

# Outer Dowsing Offshore Wind

## Outline Soil Management Plan

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## Abbreviations

Acronym	Expanded name
CMS	Construction Method Statement
CoCP	Code of Construction Practice
DCO	Development Consent Order
ECC	Export Cable Corridor
HSSE	Health, Safety, Security and Environment
JB	Joint Bay
MHWS	Mean High Water Springs
ODOW	Outer Dowsing Offshore Wind
OnSS	Onshore Substation
PEIR	Preliminary Environmental Information Report
SMP	Soil Management Plan
TCC	Temporary Construction Compound

## Terminology

Term	Definition
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP) from the Secretary of State (SoS) for Department for Energy Security and Net Zero (DESNZ).
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of an impact with the sensitivity of a receptor, in accordance with defined significance criteria.
Haul Road	The track within the onshore ECC which the construction traffic would use to facilitate construction.
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Joint bays	A joint bay provides a secure environment for the assembly of cable joints as well as bonding and earthing leads. A joint bay is installed between each length of cable.
Onshore Export Cable Corridor (ECC)	The Onshore Export Cable Corridor is the area within which the export cable running from the landfall to the onshore substation will be situated.
Onshore substation (OnSS)	The Project's onshore substation, containing electrical equipment to enable connection to the National Grid.
Preliminary Environmental Information Report (PEIR)	The PEIR is written in the style of a draft Environmental Statement (ES) and provides information to support and inform the statutory consultation process in the pre-application phase. Following that consultation, the PEIR documentation will be updated to produce the

Term	Definition
	Project's ES that will accompany the application for the Development Consent Order (DCO).
The Project	Outer Dowsing Offshore Wind including proposed onshore and offshore infrastructure

# 1 Introduction

## 1.1 Purpose of this Outline Soil Management Plan

- 1.1.1 This Outline Soil Management Plan (Outline SMP) that, by reference to the assessments reported in the Preliminary Environmental Impact Report (PEIR), sets out the key elements that will be secured in the detailed SMP which Outer Dowsing Offshore Windfarm (ODOW, the Applicant) will be required to submit to Lincolnshire County Council for approval under a requirement of the Development Consent Order (DCO).
- 1.1.2 This Outline SMP sets out the principles and procedures for general good practice mitigation for soil handling to be used for the onshore construction works associated with the Project to minimise the adverse effects on the nature and quality of the soil resource. These soil handling operations include stripping, handling, storage and reinstatement. This Outline SMP addresses soil management with respect to the re-use of site soils (topsoil and subsoil).
- 1.1.3 This Outline SMP will form part of the Outline Code of Construction Practice (CoCP) which will be submitted with the DCO application.

## 1.2 Scope of this Outline SMP

- 1.2.1 For the avoidance of doubt, this Outline SMP relates to the onshore elements of the Project only (i.e., landward of Mean High Water Springs (MHWS)). This document does not relate to offshore works seaward of MHWS that are principally marine activities.
- 1.2.2 This Outline SMP is based upon guidance contained in the Department for Environment, Food and Rural Affairs' (Defra's) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009); the Institute of Quarrying, Good Practice Guide for Handling Soils (2021); and professional experience.

## **2 Roles and Responsibilities**

### **2.1 Overview**

- 2.1.1 The effective implementation of the SMP requires that roles and responsibilities are clearly defined and understood. Specific job titles, roles and responsibilities will be defined by the Principal Contractor in the location specific construction management plans.
- 2.1.2 The appointed Principal Contractor will be responsible for the preparation and subsequent implementation of site-specific soil management method statements and Risk Assessment Method Statements (or similar) for the construction phase.

### **2.2 Agricultural Liaison**

- 2.2.1 Prior to construction, a qualified land agent will be employed to ensure that information on existing agricultural management and soil/land conditions is obtained, recorded and verified by way of a detailed pre-construction condition survey.
- 2.2.2 As part of the condition survey, and in addition to addressing matters relating to soils and other factors including existing crop regimes, the position and condition of field boundaries, existing drainage of the soil, existing access arrangements and private water supplies (as far as reasonable investigations allow), the type of agriculture taking place, the yield of crops and the quality of grazing land will also be recorded. Liaison with affected landowners and tenants will be undertaken to identify potential constraints and barriers to construction and identify the provision of any temporary drainage requirements and/or diversions.
- 2.2.3 Such aspects will be recorded and entered into a pre-entry record of condition for the affected landowner. The commencement of construction will reflect agreements made with affected parties to minimise disruption, where possible, to existing farming regimes and timings of activities (e.g., cropping).
- 2.2.4 The land agent will undertake site inspections during construction to monitor working practices and ensure landowners' and farmers' reasonable requirements are fulfilled. The land agent will also retain a function with regards to agreeing reinstatement measures following completion of the works.

