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12. Geology and Peat

12.1. Introduction

12.1.1. This Chapter does not repeat the information set out in *Chapter 12: Geology and Peat* of the Shepherds' Rig EIA Report (November 2018) where that information remains valid in the context of the reduced number of turbines now proposed as the Revised Development (AEI Figure 4.1). As such, the Additional Environmental Information (AEI) supplements Chapter 12 of the EIA Report (November 2018) and should be read in conjunction with it.

12.1.2. **AEI Figures 12.1 – 12.5** have been updated to reflect the reduced number of turbines associated with the Revised Development

12.1.3. The Scottish Government has consulted with SEPA and Ironside Farrar on peat and geology related matters for the EIA Report (November 2018). Details of consultation are provided in AEI Table 12.1.

AEI Table 12.1: Post-Submission Consultation Responses

Organisation	Consultee Comments	Response to Consultee
SEPA 14 th March 2019	Letter Ref: PCS162923 We object to this planning application on the grounds of lack of information demonstrating minimal impact on the peat environment.	Arcus issued further correspondence on the proposed AEI site layout changes supplemented by additional peat probe information in July 2019 to address the concerns raised by SEPA. The comments received from SEPA are detailed below.
SEPA 27 th August 2019	Letter Ref: PCS/166896. Having reviewed the latest information provided by Arcus, we are now in a position to remove our objection to this proposal. I would refer you to our previous response 13 March 2019 (PCS/162923) which details the other issues which affect our interests. Details of regulatory requirements and good practice advice for the applicant can be found on the Regulations section of our website. If you are unable to find the advice you need for a specific regulatory matter, please contact a member of the regulatory services team in your local SEPA office at: <ul style="list-style-type: none"> • Rivers House, Lochside Industrial Estate, Irongray Road, Dumfries, DG2 0JE • Tel: 01387 720 502 • Fax: 01387 721 154 	The Outline Peat Management Plan (OPMP) has been updated to reflect the revised site layout and submitted as part of this AEI application as Technical Appendix 12.1.

Organisation	Consultee Comments	Response to Consultee
Ironside Farrar 14 th March 2019	The PLHRA requires resubmission there are significant shortcoming throughout the PLHRA and reworking of the PLHRA report is required to support a robust assessment; areas for attention will be advised in the review findings and outline guidance offered to support the developer in preparing a satisfactory PLHRA. It is recommended that a revised report is submitted.	In order to address the recommendation from Ironside Farrar, a revised Peat Slide Risk Assessment (PSRA) has been prepared. This takes account of the revised site layout as well as the Ironside Farrar comments and will be submitted as part of this AEI application as Technical Appendix 12.2.

- 12.1.4. In response to the EIA Report (November 2018), SEPA provided a consultation letter stating its objection to the development on the ground of lack of information and evidence to demonstrate minimal impact on the peat environment. SEPA had concerns that Turbine T4, T6, T8, T9, T10, T13 and T16 were located in areas classified as deep peat. However, since the EIA submission, turbine locations have been revised, and the site layout for the Revised Development (**AEI Figure 4.1**) forms the basis of this AEI.
- 12.1.5. The revised layout and supplementary peat probe information was provided to SEPA in a consultation letter in July 2019 with SEPA responding in August 2019, noting that it welcomed the approach to the site layout design which was designed to minimise the impact on peat. The SEPA consultation response from August 2019 advising the planning authority/ECU that they would be able to remove their objection on the matter is included as an Appendix within Technical Appendix 12.1 oPMP.
- 12.1.6. While SEPA commented that it was content with proposals in the outline Peat Management Plan (oPMP) submitted as part of the EIA Report (November 2018), the oPMP has been updated to reflect the revised site layout. The same peat management measures and best practice principles apply.
- 12.1.7. In response to the EIA Report (November 2018), Ironside Farrar reviewed and assessed the Peat Slide Risk Assessment (PSRA) submission and concluded that the submission lacked information in several areas. In order to address both the Ironside Farrar comments and take account of the revised site layout, a revised PSRA has been prepared to support this AEI as Technical Appendix 12.2.
- 12.1.8. In summary the Technical Appendix supporting this chapter in the AEI submission are:
- AEI Appendix 12.1: oPMP; and
 - AEI Appendix 12.2: Peat Slide Risk Assessment.
- 12.1.9. The principles of the EIA Report (November 2018) remain valid and appropriate and have not been reassessed for this AEI, unless otherwise stated.

