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14. Forestry

14.1 Summary

- 14.1.1 The Revised Consented Development proposes a variation of the Section 36 Consented Development in wind turbine dimensions to make all turbines a maximum blade tip height of 149.9m. Some of the internal access track layout has been relocated (not affecting the site access location from the public road) as has the construction compound. One borrow pit has been removed. There are no changes proposed to the consented wind turbine locations.
- 14.1.2 An assessment of the effects on Limekiln Plantation resulting from the Revised Consented Development has been undertaken comparing the variation proposed in terms of felling and replanting with the Consented Development. Furthermore, the assessment identifies the area of woodland which will be required to be permanently removed for the wind farm infrastructure which includes revised stand-off requirements.
- 14.1.3 Mitigation is proposed with at least an equal increase to be planted off site as compensatory planting (CP) to the net woodland loss resulting from this variation.
- 14.1.4 The Revised Consented Development has provided the varied felling and replanting plans in the format for further amending the approved Amended Limekiln Plantation Long Term Forest Plan (LTFP) which follows the requirements of the UK Forestry Standard (UKFS) in terms of species diversity and age separation over the 20 year plan.
- 14.1.5 Prior to, and during construction, forest crop felling and timber extraction will be carried out. Felling of 73.19 ha is required for the permanent infrastructure which includes access tracks, hardstandings and the required bat mitigation stand-off areas around turbines. This compares with 60.15 ha for the Consented Development.
- 14.1.6 Temporary felling of 148.92 ha for wind resource and temporary construction requirements will be replanted on site. This is represented as Phase 1 felling and phase 1 replanting within the varied LTFP. The Consented Development identified 150.40 ha as Phase 1 temporary felling and replanting on site.
- 14.1.7 The off-site planting plan will be further developed, to provide for at least an additional 13.04 ha net woodland area, equating to the area of permanent woodland loss on site. This CP area will be developed according to UKFS with species diversity and the gross area including open ground.
- 14.1.8 The summary of effects is that although there is an increase in woodland loss from site, with off-site mitigation, there is no significant effect to forestry. There is no significant change to the long term forest structure compared to the Consented Development and the current amended LTFP.

14.2 Summary of Conclusions – Previous Applications

Table 14.1 Summary of Conclusions - previous applications

Technical Topic	2012 ES (24 Turbine Layout – tip heights 126m and 139m)	2016 ES (24 Turbine Layout – tip heights 126m and 139m)	2017 SI (21 Turbine Layout – tip heights 126m and 139m)	2021 Section 36C Application (21 Turbine layout with 149.9 m tip heights, plus amended tracks)
<p>Forestry</p>	<p>A Technical Appendix for Forestry was provided for the 2012 ES.</p> <p>The total Forestry Study Area extends to 1,123ha and is comprised of private woodlands under single ownership.</p> <p>The species composition of the forests will change slightly as a result of the wind farm forestry proposals. In particular open ground increases by 4% to 32% of the total Forestry Study Area compared with 28% under the without wind farm proposals.</p> <p>Correspondingly the proportion of commercial conifer crops decreases by the same amount to 67% of the total Forestry Study Area.</p> <p>The net area of crops to be felled and left unplanted for the Development is 48.30ha. This equates to approximately 4% of the total Forestry Study Area.</p> <p>The criteria of the Scottish Government’s Control of Woodland Removal Policy requires off-site CP.</p> <p>The Developer is committed to providing appropriate CP of 48.30 ha.</p>	<p>The 2016 ES resubmission included a Forestry chapter</p> <p>The study area and outcome remain the same as the 2012 Technical Appendix.</p> <p>Open ground increases by 4% to 32% of the total Forestry Study Area compared with 28% under the ‘without’ wind farm proposals.</p> <p>Commercial conifer crops decrease by the same amount to 67% of the total Forestry Study Area.</p> <p>The net area of crops to be felled and left unplanted for the Development is 48.30 ha. This equates to approximately 4% of the total Forestry Study Area.</p> <p>All forestry products and residues generated as a consequence of the proposed development will either be sold into timber markets or re-used on site demonstrating compliance with the Waste (Scotland) Regulations 2011.</p>	<p>The 21 turbine layout resulted in amendments to the forestry plans with a net loss of</p> <p>woodland area of 43.1ha which would fall under the Control of Woodland Removal Policy – woodland loss requiring compensatory planting of an equal amount.</p> <p>Limekiln Long Term Forest Plan (LTFP), ref: 16FGS09175, approved by Forestry Commission Scotland (until the 1st of April 2019 predecessor of Scottish Forestry) on the 28th of August 2017.</p> <p>A felling and restocking amendment to the above LTFP, submitted to allow the changes necessary to accommodate the Limekiln Wind Farm development, was approved by SF on the 27th of March 2020.</p>	<p>The variation in woodland loss through felling and not replanting the permanent wind farm infrastructure, including new access tracks, wind turbine bases and the ground required to mitigate bat collision risk through the calculated off-set of trees from turbines is an increase of 13.04 ha net compared with the Amended LTFP for the Consented Project.</p> <p>The CP which will be provided for off-site will at least match this additional 13.04 ha area of woodland loss.</p>

