flood Risk Assessment
HDD | Horizontal Directional Drilling
HMR | Helicopter Main Route
HRA | Habitats Regulation Assessment
HVAC | High Voltage Alternating Current
HVDC | High Voltage Direct Current
MCA | Maritime and Coastguard Agency
MHWS | Mean High Water Spring
MLWS | Mean Low Water Spring
MPCP | Marine Pollution Contingency Plan
NE | Natural England
NATS | NATS Ltd (formerly National Air Traffic Services Limited)
NPS | National Policy Statement
OFLO | Onshore Fisheries Liaison Officer
PRoW | Public Rights of Way
ROV | Remotely Operated Vehicle
RSPB | Royal Society for the Protection of Birds
SAC | Special Areas of Conservation
SAM | Scheduled Ancient Monument
SAR | Search And Rescue
SCI | Sites of Community Importance
SoCC | Statement of Community Consultation
SFRA | Strategic Flood Risk Assessment
SNSOWF | Southern North Sea Offshore Wind Forum
SPA | Special Protection Area
SRA | Strategic Road Network
SSSI | Sites of Special Scientific Interest
SWMP | Site Waste Management Plan
THLS | Trinity House Lighthouse Service
1 INTRODUCTION

1.1 General

1.1.1 This Code of Construction Practice (CoCP) has been developed to support the construction of the proposed Hornsea Project One Offshore Wind Farm (hereafter referred to as Project One). The report forms part of the Development Consent Order (DCO) application documents submitted for the construction of Project One (refer to Part 3 Section 10 of the DCO).

1.2 Purpose and Application of the Code

1.2.1 The CoCP sets out the management measures that contractors will be required to adopt and implement for all construction activities on Project One. These measures have been identified during the design of the onshore and offshore elements of the Project as part of the Environmental Impact Assessment (EIA) process. They include strategies, control measures and monitoring procedures for managing the potential environmental impacts of constructing the wind farm and limiting disturbance from construction activities as far as reasonably practicable. It covers the environmental and public health and safety aspects of the construction phase of the project that may affect the interests of local residents, businesses, the general public and other sensitive receptors in the vicinity of the construction sites (see paragraph 1.2.2 for information on "construction sites").

1.2.2 The CoCP will apply to all construction works carried out at Project One. The onshore works comprise:
- Landfall at Horseshoe Point;
- Cable route (approximately 40 km);
- A new HVDC converter/HVAC substation; and
- Connection to the existing National Grid substation at Killingholme.

1.2.3 The offshore works comprise:
- Offshore array (including construction of the foundations and the turbines);
- Inter-array cabling;
- Accommodation platforms (including construction of the foundations);
- HVDC converter station(s)/HVAC collector substation(s) and HVAC reactive compensation substation; and
- Offshore cable route.

1.2.4 The term ‘construction’ in the CoCP includes all site preparation, demolition, material delivery, excavated material disposal, waste removal, and all related engineering and construction activities as authorised by the DCO.

1.2.5 The provisions of this CoCP will be incorporated into the contracts for the construction of all works authorised by the DCO. All contractors, subcontractors and their suppliers will be required to observe the relevant provisions of the CoCP. Commitments to follow good practice will be set out in an Operational Environmental Management Plan (and for offshore operation, a Project Environmental Management Monitoring Plan), which will be implemented on completion of the construction period.

1.2.6 The CoCP incorporates legislative requirements, current standards and best practice measures to define the standards of construction practice that contractors will be required to adopt and implement. However, compliance with this CoCP will not absolve the contractor or subcontractors from compliance with all legislation and byelaws relating to their construction activities.
2 GENERAL PROVISIONS

2.1 Construction Principles

2.1.1 Hornsea Project One Offshore Wind Farm will be constructed in an environmentally sensitive manner and will meet the requirements of all relevant legislation, codes of practice and standards as identified in the Environmental Statement (ES) and limit the adverse impacts on the local community and environment as far as reasonably practicable.

2.2 Environmental Management

2.2.1 Project One will be built, where reasonably practicable, in accordance with current best practice for minimising the adverse effects of construction on the environment and the local community.

2.2.2 The developer will review the environmental performance of the main construction contractors as part of the tender selection process.

2.3 Health and Safety Principles

2.3.1 Appropriate industry standards will be adopted and implemented for the health, safety and welfare of the construction staff on Project One and arrangements will be in place for the discharge of duties under the Construction (Design and Management) Regulations 2007.

2.3.2 Once the main roles of the construction team are assigned, the Principal Contractors for onshore and offshore works will develop a Health and Safety Plan to address the safety of construction workers, visitors to the site and the general public. The Health and Safety Plan will set out how all health and safety risks are identified and managed in accordance with legal requirements and current best practice.

2.4 Local Community Liaison

2.4.1 Prior to commencing main construction activities (e.g. earthworks) occupiers of premises in the vicinity of the work will be notified of the nature of the proposed works and be provided with contact details to which any enquiries should be directed.

2.4.2 The Developer will establish a system for dealing with enquiries or complaints from the public, local authorities or statutory consultees (see Communications Plan in section 3.8 of this CoCP). Any complaints that may arise will be logged, reported and addressed. Complaints will be investigated and where required, mitigation will be implemented. A complaint close-out report will be provided to the Local Planning Authority within an agreed timescale.

2.5 Construction Programme and Implementation of the Code

2.5.1 Onshore and offshore construction work is proposed to commence in 2015 and 2016 respectively. Project One will be built either using a single, two or three phase programme. Under a multi-phase programme scenario, the sum of the durations of each phase will not exceed the overall duration presented in a single phase programme. Therefore, as a realistic worst case scenario, it is assumed that in a phase construction programme the overall onshore and offshore constructions windows will not extend beyond 5 years each.

2.5.2 The CoCP will be implemented across all phases of the onshore and offshore construction programme through the following:

Onshore
- Construction Environmental Management Plan (CEMP); and
- Construction Method Statements.

Offshore
- Construction and monitoring programme;
- Construction method statement;
- Project environmental management and monitoring plan;
- Scour protection management and cable armouring plan;
- Marine mammal mitigation protocol;
- Cable specification and installation plan; and
- Written scheme of archaeological investigation.

Training and Competence

2.5.3 All levels of site personnel will have responsibility for minimising the risks to the environment from the activities on site, and steps will be taken by the Principal Contractor to make them aware of these duties and the environmental requirements of the CoCP. Contractors will be required to operate induction schemes for all personnel to ensure that they are aware of their individual responsibility to comply with the CoCP.

2.5.4 Contractors will be responsible for employing an appropriately qualified workforce and for identifying the training needs of their personnel.
3 GENERAL SITE OPERATIONS

3.1 Working Hours

Offshore

3.1.1 The construction of offshore turbines and transmission infrastructure is scheduled to take place 24 hours a day throughout the year subject to weather conditions. Construction in the marine environment is potentially hazardous and it will be in the interests of safe working to take advantage of as much construction time in favourable conditions as is possible.

Onshore

3.1.2 Working hours will be agreed with the Local Planning Authority. The proposed construction working hours for the onshore elements are as follows:

- Monday to Friday: 07:00 - 18:00 hours;
- Saturday: 07:00 - 13:00 hours; and
- Sunday or Bank Holidays: no working.

3.1.3 In certain circumstances, specific works may have to be undertaken outside the normal working hours including:

- Horizontal Directional Drilling (HDD) operations which may require 24 hour machinery operation, dependent on the ground conditions;
- Oil filling of transformers at the onshore substation;
- Remedial works, for example in the event of severe weather;
- Jointing operations along the cable route; and
- Security of sites and protection of open assets.

3.2 General Site Layout and Good Housekeeping

3.2.1 A good housekeeping policy will be applied to the construction areas at all times. As far as reasonably practicable the following principles will be applied:

- All working areas will be kept in a clean and tidy condition;
- The site will be secured to prevent unauthorised access;
- Wheel washing facilities will be cleaned frequently;
- Open fires will be prohibited at all times;
- All necessary measures will be taken to minimise the risk of fire and the contractor will comply with the requirements of the local fire authority;
- Adequate welfare facilities will be provided for construction staff;
- Waste from the construction areas will be stored securely to prevent wind blow; and
- Waste will be removed at frequent intervals.

3.2.2 Temporary construction compounds will be required close to the onshore cable route for the storage of materials, assembly of large items of plant and parking of mobile plant and vehicles. Within these areas, material and plant storage will be located to limit adverse environmental effects where practicable. The possible location of the compounds is shown on the crossing schedule of Volume 4, Annex 4.3.4: Onshore Crossing Schedule.

3.3 Screening and Fencing

3.3.1 Secure temporary fencing will be installed around the construction compounds. Temporary fencing will also be provided for sections of the cable route as appropriate. The type of fencing will be selected to suit the location and purpose and will be agreed with the Local Planning Authority post DCO consent. All boundary fences/screens will be maintained in a tidy condition and fit for purpose.

3.3.2 All construction areas will remain securely fenced at all times during construction. All temporary screening and fencing will be removed as soon as reasonably practicable after completion of the works.

3.4 Lighting

3.4.1 External lighting of the construction site will be designed and positioned to:

- Provide the necessary levels for safe working;
- Minimise light spillage or pollution; and
- Avoid disturbance to adjoining residents and occupiers.

3.4.2 The external lighting scheme will be agreed with the Local Planning Authority post-consent.
3.5 Site Security
3.5.1 Construction compounds will be secured to minimise the opportunity for unauthorised entry. Where possible, access to construction areas will be limited to specified entry points and all personnel entries/exits will be recorded for security and health and safety purposes.

3.6 Pest Control
3.6.1 The risk of pest/vermin infestation will be reduced by ensuring any putrescible waste is stored appropriately and regularly collected from the construction areas, and effective preventative pest control measures are implemented. Any pest infestation will be dealt with promptly and notified to the Local Planning Authority as soon as possible.

