Document history

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Issue	Date	Revision Details
A	01/11/2024	Initial Draft
B	22/11/2024	Update
C	10/12/2024	Further Update
D	14/04/2025	Final

Chapter 12.

Forestry Assessment

Contents

Glossary

Term	Definition
Environmental Impact Assessment	Environmental Impact Assessment (EIA) is a means of carrying out, in a systematic way, an assessment of the likely significant environmental effects from a development.
Environmental Impact Assessment Regulations	The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations)
Environmental Impact Assessment Report	A document reporting the findings of the EIA and produced in accordance with the EIA Regulations
Proposed Development	The South Kyle II Wind Farm development
Proposed Development Area	The area within the “Site boundary” as illustrated on Figure 1.1 which the Proposed Development will be located

List of Abbreviations

Abbreviation	Description
AAFWS	Ayrshire and Arran Forestry and Woodland Strategy
CEMP	Construction Environmental Management Plan
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
FCS	Forestry Commission Scotland
FES	Forest Enterprise Scotland
FLS	Forestry and Land Scotland
FSA	Forestry Study Area
ha	Hectare
LTR	Long Term Retentions
NFE	National Forest Estate
NPF4	National Planning Framework 4
NR	Natural Reserves
SEPA	Scottish Environment Protection Agency
SF	Scottish Forestry
SFS	Scotland's Forestry Strategy 2019 – 2029
SSSI	Sites of Special Scientific Interest
UKFS	UK 'Forestry Standard'
UKWAS	UK 'Woodland Assurance Standard 4th Edition'

12.1. Introduction

12.1.1. This chapter considers the potential implications of the Proposed Development on the woodland resource within the site boundary and its long-term management. This chapter was prepared by DGA Forestry LLP. The forestry assessment has identified that areas of forestry would require to be felled for the construction and operation of the Proposed Development.

12.1.2. Forestry is not regarded as a receptor for Environmental Impact Assessment (EIA) purposes. Commercial forests are a dynamic environment and their structure continually undergoes change due to the following:

- normal felling and restocking by the landowner;
- natural events, such as storm damage, pests or diseases; and
- external factors, such as a wind farms or other development.

12.1.3. This chapter therefore describes:

- the plans as a result of the proposed development for felling, restocking and forest management practices;
- the process by which these were derived; and
- the changes to the physical structure of the forestry within the site boundary.

12.1.4. This chapter discusses the issue of forestry waste arising from the Proposed Development.

12.1.5. The forestry proposals are interrelated with environmental effects, which are assessed separately in other chapters of the Environmental Impact Assessment Report (EIAR). This chapter should therefore be read in conjunction with other EIAR chapters, for example: Chapter 2: Site Selection and Design Evolution; Chapter 5: Landscape and Visual; Chapter 6: Ecology and Biodiversity; Chapter 7 Ornithology; and Chapter 8: Hydrology, Geology and Hydrogeology as they are interrelated to the proposed changes in the forest structure.

12.1.6. The responsibility for the management of the remainder of the forest out with the site boundary lies with the landowners and therefore the wider felling operations, restocking, and aftercare operations within these areas do not form part of the Proposed Development for which consent is sought.

12.1.7. The forestry proposals have been developed to:

- identify areas of forest to be removed for the construction and operation of the Proposed Development;
- identify those areas which may or may not be replanted as part of the Proposed Development; and
- propose management practices for the forestry works.

12.1.8. In general, throughout this chapter data labelled 'baseline' refers to the current crop composition and any existing plans without any modification as a result of the Proposed Development. Data labelled 'Proposed Development' refers to the forestry plans incorporating the Proposed Development infrastructure.

12.1.9. This chapter is structured as follows:

- Planning, Policy, Legislation and Guidance;
- Consultation;
- Forestry Study Area;
- Forest Plans;
- Development of the Wind Farm Forest Plan;
- Baseline;
- Proposed Development Forest Plan;

- Requirement for Compensatory Planting;
- Forestry Waste;
- Forestry Management Practices;
- Conclusion,
- Statement of Competence; and
- Non-Technical Summary.

12.2. Planning, Policy, Legislation and Guidance

12.2.1. Relevant overarching planning policies for the Proposed Development are detailed within Chapter 4: Climate Change, Legislative and Policy Context. A desktop study was undertaken drawing upon published National, Regional and local level publications, assessments and guidance to establish the broad planning and forestry context within which the Proposed Development is located.

12.2.2. Forestry related policies and documents listed below have been considered within the forestry assessment. The following section provides an outline of those planning and other policies which are relevant to the proposed development, and in particular to forestry.

Forestry and Land Management (Scotland) Act 2018

12.2.3. Until 1st 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.

12.2.4. The Forestry Commission was a cross-border public authority and a United Kingdom 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.