## 3 Soil Management

### 3.1 General Soil Handling Principles

3.1.1 It is important to implement best practice measures to avoid degradation and deformation during all phases of soil handling. The main threats to soil resources on construction sites are trafficking of vehicles and incorrect handling (Defra, 2009a). Trafficking and incorrect handling can damage the structure of the soils through over-compaction and contamination. These effects compromise the ability of the soil to perform its functions such as providing adequate air, nutrients and water to plant roots. To minimise the risk of degradation to soils, the following guidance will be adhered to during all soil handling tasks:

- No trafficking of vehicles/plant or storage of materials to take place outside designated working areas. Heavy plant and vehicles to be restricted to specific routes;
- The soils (topsoil and subsoils) will not unnecessarily be trafficked or trampled by vehicles, which will operate on the 'basal'/non-soil layer where possible;
- No trafficking of vehicles or plant on reinstated soils (topsoil or subsoil);
- Plant and machinery to only work when ground or soil surface conditions enable their maximum operating efficiency (i.e., when machinery is not at risk of being bogged down due to wetness);
- Plant and machinery will be maintained in good working order; low ground pressure and tracked vehicles will be used where possible when working directly on bare or vegetated soils (this reduces the intensity of ground compaction);
- Stripping areas are to be protected from in flow of water and ponding. Wet areas will be drained in advance of stripping;
- Where practicable, soils will only be moved when they are in a dry and friable condition, based on field assessment of the soils' wetness in relation to its lower plastic limit;
- Transportation of soils to be kept to the absolute minimum to reduce the risk of contamination between fields; and
- No mixing of topsoil with subsoil, or of soil with other materials.

3.1.2 The size of the earthmoving plant to be used will be tailored to the size of the area to be stripped, the space available within the working area, the volumes and haul distance. The use of a long reach excavator, which will minimise the need for movement across the soil surface, and the use of tracked vehicles will be used where needed to reduce soil compaction.

3.1.3 The selection of appropriate equipment and work practices is important as mishandling of soil can have an adverse effect on its fertility, permeability, ecological diversity, and the performance and visual quality of vegetated areas. Mishandling can also increase the risk of flooding and off-site discharges. Multiple handling of soil materials will be minimised.



- 3.1.4 The detailed SMP and Method Statements will be defined based on the results of the site investigation and soil survey reports, where available. The reports will specify the detail of the existing soil characteristics and the depths and properties of topsoil and subsoil horizons. Each Method Statement shall include details of the methods of working, proposed site machinery and tillage equipment, materials and Health, Safety, Security and Environment (HSSE) requirements.
- 3.1.5 A pre-start meeting will be held to finalise and changes to the plans and sign off the Method Statements.

## **3.2 Adverse Weather – Stop Conditions**

- 3.2.1 During certain weather conditions soil handling and movements must be effectively managed to reduce the risk of degradation and damage. Soil handling during adverse weather should adhere to the following criteria:
- During wet periods, mechanised soil handling in areas where soils are highly vulnerable to compaction will be limited as far as practicable;
  - If there is heavy and/or consistent rainfall (e.g., heavy showers or slow-moving depressions), the suspension of soil operations must be considered;
  - If sustained heavy rainfall (e.g., >10mm in 24 hours) occurs, soil handling operations must be suspended. Soil operations must not restart until the ground has had at least one full dry day or an agreed moisture criteria of the soil can be met (such as 'drier than the plastic limit') as advised by a suitably trained person;
  - The area should be protected against water ponding and inflow of water; and
  - Additionally, soil should not be handled or trafficked when the ground is frozen or covered by snow.
- 3.2.2 When a rainfall event forces the suspension of soil handling operations, the soil profile within the active strip should be stripped to the basal layer (i.e., measured topsoil depth) before cessation of works. New active strip areas should not be started.
- 3.2.3 Before soil handling operations recommence the weather, forecast should be checked and works only recommenced if no further heavy rain is forecast during a period which would require stoppage midway through the stripping of an area. Soil moisture must be tested prior to recommencing to determine the appropriate methodology for handling.