3.7 Emergency Planning and Procedures
3.7.1 Emergency procedures will be developed for the onshore and offshore elements of Project One taking into account the anticipated hazards and the conditions at each work site. The emergency plan will include emergency pollution control measures based on Environment Agency guidelines. Fire and safety, site evacuation, and spill prevention and control procedures will also be developed. The emergency procedure will contain emergency phone numbers and the method of notifying local authorities and statutory authorities. The procedures will be displayed at the work sites and all site staff will be required to follow them.

3.7.2 An emergency response plan will be developed for the onshore and offshore construction phase. For construction works onshore, this will be the responsibility of the Principal Contractor and all contractors and subcontractors will work in accordance with this plan. For offshore works, the plan will take the form of an Emergency Response Co-operation Plan (ERCoP). The developer will be responsible for preparing the plan, which will be in accordance with the requirements of the Marine Licence taking into consideration MGN 371 and MGN 372. No development seaward of the Mean High Water Spring (MHWS) will commence until the ERCoP has been agreed in writing by the Secretary of State in consultation with the Maritime and Coastguard Agency (MCA).

3.7.3 Offshore contractors will be required to develop their own marine pollution contingency plans (MPCP) and emergency response procedures, which will fall within the framework of the ERCoP.

3.8 Communication Plan
3.8.1 The developer/contractor will implement a proactive approach in communications. Occupiers of nearby properties and Local Planning Authorities will be informed in advance of works taking place, (in particular, those affecting Public Rights of Way and local roads) including the duration of the works.

3.8.2 A complaints procedure will be implemented during the construction process. Complaints will be investigated and where required, mitigation will be implemented. All calls will be logged and the response will be recorded.

3.9 Crane Arcs
3.9.1 Cranes will be operated in accordance with the requirements of BS 7121, Code of Practice for Safe Use of Cranes.

3.10 Clearance of Site on Completion
3.10.1 Temporary construction compounds and accesses will be cleared as work progresses and when they are no longer required for the construction of Project One. On completion of construction work all plant, temporary buildings or vehicles will be removed.

3.10.2 Following completion of the onshore cable installation, the working area will be reinstated to its previous condition. This will include:
- Reinstatement of intertidal area;
- Reinstatement of topsoil and subsoil, including loosening or ripping of compacted soil;
- Reinstatement of land drainage systems, where necessary post construction drains may be installed, typically parallel to the cable route;
- Reseeding of any fields of grassland, grass margins and ditch banks;
- Reconstruction of any drains, ditches or roads crossed using an open cut method;
- Replanting of any hedgerows or felled shrubs or trees as detailed in the Landscape Management Plan (see Volume 6.4.16) and through consultation with the Local Planning Authority;
- Restoration or repair of fences, gates, tracks or hard standing; and
- Reinstatement of PRoW along their former alignments where temporary diversions have been put in place during construction.
4 MANAGEMENT OF ENVIRONMENTAL ISSUES

4.1 This CoCP identifies objectives and management measures for onshore and offshore environmental issues. It includes all relevant measures as identified in the mitigation sections of the individual chapters of the Environmental Statement, to minimise environmental impacts during construction.

4.2 Onshore

Public Access and Transport Management

Objectives

4.2.1 To carry out construction works in such a way that maintains highway safety and avoids adverse effects on local communities and highway users.

Management measures

4.2.2 Traffic management measures will be put in place to maintain access to the intertidal area using the permissive footpath which runs along the top of the sea defences, however there may be times when access is not possible.

4.2.3 The preferred routes for HGVs, abnormal loads (this will be between Immingham Docks and the HVDC converter/HVAC substation or between the Strategic Road Network (SRN) and the HVDC converter/HVAC substation) and construction traffic and a travel plan (or equivalent) for the construction workforce will be agreed with the Local Planning Authority and the relevant Highway Authority. The route timing and method of transport of abnormal loads will be discussed and agreed with the Highways Authority, the police and relevant highways and bridge authorities.

4.2.4 All HGV access points will be designed and constructed to meet appropriate visibility and other highway standards and will be agreed with the relevant Highway Authorities. Further details are provided in Volume 6, Annex 6.7.1: Transport Assessment.

4.2.5 Video condition surveys will be undertaken before the start of the works and after the substantial completion of works on minor links used by HGVs to access the cable route. Damage to the highway caused by construction traffic will be repaired.

4.2.6 Details of the accident record on the A18 south of the A46 will be reviewed in order to identify whether there are any safety deficiencies in the highway that could be worsened as a result of the increased level of HGV traffic associated with the construction works. Mitigation measures will be incorporated into the Construction Environmental Management Plan if necessary.

4.2.7 In relation to the use of the access road serving the HVDC converter/HVAC substation from Chase Hill the following mitigation measures are proposed:

- Protection will be provided for services under the access road where this is necessary;
- Measures will be implemented if necessary to maintain access at all times for emergency vehicles during the delivery of abnormal loads;
- A video survey of the condition of the access road and an assessment of the condition of the highway drainage will be undertaken before and after the construction of the HVDC converter/HVAC substation and an appropriate contribution made towards the remediation of any damage resulting from the passage of construction vehicles; and
- Appropriate traffic management will be implemented in association with any works to the access road to ensure that access for other users is maintained at all times.

4.2.8 Restrictions will be implemented on HGV operating hours, particularly through Tetney, North Thoresby and along those sections of the B1210 that provide access to local schools. Restrictions will also be implemented on HGV operating hours and measures implemented to minimise the number of HGV movements through sensitive areas when access to HDD sites is essential (through North Cotes, Aylesby Road and Top Road).

4.2.9 Measures will be implemented to minimise dust, mud and debris associated with the movement of construction vehicles. This will include wheel washing at all site access points where it is necessary to eliminate the risk of mud and debris on the highway.

4.2.10 Appropriate parking facilities will be provided.

4.2.11 Where possible overall vehicle movement generation will be minimised through measures to encourage and promote sustainable travel and transport. Localised management of vehicle movements will be undertaken to minimise the risks of vehicles meeting each other on narrow sections.

4.2.12 Vehicle movement will be managed to minimise the risks of vehicles meeting each other on narrow sections.

4.2.13 At all vehicle accesses where accommodation works are undertaken to allow the movement of vehicles between the cable route and the highway the original highway will be reinstated after construction work is completed.

4.2.14 The burial depth of cables in the vicinity of the proposed A160/A180 improvement scheme will be increased to a level agreed with the Highways Agency (HA).

4.2.15 All vehicle accesses where accommodation works are undertaken to allow the movement of vehicles between the cable route and the highway the original highway will be reinstated after construction work is completed.
4.2.16 The diversion of rights of way affected by the construction works with closures only when absolutely necessary (see Volume 3, Chapter 6: Land Use, Agriculture and Recreation).

Noise and Vibration

Objectives

4.2.17 To control and limit noise and vibration levels, so far as is reasonably practicable, to minimise disturbance to sensitive receptors.

Management measures

4.2.18 Construction works will be undertaken in accordance with the best practicable means (as defined in Section 72 of the Control of Pollution Act 1974), to minimise noise and vibration effects. Noise control measures will be consistent with the recommendations of the current version of BS 5228 ‘Code of Practice for Noise and Vibration Control on Construction and Open Sites’ - Part 1: Noise and Part 2: Vibration’ (BSI 2009a and 2009b) and include the following:

- The use of quieter alternative methods, plant and/or equipment, where reasonably practicable;
- The use of site hoardings, enclosures, portable screens and/or screening nosier items of plant, where reasonably practicable; and
- Maintaining and operating all vehicles, plant and equipment in an appropriate manner, to ensure that extraneous noise from mechanical vibration is kept to a minimum.

Air Quality and Health

Objectives

4.2.19 To minimise the generation of nuisance dusts during construction and to facilitate community engagement and a proactive approach to complaints regarding nuisance dusts.

Management measures

4.2.20 Implementation of a Dust Management Plan (DMP) to be approved by the Local Authority. The level of detail will depend on the risk and may include monitoring of dust.

Communications

- Implementation of a stakeholder communications plan that includes community engagement before and during work on site. The plan will display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary (this may be the environment manager/engineer or the site manager), and the head or regional office contact information.

Preparing and maintaining the site

- The site layout will locate machinery and dust causing activities away from sensitive receptors, as far as possible;
- Screens or barriers will be erected around the boundary of the site and kept clean;
- Potentially dust-generating materials will be removed from site as soon as possible, unless being re-used on site. Appropriate cover or seeding will be provided where necessary depending on the duration that stockpiles will be present;
- Avoid site runoff of water or mud;
- Bonfires and burning of waste on site will not be permitted;
- Only registered waste carriers will be used to take waste off site;
- Keep site fencing, barriers and scaffolding clean; and
- Depending on the duration that stockpiles will be present and their size - cover, seed, fence or water to prevent wind whipping.

Construction operations

- Only cutting, grinding and sawing equipment fitted or in conjunction with suitable dust suppression techniques (such as water sprays or local extraction) will be used;
- Adequate water supply will be made available to enable effective dust/particulate matter suppression. Non-potable water will be used where possible;
- Enclosed chutes, conveyors and covered skips will be used where practicable; and
- Equipment to clean any dry spillages will be readily available. Spillages will be cleaned up as soon as reasonably practicable after the event using wet cleaning methods.
Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles as soon as practicable. Use Hessian or mulches where it is possible to re-vegetate or cover topsoil as soon as practicable. Only remove the cover in small areas during work and not all at once;
- Sand and other aggregates will be stored in bunded areas and will not be allowed to dry out unless this is required for a particular process, in which case appropriate additional control will be put in place;
- Bulk cement and other fine power materials will be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery;
- Vehicles entering and leaving the site are covered to prevent escape of materials during transport;
- Record all inspections of haul routes and any subsequent action in a site log book;
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as practicable;
- Where possible, dust generating activities will be programmed to avoid prolonged dry or windy weather conditions; and
- Any dry spillages will be cleaned up as soon as reasonably practicable using wet cleaning methods and the appropriate equipment will be available on site.

