

Appendix 4.1 Forestry Assessment

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Introduction

- 1.1 This appendix, prepared by DGA Forestry LLP describes the changes to the forestry proposals as a result of the proposed development, compared to the consented development. Forestry is not regarded as a receptor for EIA purposes. Commercial forests are dynamic and continually undergoing change due to normal felling and restocking by the landowner, management and natural events. The effects of forest felling and restocking are assessed in the relevant chapters of this variation application such as **Landscape and Visual (Chapter 7)**, **Non-Avian Ecology (Chapter 8)** and **Hydrology, Hydrogeology and Geology (Chapter 10)**.

Legislation and Policy Context

- 1.2 There have been a number of changes to forestry related legislation and policies since the preparation of the **Original Appendix 4.1 Forestry Assessment** which formed part of the Original ES. These are summarised below.

Forestry and Land Management (Scotland) Act 2018

- 1.3 Until 1 April 2019, the Scottish Ministers owned the National Forest Estate (NFE), provided funding and had responsibility for forestry strategy and policy, but the management of the NFE and delivery of forestry functions had been the responsibility of the Forestry Commissioners.
- 1.4 The Forestry Commission was a cross-border public authority and a UK non-ministerial department with a statutory Board of Commissioners. The Commission was made up of a number of parts, including in Scotland:
- Forest Enterprise Scotland (FES), which carried out forestry operations and managed the NFE on Scottish Ministers' behalf; and
 - Forestry Commission Scotland (FCS), which was responsible for the other forestry functions in Scotland.
- 1.5 When full devolution of forestry to the Scottish Government was completed on 1 April 2019, FCS and FES became two new agencies of the Scottish Government:
- Scottish Forestry (SF) will be responsible for regulatory, policy and support functions; and
 - Forestry and Land Scotland (FLS) will be responsible for the management of the NFE and any other land managed for the purposes of the Forestry and Land Management (Scotland) Act 2018.
- 1.6 With the introduction of the Forestry and Land Management (Scotland) Act 2018 and its associated Regulations, the old regulatory regime of felling control under the Forestry Act 1967 was repealed in Scotland. From 1 April 2019, anyone wishing to fell trees in Scotland requires a Felling Permission issued by SF, unless an exemption applies or another form of felling approval such as a felling licence (including a forest plan) has previously been issued.
- 1.7 Under the new Regulations felling which is authorised by planning permission consent continues to be exempt from the Regulations and does not require a Felling Permission issued by SF.

Scotland's Forestry Strategy 2019 – 2029

1.8 Scotland's Forestry Strategy 2019 – 2029 (SFS), was published in 2019. The strategy provides an overview of contemporary Scottish forestry; presents the Scottish Government's 50-year vision for Scotland's forests and woodlands; and sets out a 10-year framework for action.

- The vision is that “...in 2070, Scotland will have more forests and woodlands, sustainably managed and better integrated with other land uses. These will provide a more resilient, adaptable resource, with greater natural capital value, that supports a strong economy, a thriving environment, and healthy and flourishing communities.”

1.9 It lists a number of objectives summarised below:

- increase the contribution of forests and woodlands to Scotland's sustainable and inclusive economic growth;
- improve the resilience of Scotland's forests and woodlands and increase their contribution to a healthy and high-quality environment; and
- increase the use of Scotland's forest and woodland resources to enable more people to improve their health, well-being and life chances.

1.10 It further describes the priorities as:

- ensuring forests and woodlands are sustainably managed;
- expanding the area of forests and woodlands, recognising wider land-use objectives;
- improving efficiency and productivity, and developing markets;
- increasing the adaptability and resilience of forests and woodlands;
- enhancing the environmental benefits provided by forests and woodlands; and
- engaging more people, communities and businesses in the creation, management and use of forests and woodlands.

1.11 There are ambitious targets included within the strategy for new woodland creation:

- 10 000 ha per year in 2018;
- 12 000 ha per year from 2020/21;
- 14 000 ha per year from 2022/23; and
- 15 000 ha per year from 2024/25.

1.12 The stated objective is to increase Scotland's woodland cover from the current 18.5% to 21% by 2032.

The Land Use Strategy for Scotland 2016 – 2021

1.13 The Land Use Strategy for Scotland 2016 - 2021 sets out a strategic framework for getting the best out of Scotland's land resources. It looks at the potential of the land and the ways in which it is used, both now and in the future. Principles of sustainable land use are central to its vision for the future. With specific reference to forestry, the strategy acknowledges forestry's role as a key multipurpose land use and the role it has to play in terms of delivering the Vision, Objectives and Principles of the Land Use Strategy in rural and urban Scotland. It comments that the sustainable management of Scotland's woodlands and forests makes an important

contribution to Scotland's economy; it delivers health and wellbeing benefits for people and a range of other critical ecosystem services including climate change mitigation and adaptation.

- 1.14 To increase its role in addressing the challenge Scotland faces from climate change, a target of 100,000 ha of new woodland creation between 2012-2022 has been established. Within the UK, Scotland is leading the way in terms of areas of new woodland creation, however it is recognised that more needs to be done to achieve the planting target. To support this, Scotland's Forestry Strategy 2019 – 2029 emphasises the continued protection of Scotland's forest resource.

