Appendix 2-3 Spoil and Peat Management Plan

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Scart Mountain Wind Farm

Spoil and Peat Management Plan

BUILT ON KNOWLEDGE

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Table of Contents

List of Tables

1. INTRODUCTION

The proposed project, known as Scart Mountain Wind Farm is located in Waterford approximately 4km northeast of Cappoquin and approximately 13km northwest of Dungarvan.

The proposed grid connection route (GCR) is approxiamtely 15.5km in length and will traverse in a south-easterly direction from the the proposed wind farm 110kV Substation, to the existing Dungarvan 110 kV Substation. The proposed GCR primarily runs along local roads, with short sections through forestry and agricultural grasslands. The proposed turbine delivery route (TDR) runs from Belview Port, along the national road network until it gets close to the proposed wind farm site, when it turns onto the local road network at the Bogheravaghera Cross Roads (also known as Affane cross).

The land use/activities on the site itself is predominantly forestry plantation with agricultural lands to the north of the site forming the wind farm site boundaries. Forestry is comprised predominantly of coniferous with some broadleaf areas. Approximately 600 ha are in Coillte's ownership whilst the remaining comprise third-party owned areas of agricultural grassland, and commercial forest. There is an extensive network of existing internal access roads across the site to facilitate the ongoing forestry operations as well as local access to farmlands. The wind farm site is characterised by locally steep topography.

Peat is defined as the partially decomposed remains of plants and soil organisms which have accumulated at the surface of the soil profile. Active peatlands are traditionally described using a simple 2-layer model; the acrotelm including active peat vegetation and catotelm. No active peat was recorded in the footprint of the proposed project.

Peat and peaty soils were encountered to the north and northwest of the site at T1 to T7.

No peat was encountered at other turbine locations or at the substation. The peaty soil and peat on site is predominantly drained due to historical turf cutting , farming activity and afforestation. It is proposed to manage peat within the site boundaries. There are no indications of peat instability on the site.

1.1 OBJECTIVE

The role of the Spoil and Peat Management Plan (SPMP) is to demonstrate that the management of peat excavated during construction of the proposed project has been considered and will be treated appropriately during the construction process.

This SPMP also includes a monitoring programme which will be implemented during the construction phase of the proposed project and a contingency plan should peat instability/failure occur at the site. The SPMP acts as a live document arising from information presented during the consenting process, possible planning conditions and the content of which will be updated as work is carried out on site.

The SPMP contains some drainage guidelines for construction works and for management of peat on site. It should be noted that the control of water quality and drainage measures for site is outlined in detail in Chapter 9 (Hydrology and Hydrogeology) of the Environmental Impact Assessment Report (EIAR) and within the Construction and Environmental Management Plan (CEMP), Appendix 2-8 of the EIAR.

The SPMP outlines the overall design approach that has been applied to the proposed project to minimise peatland disruption and aims to ensure that all opportunities to minimise peat disturbance and extraction during construction will be taken. The SPMP identifies appropriate and industry proven methods for the reuse of excess peat to restore the effects of construction activities, without significant environmental or health and safety implications, to reduce the release of carbon and minimise risk in terms of human health.

1.1.1 Guidance

The legislation and guidance regarding the management of peat includes:

- Scottish Environment Protection Agency (SEPA), Regulatory Position Statement – Developments on Peat (2010);
- Scottish Government, Guidance on Developments on Peatland – Site Surveys (2014);
- Floating Roads on Peat, Scottish Natural Heritage (2011); and
- Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste, Scottish Renewables and SEPA (2014).

The following guidance specifically relates to wind farm construction and peatland:

- Investigating the impacts of wind farm development on peatlands in England: Part 1 Final Report (2011);
- Best Practice Guidance to Planning Policy Statement 'Renewable Energy' (2009);
- Wind Farm Developments on Peat Land fact sheet. Scottish Government (2011); and
- Good practice during wind farm construction, A joint publication by Scottish Renewables, Scottish Natural Heritage, Scottish Environment Protection Agency, Forestry Commission Scotland (2015).