Operating machinery and site vehicles

- All vehicle engines will be switched off when stationary;
- Where possible, mains electricity or battery powered equipment will be used instead of diesel or petrol powered equipment/generators;
- A maximum speed limit will be imposed for construction vehicles of 15 mph on surfaced roads and 10 mph on un-surfaced haul roads and work areas;
- Water-assisted dust sweeper(s) will be used on the access and local roads to remove, as soon as practicable, any material tracked out of the site;
- A wheel washing system (with rumble grids to dislodge accumulated dust and mud) will be implemented. An adequate area of hard standing will be provided between the wheel wash facility and the site exit, wherever site size and layout permits;
- A logistics plan will be prepared to manage the delivery of construction goods and materials; and
- As far as practicable a travel plan (or equivalent) will be implemented that supports and encourages sustainable staff travel (public transport, cycling, walking and car-sharing).

Site management and monitoring

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Make the complaints log available to the Local Planning Authority when asked;
- Haul routes will be inspected and necessary repairs will be instigated as soon as practicable. Details of inspections and any action taken will be recorded in a site log book;
- Exceptional incidents that cause dust and/or air emissions either on- or off-site will be recorded in the log book together with the action taken to resolve the situation;
- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Planning Authority when asked;
- When activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions increase the frequency of inspections; and
- Carry out regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary.

Protection of the Water Environment

Objectives

4.2.21 To minimise the risk of surface water flooding during the construction phase, to prevent pollution of surface watercourses and to minimise the impact on local surface water features.

Management measures

4.2.22 A written scheme dealing with contamination of land and groundwater will be submitted to and approved by the Local Planning Authority prior to authorised development commencing.

4.2.23 A surface water management strategy will be developed and implemented for the onshore HVDC converter/HVAC substation site to ensure the run-off rates to the surrounding water environment are maintained at pre development rates.
4.2.24 Where the cable route crosses land drains and smaller watercourse crossings, the construction side access will be installed over a pre-installed culvert of suitable size to accommodate the water volumes and flows necessary or a temporary bridge will be installed through agreement with the land owner, relevant Drainage Board (DB) or Environment Agency (EA). The construction side access will be removed at the end of the construction programme. Where the construction side access crosses existing underground services the use of temporary metal roadway sections may be employed to distribute heavy loads and protect the underlying services.

4.2.25 Any surface water flowing into the trenches during the construction period will be pumped via settling tanks or ponds to remove sediment and potential contaminants, before being discharged into local ditches or drains via temporary interceptor drains.

4.2.26 Any tanks and associated pipe work containing hazardous substances as listed in Point 1-6 of Annex VIII to the Water Framework Directive 2000/60/EC will be double skinned and be provided with intermediate leak detection equipment.

4.2.27 Any field drainage intercepted during the cable installation will either be reinstated following the installation of the cable or diverted to a secondary drain or channel. Any works undertaken will be in agreement with the appropriate stakeholders.

4.2.28 Refuelling of machinery will be undertaken within designated areas where spillages can be easily contained. Machinery will be routinely checked to ensure it is in good working condition and should only be active when required.

4.2.29 Refuelling of machinery will be undertaken within designated areas where spillages can be easily contained. Machinery will be routinely checked to ensure it is in good working condition and should only be active when required.

4.2.30 The following specific mitigation measures for the protection of surface and groundwater during construction will be implemented to ensure that the works meet the requirements of the Water Framework Directive (WFD):

- Management of construction works to comply with the necessary standards and conditions identified by the EA;
- As part of site induction site personnel will be briefed on the importance of water quality, the location of watercourses and pollution prevention;
- Areas with prevalent runoff to be identified and drainage actively managed, e.g. through bunding and/or temporary drainage;
- Areas at risk of spillage, such as vehicle maintenance areas and hazardous substance stores (including fuel, oils and chemicals) to be bunded and carefully sited to minimise the risk of hazardous substances entering the drainage system or the local watercourses (e.g. no storage of oil within 50 m of a spring, well or borehole or within 10 m of a watercourse, or within areas at risk of flooding). Additionally the bunded areas will have impermeable bases to limit the potential for migration of contaminants into groundwater following any leakage/spillage. Bunds used to store fuel, oil etc to have a 110% capacity;
- Avoidance of oil storage where oil could run over hard ground into a watercourse;
- Excavated material to be placed in such a way as to avoid any disturbance of areas near to the banks of watercourses and any spillage into the watercourses;
- Construction materials to be managed in such a way as to effectively minimise the risk posed to the aquatic environment;
- Any construction works with the potential to affect drainage will be constructed in accordance with relevant statutory guidance and approved by the relevant DB, Local Authority or EA prior to the commencement of construction;
- No water will be discharged to any watercourse, public sewer or drain without the consent of the person to whom it belongs;
- Environmental permits will be obtained for discharges to surface watercourses where required by the EA;
- Wheel washers and dust suppression measures will be used as appropriate to prevent the migration of pollutants;
- The generation of silt and contaminated water will be reduced by minimising disturbance of the watercourse banks and bed, and runoff from exposed ground and stockpiles;
- Used oils will be disposed of properly in accordance with PPG8 (EA, 2004);
- Deep HDD excavations and deep excavations for pile foundations to be mitigated by casing off perched groundwater units during construction works and sealing off once the casing is removed;
- The EA flood defence will be crossed utilising a HDD technique which will not directly impact on the defence and therefore will not affect flood risk. EA have requested a 10 m minimum depth between the underground cable and ground level at the seaward toe of the defences;
- HDD for onshore watercourse cable crossing points will be a minimum of 2 m below the hard bed of the watercourse and at a maximum depth of 15 mBGL subject to site investigation confirming a suitable standoff above the Chalk principal aquifer. A minimum standoff of 2 m above the Chalk aquifer is suggested. The depth of each individual HDD will be determined by preliminary geotechnical surveys at each site prior to construction to identify a suitable standoff above the Chalk principal aquifer;
- A hydrogeological risk assessment meeting the requirements of Groundwater Protection and Principles in Practice (November 2012) will be undertaken at each HDD crossing location;
Measures will be implemented during cable trenching across the two Source Protection Zone 1 areas to ensure that the principal aquifer is not affected (e.g. confirming the depth of the overlying clay);

Measures will be implemented during cable trenching across areas with secondary A or B perched aquifers to ensure the groundwater quality is not adversely affected (as set out in the WFD) and that groundwater does not use the trenches as a conduit;

Regular cleaning of roads of any construction waste and dirt will be carried out; and

Consultation with the EA will be on-going throughout the construction period to promote best practice and to improve proposed mitigation measures.

All construction work will be undertaken in accordance with good environmental practice based on legal responsibilities and guidance in accordance with the general overarching guidance on good environmental management including:

- PPG1 (EA, 2001a) and also more specific guidance in: CIRIA C648 (2006) Control of Water Pollution from Linear Construction Projects and PPG21;
- CIRIA (2001) C532 Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors; and

A Flood Risk Assessment (FRA) has been undertaken for the proposed HVDC converter / HVAC substation in accordance with the guidance in the Overarching National Policy Statement for Energy (NPS EN-1) and the FRA practice guidance on flood risk assessment in the National Planning Policy Framework (NPPF) Technical Guidance to which applicants are directed in NPS EN-1. The proposed development is defined as ‘Essential Infrastructure’ in Table 2 of the NPPF Technical Guidance and suitable for the location.

The proposed HVDC converter/HVAC substation is located in Flood Zone 1 (as defined by EA flood maps and North East and North Lincolnshire Councils’ Strategic Flood Risk Assessment (SFRA) (2010)). It has passed the Sequential Test requirement for locating developments in ‘low’ flood risk zones. The access track is shown to be located within the Councils’ SFRA defined Flood Zone 2/3(A). Developments within Zone 2/3(A) require an emergency evacuation plan for staff during extreme flood events. To meet this requirement, a procedure will be implemented to ensure no site staff are present during an extreme event.

Following the construction of the proposed onshore HVDC converter / HVAC substation there will be an increase in the amount of low permeability cover, and surface runoff will need to be controlled at a rate to be agreed with the EA and North East Lindsey DB. Refer to the FRA in Volume 6, Annex 6.2.3 for further information.

Land drainage will be restored to its existing condition. The location and method of land drainage will be identified from a detailed drainage survey post-consent.

Objectives

To minimise the impact of construction works on protected species and designated sites and to minimise the loss of nature conservation features such as hedgerows and mature trees.

Management measures

A written ecological management plan will be submitted to and approved by the Local Planning Authority prior to authorised development commencing above Mean Low Water Spring (MLWS).

Designated sites

Measures will be implemented to minimise the impacts of construction on the intertidal, coastal sand dunes and saltmarsh habitats of the Humber Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar and Site of Special Scientific Interest (SSSI) and Donna Nook National Nature Reserve (NNR) as outlined in the Habitats Regulation Assessment (HRA).

A temporary bridge and/or culvert will be used to cross the drainage ditch behind the sea defence and an access track will be run across the culvert and over the top of the sea defence into the intertidal area. The track will then run parallel with the sea defence in the intertidal zone to meet the intertidal construction corridor. Measures will be put in place to minimise the impact of tracking vehicles on the sand dunes and sea defence.