## **3.3 Determining Soil Moisture**

- 3.3.1 Soils should only be handled when dry and friable to avoid degradation and compaction, however this may not be practicable for all soil handling operations due to the scale of the Project.
- 3.3.2 Soil moisture and condition should be tested prior to work recommencing. Methods for determining soil condition are set out below:
- Step A - Attempt to roll a soil sample into a ball by hand; and
  - Step B - Attempt to roll ball into a 3mm diameter thread by hand.

- 3.3.3 If it is not possible to roll the soil into a 3mm diameter thread the soil will be determined to be below the plastic limit.
- 3.3.4 The appropriate methodology for handling and storage of the soils will then be determined and agreed via the final SMP based on the plasticity and the moisture content of the soils.

### **3.4 Drainage**

- 3.4.1 Existing land drains, where encountered during construction, will be appropriately marked. Temporary drainage will be installed within the working width to intercept existing field drains and ditches in order to maintain the integrity of the existing field-drainage system. Such measures will also assist in reducing the potential for wet areas to form during the works, with a consequential impact on soil structure and fertility. Where necessary, existing land drains will be replaced to ensure continued agricultural use.
- 3.4.2 Particular care will be taken to ensure that the existing land drainage regime is not compromised as a result of construction. Land drainage systems will be maintained during construction and reinstated on completion. Where required along the onshore ECC, temporary cut-off drains will be installed parallel to the trench-line to intercept soil and surface water before it reaches the trench. A temporary ditch will also be installed along the relevant boundary of the substation site which will catch run-off from the substation platform during the construction period.

### **3.5 Onshore Construction Features**

- 3.5.1 The sequence of activities for construction of the onshore Export Cable Corridor (ECC) and Onshore Substation (OnSS) will be provided in the outline Construction Method Statement (CMS) that will be provided as part of the CoCP submitted at DCO application.

#### **Onshore ECC**

- 3.5.2 The working width will typically be 80m, allowing for up to four wide cable trenches, temporary soil stockpiles, drainage, haul road and working areas around the cable trenches. The expected width of each cable trench at surface will be up to 5m.
- 3.5.3 Following cable trench excavation, a thin layer of stabilised cement bound sand will be packed around the ducts in order to aid heat dissipation. Subsoil and topsoil previously removed will then be backfilled to the appropriate horizon depths.

#### **Substation**

- 3.5.4 Construction of the substation will initially affect approximately 270,000m<sup>2</sup> of land comprising a substation footprint of approximately 180,000m<sup>2</sup>. In addition, construction access and a new permanent access will also be required.

#### **Temporary Construction Compounds**

- 3.5.5 Temporary construction compounds (TCC) of various sizes will also be required along the Project onshore ECC, Joint Bay (JB) and substation areas. There are anticipated to be a maximum of 72 compounds, with a maximum size of 300m x 150m.

- 3.5.6 Temporary compounds will be removed, and sites restored to their original condition when construction has been completed. It is expected that the compounds will be in place for up to 36 months.

### Haul Road

- 3.5.7 A temporary haul road will be constructed within the working width. It is assumed that there will be a requirement to import aggregates to create a stable surface for construction traffic movements. Other options such as bog-matting, trackway or geotextiles will also be considered where required. Vehicle passing points will be created to facilitate safe two way traffic flow on the haul route.

## 3.6 Soil Stripping

- 3.6.1 Site preparation will include the demarcation and signage of the designated access, working and storage areas as well as the removal of vegetation from within the work areas.
- 3.6.2 The soil stripping will follow guidance set out in Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009a) and the Institute of Quarrying Good practice Guidance for Handling Soils (2021). The precise method of stripping and the depth to which the soil will be stripped will be determined during the detailed design phase.
- 3.6.3 Once the working width has been cleared of vegetation, existing topsoil will be stripped (with the exception of an area to be used for topsoil storage). Stripping will be carried out when the soil is reasonably dry and friable.
- 3.6.4 Appropriate machinery and methods will be used to minimise soil compaction where the soil conditions indicate that compaction is possible. Topsoil stripping will generally be undertaken by an excavator positioned on the surface of the topsoil, excavating to the maximum topsoil depth without disturbing or removing the subsoil. Alternatively, a dozer can be used to strip the topsoil by pushing the topsoil into a bund or to an excavator. Following the topsoil strip, subsoil will be excavated to the required depth from the trenches.