Many of the publications listed above have been developed by the Scottish Government. The Scottish documents are considered to be best practice in Ireland and are therefore appropriate for use within this SPMP.

The guidance identifies three main stages in the development process and describes what data should be gathered and assessed at each to inform a site specific SPMP:

- Stage 1: Environmental Impact Assessment (EIA);
- Stage 2: Post-consent / pre-construction; and
- Stage 3: Construction.

This SPMP has been prepared in accordance with the principles in the guidance for Stage 1 and proposes that prevention and re-use are the most appropriate means of managing peat excavated during construction at the proposed wind farm site. This report details the methodologies required to assess all potential surplus materials and presents the expected volume of excavated materials and required reuse volumes for reinstatement and restoration purposes.

1.2 PEAT DESCRIPTION

Organic material less than 0.5m depth is not defined as peat. This is in accordance with guidance from:

- Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. Guidance on Developments on Peatland states that *'Peat soil is an organic soil which*

contains more than 60 per cent of organic matter and exceeds 50 centimetres in thickness'; and
- The James Hutton Institute define shallow peat as having *'a prescribed depth of organic matter of 50 – 100 cm*[1]*'*

Also, The Forestry Commission use 45 cm as the critical depth for peat to occur (*Understanding the greenhouse gas (GHG) implications of forestry on peat soils in Scotland*, 2010[2]);

- Peat can therefore be classified as organic material over 0.5m in depth.

Peat can be separated into three main layers: acrotelm (the upper living layer), catotelm (the middle to lower layer) and occasionally amorphous (lower layer) peat:

- Acrotelm peat is the living layer of the peat including the peat turf or turve being a thin, floating vegetation mat layer. The acrotelm is found within the top layer of peat (often less than 0.5m) depending on the degree of decomposition and fibrous nature of the peat (H1 to H6 on the von post classification scale). The acrotelm is generally of high permeability, decreasing with depth. The water table fluctuates in this layer and conditions vary from aerobic to anaerobic. Material may be fibrous or pseudofibrous (plant remains recognisable), spongy, and when excavated strength is lost but retains integral structure and can stand unsupported when stockpiled >1m.
- Catotelm peat is the dead layer of peat found deeper than acrotelm peat which has some remnant plant structures. Material has high water content and is permanently below the water table (saturated) therefore organic matter decomposes anaerobically. Some plant structures may be recognisable but are highly humified losing most of their characteristics (approximately H6 to H9 on the von post classification scale) and strength. Water flow in the catotelm is slow unless peat structures such as sink holes or peat pipes are present.

The best management option to minimise potential surplus peat is to prevent its production. Therefore, the design of the proposed project has aimed to minimise peat excavation. Discussion of design considerations to avoid deeper areas of peat is included in Appendix 9-2: Peat Stability Risk Assessment and Chapter 3: Consideration of Alternatives of this EIAR.

SEPA has provided a hierarchy of management approaches in which the effectiveness of the approach to peat management is optimised at development sites as summarised below (SEPA 2010, SEPA 2012):

1. Prevention: avoiding generating excess peat during construction (e.g., by avoiding peat areas or by using construction methods that do not require excavation such as floating tracks);
2. Re-use: use peat produced on site in habitat restoration of hardstanding or landscaping;
3. Recycling/recovery/treatment: modify peat produced on site for use as fuel, or as a compost/soil conditioner, or dewater peat to improve its mechanical properties in support of re-use; and

[1] https://www.hutton.ac.uk/learning/exploringscotland/soils/organicsoils

[2] https://www.forestresearch.gov.uk/publications/understanding-the-greenhouse-gas-ghg-implications-of-forestry-on-peat-soils-in-scotland/

4. Storage: temporarily store peat on-site (for example, during short periods in the construction phase) and then re-use.

