

## TECHNICAL APPENDIX 3.4: OUTLINE SITE RESTORATION PLAN

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## 1. OUTLINE SITE RESTORATION PLAN

### 1.1 Introduction

#### *Purpose of the Draft Site Restoration Plan*

1.1.1 This Site Restoration Plan provides an outline of standards and procedures which would be employed during the pre-construction, construction and reinstatement of the Proposed Development in order to facilitate the restoration of landform, habitats and vegetation which would be disturbed as a result of the works. The aim of the Outline Site Restoration Plan is to ensure the adoption of techniques which, as far as practicable, achieve the following purposes:

- The restoration of landform to reflect the adjacent areas, accommodate new permanent features and minimise the visual appearance of these features where possible;
- The restoration, and where possible, enhancement of pre-construction habitat types with the target of achieving no net loss of biodiversity; and
- Across all disturbed areas, the restoration of vegetation types reflective of existing conditions and avoidance of unstable bare ground where erosion could occur.

1.1.2 It is intended that the general principles outlined in this document would provide a basis for more detailed plans to be developed during the post-consent, and pre-construction phase of the Proposed Development including site specific restoration plans.

#### *Associated Documents*

1.1.3 The Outline Site Restoration Plan should be read in conjunction with the following associated parts of the EIA Report:

- Section 7.11 of Chapter 7: Landscape and Visual Mitigation;
- Technical Appendix 3.2: General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs);
- Technical Appendix 3.6: Outline CEMP
- Technical Appendix 10.1: Peat Management Plan (PMP); and
- Technical Appendix 10.2: Peat Landslide Hazard Risk Assessment.

### 1.2 General Principles of Site Restoration

1.2.1 The restoration of landscape areas and habitats would be considered through four phases as follows:

- Pre-construction phase;
- Construction phase;
- Post-construction reinstatement phase; and
- Post-reinstatement monitoring.

1.2.2 The above phases would be applied in a flexible manner across the project depending on the planned construction programme. Reinstatement would occur as soon as possible after excavation in order to minimise the time for which soil, peat or turves are required to be stored and the period of exposed excavations. However, this would be subject to careful planning to avoid the necessity to track back over areas of previously restored ground or further disturbance of recovering areas.

1.2.3 The general principles for each phase identified above are summarised below. It is intended that these general principles would be further developed during the pre-construction phase and would form the basis of site-specific method statements and reinstatement plans.

#### Pre-construction Phase

1.2.4 Prior to construction commencing, planning would occur for each area to be disturbed, giving consideration to the following aspects:

- Identification of any areas to be protected, including important ecological features, water environment features, cultural heritage features or significant landscape features;
- Identification of any notable features which should be restored; and
- Provision of sufficient and suitable space for the separate storage of turves / topsoil, peat and or subsoils.

#### Construction Phase

1.2.5 The key consideration during construction to enable the greatest chance of successful restoration is the careful excavation, separation and storage of the different layers of soils and/or peat and sub-grade material. The protection of these materials during the period of construction is essential to ensure that sufficient materials are retained for reinstatement and that these are in the best condition to enable re-establishment of vegetation. The following general principles would be observed:

- Physical protection of any features identified as important for retention within the vicinity of the works;
- Separation of topsoil / vegetated 'acrotelmic' peat, from subsoil / lower 'catotelmic' peat, and other sub-grade material, and storage in separate stockpiles;
- Excavation of whole, intact turves where possible and storage with the vegetated side uppermost;
- Avoidance of double handling of materials;
- Stockpiles would be no greater than 2 m in height to prevent compaction;
- Protection of stockpiles from construction plant or contaminants, and from runoff;
- Monitoring of stored materials to ensure that they don't dry out and watering where necessary; and
- Avoidance of work during unsuitable weather conditions including heavy rain / very wet ground conditions, strong winds or periods of frozen ground (further details are provided in **Technical Appendix 10.1: Peat Management Plan**).