Protective buffer zones

Works-free protective buffer zones will be established around retained habitats of ecology and nature conservation concern, namely woodland, mature broadleaved trees and ponds, as well as sections of watercourses that will not be crossed by open-cut trenching. These buffer zones will be maintained throughout the works period.
Buffer zones surrounding retained areas of woodland and mature broadleaved trees will be at least approximately 15 m in width or at least the width of the tree root protection zone, as advised by an appropriately qualified surveyor. Where practicable, buffer zones around hedgerows will be at least 5 m in width, and surrounding ponds and watercourses will be at least 8 m in width, or 10 m in width for main watercourses (i.e. the Louth Canal, Tetney Drain and Laceby Beck); consents will be obtained as necessary for works closer to channels managed by the Internal Drainage Board (IDB) and main watercourses.

In the intertidal zone at the export cable landfall, works-free protective buffer zones will be established around areas of continuous coastal saltmarsh (Atlantic salt meadows) and intertidal cockle beds to prevent direct physical disturbance to these habitats by anchor placement, vehicle movement or cable trenching. The buffer zone will be delineated pre-construction using a hand held GPS and the coordinates of these features will be provided to contractors to ensure anchor placements do not occur in these areas.

All buffer zones will prohibit the tracking of heavy vehicles, and the storage of vehicles, machinery, equipment and soils. All protective buffer zones will be maintained throughout the construction phase. The ECoW will regularly (at least once every two weeks) monitor adherence to the requirements of the buffer zones and will maintain a record of all site checks undertaken and findings.

Coastal and intertidal habitats

A pre-construction walkover survey of coastal and intertidal habitats at the export cable landfall site will be undertaken in order to provide an up-to-date assessment and delineation of the intertidal cockle beds and coastal saltmarsh habitats (i.e. Atlantic salt meadows). The data collected will be used to inform the locations and extents of works-free protection zones referred to above.

A pre-construction survey of the Salicornia species and other annuals colonising mud and sand located within the intertidal cable convergence corridor and a surrounding area that will not be physically disturbed by the works, will also be undertaken.

In order to encourage the capture of disturbed Salicornia seed in the intertidal sediments, sediments in affected areas (i.e. in the intertidal convergence zone) will be raked over to remove deep depressions (i.e. those with depths greater than 10 cm), such as wheel ruts or tracks. Although a small amount of texture is required to encourage Salicornia seed capture, deeper depressions often become waterlogged resulting in reduced colonisation in these areas. This will be undertaken following the completion of all cable installation works at the end of each of the cable installation phases (i.e. in September each year). Works will be overseen by the ECoW and an ecological watching brief will be provided by the ECoW or appropriately experienced ecologist pre-approved by the ECoW.

Trees and Hedgerows

The length of hedgerow clearance for each hedgerow crossed by open-cut trenching will be limited to no greater than 30 m. This will include any haul roads and buffer zones, but will exclude soil storage areas, which will be sited at least 5 m from the hedgerow.

Hedgerow clearance, including tree felling works, will be carried out in accordance with species-specific requirements described below.

Where individual mature trees are to be felled, sections of dead or decaying wood will be soft-felled (felled in sections) and, where practicable, will be relocated to suitable locations as near to the source tree as practicable, as instructed by the Ecological Clerk of Works (ECoW) (i.e. within areas of similar environmental conditions, particularly with regard to shade and ground water-levels, and in locations that will not obstruct the reinstatement of previous land management practices).

A works-free buffer zone of at least 15 m between mature hedgerow trees, or at least equivalent to the root protection zone calculated on a tree-by-tree basis by an appropriately qualified surveyor, and the adjacent cable trench will be set in place where practicable. The cable trench will be located approximately 10 m from retained hedgerows.

Arisings will be removed from site or will be temporarily relocated to a site more than 5 m from working areas (or 50 m if HDD is being undertaken) so as to ensure that any nesting birds (or other species) which might utilise the pile of cuttings are protected against likely impacts of construction.

All sections of hedgerow removed to enable construction of the cable route corridor, will be replanted as soon as practicable after cable installation, with regard to appropriate planting months. Replacement planting will comprise native shallow-rooting hedgerow species typical of the area. To prevent future root damage to cables, no hedgerow trees will be planted along the cable route. In addition, enhancement planting to improve connectivity and/or native species diversity will be undertaken within a 100 m wide corridor encompassing the cable route. Enhancement planting will include the planting of native hedgerow trees, typical of the area, at a suitable distance from the cable route.

A replanting programme will also be carried out at the proposed onshore HVDC converter/HVAC substation site where hedgerow removal will be permanent. To compensate for habitat loss and to provide screening. Where required, new hedgerow planting will be protected by fencing until the hedgerow has become established (see the Ecological Management Plan Volume 6 Annex 6.3.12: Ecological Management Plan).

Habitat reinstatement in consultation with LPAs will involve the replacement following cable installation, of stripped soils and the planting of native hedgerows, shrubs and trees, typical of the local area and of local provenance where possible.
4.2.55 Replacement tree planting, on a one for one basis within hedgerows, of any trees removed during the construction works.

Amphibians and reptiles

4.2.56 Amphibian exclusion and drift fencing will be installed along the outer edges of works areas that fall within 250 m of a Great Crested Newt (GCN) pond as advised by an ECoW. The exclusion fencing will be extended to segregate any other ponds located within 250 m of the GCN pond and which also fall within 250 m of the working corridor, providing there are no significant barriers to dispersal between ponds.

4.2.57 Where fence installation requires the clearance of habitat of potential value to hibernating GCN (i.e. mature hedgerows or suitable piles of rubble and earth), exclusion fencing will be installed outside the GCN hibernation period (considered to be between November and January/mid-February, although dependent on local weather conditions), so as to prevent the potential disturbance of hibernating GCNs.

4.2.58 The installation of amphibian exclusion fencing will be carried out under the guidance of the ECoW and watching brief of a GCN licensed ecologist, pre-approved by the ECoW, who will be present to capture and relocate any GCN disturbed in the process to suitable habitat located outside the fenceline and with open access to nearby ponds.

4.2.59 Surveys will be carried out prior to construction on ponds within 250 m of the works areas that were not surveyed during 2011 or 2012 in order to establish the presence/absence of GCN. In addition, a survey will be undertaken of any ponds located between 250 m and 500 m of the works areas, which is also situated no more than 250 m from a pond located within the 250 m survey area and is separated from this pond by favourable GCN habitat.

4.2.60 Surveys will be carried out by GCN licensed ecologists working under the instruction and guidance of the ECoW. Surveys will be completed in accordance with the methodology described in the *Great Crested Newt Mitigation Guidelines* (English Nature, 2001).

4.2.61 If GCN are found to be present, these ponds will be included in the mitigation strategy and if necessary, a Natural England (NE) European Protected Species (EPS) licence application will be obtained for works to commence.

4.2.62 Licensed works will be carried out in accordance with licence requirements and under the guidance of the ECoW and the watching brief of a GCN licensed ecologist(s), who would be pre-approved by and work under the instruction of the ECoW.

4.2.63 If more than one GCN is located during fence installation, the on-site ecologist will instruct site workers to halt works immediately and the ECoW will be informed.

4.2.64 As a precautionary measure, amphibian exclusion fencing will also be installed, as described above, around working areas located within 250 m of any pond or cluster of ponds of potential value to GCNs which have not been surveyed due to a lack of land owner permission.

4.2.65 GCN exclusion fencing installed prior to construction will be monitored throughout the construction phase so as to ensure that necessary repairs can be undertaken as soon as practicable.

4.2.66 If a GCN is located during construction, works in the area will be halted immediately and the ECoW will be informed. An NE GCN licensed ecologist will attend the site to handle and where necessary, relocate any GCN to outside the exclusion fenceline.

4.2.67 On-going clearance of habitat of potential value to GCN (i.e. hedgerows and scrub) within the surrounding 250 m area will be monitored. If any more GCN are located during construction in the area, site works will be halted immediately, and the GCN licensed ecologist and/or ECoW will be informed. An NE licence for GCN will be obtained before works recommence in the area.

4.2.68 If habitat is cleared during the reptile hibernation period (November until February inclusive, dependent on local weather conditions), trees and scrub will be cut using brushcutters or chainsaws, to a height of approximately 30 cm above ground-level, so as to minimise the potential for disturbance to root balls where hibernating reptiles may be located. Remaining rough grass cover will be mowed short (approximately 5 cm above ground-level).

4.2.69 Arisings will not be stacked on site on a long term basis as this could later provide a habitat feature of potential value to nesting birds, reptiles or other species. Instead, arisings will be removed from site.

4.2.70 Habitat clearance during the active reptile season (i.e. between March and October, depending on local weather conditions) will commence in the centre of the site and move outwards, so as to enable any reptiles or other animals that may be present to leave the area ahead of machinery. Scrub and tall grasses will be cut as above, to between 5 cm and 10 cm in height. Arisings will be removed from site. Uprooting of vegetation or clearance of habitat of potential value to hibernating reptiles will be undertaken during this period to deter reptiles from hibernating in the area.

4.2.71 Areas will be maintained in a condition not favoured by reptiles (i.e. with minimal ground cover) until the commencement of construction, i.e. through regular mowing of ground vegetation.

4.2.72 Works will be carried out under the guidance of the ECoW.

4.2.73 If habitat clearance is to be undertaken during the bird-breeding season, habitats of potential value to nesting birds will be surveyed as described above in order to locate any active bird nests. Where present, active nests will be protected against disturbance until young have fully fledged and left the nest, as described below.
Water voles

4.2.74 Works-free buffer zones of at least 10 m in width will be established around sections of the watercourses that support water voles. Drilling will be at least 1.5 m beneath water vole drains. Buffer zones for watercourses supporting water vole colonies to be 15 m for cable trenching and 50 m for HDD.

4.2.75 Where considered necessary by the ECoW, high visibility fencing will be erected between the drains and the works areas to prevent access by workers and heavy machinery, and also to prevent storage of materials within this zone. To prevent water voles from becoming trapped in the HDD pits, exclusion fencing will be installed around the HDD pits where considered necessary by the ECoW.