Forestry Study Area and Site Description

- 1.15 There have been no changes to the Forestry Study Area (FSA) or the general site description.

Forest Plans

- 1.16 A new Land Management Plan was approved for Pencloe in 2018. This revised the baseline felling and restocking proposals for the woodlands as shown in **Variation Figures 4.1.1 and 4.1.2**.

Methodology - Development of the Wind Farm Forest Plan

- 1.17 There have been no changes to the methodology used in the development of the wind farm forest plan. The changes to the turbine layout and associated infrastructure are described in **Variation Chapter 4: Project Description**.

Baseline Conditions

Age Class Structure and Species Composition

- 1.18 There have been no changes to the baseline age class structure or species composition. The extent of windblow within the crops has increased since the original application in March 2015.

Baseline Felling Plan

- 1.19 The revised baseline felling plan is shown in **Variation Figure 4.1.1** and summarised in **Table 4.1.1** below. Please note there may be minor discrepancies in the totals within tables contained in this Technical Appendix. This is due to rounding of the individual values for the different parameters in the database.

Table 4.1.1: Baseline Felling Plan

Baseline Felling Plan		
Felling Phase	Area (ha)	Area (%)
No Felling	154.8	18.7%
Phase 1: 2019 - 2023	128.9	15.6%
Phase 2: 2024 - 2028	157.1	19.0%
Phase 3: 2029 - 2033	144.5	17.5%
Phase 4: 2034 - 2038	0.0	0.0%
Phase 5: 2039 - 2043	178.5	21.6%
Phase 6: 2044 - 2048	63.3	7.7%
Outside plan period	0.0	0.0%
Long term retentions	0.0	0.0%
Natural reserves	0.0	0.0%
Totals	827.1	100%

- 1.20 Despite the extent of windblow within the crops there is a reduction in felling during the first phase of the felling programme compared with the previous baseline plan.

Baseline Restocking Plan

- 1.21 The revised baseline restocking plan is shown in **Variation Figure 4.1.2** and summarised in **Table 4.1.2** below.

Table 4.1.2: Baseline Restocking Plan

Baseline Restock Species Composition			
Species	Abbreviation	Area (ha)	Area (%)
Lodgepole pine	LP	11.6	1.4%
Lodgepole pine / Sitka spruce mixture	LP/SS	112.8	13.6%
Mixed broadleaves	MB	34.3	4.1%
Norway spruce	NS	12.9	1.6%
Norway spruce / Scots pine mixture	NS/SP	11.8	1.4%
Open ground	OG	150.2	18.2%
Scots pine / mixed broadleaves	SP/MB	24.5	3.0%
Sitka spruce	SS	469.1	56.7%
Total		827.1	100.0%

Wind Farm Forest Plan

- 1.22 The effect of the proposed development on the structure of the woodlands has been compared against the new baseline felling and restocking plans. This has concentrated on amendments to the felling plan and the restocking design required to accommodate the proposed development.

Wind Farm Felling Plan

- 1.23 The wind farm felling plan is shown on **Variation Figure 4.1.3** and summarised in **Table 4.1.3** below.

Table 4.1.3: Wind Farm Felling Plan

Wind Farm Felling Plan		
Felling Phase	Area (ha)	Area (%)
No Felling	154.8	18.7%
Phase 1: 2019 - 2023	305.6	36.9%
Phase 2: 2024 - 2028	96.9	11.7%
Phase 3: 2029 - 2033	141.4	17.1%
Phase 4: 2034 - 2038	15.8	1.9%
Phase 5: 2039 - 2043	75.3	9.1%
Phase 6: 2044 - 2048	37.4	4.5%
Outside plan period	0.0	0.0%
Long term retentions	0.0	0.0%
Natural reserves	0.0	0.0%
Totals	827.1	100%

- 1.24 The baseline and wind farm felling data are compared in **Table 4.1.4** below.

Table 4.1.4: Comparison of Baseline and Wind Farm Felling Plans

Felling Phase	Felling Plan Comparison			
	Baseline	Wind Farm	Variance	
	Area (ha)	Area (ha)	Area (ha)	Area (%)
No Felling	154.8	154.8	0.0	0.0%
Phase 1: 2019 - 2023	128.9	305.6	176.7	21.4%
Phase 2: 2024 - 2028	157.1	96.9	-60.2	-7.3%
Phase 3: 2029 - 2033	144.5	141.4	-3.1	-0.4%
Phase 4: 2034 - 2038	0.0	15.8	15.8	1.9%
Phase 5: 2039 - 2043	178.5	75.3	-103.3	-12.5%

Felling Plan Comparison				
Felling Phase	Baseline	Wind Farm	Variance	
	Area (ha)	Area (ha)	Area (ha)	Area (%)
Phase 6: 2044 - 2048	63.3	37.4	-25.9	-3.1%
Outside plan period	0.0	0.0	0.0	0.0%
Long term retentions	0.0	0.0	0.0	0.0%
Natural reserves	0.0	0.0	0.0	0.0%
Totals	827.1	827.1	0.0	0.0%

- 1.25 There is an increase in the felling during Phase 1: 2019 – 2023 due to felling in advance for the construction of the proposed development. This is balanced out by reduced felling in later phases, particularly Phase 2: 2024 – 2028 and Phase 5: 2039 – 2043.
- 1.26 While this is a large increase over the baseline felling plan, this is due to the revised baseline plan and not as a result of the variation application. Felling in Phase 1 during the construction period of the proposed development has increased by only 6.3 ha compared with the Original ES wind farm felling plan.