14.3 Introduction

14.3.1 This chapter considers the likely significant effects on the forests and woodland associated with the construction, operation and decommissioning of the Revised Consented Development and measures against the Consented Development. The specific objectives of the chapter are to:

- describe the forest baseline;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects; and
- describe the mitigation measures proposed to address likely significant effects;

14.3.2 The assessment has been carried out by Neil McKay MICFor, Director of Neil McKay Forestry Consultant Limited, a professional member of the Institute of Chartered Foresters (ICF) since 1994 with more than 35 years forestry practice in the public and private sectors throughout Scotland. Neil McKay has ten years' experience producing forestry sections for EIARs for renewable energy and energy transmission infrastructure developments across Scotland. The assessment has been carried out in line with ICF code of conduct and relevant standards and guidance.

14.3.3 This chapter is supported by the following figures:

- Figure 14.1: Forestry study area;
- Figure 14.2: Baseline felling phases
- Figure 14.3: Baseline replanting plan;
- Figure 14.4: Varied felling plan; and
- Figure 14.5: Varied replanting plan.

14.4 Scope of Assessment

14.4.1 This chapter considers effects of the proposed Revised Consented Development on forestry within the Site.

14.4.2 The chapter assesses cumulative effects as arising from the addition of the Revised Consented Development to other cumulative developments, which are the subject of a valid application. Operational, under construction and consented developments are considered as part of the baseline.

14.4.3 The assessment is based on the proposed Revised Consented Development as described in Chapter 4: Development Description (EIAR Volume 1) and the Limekiln Plantation amended LTFP.

14.4.4 The scope of the assessment has been informed by consultation response by Scottish Forestry (SF). SF is the Scottish Government agency responsible for forestry policy, support and regulation. The response is summarised in Table 14.2.

14.4.5 The scope of assessment also refers to the following guidelines/policies:

- Forestry Commission Scotland (2019) Scottish Government's policy on control of woodland removal: implementation guidance February 2019.
- Forestry Commission Scotland (2009) The Scottish Government's Policy on Control of Woodland Removal, Edinburgh.
- Forestry Commission (2017) The UK Forestry Standard: The Government's Approach to Sustainable Forestry, 4th Edition, Forestry Commission, Edinburgh.
- The Scottish Government (2020) Scotland's Forestry Strategy Implementation Plan >>2020-2022
- The Scottish Government (2019) Scotland's Forestry Strategy 2019-2029. Edinburgh.
- The Scottish Government (2011) Scottish Land Use Strategy. Edinburgh.
- The Scottish Government (2014a) Scotland's Third National Planning Framework (NPF3). Edinburgh.
- The Scottish Government (2014b) Scottish Planning Policy. Edinburgh.
- The Highland Council (2018) Highland Forest and Woodland Strategy
- Forestry Commission (2019) Managing forest operations to protect the water environment. Forestry Research Practice Guide. Forestry Commission, Edinburgh.
- SEPA (2013) SEPA Guidance Notes WST-G-027 "Management of Forestry Waste".
- SEPA (2014) LUPS-GU27 "Use of Trees Cleared to Facilitate Development of Afforested Land".
- UKWAS (2017) The UK Woodland Assurance Standard, Fourth Edition, UKWAS, Edinburgh.