In relation to the SEPA guidance the following has been applied to the design and construction of the proposed project:

1. Reuse of material is proposed for landscaping and restoration of borrow pits;
2. Recycling/recovery is not appropriate on this site; and
3. Temporary storage and reuse are proposed on shallow gradients (<3 degrees and outside of borrow pits).

1.2.1 Peat Conditions on Site

The proposed wind farm site was assessed for peat vegetation in desktop review of maps and plans, site walkovers by ecologists and hydrologists in 2022 to 2023; and in 2022/2023 intrusive site investigation in terms of peat depth probing and coring across the proposed wind farm site and access track routes.

Peat on the proposed wind farm site is characterised by drained heathland. The land cover for the proposed wind farm site comprises of coniferous forestry and rough grassing in the surrounding area. The peat where present is relatively dry and overlies glacial subsoils i.e. sandy till and sand/gravel. Areas of silty gravel and sandy till are evident as shown in Plate 1 below.

Plate 1 Typical profile - peaty topsoil layer over gravelly glacial till (Knocknanask)

Based on a review of the peat probe data, the areas where excavation are <0.5m are very limited on the proposed wind farm site. Results from the SI confirm the peat on the proposed wind farm site was cut away and the remaining peat has a relatively low moisture content and high shear vane values. The peat is fibrous and relatively easy to manage. No evidence of instability were noted on the proposed wind farm site. Turves (peaty topsoils) will be used to reinstate the borrow pits.

1.2.2 Peat Instability

Peat instability in this report is defined as a mass movement of a body of peat that would have a significant adverse impact on the surrounding environment. Peat instability excludes localised movement of peat that would occur (say), creep movement or localised erosion type events.

As is detailed in the Peat Stability Risk Assessment (PSRA) in Appendix 9-3 of the main EIAR and summarised in Chapter 9 (Land, Soils and Geology) of the EIAR, the risk of instability is low at the proposed project due to the limited peat encountered. Adherence to the PSRA and SPMP should reasonably minimise the potential for all such peat movements. However, it is noted that due to the soft ground nature of the peat terrain it is not possible to completely avoid localised peat movement. There are no known peat instability issues on the proposed wind farm site. The GSI web resource indicates the nearest related slope stability events on elevated sites to the north and west of the site but does not show any record of such events within 1km of the proposed project.

1.2.3 Construction Activities Covered by Spoil and Peat Management Plan

The proposed project is characterised by the following civil engineering works to provide the necessary infrastructure to complete the propsed project as described in Chapter 2, Description of the Proposed Project. The proposed wind farm site is located between Cappoquin, Ballinamult and Millstreet, Co. Waterford. The proposed wind farm site is located approximately 4 km northeast of Cappoquin, and approximately 13 km northwest of Dungarvan. The proposed wind farm site (Figure 1-2 of this EIAR) has an area of 981.4 ha and comprises an elongated land parcel approximately 8 km long in the north/south direction and is approximately 1.9 km wide in an east/west direction at the widest point. The site lies between the R671 and the R669, on the southeastern side of the Knockmealdown Mountains.

The land use/activities on the e proposed wind farm site are primarily commercial forestry, with some areas of open peatland that is grazed. Shallow peaty soils /peat was encountered on Knocknanask. Peat was largely removed in the 1940s – 1970s and the remaining shallow peat is in dry condition, with the vast majority less than 0.5m, and many areas with no peat. No peat was found to the south of the proposed wind farm site.

2. CONSTRUCTION ACTIVITIES

Peat management of the construction activities are covered individually in this report. The proposed wind farm site is characterised by locally steep topography between 130 m and 486 m above ordnance datum (AOD). The proposed wind farm site is covered with thick glacial deposits with drumlins, hummocky sand and gravels and esker identified across the site resulting in local variations in topography. Very limited peat and peaty topsoil Podzols, peaty podzols) were encountered to the north of the proposed wind farm site .