Wind Farm Restocking Plan

- 1.27 The baseline restocking plan has been amended to integrate the infrastructure of the proposed development into the forest design and to take account of the site conditions. The wind farm restocking plan is based on the same design principles as the original application with low density mixed woodland fringe on the tops of the hills and around the proposed development infrastructure.
- 1.28 The wind farm restocking plan is shown in **Variation Figure 4.1.4** and summarised in **Table 4.1.5**. The data labelled “Wind Farm Open Ground” (W/F OG) refers to crops which will be felled for the construction and operation of the proposed development but will not be replanted to accommodate proposed development infrastructure.

Table 4.1.5: Wind Farm Restocking Plan

Wind Farm Restock Species Composition			
Species	Abbreviation	Area (ha)	Area (%)
Lodgepole pine	LP	0.0	0.0%
Lodgepole pine / Sitka spruce mixture	LP/SS	63.8	7.7%
Mixed broadleaves	MB	31.2	3.8%
Norway spruce	NS	12.1	1.5%
Norway spruce / Scots pine mixture	NS/SP	11.7	1.4%
Open ground	OG	129.0	15.6%
Scots pine / mixed broadleaves	SP/MB	27.4	3.3%

Wind Farm Restock Species Composition			
Species	Abbreviation	Area (ha)	Area (%)
Sitka spruce	SS	381.0	46.1%
Wind Farm open ground	W/F OG	18.9	2.3%
Woodland fringe	WF	152.0	18.4%
Total		827.1	100.0%

1.29 The baseline and wind farm restocking data have been analysed to assess the effect construction of the proposed development will have on the species composition of the forest. These data are presented in **Table 4.1.6** below.

Table 4.1.6: Comparison of Baseline and Wind Farm Restocking Plans

Restocking Species Plan Comparison				
Species	Baseline Restock Species	Wind Farm Restock Species	Variance	
	Area (ha)	Area (ha)	Area (ha)	Area (%)
Lodgepole pine	11.6	0.0	-11.6	-1.41%
Lodgepole pine /Sitka spruce mixture	112.8	63.8	-49.0	-5.93%
Mixed broadleaves	34.3	31.2	-3.1	-0.37%
Norway spruce	12.9	12.1	-0.8	-0.09%
Norway spruce / Scots pine mixture	11.8	11.7	0.0	0.00%
Open ground	150.2	129.0	-21.2	-2.57%
Scots pine / mixed broadleaves	24.5	27.4	2.9	0.34%
Sitka spruce	469.1	381.0	-88.0	-10.64%
Wind Farm open ground	0.0	18.9	18.9	2.29%
Woodland fringe	0.0	152.0	152.0	18.38%
Total	827.1	827.1	0	0.00%

1.30 There are a number of changes to the species composition as a result of the proposed development as summarised below:

- The area of conifer woodland decreases by 149.5 ha. This is principally Sitka spruce or Lodgepole pine / Sitka spruce mixtures.
- The area of broadleaf woodland and mixed woodlands increases by 158.5 ha compared with the baseline.
- The area of open ground decreases by 21.2 ha.

- 1.31 The change in area of stocked woodland due to the proposed development is shown in **Table 4.1.7**. Stocked woodland is land containing woodland of any type, whether that is commercial conifer plantations or broadleaf woodland. Unstocked woodland consists of all open ground within the FSA which includes unplanted land, either due to ground conditions or constraints; management boundaries; or designed open ground as part of the forest design.

Table 4.1.7: Stocked Woodland Assessment

Land Use	Baseline Restock Species	Wind Farm Restock Species	Variance
Stocked	676.9	679.2	2.3
Unstocked	150.2	147.9	-2.3
Totals	827.1	827.1	0.0

Requirement for Compensatory Planting

- 1.32 As a result of the construction of the proposed development, the area of stocked woodland in the wind farm restocking species plan increases by 2.3 ha compared with the baseline restocking species plan. There would therefore be no requirement for compensatory planting.

Forestry Management Practices

- 1.33 There are no changes to the proposed forestry management practices. The Standards and Guidelines remain the same except where replaced by newer editions or updates.

Summary

- 1.34 There is a 6.0 ha increase in the area of felling required for the construction of the proposed development compared with the consented development. However, the area of stocked woodland has increased by 2.3 ha compared with the baseline restocking plan. There is therefore no requirement for off-site compensatory planting.