Table 14.2 Summarises the Scoping Response by SF

Consultee	Summary Response	Action Taken
<p>Scottish Forestry (SF)</p> <p>Highland and Islands Conservancy</p> <p>April 2021</p>	<p>Proposed development site is located within commercial conifer plantation covered by Limekiln Long Term Forest Plan (LTFP), ref. 16FGS09175, approved by Forestry Commission Scotland on 28 August 2017. A felling and restocking amendment to the above LTFP, submitted to allow the changes to accommodate the Limekiln Wind Farm development, was approved by SF on 27 March 2020.</p> <p>SF agree with the proposed scope of the assessment, as per section 8.15 of the Scoping Report, but requests that following information is provided:</p> <ul style="list-style-type: none"> • clear distinction of felling required to accommodate the proposed development’s infrastructure (ha)- permanent woodland loss; and felling required to allow for construction and operating of the proposed development (ha) - temporary woodland loss; • clear indication of any changes in area of permanent woodland loss (ha) associated with proposed development’s infrastructure (as compared with consented Limekiln Wind Farm proposal), for which compensatory planting will be required, as per Scottish Government’s Policy on Control of Woodland Removal (CoWRP), and a clear commitment on timing of producing compensatory planting plan for area corresponding with area of permanent woodland loss; • information on area and timing of felling required for the construction and operating (e.g. required for wind energy resource) of the proposed development (temporary woodland loss) – the applicant needs to be aware that the felling proposal must meet the minimum requirements for sustainable forest management, as set out in the UK Forestry 	<p>The distinction between permanent felling and temporary felling is summarised in sections 14.10 and 14.11 and in Figure 14.4</p> <p>The permanent woodland loss is summarised in table 14.4 and the CP is defined in 14.15</p> <p>The description of the effects of construction and operation are stated in section 14.10 and 14.11 of this chapter and Figures 14.4 and 14.5</p>

	<p>Standard (UKFS) (2017). That information should be provided in a form of revised felling proposal for areas covered by LTFP, and will require separate approval from SF under the Forestry and Land Management (Scotland) Act 2018 (the Act); and</p> <ul style="list-style-type: none"> information on area and timing of restocking (replanting of areas cleared to allow for construction and operating of the proposed development), with a clear commitment that the restocking is to be carried out before the proposed development is commissioned – again, the restocking proposals need to meet the UKFS requirements and be approved separately by SF under the Forestry and Land Management (Scotland) Act 2018. 	<p>The area and timing for the restocking on site is provided in section 14.11 and figure 14.5</p>
<p>The Highland Council April 2021</p>	<ul style="list-style-type: none"> Any felling required will be taken into account in calculating the carbon balance of the Proposed Development, and consideration will be given to any required replanting under the Scottish Government’s Policy on Control of Woodland Removal.’ The EIAR should provide a baseline survey of the plants (including fungi, lichens and bryophytes) and trees present on the site to determine the presence of any rare or threatened species. The EIAR should indicate areas of woodland / forestry plantation which may be felled to accommodate new development (including the access), including any off-site works / mitigation. Compensatory woodland is a clear expectation of any proposals for felling, and thereby such mitigation needs to be considered within any assessment. 	<p>The carbon balance calculations will be considered in Chapter 8 Climate Change Carbon Balance and Peat Management</p> <p>Replanting under CoWRP is described in section 14.15</p> <p>The baseline survey of plants is covered in Chapter 11 Ecology and trees within this section 14.6 of this chapter.</p> <p>This chapter considers the variation between this application and the Consented Development with CP of new woodland is described as mitigation in section 14.15.</p> <p>All aspects of construction access is</p>