2.1 EXCAVATIONS OF PEAT FOR INFRASTRUCTURE FOUNDATIONS

The material encountered in the trial pits excavated at each proposed turbine location was soft to stiff generally firm with depth - see Figure 8-7, Chapter 8 (Soils and Geology) of the EIAR. Deeper excavations to more competent material will be required to construct the proposed turbine foundations.

During proposed turbine construction at T1-T7, peaty soils and peat will be excavated to the substrate to make room for the concrete turbine foundation, and for a small working area surrounding the foundation footprint. Typically, turbine bases are 24m in diameter with detailed foundation design being dictated by the local ground conditions and the requirements of the turbine supplier.

Volume calculations provide an approximate estimation of fill that will be required for all the proposed turbine foundations. Due to the nature of the development, i.e., deposition of soil and peat, there is the potential for impacting the shallow soil and geology environment. Excavation of peat and subsoil will be required for construction of works for the installation of access roads. This will result in a permanent removal and relocation of cutover peat and subsoil.

The calculated volume of peaty soils is 10,000 m^3 and 3,000 m^3 for peat. In order to utilise and reuse the peaty soils, the construction works will be sequenced as follows:

- Construction works to commence to the south of the site i.e. T9 to T15, substation and southern compounds;
- Material from borrow pits and quarries utilised to construction T9 to T15;
- Stripping of peaty soils for T7/T8;
- Construction of bridge across to T1/T7;
- Stripping of peaty soils/peat and placing material in the borrow pit; and
- Reinstatement of borrow pits in a phased basis.

Peat or peaty soil will all be relocated within the proposed wind farm site. Due to the proposed phasing of the works, the southern section of the proposed wind farm site and upgrades to the southern roads will be constructed first. The borrow pits will be available to accept material at the later stages of the construction works.

The proposed excavations will be battered at a 1:2 to 1:3 gradient. Once excavated, the proposed turbine foundation is installed, occupying a foundation footprint, approximately 20-26m in diameter. The works at one turbine base require excavation through shallow peat to a

competent founding stratum. This will be confirmed at detailed design stage following additional ground investigation.

Borrow Pits and deposition areas

Bedrock is present underlying the gravelly till. An initialwalkover of the proposed wind farm site was undertaken, in September 2022 and a review of the proposed wind farm site investigations have been carried out. There are two areas considered for the borrow pit location. Area 1 and 2 are located in the south of the proposed wind farm site. With a shallow excavation in the area, material up to 6m bgl are accessible with excavators or by blasting. A summary of potential volumes is included in **Error! Reference source not found.**.

Table 2-1: Borrow Pit - Potential Material Volumes and Summary of the Area Characteristics

Area	Material Type	Potential Volume (m^3)	Ecological/Other Constraints
1	Gravelly sandy CLAY with frequent cobbles, possible bedrock at 2.5 m.	>300,000 t 6 m x 30,000 m^2 180,000 m^3 x 2t/m^3 Overburden 50,000 m^3	No significant ecology constraints, no archaeological features encountered
2	Gravelly sandy CLAY with frequent cobbles, possible bedrock at 2.5 m.	>300,000 t 6 m x 30,000 m^2 180,000 m^3 x 2t/m^3 Overburden 50,000 m^3	No significant ecology constraints, no archaeological features encountered

Similarly, hardstanding for cranes and other infrastructure foundations on the proposed wind farm site are to be founded on material underlying peat deposits which will also require excavation through peat. A crane hardstanding is required adjacent to each proposed turbine for the purpose of turbine installation and maintenance. Each crane pad has an area of 25m x 40m and will require the full excavation of peat (where present) to substrate and replacement with rock is required to provide a suitably stable surface for turbine component handling. Once excavated, peat will be re-used to batter the edges of platforms grading the bases into the local topography.