4.2.76 Where open-cut trenching will be used to cross watercourses along the cable corridor, pre-construction surveys will be carried out in accordance with the survey methodology described in Strachan and Moorhouse (2006) to confirm the presence/absence of water voles. A report of survey findings and implications for construction will be produced by the ECoW and provided to the Developer and Site Manager as soon as practicable.

4.2.77 If previously unrecorded water vole activity is confirmed by these surveys, an NE licence containing a detailed method statement and mitigation plan will be obtained prior to the commencement of the trenching.

4.2.78 Licenced works will be carried out under the guidance of the ECoW and under an ecological watching brief.

Otters

4.2.79 HDD launch pits will be located at a minimum of approximately 100 m from known otter holts, and construction compounds and storage areas will be located approximately 50 m from any otter holts. Works-free buffer zones of 50 m width will be set up around the holt and any other identified resting place, within which no tracking of heavy machinery, or storage of equipment, machinery or soils will be permitted. No below-ground destructive works, or tracking of heavy machinery will be undertaken within at least 50 m of known otter holts.

4.2.80 HDD pits, other excavations and pits as part of the works at Laceby Beck will be covered over at night to prevent otters entering the areas, or a method of escape (such as a plank to act as a ladder) will be provided where such excavations cannot be covered or filled on a nightly basis.

4.2.81 Pre-construction otter surveys of watercourses and nearby areas of woodland and dense scrub will be undertaken in order to locate any potential otter holts or resting places within 50 m of the works area or 100 m of HDD launch pits.

4.2.82 Surveys will be completed in accordance with the methodology described in Bang and Dahlstrom (2001) and Chanin (2003).

4.2.83 A report of survey findings and implications for construction, including the potential need for an NE licence for otters, will be produced by the ECoW and provided to the Developer and Site Manager as soon as practicable.

4.2.84 If surveys confirm the presence of a previously unidentified otter holt or resting place within the survey area, and if it is not practicable to micro-site working areas to include appropriate works-free buffer zones, an NE development licence for otters will be obtained by the ECoW prior to the commencement of works in the area.

4.2.85 An NE EPS licence for otters will be required to remove an otter holt or resting place, and may be required is works will result in significant levels of disturbance and/or displacement.

Badgers

4.2.86 No construction works will be carried out within 30 m of an active sett entrance unless authorised by an NE EPS licence. 30 m wide protection zones will be marked out on site, such as with high-visibility fencing or coloured tape. Areas of high badger activity will be cordoned off to ensure these are kept fully intact and with minimal interference from construction.

4.2.87 Excavations of more than 0.5 m deep will be fenced or covered overnight where practicable, or if this is not practicable, a method of escape (e.g. a plank to act as a ladder) will be provided. Large diameter pipes will be capped at the end of each working day to reduce the potential for badgers and other animals to enter them and become trapped.

4.2.88 HDD launch pits will be located at least 100 m from active badger setts, or an NE licence for badgers may be required prior to works commencing as considered necessary by an experienced badger ecologist.

4.2.89 Prior to the commencement of works, pre-construction surveys of working areas and surrounding buffer zones (30 m for areas associated with trenching works, and 100 m for areas associated with HDD works) will be undertaken by experienced ecologists in order to confirm whether or not any new badger setts have been excavated.

4.2.90 Pre-construction surveys will be undertaken within 6 months prior to the commencement of works in order to obtain as accurate a representation of the baseline conditions as possible. Surveys will be staggered over a number of months in accordance with the construction programme. Where the period of time between the survey and start of works exceeds six months, the need to repeat surveys will be assessed by a suitably experienced ecologist.

4.2.91 If new setts are identified within 30 m of the cable works corridor, or within 100 m of the HDD launch sites, micrositing away from the setts, adjustment of the construction programme and/or amendments to the mitigation strategy will be undertaken where practicable.
4.2.92 If work within 30 m of a sett (and therefore, sett closure) cannot be avoided, this will be carried out outside the badger breeding season (defined as 30 November to 1 July) and in accordance with a relevant NE licence. A method statement will accompany the licence application and will confirm what alternative setts would be immediately available to any badgers excluded from a sett (i.e., the location of nearby active setts within the same badger territory that could large enough to accommodate excluded badgers). The method statement will also include the method be used to exclude badgers from a sett (typically using one way gates and possibly exclusion fencing or electric fencing).

4.2.93 Works carried out under a NE licence will be carried out under the guidance of the ECoW and under a watching brief of a licenced badger ecologist.

4.2.94 Toolbox talks on badgers will be provided to all site workers and will include an emergency procedure protocol in the event of encountering a badger, discovering a sett, or disturbing sett tunnels during the works period. An emergency procedure would include the need to immediately halt works within the area and seek guidance from a suitably experienced ecologist.

4.2.95 Where practicable, works-free buffer zones will be demarcated on site around areas of high badger activity so as to ensure these are kept fully intact and with minimal interference from construction.

4.2.96 Where practicable, works within 100 m of an active sett will finish one hour before dusk and commence one hour after dawn to help minimise the level of disturbance to badgers.

4.2.97 If construction works result in the death or injury of a badger, the ECoW or a suitably experienced ecologist will determine the cause of death where possible (through speaking to site workers, inspecting the body if possible, and investigating site conditions). If the death is considered likely to be a result of interference from construction.

4.2.98 A 15 m buffer zone will be created between cable trenches and the known bat roost identified during the 2011 bat surveys. The buffer zone will prohibit the use of heavy vehicles and the storage of vehicles, equipment and soils. If additional bat roosts are identified during subsequent surveys which require removal to enable the installation of the cable, this will be carried out under an NE EPS licence for bats.

4.2.99 Temporary overnight ‘artificial bridges’ will be provided to provide a link between severed edges of hedgerows and other habitat crossed by the cable corridor, which have been identified as key commuting/foraging routes.

4.2.100 Prior to the commencement of works, mature trees that require felling or pruning will be inspected by the ECoW from ground-level using a high powered torch to locate potential roost sites and signs that could indicate the presence of roosting bats. These daytime surveys can be undertaken any time of year however, were practicable, the surveys will be undertaken during the winter months, when leaves will not obscure features of potential value to bats.

4.2.101 In accordance with guidelines produced by the Bat Conservation Trust (2012), trees that are reported by the ECoW to contain a bat roost or to be of category 1 or 2 potential value to roosting bats (as defined in the BCT guidelines), will be subject to dusk emergence and/or dawn swarming surveys between May and September in order to confirm the presence of roosting bats, identify the species of bat present and determine the size of any roost.

4.2.102 A report of survey findings and implications for construction will be produced by the ECoW and provided to the Developer and Site Manager. The report will be made available to the LPAs and/or NE as requested or required.

4.2.103 Works (i.e., felling or pruning) to a tree containing a bat roost or in the immediate surrounding area (i.e., within 15 m of the tree), will not be permitted until an NE licence has been obtained. Works will be undertaken in accordance with the licence requirements and under the watching brief of an NE licenced bat ecologist. If construction is being undertaken in the nearby surrounding area, construction lighting will be carried out in accordance with guidelines produced by the BCT (Bat Conservation Trust, 2009).

4.2.104 Where practicable, long-lasting Schwegerl bat boxes, suitable for bats reported in the area (i.e., Pipistrellus and Myotis species, noctules (Nyctalus noctula) and brown long-eared bats (Plecotus auritus), will be installed prior to construction, in appropriate locations on nearby retained mature trees as instructed by the ECoW, so as to provide immediate alternative roost sites. Suitable bat boxes include Schwegerl 2F, 2FN, 1FF, and a hibernation box 1FW.

4.2.105 Suitable locations will be at least 5 m above ground-level, out of the reach of potential predators (e.g., cats), and away from very exposed areas, primarily facing in a south-east or south-west direction (although hibernation boxes can be sited in a north-east or north-west facing direction), within an area comprising good habitat connectivity (e.g. a good connecting network of hedgerows, woodland parcels, lines of broadleaved trees and scrubs), or in areas where considerable numbers of bats were recorded during surveys completed to inform the EIA for Project One (Volume 6, Annex 6.3.10).

4.2.106 At the end of each working day throughout the active season for bats (i.e., between April – October inclusive and March if weather conditions are suitable for bat activity and as instructed by the ECoW), temporary overnight ‘artificial hedgerows’ will be installed between the severed ends of hedgerows, as shown by the “artificial hedgerows” symbol Figure 1 in Volume 6, Annex 6.3.12.
4.2.107 Artificial hedges will comprise hazel hurdles or sections of Heras fencing containing branches from cleared hedgerow sections so as to enhance the connective value of the Heras fencing and help provide some wind shelter effect.

4.2.108 If a bat roost is located during the construction period, works within 15 m of the roost will be halted immediately and site workers will inform the ECoW as soon as practicable. Any potential construction lighting in nearby areas will be directed away from the roost site.

4.2.109 The ECoW will ensure that an NE bat licensed ecologist attends the site as soon as practicable, if required to capture and relocate any disturbed bat(s) to a suitable alternative roost site, or to an NE licensed handler who could monitor its recovery prior to release if necessary.

4.2.110 Where possible the licensed ecologist will direct the installation of a woodcrete bat box in a suitable location on a mature tree located at least 15 m from the works area, so that any disturbed bat(s) could be relocated to this.

Birds

4.2.111 Cable installation through the intertidal will be undertaken outside the optimal wintering birds’ period, i.e. works would be undertaken between 1 April and 30 September inclusive. Consent will be sought from NE for works to continue outside this work period.

4.2.112 All works within the intertidal zone will be restricted to within the cable convergence corridor and temporary works area in order to minimise the area of disturbance.