	<ul style="list-style-type: none"> • Consideration must be given to the full area required for the construction access road through trees / woodlands and the impacts on these identified. Any areas of woodland listed in the Ancient Woodland Inventory should be safeguarded from adverse impacts. Further as part of habitat management proposals and to offset the carbon of the construction process, it is considered that areas of woodland should be planted. 	<p>considered and described in section 14.10</p> <p>There are no woodlands listed in the Ancient Woodland Inventory within the site boundary described in section 14.5</p> <p>CP will meet or exceed the area of woodland loss described in section 14.15</p>
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14.4.6 Secondary effects resulting from the varied forestry activities, including effects on habitats and species, ornithology, hydrology and landscape and visual effects, are considered within their respective chapters of this EIA Report and are not included within this Chapter.

14.5 Assessment Methodology

14.5.1 The Criteria for the assessment of effects on forestry are based against the Scottish Government's Control of Woodland Removal Policy (CoWRP) and the 2019 implementation guidance and the standards set in UK Forestry Standards (UKFS).

14.5.2 In particular following the CoWRP implementation guidance for woodland removal with a need for CP;

- Objective – Helping Scotland mitigate and adapt to climate change
- Guidance - Renewable energy – To maximise climate change mitigation and adaptation benefits, integration of Scottish Government's renewable energy and forestry policies should be sought and;

Options that avoid or minimize the need for woodland removal should always be considered first, for example changes to the structure and management of a forest.

14.5.3 UKFS is the reference standard for sustainable forest management in the UK. The standards for the planning, design and sustainable management of forests and woodlands in the UK use an approach based on internationally recognised science and best practice.

14.5.4 The seven elements of sustainable forest management within UKFS are:

- Forests and Biodiversity;
- Forests and Climate Change;
- Forests and Historic Environment;
- Forests and Landscape;
- Forests and People;

- Forests and Soil; and
- Forests and Water.

14.5.5 The UKFS includes guideline points associated with each of these seven elements, which in turn enable an assessment to be made as to whether the relevant requirements of the UKFS have been achieved.

14.6 Baseline Conditions

14.6.1 For the purposes of this Revised Consented Development the baseline is the approved Amended Limekiln Plantation LTFP Ref 16FGS09175, which is integral with the Consented Development. The Forest Plan Amendment was approved by Scottish Forestry on 27th March 2020. The felling area summary of which are in Table 14.3 below.

Table 14.3 baseline felling plan areas

Amended Limekiln Plantation Felling Plan	
Description	Area (ha)
Wind farm Infrastructure	60.15
Phase 1 (2018-2022)	150.40
Phase 2 (2023-2027)	243.50
Phase 3 (2028 -2032)	192.55
Phase 4 (2033 & beyond)	140.70
Retentions/ Continuous Cover	17.71
Open Ground	300.21
SSSI	134.86
Total	1240.08

14.6.2 The Revised Consented Development Forest Study Area (**Figure 14.1**) is located within an area of productive conifer forest plantation under a single ownership. The land management objectives include both commercial forestry and renewable energy.

14.6.3 Limekiln Plantation is predominantly Sitka spruce and Lodgepole pine in mixture established over 1989 and 1990. In total this forest management unit covers 1,240.08 hectares which includes 300.21 hectares of open ground and 134.86 of peatlands designated as SSSI, SAC and SPA.

14.6.4 The forest sits adjacent to the Broubster forest (1,379 hectares) and Achaveilan North forest (116 hectares) within a planted coniferous complex totalling approximately 3,120 hectares.

14.6.5 Limekiln Plantation is a first rotation forest with an existing approved LTFP, which has been amended taking account of the Consented Development. Some felling has commenced for the access tracks within this LTFP amendment. The amended LTFP is

shown as **Figure 14.2** Baseline Felling Plan and the accompanying **Figure 14.3** Baseline Restocking Plan.

- 14.6.6 None of the woodland which would be affected by the Revised Consented Development is classed as Plantation on Ancient Woodland Sites (PAWS) or are included on the Ancient Woodland Inventory (AWI).