Full excavation of peat (where present) to substrate and replacement with rock is required to provide a suitably stable surface for turbine placement. Once excavated, peat will be re-used to batter the edges grading the bases into the local topography.

2.2 Excavations for the Underground Cable

The proposed wind farm site will connect to the grid via an underground cable along onsite access tracks and the public road corridor. Final detailed design of the grid connection will be subject to receiving a grid connection offer and EirGrid/ESBN post planning system studies.

See Figure 2-1 for the location of the proposed substation and the associated grid connection within the proposed wind farm site. It is proposed to excavate the trenches for the underground cable at a uniform level in peat or overburden material. The trenches will typically be 600mm wide and 1250mm deep with variations on this design to adapt to bridge crossings, culvert crossings, service crossings and watercourse crossings, etc.

2.2.1 Cable Trench Construction Methodology

This methodology includes procedures that are to be included during the proposed construction phase to minimise any adverse impact on peat stability. The methodology is not intended to cover all aspects of proposed construction such as drainage and environmental considerations.

With respect to placement of arisings from excavation, the guidelines below are to be followed.

- All proposed excavations within peat are to be adequately supported or peat slopes are to be battered to a safe slope inclination. This slope inclination will be reviewed during construction, as appropriate;
- Proposed excavations shall always be kept reasonably free from water; and
- Backfill requirements for the cable trench will be decided as part of the detailed design/construction.

All excavated material will be stored near the excavations and reused for reinstatement works. Any soil required for reinstatement that will be temporarily stockpiled on the proposed wind farm site will be placed at least 15m back from the nearest watercourse on level ground and will be ringed at the base by silt fencing and be regularly monitored by a designated competent person for signs of solids escape. In which case an additional line of silt fencing with straw bales will be added in line with the relevant environmental control measures.

2.3 Construction of New Tracks

2.3.1 Track Construction Types

To provide access within the site and to connect the proposed wind turbines and associated infrastructure new tracks will need to be constructed. The identification of the access track layout is an iterative procedure. While the majority of tracks on the proposed wind farm site will be constructed on mineral soil, there are some locations where construction on peat and peaty soils will be required.

The track construction preliminary design has considered the following key factors:

- Requirement to minimise disruption to peat/soil hydrology;
- Minimise excavation arisings;
- Serviceability requirements for construction and wind turbine delivery and maintenance vehicles; and

- Buildability considerations.

Whilst the above key factors are used to determine the proposed track design, the actual construction technique employed for a particular length of track will be determined on the prevailing ground conditions encountered along that length of track. Limited peat is encountered on the proposed wind farm site and therefore no floating roads are proposed. Where peat is deep, floating roads are frequently used to reduce excavation volume. Based on the proposed wind farm site information, floating roads are not required due to the shallow depths.

Proposed access tracks will be constructed to enable the construction works to take place and to provide access to turbine locations and infrastructure of the proposed wind farm site. The proposed tracks will be constructed using unbound crushed aggregates and incorporate drainage to maintain the performance of the pavement during wet weather. The majority of the tracks are likely to be constructed as founded tracks. Founded tracks are excavated down to and constructed up from a competent geological stratum with adequate cross drainage to prevent water accumulation on the upgradient side. Ground investigations in the form of peat probing and trial pitting has been carried out along the proposed access routes to inform the depth of excavation and upfill required for the access tracks.

2.4 General Access Track Construction Techniques

Prior to the construction of any access tracks on the proposed wind farm site a detailed design will need to be carried out. Given the topography and relatively shallow peat on the proposed wind farm site, excavated access tracks are deemed an appropriate construction technique for the majority of the proposed wind farm site.

This methodology includes procedures that are to be included in the construction phase to minimise any adverse impact on peat stability. The methodology is not intended to cover all aspects of construction such as drainage and environmental considerations.