4.2.113 Prior to the commencement of the bird-breeding season (mid-February to August inclusive) and where practicable, measures will be set in place to help deter ground nesting birds from nesting in suitable large (>5 ha) open fields where HDD launch pits will be located. Measures could include the use of bird scarers.

4.2.114 Where trees, hedgerows or scrub, of potential value to nesting birds, are required to be cleared for construction, clearance will be undertaken outside of the bird-breeding season (14 February to 31 August inclusive) to prevent disturbance to nesting birds. However, if this is not practicable, the habitat will be surveyed prior to clearance.

4.2.115 Pre-construction surveys of habitat suitable for nesting birds within 5 m wide buffer zones will be undertaken to locate any active nests. Where active nests are located works will be delayed until the ECoW has confirmed that the young have fully fledged and left the nest.

4.2.116 Where it is not possible to carry out a thorough visual inspection of all parts of the habitat being surveyed, e.g. due to the density of the habitat, the area will be surveyed for at least two hours between dawn and 9.00 am to identify any bird activity that might indicate the presence of nesting birds, such as birds carrying nesting material or food into the habitat being surveyed.

4.2.117 No habitat containing an active bird’s nest will be removed or disturbed, and measures will be put in place to protect the nest until the ECoW has confirmed to the Site Manager or site workers that the young have fully fledged and left the nest. Measures may include the establishment of 5 m wide buffer zones in which heavy vehicles will not be tracked and the storage of vehicles, equipment, machinery and soil storage will be prohibited. Buffer zones will be marked out on site using high-visibility Netlon fencing or coloured tape.

4.2.118 The ECoW will maintain a record of all pre-construction bird nest surveys undertaken. The record will be provided to the Developer and a copy will be made available to the LPAs on request.

4.2.119 If during construction, an active bird’s nest is located within the works area or a surrounding 5 m wide buffer zone, works within the area will be halted immediately and site workers will inform the ECoW as soon as practicable, either directly or through the Site Manager.

4.2.120 The ECoW will attempt to locate any active nests. Where active nests are located, protective measures will be put in place to protect the nest until the ECoW confirms the young have fully fledged and left the nest.

Terrestrial Invertebrates

4.2.121 Where practicable, sections of dead or decaying wood in mature trees that are to be felled to enable works, will be soft-felled and carefully transferred to suitable locations as instructed by the ECoW. Suitable locations will be at least 10 m from working areas, as near to the source tree as practicable, within areas of similar environmental conditions, particularly with regard to shade and ground water-levels, and in locations that will not obstruct the reinstatement of previous land management practices.

General

4.2.122 Works will be undertaken in accordance with Environment Agency best practice guidelines and recommendations. An Ecological Clerk of Works (ECoW) will oversee construction works to ensure that works are conducted in accordance with best environmental and ecological practice.

4.2.123 Night working will be avoided where practicable. However, in some circumstances it may be necessary to undertake works at night and/or beyond the working hours set out in section 3.1 of this CoCP (e.g. HDD works, oil filling the transformers at the onshore HVDC converter/HVAC substation). In these cases, light fixtures will be directed away from habitats or protected or notable species including badgers, birds and bats, in order to minimise disturbance by light spillage. Lighting will be kept to a practical minimum where located within 100 m of an active badger sett and approximately 100 m from otter holts or other identified otter resting places.
restrictions on site will be set to minimise the potential for species, such as badgers, to be struck by moving vehicles.

Archaeology and Cultural Heritage

Objectives

4.2.124 To minimise the impact of construction works on heritage assets and their setting.

Management measures

4.2.125 A substantial programme of archaeological investigation has been undertaken in order to identify the presence/absence, nature, date and significance of archaeological remains along the cable route corridor. A further programme of advanced archaeological investigation will focus on identified sites that will be adversely affected by the scheme. The location and nature of the advance archaeological works will be agreed with the relevant authorities. Several sites have been identified in the Volume 3, Chapter 5: Historic Environment for archeological monitoring/control of soil stripping followed by mapping of features as appropriate (see Table 5.22 Volume 3, Chapter 5: Historic Environment). For those parts of the cable route corridor where no archaeological remains have been identified, this cannot be taken as a definite absence of such remains, it is just that the methodologies used to find such remains have been unsuccessful (possibly due to ground conditions, depth of overburden etc). In these areas (i.e. all areas not subject to advance archaeological investigations) a suitably qualified archaeologist will need to be present during topsoil stripping and during trenching. Archaeological remains that are identified at this stage will be addressed in line with procedures agreed in advance with the relevant authorities. The methodology for topsoil stripping has been defined so that archaeological remains can be identified at that stage.

4.2.126 Cables will be buried rather than above-ground, and contours of saltern mounds, Ridge and furrow and hedge and hedge banks will be restored in order to reduce or nullify any long-term effects on the setting of heritage assets and on this historic landscape.

Landscape and Visual Impact

Objectives

4.2.127 Construction works will be carried out in such a way to ensure that disturbance to landscapes and visual receptors (identified in Volume 3, Chapter 4: Landscape and Visual Resources) is minimised.

Management measures

4.2.128 A written landscape scheme will be submitted to and approved by the Local Planning Authority prior to authorised development above MHWS commencing. The written landscape scheme will include the provisions of the landscape scheme and management plan contained in Volume 6, Annex 6.4.16 of the ES.

4.2.129 Replacement hedgerow will be planted along the cable route at an early stage to provide natural screening (see Landscape Management Plan Volume 6, Annex 6.4.16).

4.2.130 Any trees that are removed along the cable route, temporary access roads and compounds will be replaced with the same species where possible. Planting directly over the cable route is not possible as deeper rooted species may cause damage to the cables.

4.2.131 Those hedgerows removed by the installation of the cable route will be replaced. In addition, where appropriate and where the landowner permits, the existing, remaining hedgerow will be gapped up to improve species diversity and connectivity. Species used will include the species already present in the hedgerow. The total length of hedgerow that will be enhanced in this manner will not exceed 100 m.

4.2.132 Fences and gates that are removed or damaged during the construction works will be replaced post construction.

4.2.133 Good housekeeping will be maintained on all construction areas and secure storage will be provided for materials at risk from wind blow. At the onshore HVDC converter/HVAC substation stockpiles will be located in defined temporary storage areas.

4.2.134 Appropriate lighting will be used to reduce the incidence of visual intrusion to sensitive receptors.

Disposal of Waste Materials

Objectives

4.2.135 The volume of waste generated during construction will be minimised by applying the waste hierarchy principle. Waste will be diverted from landfill to maximise resource efficiency.
Management measures

4.2.136 Measures to minimise waste during the construction process will be outlined in a Site Waste Management Plan (SWMP). Targets will be set within the SWMP to divert waste from landfill and to recycle key waste streams. All construction waste will be managed in accordance with the procedures set out in the SWMP and the relevant legal obligations. A preliminary SWMP has been prepared as part of the Environmental Statement for Project One (see Volume 4, Annex 4.3.3), which will be developed post-consent and implemented during the construction process.

4.2.137 A soil management strategy will be developed as part of the SWMP as a means of ensuring that soil from the cable route is not damaged during the construction process and can be returned to agricultural use.

Land Use, Agriculture and Recreation

Objectives

4.2.138 To protect the quality and integrity of the soil resources, and to maintain farm access routes and Public Rights of Way (PRoW) where possible.

Management measures

4.2.139 Topsoil and subsoil will be stripped and stored separately to avoid mixing of soil materials, which could reduce the overall quality of the soil. Topsoil and subsoil stockpiles will be maintained appropriately to avoid losses. Heavy machinery will not be tracked on waterlogged soils or over stored soils. Soil storage areas will be located away from construction traffic to ensure the protection of the retained soils and avoid compaction and damage. Appropriate soil handling machinery will be used and where possible, stripping will be programmed to reduce potential soil damage from handling in unsuitable weather conditions. Soil handling operations will be supervised on site.

4.2.140 Appropriate construction practices to be implemented to ensure that the potential risk for the spread of animal and plant diseases is reduced as far as practicable.

4.2.141 Appropriate fencing of the construction corridor will be provided according to the nature of the individual farm holding affected.

4.2.142 Farm access routes will be maintained, wherever reasonably practicable, between fields within a farm holding.

4.2.143 Access routes across individual fields will be maintained where reasonably practicable, where these are severed during construction.

4.2.144 Existing water supplies and drainage systems will be maintained and reinstated wherever reasonably practicable during the construction process.

4.2.145 Where HDD crosses a PRoW, the PRoW will remain open during the duration of construction. Where open trenching is used to cross PRoW, the routes will either be temporarily stopped up or traffic management measures will be put in place in some locations to maintain access. Where such measures cross a bridleway, all materials used will be suitable for use by horses.

4.2.146 At other locations, where possible, temporary diversions will be put in place to provide links between affected PRoW and the wider network. Where temporary PRoW diversions do not follow a surfaced track or maintained field edge, a level and firm surface will be maintained for the duration of the diversion and will be free from ruts and crops and suitable for use by the public. For footpaths a minimum usable width of 2 m will be provided.

4.2.147 Temporary structures placed across cable trenches will be designed to incorporate material suitable for use by horses e.g. metal sheeting will be covered by an anti-slip material that will deaden any noise that may unnerve a horse; temporary structures will be fitted with parapets and appropriate fencing will be installed to ensure the safety of non-vehicular users. All will be in accordance with Health and Safety regulations and would be suitable for horses, pedestrians and where necessary cars). A minimum clearance height of 3.5 m will be provided for all temporary PRoW diversions.

4.2.148 Where a PRoW runs along the side of a construction side access traffic management measures would be put in place during construction. These would involve fencing to separate PRoW users from traffic.

4.2.149 Any PRoW affected during the construction phase will be reinstated following completion of the works to ensure that no permanent effects remain.