14.7 The 'Do Nothing' Scenario

- 14.7.1 In the event of there being no Revised Consented Development the forest felling plan would revert to the current Amended LTFP as Table 14.3 above

14.8 Design Layout Considerations

- 14.8.1 The proposed variation of the Section 36 Consented Development is seeking to:
- increase the blade tip height of 15 turbines of 10.9m and of 6 turbines of 23.9m, so as to make all turbines a maximum blade tip height of 149.9m;
 - relocate some of the internal access tracks (not affecting the site access location from the public road) and the construction compound; and
 - the removal of one borrow pit
- 14.8.2 There are no changes proposed to the wind turbine locations.
- 14.8.3 The revised internal access tracks layout attempts to follow forest rides where possible however this has not been technically feasible in many cases to meet the engineering requirements of the wind farm.
- 14.8.4 Following the current guidance, due to the increased turbine dimensions, the standard mitigation measure for all bat species provides that the stand-off distance from wind turbine blades and trees is increased. . As a precautionary approach the buffer zones are to be left unplanted for the period of operation.

Micrositing

- 14.8.5 There is no variation to micrositing requirements being suggested in the Revised Consented Development.

14.9 Assessment of effects

14.9.1 The key elements of the effects of the revisions to the Consented Development being assessed are:

- CoWRP standards - changes in area to the temporary felling, permanent felling and the consequential total woodland loss, with CP as mitigation; and
- meeting the elements of UKFS.

Construction effects

14.9.2 For the purposes of enabling construction the proposed variation in permanent felling requirements have changed from 60.15 ha to 73.19 ha, an increase of 13.04 ha.

14.9.3 The felling of a 50 m access track corridor, includes both temporary felling which will be replanted to a 20 m permanent access track corridor, has not changed in design specification from the Consented Development. The corridor to be left unplanted is considered as permanent felling and is calculated as such within the Amended LTFP. The overall track layout and length has changed.

14.9.4 While the wind turbine locations remain unchanged, the associated stand-off bat mitigation has increased a horizontal distance of 99.6m, (100m in practice).

14.9.5 Permanent Felling is restricted to the area which will not be replanted due to the requirements of infrastructure and amounts to 73.19 ha an increase of 13.04 ha. The key forestry dimensions are the permanent access track corridor requirement of 20 m and a revised turbine offset radius of 100m. This is based on the stand-off distance from potential tree height given the turbine dimensions in accordance with environmental guidance Bats and Onshore Wind Turbines Survey, Assessment and Mitigation, January 2019.

14.9.6 The temporary felling for the Revised Consented Development is illustrated in the Varied Felling (**Figure 14.4**) and Varied Replanting (**Figure 14.5**) plans as Phase 1. The changes to the areas of felling and replanting during the operational phase is a reduction in felling by 1.48 ha with a subsequent phase 2 reduction of a further 9.06 ha.

14.9.7 Within the Revised Consented Development there is no change in the proposed harvesting plans and will adhere to the SEPA guidance document WST-G-027, "Management of Forestry Waste" (SEPA, 2013) and the further guidance is contained in LUPS-GU27, "Use of Trees Clear Felled to Facilitate Proposed Development on Afforested Land" (SEPA, 2014).

Operational effects

14.9.8 The timing for replanting on site will be as the Consented Development to meet the woodland age separation requirements of UKFS.

14.9.9 The net area effect during the operational phase is a small reduction of felling and matching replanting on site within the planned Phases. The effect of these changes is considered to be not significant. Table 14.4 below compares the first phase of replanting on site.

Table 14.4 First Phase replanting comparison

Replanting on site	Area (ha)
(Phase 1) Amended LTFP	150.40
Varied Replanting plan Revised Consented Development	148.92

Decommissioning effects

- 14.9.10 The proposed period for decommissioning is beyond the final phase within the Amended LTFP and will be considered at the appropriate LTFP revision. This Revised Consented Development has no effect on the proposals to be considered on decommissioning.