- Interceptor drains will be installed upslope of the access track alignment to divert any surface water away from the construction area;
- Proposed excavation of tracks shall be to the line and level given in the design requirements. Excavation will take place to a competent stratum beneath the peat (as agreed with the proposed wind farm site designer);
- Track construction will be carried out in sections of approximately 50m lengths; i.e. no more than 50m of access track will be excavated without re-placement with stone fill unless otherwise agreed with the resident engineer on the proposed wind farm site;
- All excavated peat shall be placed/spread alongside the excavations;
- Side slopes in peat shall be not greater than 1 (v): 2 or 3 (h). This slope inclination will be reviewed during construction, as appropriate. Battering of the side slopes of the excavations will be carried out as the excavation progresses;
- The surface of the finished excavated access track will be finished above current ground level;
- A layer of geogrid/geotextile may be required at the surface of the competent stratum (to be confirmed by the designer);
- Where slopes of greater than 5 degrees are encountered along with relatively deep peat (i.e. greater than 1m) and where it is proposed to construct the access track perpendicular to the slope contours it is best practice to start construction at the

bottom of the slope and work towards the top. This method avoids any unnecessary loading to the adjacent peat and greatly reduces risk of peat instability; and

- A final surface layer shall be placed over the excavated track, as per design requirements, to provide a track profile and graded to accommodate wind turbine construction and delivery traffic.

access tracks to the proposed wind farm site require careful monitoring to ensure that there is no significant standing water forming, which would lead to potholes in the surface. If areas of track are causing concern, repairs will be carried out in favourable, preferably dry, conditions, to ensure that there is no saturation of the surface of the track.

3. EXCAVATION AND STORAGE OF ARISINGS

The handling, storage and re-use of excavated materials are of importance during the construction phase of the proposed project. The majority of the site is on forestry lands with some areas under agricultural production. It is intended that peat and unsuitable founding soils will be placed at the borrow pit areas.

Any surplus excavated material will be reused, either in profiling/landscaping or constructing berms as close to the excavation areas. The proposed wind farm site has been extensively drained and afforested resulting in well drained and extensively trafficked peat and soils.

3.1.1 Excavation & Storage of Arisings Methodology

This methodology includes procedures that are to be included in the proposed construction phase to minimise any adverse impact on peat and soil stability. The methodology is not intended to cover all aspects of construction such as drainage and environmental considerations.

Prior to any excavations, the Principal Contractor will produce a detailed Method Statement identifying where and how excavated peat will be used in reinstatement or landscaping works. Specific requirements for the excavation, handling, storage and reinstatement of peat will be outlined in a detailed Method Statement. The Principal Contractor will consider potential impacts on downstream receptors and the potential for instability issues with the excavated material.

Some of the requirements to be contained within this are outlined below. The majority of the proposed wind farm site comprises bare peat with some areas where revegetation is occurring. Areas of peat within the footprint of excavation will have the top layer of vegetation stripped prior to construction by an experienced specialist contractor. Underlying peat or bare peat will then be removed.

Classification of excavated materials will depend on their identified re-use in reinstatement works. At the proposed wind farm site it is anticipated that the material to be excavated will comprise peat and mineral subsoil.

3.2 SUMMARY OF EXCAVATED PEAT VOLUMES ON SITE

A summary of the excavated peat volumes calculated for the proposed wind farm site is provided in Table 3-1.

Table 3-1: Excavation Volume Summary[3]

Area	Peaty soil Excavated Volume (m^3)	Peat
Hardstanding and Turbine T1-T7	10,000	3,000
T8 to T15, Substation etc.	No significant peaty soils	No significant peat depth

[3] Assuming full replacement

3.2.1 Peat Excavation Method

Areas of peat on the proposed wind farm site are limited with peaty (podzol) soils located at T1 to T7. The following methodologies for excavation of peat are recommended:

- Prior to any proposed excavations, a detailed Method Statement identifying where and how excavated peat will be used in reinstatement or landscaping works. Specific requirements for the excavation, handling, storage and reinstatement of peat will be outlined in this Method Statement. The Contractor will consider potential impacts on downstream hydrological receptors and also the potential for instability issues with the excavated material.
- Areas of peat will have the top layer of vegetation stripped off as turf prior to construction by an experienced specialist contractor. When excavating areas of peat, excavated turfs will be as intact as possible.
- Excavated soils and turfs will be handled so as to avoid cross contamination between distinct horizons and ensure reuse potential is maximised.
- Care will be taken when stripping and removing topsoil and peat turfs and appropriate storage methods used on the proposed wind farm site, i.e. excavated material will be stored in separate horizons and vegetation rich top layers will be stored vegetation side up.
- Classification of excavated materials will depend on their identified re-use in reinstatement works. At the proposed wind farmsite it is anticipated that the material to be excavated will comprise peat (which may be sub-divided into peaty soils, peat and mineral soils (subsoil and topsoil).

3.2.2 Temporary Storage

Temporary storage of excavated soils will only occur where peat thickness is minimal or absent. It is proposed that any temporary onsite stockpiles of soil, rock and other excavated material shall be removed and utilised in the site reinstatement programme to infill any excavated areas which will then be mounded and capped with sod prior to the completion of works.

Based on the volume of peaty soils/peat encountered at T1 to T7, volumes ranging from as 500m3 to 1,500m^3 will require excavation from each of the proposed turbine bases. The peat soils will be transported to the borrow pit/deposition area. It is not proposed to store peat near T1 – T7. Peat material will be used to reinstate the borrow pit areas.

Mineral soil, subject to a geotechnical risk assessment may be temporarily stored on the proposed wind farm site. For example, a volume (100m3), this would require a temporary storage area near to the construction works of approximately 5m x 20m to a height of 1m. In this case, the following good practice applies:

- Excavated material will not be stored adjacent to turbine bases, on or adjacent to slopes (>5 degrees gradient), or in areas of peat.
- Peat will not be stored around the proposed turbine perimeter;
- Diffuse drainage lines and locally steep slopes should be avoided for peat storage; and
- Stored upper turves (incorporating vegetation) will be organised and identified according soil type.
-

For borrow pits and compounds (with longer term storage requirements), the following applies:

- peat generated from crane pad locations will be transported directly to its allocated restoration location, to minimise the volume being stockpiled with the possibility of drying out;
- stored peat will be stored and placed at the borrow pit below the current land profile to promote stability; and
- monitoring of areas of peat storage during wet weather.
- No permanent stockpiles will be left on the proposed wind farm site after the completion of the construction phase works.

Transport

- Movement of peaty soils will be kept to a minimum once excavated, and therefore it is preferable to transport peat planned for reinstatement to its destination at the time of excavation;
- Carefully evaluate potential restoration sites, such as borrow pits, and agree phasing as appropriate with the ECoW, landowners and relevant consultees; and
- Undertake restoration and revegetation work as soon as possible.
- Spoil will be deposited, in layers of 0.50m and will not exceed a total thickness of 1.5m.

After completion of the turbine base reinstatement works all remaining stockpiles are to be removed for permanent disposal at the proposed 2 no. deposition areas within the proposed wind farm site.

3.2.3 Excavated Rock and Glacial subsoils

Stone and soil material will be excavated during proposed construction. This will be used under and around key infrastructure including the proposed turbines, substation, site roads, hardstands and construction compounds. By sourcing the majority of the required stone volume from the onsite borrow pits as described above, the volume of traffic that will occur on public roads in the area will be significantly reduced. Stone from offsite sources will be used for surface dressing, while stone sourced onsite will be used for the initial capping layer. Further information on the proposed traffic volumes and impacts are discussed in Chapter 16 of this EIAR (Traffic & Transportation).