#### Reinstatement Phase

1.2.6 The general principles for reinstatement involve the replacement of the excavated soils in the correct order in which they were excavated, ideally with the re-placement of fully intact turves on the surface. The following measures would be observed during this phase of the works:

- Reinstatement would occur as soon as possible after excavation works, to minimise the period of soil / peat storage;
- Reforming of the sub-grade material to reflect landform and patterns of adjacent areas, prior to the replacement of peat or topsoil (see Section 7.11 of Chapter 7: Landscape and Visual);
- As far as possible, creation of slopes at gradients suitable for the placement of soils / peat and where necessary, suitable slope stabilisation measures to assist revegetation and prevent erosion;
- Replacement of soils / peat in the correct horizons, as close as possible to the area of excavation;
- Avoidance of compaction of soil or peat;
- Replacement of peat, limited to areas disturbed during the works;
- Adoption of a phased approach to avoid tracking back or disturbing areas previously reinstated; and
- A preference for natural regeneration of vegetation wherever possible (areas would be seeded only after prior agreement between SSEN and relevant stakeholders).

#### Post-reinstatement Monitoring Phase

- 1.2.7 To ensure success of vegetation restoration and to monitor the effectiveness of habitat reinstatement or enhancement measures, monitoring would occur over an agreed timeframe, particularly focussed within sensitive or protected areas. A programme for monitoring visits would be agreed between the Applicant, Project Ecologist and NatureScot.

#### *Tree works and planting*

- 1.2.8 Any felling works within commercial forest areas would be carried out by an appropriately qualified and experienced woodland consultant and future replacement or compensatory replanting would be undertaken separately to the Proposed Development.
- 1.2.9 Any planting outwith forest areas for habitat or landscape mitigation purposes, if agreed, would be undertaken subsequent to ground vegetation restoration. Protection from grazing animals would be installed where necessary to aid establishment. There would be a preference towards the use of local provenance stock as far as possible.

### **1.3 Restoration of Key Features of the Development**

- 1.3.1 The following provides a summary of how the techniques outlined above would be applied to the main features of the Proposed Development:

#### Permanent Access Tracks

- 1.3.2 Access tracks to be permanently retained are generally anticipated to be narrowed to around 2.5 m in width. Narrowing of access tracks would involve the replacement of excavated peat / soil along the edge of the access track to reduce the running width. Track drainage features would remain in place, or would be modified if necessary. Where possible, intact, vegetated turves would be used to form the verge of the track, bedded down to ensure that the exposed edges were not vulnerable to wind erosion. Cuttings and embankments would, where possible, be created at a gradient suitable for the replacement of soils / peat to allow revegetation. However, where this would not be possible, appropriate bio-engineering techniques would be used to assist the re-establishment of vegetation, with the exception of solid rock cuttings. These may include products such as jute matting.

#### Floating tracks

- 1.3.3 Floating track construction would be used where existing ground conditions were suitable, as agreed with the project geotechnical advisor, in preference to cut and fill track construction. This involves the construction of the track on top of the intact vegetated ground, using a supportive geogrid. Where materials were available, turves or soils may be used to help repair, and vegetate and integrate the verges of floating tracks with the adjacent landscape. However, this would be limited to situations where there was not a risk of wind erosion or drying of turves. No peat would be spread over adjacent vegetated landscape areas.

#### Tracks to be Upgraded

- 1.3.4 Upgrading works would be dependent on the requirements of the individual tracks involved. Where this would involve widening the running width of the track, as far as possible turves and soils would be removed, separated and stored to be used for restoration of the new track verges. However, depending on the construction methods used for the original tracks, there may be some instances where these materials are scarce. In these cases, the potential to bring in materials from other nearby locations would be explored, with advice sought from the relevant technical specialists, although this may not always be possible.
- 1.3.5 Where, additional cuttings or embankments were required, where possible, these would be created at a gradient suitable for the replacement of soils / peat to allow revegetation, or other techniques used as appropriate, as described for new, permanent access tracks in paragraph 1.3.2, above.