Cumulative effects

- 14.9.11 There was no cumulative effect noted within the Consented Development and with the mitigation to be provided in off-site planting there will be no change to the cumulative effect.

Interrelationship between Effects

- 14.9.12 Within this forestry assessment of effects of this Revised Consented Development there is interrelationship between the areas of felling and replanting and maintaining the requirements of UKFS. Overall, the species diversity is materially unchanged against the amended LTFP and the age separation through the felling and replanting phases remains unchanged.

14.10 Mitigation

- 14.10.1 Following the implementation guidance supporting CoWRP, the Revised Consented Development remains in the Annex 4 category of “Woodland removal with a need for compensatory planting.” The calculation of CP is based on net woodland loss through all permanent aspects of wind farm infrastructure including wind farm access roads and the stand off distances required for bat mitigation
- 14.10.2 Accordingly, an additional balance of at least 13.04 ha net will be planted off-site representing the increase in area of permanent woodland lost from the Limekiln Plantation.
- 14.10.3 The applicant has arrangements in place for nearby off-site CP and undertakes to provide a revised CP plan including this increase. The CP plan will meet the requirements of UKFS.

14.11 Summary of Effects

- 14.11.1 The variation in woodland loss through felling and not replanting the permanent wind farm infrastructure, including new access tracks, wind turbine bases and the ground required to mitigate bat collision risk through the calculated off-set of trees from turbines is an increase of 13.04 ha which equates to a difference of 1.6% of the afforested area to be lost compared with the Amended LTFP for the Consented Development.
- 14.11.2 The CP which will be provided for off-site will at least match this area of woodland loss.
- 14.11.3 The areas of temporary felling, or Phase 1 felling and replanting in the varied LTFP, is marginally less than the amended LTFP for the Consented Development and is therefore not significant.
- 14.11.4 Table 14.5 below compares the area figures for the Amended Limekiln Plantation LTFP with the proposed areas within the Revised Consented Development.

Table 14.5 Comparison of areas

	Amended Limekiln Plantation Felling Plan	Revised Consented Development	Variation
Description	Area (ha)	Area (ha)	Area (ha)
Wind farm Infrastructure (Permanent Felling)	60.15	73.19	13.04
Phase 1 (2018-2022) (Temporary Felling)	150.40	148.92	-1.48
Phase 2 (2023-2027)	243.50	234.44	-9.06
Phase 3 (2028 -2032)	192.55	192.44	-0.11
Phase 4 (2033 & beyond)	140.70	138.31	-2.39
Retentions	17.71	17.71	0.00
Open Ground	300.21	300.21	0.00
SSSI	134.86	134.86	0.00
Total	1240.08	1240.08	0.00

- 14.11.5 There were no significant effects assessed for the Consented Development and no significant effects for the revised project.
- 14.11.6 The proposed variation to the Limekiln Plantation forest structure through both temporary felling and permanent felling is considered to be not significant as compared against the Amended LTFP.
- 14.11.7 With off-site planting as mitigation the effect on total woodland area is considered to be not significant.

14.12 References

- The Scottish Government (2016) A Land Use Strategy for Scotland 2016-2021. Edinburgh
- The Scottish Government (2014) Third National Planning Framework (NPF3). Edinburgh
- The Scottish Government (2009) The Scottish Government's Policy on Control of Woodland Removal. Edinburgh
- Scottish Government (2019) Policy on Control of Woodland Removal: implementation guidance. Edinburgh
- Forestry Commission (2017). *UK Forestry Standard (UKFS)*. Edinburgh
- The Scottish Government (2018) Forestry and Land Management (Scotland) Act 2018. Edinburgh
- SEPA (2014) Use of Trees Cleared to Facilitate Development on Afforested Land – Joint Guidance from SEPA, SNH and FCS. Edinburgh
- SEPA (2013) Guidance document WST-G-027, "Management of Forestry Waste". Edinburgh
- The Highland Council (2018) *Highland Forest and Woodland Strategy*. Inverness.
- Scottish Natural Heritage. (2019) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation. Edinburgh.