Hardstands and site roads will be constructed to be above the existing ground level. The lower layer (approx. 300mm) of this will be lower grade stone, with the top 150mm being high quality compacted aggregate. Internal cable trenches which connect each turbine to the proposed on site substation will be approximately 1500mm deep, with the first 600mm being backfilled with sand. The surplus excavated material will be used to complete the backfilling of the borrow pit.

3.3 General Recommendations for Good Construction Practice

The recommendations of the PSRA are incorporated into this document and summarised below. The following outlines an overview of the tasks for the proposed construction phase:

- Client's Geotechnical Engineer to provide a Geotechnical Induction to all contractor supervisory staff.
- Client to appoint a Site Geotechnical Supervisor to carry out supervision of the proposed wind farm site works as required. The Site Geotechnical Supervisor will be required to

inspect that works are carried in accordance with the requirements of the PSRA, identifying new risks and ensuring all method statements for works are in place and certified.

- Retain a Site Geotechnical Folder which contains all the information relevant to the geotechnical aspects of the proposed wind farm site including but not limited to risk register, site investigation information, method statements etc.
- Contractor to develop a Method Statement for the works to be carried out in each of the PSRA areas cognisant of the required mitigating measures.
- Client's Geotechnical Engineer/Site Geotechnical Supervisor to approve the method statement.
- Contractor to provide toolbox talks and on-site supervision prior to and during the works.
- Daily sign off by supervising staff on completed works.
- Implementation of emergency plan and unforeseen event plan by the contractor.

3.3.1 Operation and Maintenance Phase:

The following outlines an overview of the tasks for the proposed operation and maintenance phase:

- Communication of residual stability risk to appropriate site operatives.
- Ongoing monitoring of residual risks and maintenance if required. Such items would consist of regular inspection of drains and culverts to prevent blockages and inspections of specific areas such as settlement ponds and floated access roads after a significant rainfall event.
- Routine inspection of the proposed wind farm site by contractor to include an assessment of ground stability conditions (e.g. cracking, excessive track settlement, disrupted surface, closed-up drains) and drainage conditions (e.g. blocked drains, absence of water in previously flowing drains, springs, etc).

3.3.2 Decommissioning Phase:

All above proposed ground infrastructure will be disassembled and remaining infrastructure will remain in place, therefore very limited excavations will be required for decommissioning.

4. MONITORING

To monitor possible peat/soil movements, it is proposed to install sighting posts upslope and downslope of the access track at staggered intervals at locations where the peat depth is greater than 1.0m i.e. near turbine 2. Details of sighting posts are given below.

4.1.1 Excessive Movement

Where there is excessive movement or continuing peat movement recorded at a monitoring location or identified at any location within the proposed wind farm site but no apparent signs of distress to the peat (e.g. cracking, surface rippling) then the following shall be carried out.

- All activities (if any) shall cease within the affected area;
- Increased monitoring at the location shall be carried out. The area will be monitored, as appropriate, until movements have ceased; and
- Re-commencement of activities shall only start following a cessation of movement and agreement with all parties.

4.1.2 Onset of Peat Slide

Due to the drained cutaway nature of the proposed wind farm site (T1-T7), the risk of a regional scale landslide is low/negligible as detailed in the PSRA. In the event of a localised peat movement the following measures will be put in place. Where the onset or actual detachment of peat (e.g. cracking, surface rippling) then the following shall be carried out:

- On alert of a peat slide incident, all activities (if any) in the area will cease and all available resources will be diverted to assist in the required mitigation procedures.
- Where considered possible, action will be taken to prevent a peat slide reaching any watercourse. This will take the form of the construction of check barrages on land; and
- All relevant authorities will be notified if a peat slide event occurs on the proposed wind farm site.

For localised peat slides that do not represent a risk to a watercourse and have essentially come to rest, the area will be stabilised initially by rock infill, if required. The failed area and surrounding area will then be assessed by the engineering staff and stabilisation procedures implemented. The area will be monitored, as appropriate, until movements have ceased.

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