#### Temporary Access Tracks and Working Areas

- 1.3.6 The reinstatement of temporary tracks and working areas would be undertaken in accordance with the phases and general principles outlined in Section 1.2 above. The separation and storage of soils during construction would be key to ensuring the re-establishment of vegetation and habitats following reinstatement.
- 1.3.7 Once construction works were complete, excavated subgrade material would be used to reform any notable landscape features such as ridges or hummocks cut through by the works, and otherwise to reflect the adjacent landform. Where permanent, above ground features of the Proposed Development would be present, the landform would be placed to smoothly integrate these features into the adjacent landscape, and reduce the visual appearance where possible.
- 1.3.8 The area would then be reinstated with the appropriate layers of soils / peat and turves. Where a shortage of turves exist, these would be placed in a chequerboard pattern, set flush to adjacent ground to prevent wind erosion and drying out.
- 1.3.9 If necessary, rocks would be replaced across the area to be reinstated to reflect adjacent patterns in the landscape. Rocks would be placed in sequence with soils / peat or turves.
- 1.3.10 Where permanent, above ground features would be retained within the area to be reinstated, additional rocks or turves would be placed to help reduce their visibility, if materials were available.
- 1.3.11 Where a floating construction is used for temporary access tracks, the rock and geogrid materials would be carefully pulled back to avoid damage to the supporting peat layer underneath. The excavator would work backwards from the track, and tracking over the vegetated peat would be avoided as far as possible.

#### **1.4 Monitoring during Construction and Reinstatement**

- 1.4.1 Monitoring by environmental professionals would occur throughout the site restoration phases to assist in the application of the site restoration plan and method statements. This would include input by an Ecological Clerk of Works (ECoW). The ECoW would provide ecological advice on the planning of working areas, and would monitor site stripping, material storage, and habitat restoration works throughout the Proposed Development, providing advice where necessary.
- 1.4.2 Further advice and monitoring would be sought from other technical specialists, such as landscape, water environment, cultural heritage and geotechnical specialists if required.

#### **1.5 Associated Best Practice Guidance**

- 1.5.1 The following list identifies (but is not limited to) guidance documents which would be referenced in the preparation of site specific method statements for site restoration, as appropriate:
- *Good practice during Wind Farm construction*, 4<sup>th</sup> Edition (Scottish Natural Heritage (SNH) (now NatureScot), 2019);
  - *Constructed Tracks in the Scottish Uplands* (SNH, 2015);
  - *Floating Roads on Peat* (SNH, Forestry Commission, Scotland (now Scottish Forestry));
  - *Conserving Bogs (The Management Handbook)* (2019) Tim Thom, Astrid Hanlon, Richard Lindsay, Joanna Richards, Rob Stoneman & Stuart Brooks.
  - *Engineering in the Water Environment – Good Practice Guide: River Crossings*. Second Edition. SEPA, November 2010.
  - *Engineering in the Water Environment – Good Practice Guide: Temporary Construction Methods*. First Edition. SEPA and Scottish Government, March 2009.
  - *Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste*. Version .1, Scottish Renewables and SEPA, January 2012.

## ANNEX A: PHOTOGRAPHIC EXAMPLES OF REINSTATEMENT TECHNIQUES





**Photo 1:**  
Reinstatement of  
temporary track  
using turves.



**Photo 2:**  
Example of  
reinstatement  
around tower  
foundations.





**Photo 3:**  
Example of chequerboard technique where turves are limited.



**Photo 4:**  
Formation of an access track verge using whole turves.



**Photo 5:**  
Reinstatement of temporary access track to tower and narrowing and reinstatement around permanent access track.



**Photo 6:**  
Example of ongoing narrowing works to access track using stored turves.