12.2. Methodology

- 12.2.1. This section takes into account the legislation, policy, and guidance referred to in the EIA Report (November 2018). The baseline information relied upon in order to make an assessment of the effects of the Revised Development is that information which has been provided in the EIA Report (November 2018), together with additional confirmatory peat probing. Additional data was collected through peat probing at the new turbine locations, associated spurs, and a new section of track associated with the Revised Development. An additional 172 probes were sunk.
- 12.2.2. To ensure consistency of approach, the same significance criteria and assessment methodology as referred to in the EIA Report (November 2018) has been followed.
- 12.2.3. Taking into account the relevant policy and guidance, baseline information, and assessment criteria, an assessment is presented below which details the effect of the Revised Development (**AEI Figure 4.1**).

12.3. Baseline Conditions

- 12.3.1. The baseline conditions at the site have not changed from that reported in the EIA Report (November 2018), although additional data was collected to cover the areas now proposed turbine and other infrastructure. Based on the revised layout, the Figures presented in the original EIA submission have been updated including;
- AEI Figure 12.1 – Superfiical Soils
 - AEI Figure 12.2 - Bedrock Geology
 - AEI Figure 12.3 – National Soils of Scotland
 - AEI Figure 12.4 – Carbon and Peatlands (2016)
 - AEI Figure 12.5 – Peat Depth Interpolation
- 12.3.2. As referenced in section 12.2, additional data was collected through peat probing at the new turbine locations, associated spurs, and a new section of track associated with the Revised Development. The new turbine locations for T4, T6, T8, T9, T10, T13, and T16 were subject to peat probing which confirmed that the turbines would be placed in shallower peat depths and T9, T10, T13 and T16 being in peat depths of less than 1.0m. T4, T6 and T8 were located within area of peat depths ranging from 1.0-2.0m, 1.0-1.5m and 0.5-1.5m respectively. The updated peat depth interpolation is illustrated on Figure 12.5. Locating turbine in shallower peat has reinforced the low and negligible peat slide risk hazard as well as reduced the risk of peat disturbance.

12.4. Change in Effects

- 12.4.1. The changes in the Revised Development, with respect to Geology and Peat, are summarised below:
- The number of proposed turbines has been reduced from 19 to 17;
 - Minor changes have been made to seven of the proposed turbine locations; and
 - The on-site access track layout has been amended as a result of the deletion of the two turbines and the re-siting of others. Consequently, the removal of the access tracks associated with T7 and T11 only

marginally reduces the total of on-site access track length from 11 km to just under 11,000 m. It is anticipated that that approximately 9 km of new access track including turning heads and approximately 2 km of existing upgraded forest track is required.

12.4.2. The original EIA layout was assessed as having a moderate effect, without mitigation, in relation to peat disturbance, therefore a significant effect. With mitigation such as micrositing out of deep peat and implementation of imbedded mitigation in line with best practice measures, the effect was reduced to low. However, the changes proposed in the revised site layout results in less disturbance of peat with the location of turbines and associated infrastructure being mainly out with deep peat areas. This is with exception of three turbines which had limited re-location potential due to other pertinent environmental constraints. Therefore, due to the removal of two turbines, re-location of five turbines to thin peat and re-location of two turbines to thinner peat, the Revised Development is considered to result in a potential minor effect which is not significant, in accordance with the EIA Regulations, with regards to peat disturbance. The updated oPMP (**AEI Appendix 12.1**) documents the peat excavation and reuse volume calculations for the Revised Development.

12.4.3. The updated peat slide risk assessment (**AEI Appendix 12.2**) confirms that the risk of peat slide associated with the Revised Development is negligible. On this basis, in the absence of mitigation, the Revised Development is considered to result in a potential minor effect which is not significant, in accordance with the EIA Regulations.

12.5. Residual Effects

12.5.1. Effects on peat have been reduced by relocating turbines and removing two turbines from the proposed layout. Incorporation of mitigation measures as detailed in section 12.9 of the original EIA submission, in relation to peat disturbance and stability, would further reduce any possible risk. This has been acknowledged by SEPA as detailed in section 12.1.2 above.

12.6. Cumulative Effects

12.6.1. In line with the EIA submission in November 2018, Geology and Peat are considered as a site-specific consideration and it is not considered that there will be cumulative effects.

12.7. Summary

12.7.1. As the number of turbines is reduced from 19 to 17, less peat will be disturbed, therefore the significance of effects would decrease, while the risk of peat slide risk has been assessed as mainly negligible or locally low, therefore the significance of the effects will not be increased and remain not significant as per the EIA Report (November 2018).

12.8. Statement of Significance

12.8.1. Residual effects on Geology and Peat associated with the Revised Development are considered to be not significant. This represents no change to the conclusions outlined in the EIA Report (November 2018).