## 3.7 Soil Storage

- 3.7.1 The stripped topsoil and excavation subsoil will be stored within the working width. The ground where the soil stores will be located will be free from vegetation and waste, and positioned away from tree crowns, root protection zones, watercourses and ditches. To ensure soil stores are located away from run-off, cut off ditches and swales will be used to divert water to a suitable drainage system. All designated soil storage areas would be a minimum of 10m from any open watercourse features, where practicable.
- 3.7.2 Topsoil and subsoil of different types and from different fields will be stored separately, as will soil from hedgerow banks or woodland strips, to reduce the potential for crop contamination during reinstatement. Sufficient space will be left between stores of different soil types to ensure segregation.

- 3.7.3 Topsoil can be stored on either topsoil (of the same type) or on subsoil. Subsoil can only be stored on subsoil, therefore the topsoil will be stripped from any subsoil storage areas prior to subsoil stripping or placement.
- 3.7.4 Stripped topsoil will be stored to the side/s of the working width in a manner that provides sufficient separation from subsoil and vehicles. Soil will be stored in an area of the site where it can be left undisturbed and will not interfere with site operations. Ground to be used for storing the topsoil will be cleared of vegetation. Topsoil will first be stripped from any land to be used for storing subsoil.
- 3.7.5 Topsoil will be stored in bunds no more than 2m in height, and subsoil will be stored in bunds no more than 3-5m in height in order to minimise compaction and the impact of storage on biological processes.
- 3.7.6 It will be necessary to record and signpost the different stores of soil to avoid confusion and risk of contamination. Stockpiles will be labelled appropriate signage, a unique identifier and recorded on a plan.
- 3.7.7 Effective programming will ensure soil is stored for the minimum time possible. Where soil is to be stored for over 6 months it will be covered to minimise erosion or sown over the top and sides with an agreed seed mix to minimise soil run-off.

### **3.8 Reinstatement**

- 3.8.1 The main objectives for the reinstatement of the land will be to restore it to its pre-development quality as far as is reasonably practicable, as determined by the information obtained during the pre-construction soils survey and to leave the topsoil of any agricultural land in a loose and friable and workable condition to its whole depth. Land will be reinstated as soon as reasonably practical after completion of the construction works.
- 3.8.2 Soil reinstatement will be subject to the same constraints of weather (stop conditions) as soil stripping (see section 3.6).
- 3.8.3 It is likely that the subsoil will have been heavily compacted during the construction period. Subsoil decompaction and preparation will be necessary prior to topsoil reinstatement to improve permeability.
- 3.8.4 Material will be re-used on site and replaced in its original location and to the correct horizontal sequence in accordance with the SMP and the soil resource survey reports. Material sent offsite for re-use or appropriate soil treatment/disposal will be minimised.
- 3.8.5 Generally, any surplus subsoil material from trench excavation will be spread and compacted across the working width prior to topsoil reinstatement on a field-by-field basis provided this will not impede achievement of restoration objectives and provided the materials are compatible, in consultation with the relevant landowner.
- 3.8.6 Given the volume of soil being stripped within the OnSS footprint, there may be a requirement to remove soil off-site. Where possible, stripped topsoil will be re-used in landscaping and excavated material will be used in landscaping screening bunds (if required).

- 3.8.7 Offsite disposal of surplus soil material shall only be considered where use on-site is not feasible. The landowner/occupier will be consulted before any off-site disposal is planned. In such instances disposal will be undertaken in accordance with the Waste (England and Wales) Regulations 2011 and the Site Waste Management Plan which will be provided as part of the CoCP at the time of DCO application submission.
- 3.8.8 Agricultural fields will be restored, as far as possible, to their previous condition. Topsoil will be prepared and seeded using an appropriate seed mix or returned to arable cultivation.
- 3.8.9 Soil reinstatement will be verified by the Agricultural Liaison Officer against the pre-construction surveys.

### **3.9 Monitoring**

- 3.9.1 Audits of the soil management at the construction sites will be undertaken on a periodic basis and records will be maintained. The programme for monitoring and review will be included in the SMP. The SMP will be reviewed, periodically, and any required updates communicated to the relevant stakeholders.

## 4 References

Defra, (2009a); 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites'. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/716510/pb13298-code-of-practice-090910.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf) [Accessed November 2022]

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