4.2.150 A communication plan will be developed as part of the CoCP to ensure local authorities are kept informed of when and where works will be taking place. Appropriate media (signage/leaflets/notices) would be used to inform local residents, parish councils and visitors of temporary changes to the PRoW network arising from the onshore construction works for Project One. Advance warning notices would be erected at key points where PRoW are affected by the onshore cable laying works in order to make users aware of the construction working area and associated construction noise. The local newspaper would also carry such information.

4.2.151 There would be ongoing liaison with the North Coates Flying Club and Laceby Manor Golf Club to keep them informed of the construction programme and activities. Land owners will be informed of the programme of works across their land prior to construction.
4.4 Offshore

Commercial Fisheries

Objectives

4.4.1 Construction works will be carried out in such a way that the disturbance to commercial fishing operations is minimised.

Management measures

4.4.2 Advance warning and accurate location details of construction operations and associated phased precautionary areas will be provided. There will be on-going liaison with all fishing fleets via the Onshore Fisheries Liaison Officer (OFLO) (including regular Notice to Mariners) and appropriate marine coordination, including the use of guard vessels where appropriate, to ensure construction vessels do not present an additional risk.

4.4.3 A weekly Notice to Mariners will be issued to request mariners to maintain a safe working distance from any cable installation vessels and its attendant anchor spread and/or anchor handling tugs.

4.4.4 Partially constructed turbines will be marked correctly with temporary Aids to Navigation as directed by Trinity House Lighthouse Services (THLS). Precautionary areas and safety zones (500 m around active construction sites and 50 m around uncompleted structures) will be implemented as appropriate.

4.4.5 Inter-array cables will be buried at least 1m below stable sea bed where rock placement is not required. A maximum burial depth of 3 m below stable seabed for both inter-array and interconnector cables may be required for some parts of Subzone 1, subject to a cable burial assessment. Export cables will be buried to a maximum of 5 m although this is only expected to be required in a limited number of places; burial depth below stable seabed of 3 m is anticipated for the majority of the export cable route. Where it is not possible to ensure that cables will remain buried, cable protection will be installed within the limits presented in Volume 1, Chapter 3: Project Description.

4.4.6 A post construction survey will be undertaken to detect any debris associated with the construction of Project One on the seabed and, where possible, it will be removed.

Marine Archaeology and Cultural Heritage

Objectives

4.4.7 To minimise the impact of construction on marine archaeology and cultural heritage.

Management measures

4.4.8 All marine archaeological investigations and assessments will be undertaken in accordance with the Marine Archaeological Written Scheme of Investigation (WSI) which shall be written based on guidance from the Model Clauses for Archaeological Written Schemes of Investigation: Offshore Renewables Projects (Crown Estate, 2010).

4.4.9 Archaeology Exclusion Zones (AEZs) will be identified and implemented around sites identified as having 'confirmed' archaeological potential as well as those presently identified as 'records only'.

4.4.10 The Protocol for Archaeological Discoveries: Offshore Renewables Projects (Wessex Archaeology, 2010) will be implemented where unexpected archaeological discoveries are made during construction.

4.4.11 Archaeologists will be consulted in the preparation of any pre-construction ROV/diver surveys and, if appropriate, in monitoring/checking any data. Archaeologists will also be consulted on the preparation of pre-construction clearance operations and, if appropriate, to carry out watching briefs of the work.

4.4.12 Further analysis and dating of samples will be undertaken on samples recovered during pre-construction geotechnical surveys in areas where impacts on deposits of geoarchaeological/palaeoenvironmental significance seem likely.

4.4.13 Archaeological input will be provided on future geotechnical surveys where deposits of known archaeological potential are likely to be affected. Consideration will be given to the provision of a geoarchaeologist on the survey vessel and a provision of sampling, analysis and reporting of recovered cores.

4.4.14 A watching brief will be carried out during the burial of the cable in the intertidal zone.

4.4.15 Final turbine locations will be sited to avoid archaeological constraints identified in pre-construction surveys to avoid direct impacts to wrecks, aircraft losses and any other archaeological remains identified on the seabed.

4.4.16 Results of all geoarchaeological investigations will be compiled in a final report, which may include consideration of a sediment deposit model to ensure that the results of analysis, undertaken in support of Hornsea Project One, are placed in their broader context and made available to the scientific community and wider public.
Marine Mammals

Objectives

4.4.17 To minimise disturbance and the loss of habitat for marine mammals.

Management measures

4.4.18 In order to control sub sea noise generated from piling a 30 minute soft/slow-start will be used for all piling activities. Piling will commence at a maximum of 20% hammer energy with a reduced strike rate. Hammer energy will ramp up with a maximum increase based on a linear step up to full hammer energy. The strike rate will decrease from every six seconds to every four seconds over the soft start.

4.4.19 All construction vessels operators shall be required to follow a code of conduct to minimise the potential for vessel strikes with marine mammals.

4.4.20 A separate marine management mitigation protocol (MMMP) shall be implemented during construction.

4.4.21 Chemicals used during construction will be selected from the approved list held by CEFAS under the Offshore Chemical Regulations 2002. Chemicals will be stored in a secure, designated area in line with appropriate regulations and guidelines. A Chemical Risk Assessment will be prepared for the use of the chemicals. A chemical inventory shall be kept of all chemicals and oils used. Appropriate plans shall be put in place to manage the response in the event of a spillage of chemicals or fuel including the implementation of the MPCP and the ERCoP covering the use and storage of all chemicals and fuels during construction.

4.4.22 Noise monitoring during construction will be carried out in accordance with the separate construction and monitoring programme as specified in the Project One draft DCO (draft deemed Marine Licence Condition 9(2)(a) and in accordance with the draft deemed Marine Licence Condition 15(1)) which requires noise monitoring to be carried out and any visual sightings or acoustic detection of marine mammals to be recorded.

Fish and Shellfish Ecology

Objectives

4.4.23 To minimise disturbance and the loss of habitat for fish and shellfish.

Management measures

4.4.24 Inter-array cables will be buried at least 1m below stable sea bed where rock placement is not required. A maximum burial depth of 3 m below stable seabed for both inter-array and interconnector cables may be required for some parts of Subzone 1 subject to a cable burial assessment. Export cables will be buried to a maximum of 5 m although this is only expected to be required in a limited number of places; burial depth below stable seabed of 3 m is anticipated for the majority of the export cable route. Where it is not possible to ensure that cables will remain buried, cable protection will be installed within the limits presented in Volume 1, Chapter 3: Project Description. Whilst burying the cables does not decrease the strength of electromagnetic fields (EMF), it does increase the distance between the cables and fish and shellfish receptors.

4.4.25 Rock placement will not be used within subtidal areas of the Humber Estuary SAC. If cable protection is required within the subtidal areas of the Humber Estuary SAC, only frond mattressing will be used to ensure no long term habitat loss in this area.

4.4.26 Cable protection will not be used in the intertidal areas of the Humber Estuary SAC to ensure no long term habitat loss within the SAC.

4.4.27 During piling operations, soft starts will be used, with lower hammer energies (i.e. approximately 600 kJ) used at the beginning of the piling sequence before increasing energies to the higher level in order to reduce the risk of injury to fish species in the immediate vicinity of piling operations.

4.4.28 Chemicals used during construction will be selected from the approved list held by CEFAS under the Offshore Chemical Regulations 2002. Chemicals will be stored in a secure, designated area in line with appropriate regulations and guidelines. A Chemical Risk Assessment will be prepared for the use of the chemicals. A chemical inventory shall be kept of all chemicals and oils used. Appropriate plans shall be put in place to manage the response in the event of a spillage of chemicals or fuel including the implementation of the MPCP and the ERCoP covering the use and storage of all chemicals and fuels during construction.

Benthic Environment

Objectives

4.4.29 To minimise the impact of construction on the Humber Estuary SAC and the benthic subtidal and intertidal ecology.

Management measures

4.4.30 Where appropriate, scour protection will be installed around the foundations of the turbines, substation accommodation platforms to minimise the effects of scour on benthic ecology.

4.4.31 Inter-array cables will be buried at least 1m below stable sea bed where rock placement is not required. A maximum burial depth of 3 m below stable seabed for both inter-array and interconnector cables may be required for some parts of Subzone 1 subject to a cable burial assessment. Export cables will be buried to a maximum of 5 m although this is only expected to be required in a limited number of places; burial depth below stable seabed of 3 m is anticipated for the majority of the
export cable route. Where it is not possible to ensure that cables will remain buried, cable protection will be installed.

4.4.32 In the subtidal areas of the Humber Estuary SAC, only frond matressing will be used where cable protection is required. Cable protection will not be used within the intertidal areas of the Humber Estuary SAC to ensure no long term habitat loss.

4.4.33 All works (including the movement of plant) within the intertidal area will be restricted to the convergence zone and temporary working corridor. On completion of the works, sediment in the intertidal area will be smoothed over to remove deep depressions (i.e. those deeper than 10 cm) from wheel ruts or tracks in order to encourage Salicornia seed capture and improve recoverability of this habitat.

4.4.34 An Ecological Clerk of Works (ECoW) will supervise the construction works in the intertidal zone.

4.4.35 Coastal lagoons will be fenced off during construction works in the intertidal area to ensure there is no damage to, or adverse effects on this priority feature of the Humber Estuary SAC.

4.4.36 Chemicals used during construction will be selected from the approved list held by CEFAS under the Offshore Chemical Regulations 2002. Chemicals will be stored in a secure, designated area in line with appropriate regulations and guidelines. A Chemical Risk Assessment will be prepared for the use of the chemicals. A chemical inventory shall be kept of all chemicals and oils used. Appropriate plans shall be put in place to manage the response in the event of a spillage of chemicals or fuel including the implementation of the MPCP and the ERCoP covering the use and storage of all chemicals and fuels during construction.

Ornithology

Objectives

4.4.37 To minimise the impact of construction activities on ornithology.

Management measures

4.4.38 Lighting of turbines will meet minimum requirements as set out in the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Recommendation 0-117 on 'The Marking of Offshore Wind Farms' for navigation lighting and by the Civil Aviation Authority in the Air Navigation Orders (CAP 393 and guidance in CAP 764). The lighting plan will be included in the construction plans submitted to the MMO for agreement at least four months prior to construction as specified in the Project One draft DCO (draft deemed Marine Licence Condition 9(1)(a).

4.4.39 Chemicals used during construction will be selected from the approved list held by CEFAS under the Offshore Chemical Regulations 2002. Chemicals will be stored in a secure, designated area in line with appropriate regulations and guidelines. A Chemical Risk Assessment will be prepared for the use of the chemicals. An ERCoP will be implemented to manage the response in the event of an accidental release of chemicals fuel or oil to the marine environment.

4.4.40 All waste will be managed in accordance with regulatory requirements, in particular MARPOL 73/78 requirements for the North Sea. All vessels will have an appropriate waste management plan and update accordingly. Waste will be segregated offshore and stored in appropriate storage containers in designated waste storage areas.

4.4.41 All offshore construction waste will be brought ashore to designated waste receiving areas and will be managed in accordance with requirements of the SWMP.

4.4.42 All construction vessels operators shall be required to follow a code of conduct to minimise the potential for disturbance to birds.

4.4.43 Noise monitoring shall be undertaken in accordance with a separate construction and noise monitoring programme.

Aviation, Military and Communications

Objectives

4.4.45 To coordinate construction activities with military, aviation and communications activities to avoid disruption.

Management measures

4.4.46 The Defence Infrastructure Organisation (DIO) will be kept informed of the cable laying operations through Notce to Mariners, including information on the nature, timing and location of cable laying operations. Aviation lighting shall be in accordance with the requirements of CAA 393 (The Air Navigation Order) and in consultation with MOD.

4.4.47 An ERCoP will be implemented for the construction, phase of Subzone 1. The ERCoP will detail specific marking and lighting of the wind turbine generators. The Search And Rescue (SAR) helicopter bases will be supplied with an accurate chart of the Subzone 1 wind turbine GPS positions, The ERCoP, through consultation with
the SAR helicopter units will include appropriate emergency procedures for Project One which meet the requirements of Marine Guidance Note 371 (MCA, 2008a).

4.4.48 Throughout the construction phase there will be engagement and consultation with offshore helicopter operators and oil and gas platform owners to ensure minimal disruption to their operations.

**Air Quality and Waste Management**

**Objectives**

4.4.49 To minimise the amount of waste materials generated during the construction phase.
To minimise the risk of environmental damage or risk to human health from the storage and use of chemicals and emissions to air.

**Management measures**

4.4.50 All vessels will meet regulatory requirements with regard to air emissions and steps will be taken to reduce fuel consumption through the use of anchoring and idling procedures. Unnecessary journeys shall be minimised through the use of journey management procedures. Personnel transiting shall be controlled to optimise helicopter flights.

4.4.51 Chemicals used during construction will be selected from the approved list held by CEFAS under the Offshore Chemical Regulations 2002. Chemicals will be stored in a secure, designated area in line with appropriate regulations and guidelines. A Chemical Risk Assessment will be prepared for the use of the chemicals. A chemical inventory shall be kept of all chemicals and oils used. Appropriate plans shall be put in place to manage the response in the event of a spillage of chemicals or fuel including the implementation of the MPCP and the ERCoP covering the use and storage of all chemicals and fuels during construction.

4.4.52 All waste will be managed in accordance with regulatory requirements, in particular MARPOL 73/78 requirements for the North Sea. All construction vessels will have an appropriate waste management plan and update accordingly. Waste will be segregated offshore and stored in appropriate storage containers in designated waste storage areas.

4.4.53 Appropriate waste management and storage facilities will be established on offshore accommodation platforms to ensure that the potential for release of waste and sewerage is minimised.

4.4.54 All waste will be brought onshore to designated waste receiving areas and will be managed in accordance with the requirements of the developers waste management plan (aligned with the SWMP). All contractors shall be required to develop contractor management plans which shall incorporate the requirements of the developers waste management plan and the developer shall carry out waste audits and inspections of their contractors against the requirements of the waste management plan.

4.4.55 The total waste generated offshore shall be recorded during construction which shall include the waste type, waste quantity and records of any waste manifests.

**Infrastructure and Other Users**

**Objectives**

4.4.56 To avoid damage or disruption to infrastructure or other users.

**Management measures**

4.4.57 The crossing or laying of marine export cables from Project One over or adjacent to existing or future pipelines will be subject to crossing/proximity agreements between the developer and the pipeline operators, prior to the start of the construction phase.

4.4.58 This agreement will allow a pipeline/cable operator to access their pipeline/cable during construction if required. The agreement will be based on the templates (OP024) provided by Oil and Gas UK (Oil and Gas UK, 2008). If such works are to occur simultaneously consultation with the operator shall be undertaken.

4.4.59 Consultation with oil and gas operators and licensees will be ongoing during the construction process to promote cooperation between parties and minimise both spatial and temporal interactions between potentially conflicting activities. This will include promulgation of information through Notice to Mariners.

4.4.60 A safety zone of 500 m will be established around each of the wind turbines, offshore collector stations and offshore converter stations whilst construction works are ongoing. Safety zones of 50 m may be sought for incomplete structures at which construction activity may be temporarily paused (and therefore the 500 m safety zone has lapsed).

4.4.61 During the construction phase, precautionary areas shall be recommended around Subzone 1 and around construction operations along the cable route. These areas shall be promulgated through Notice to Mariners. The precautionary area around Subzone 1 is geographically defined as Subzone 1 with an additional one kilometre buffer and is a 1 km roaming precautionary area around construction operations along the cable route.

4.4.62 Consultation with DECC and oil and gas operators will be ongoing to promote and maximise cooperation between parties and minimise both spatial and temporal interactions between conflicting activities to facilitate coexistence.

4.4.63 Noise shall be controlled during piling by the application of soft start (20-30 mins) procedures at 10 - 20 % energy to allow receptors to move away from the noise source. In addition noise monitoring will be undertaken during the piling of the first four turbines as detailed in the separate construction and monitoring programme.
Shipping and Navigation

Objectives

4.4.64 To reduce the risk of vessel to vessel or vessel to structure collisions and to minimise disturbance to commercial shipping and other sea farers.

Management measures

4.4.65 Temporary aids to navigation shall be implemented as directed by THLS. A safety zone of 500 m will be established around each of the wind turbines, offshore collector stations and offshore converter stations whilst construction works are on-going. Safety zones of 50 m may be sought for incomplete structures at which construction activity may be temporarily paused (and therefore the 500 m safety zone has lapsed).

4.4.66 A precautionary area shall be recommended around Subzone 1 and around cable laying vessels which shall be promulgated through Notice to Mariners. The precautionary area around Subzone 1 is geographically defined as Subzone 1 with an additional one kilometre buffer, and around the cable laying vessels is defined as a roaming 1 km precautionary area. Other sea users will be advised to avoid precautionary areas, or if they must enter, to use extreme caution when navigating.

4.4.67 Guard vessels will be used where appropriate.

4.4.68 During construction cables shall be monitored and inspected to ensure they are not left exposed or unmarked to reduce the potential for anchor snagging risk.

4.4.69 Consultation with shipping operators will continue to minimise disturbance to commercial routes promulgation of information will include Notice to Mariners. SMart Wind are also continuing to work with the SNSOWF to identify revised shipping lanes through the Hornsea Zone in order to aid navigational safety around the zone.

4.4.70 Emergency response capabilities will be developed through the preparation of the ERCoP (developed in consultation with the MCA Search and Rescue (SAR)) and shall include appropriate provision of self-help vessels and vessels to aid pollution salvage.
REFERENCES

CIRIA (2001) C532 Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors
Environment Agency, Scottish Environment Protection Agency (SEPA) and Environment and Heritage Service (2007) Pollution Prevention Guidance Note 5 (PPG5): Works and maintenance in or near water
APPENDIX A - REGULATORY FRAMEWORK

Regulatory Framework

General
National Planning Policy Framework 2012
Planning Act 2008
Environment Act 1995
Environmental Protection Act 1990
Town and Country Planning Act 1990 (as amended)

Public Access and Transport
The Traffic Signs Regulations and General Directions 1994
New Roads and Street Works Act 1991
Road Traffic Regulation Act 1988
Highways Act 1980 - particularly Part IX - making it an offence to obstruct a highway for example, with builders’ material, which results in a public danger/nuisance.

Noise and Vibration
Best Practicable Means (BPM) as defined in Section 72, Part III of the Control of Pollution Act (COPA) 1974.
Principal controls contained within Part III of the Control of Pollution Act (COPA) 1974. In addition, statutory nuisance provisions contained within Environmental Protection Act 1990 (ss.79-82) also apply to noise.

Air Quality
Ambient air quality standards and objectives set for PM10 and a number of other substances in the Air Quality (England) Regulations 2000 and Air Quality (England) (Amendment) Regulations 2002.
Environment Protection Act 1990. Dust can give rise to a statutory nuisance if it is considered to be ‘prejudicial to health or a nuisance’.

Contaminated Land
Environmental Damage (Prevention and Remediation) Regulations 2009
Contaminated Land Regulations 2000
Environment Act 1995
Environmental Protection Act 1990

Waste Management
Site Waste Management Plan Regulations 2008
List of Wastes Regulations 2005
Hazardous Waste Regulations 2005 (as amended)
Environment Act 1995
Environmental Protection (Duty of care) Regulations 1991 (as amended)
Part II of the Environmental Protection Act 1990

Protection of Surface and Groundwater Resources
Environmental Permitting Regulations 2010
Water Resources Act 1991