12.2.5. When full devolution of forestry to the Scottish Government was completed on 1st April 2019, FCS and FES became two new agencies of the Scottish Government:

- Scottish Forestry (SF), responsible for regulatory, policy and support functions; and
- Forestry and Land Scotland (FLS), responsible for the management of the NFE and any other land managed for the purposes of the Forestry and Land Management (Scotland) Act 2018.

12.2.6. With the coming into force of the Forestry and Land Management (Scotland) Act 2018[1] and its associated Regulations on 1st April 2019, the old regulatory regime of felling control under the Forestry Act 1967[2] was repealed in Scotland. From 1st 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.

12.2.7. Under the new Forestry (Exemptions) (Scotland) Regulations 2019 felling which is required for the purpose of carrying out development authorised by planning permission (including deemed planning permission) continues to be exempt and does not require a Felling Permission issued by SF.

Scotland's Forestry Strategy 2019-2029

12.2.8. Scotland's Forestry Strategy 2019 – 2029 (SFS)[3], was published in 2019 after a consultation period. 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.

12.2.9. 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."

12.2.10. 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.

12.2.11. 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.

12.2.12. There are ambitious targets included within the SFS for new woodland creation:

- 10,000 hectares (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.

12.2.13. The stated objective is to increase Scotland's woodland cover from 18.5% in 2018 to 21% by 2032.

Scotland's Third Land Use Strategy 2021-2026

12.2.14. Scotland's Third Land Use Strategy 2021 – 2026[4] stresses the importance of forestry in the balancing the demands on land use in Scotland and its transition to a net zero economy. It states: "…there will need to be a significant land use change from current uses to forestry and peatland restoration." This will involve rapidly increasing the

[1] The Scottish Government (2018). The Forestry and Land Management (Scotland) Act 2018, Edinburgh. Available at http://www.legislation.gov.uk/asp/2018/8/contents/enacted [accessed on 15.04.24].

[2] UK Government (1967). Forestry Act 1967 (as amended). HMSO, London. Available at https://www.legislation.gov.uk/ukpga/1967/10/contents [accessed on 15.04.24].

[3] The Scottish Government (2019). Scotland's Forestry Strategy 2019 -2029, Edinburgh.

[4] Scottish Government (2021): Scotland's Third Land Use Strategy 2021 - 2026 https://www.gov.scot/publications/scotlands-third-land-use-strategy-2021-2026-getting-best-land/ [accessed 10/03/2022).

pace of woodland and forest creation. To support this, Scotland's Forestry Strategy 2019 – 2029 emphasises the continued protection of Scotland's forest resource.

National Planning Framework 4

12.2.15. National Planning Framework 4 (NPF4)[5] was adopted by the Scottish Ministers on 13 February 2023. NPF4 states (Policy 6 c)) that development proposals involving woodland removal will only be supported where they will achieve significant and clearly defined additional public benefits in accordance with relevant Scottish Government policy on woodland removal and, where woodland is removed, compensatory planting will most likely be expected to be delivered.

12.2.16. It further states that development proposals on sites which include an area of existing woodland or land identified in the relevant Forestry and Woodland Strategy as being suitable for woodland creation will only be supported where the enhancement and improvement of woodlands and the planting of new trees on the site (in accordance with the Forestry and Woodland Strategy) are integrated into the design.

Right Tree in the Right Place

12.2.17. 'Right Tree in the Right Place - Planning for Forestry & Woodlands' 2010[6] sets out detailed guidance to planning authorities when considering development proposals involving forestry and woodland loss. It advises that planning authorities should:

- assess the current and likely future public benefits (social, economic and environmental) deriving from the existing woodland;
- determine whether the development should be modified or the woodland redesigned to avoid or reduce woodland loss (e.g. by accommodating new development within 'open space' within woodlands);
- where woodland loss cannot be avoided, assess the public benefit of a proposed development to see if it would justify the loss of the woodland;
- consider whether any loss of woodland should be mitigated by compensatory planting; and
- consider whether any felling consent needs to specify the timing of forestry operations to avoid disturbance to wildlife present on the proposed development.

12.2.18. If an authority decides that a development proposal involving woodland loss should receive planning permission, the guidance advises that it should specify the precise area of felling permitted and ensure that planning conditions and/or agreements would ensure the provision of any compensatory planting which is required.

Control of Woodland Removal Policy

12.2.19. In parallel with the SFS and other national policies on woodland expansion, there is a strong presumption against permanent deforestation unless it addresses other environmental concerns. In Scotland, such deforestation is dealt with under the Scottish Government's 'Control of Woodland Removal Policy' 2009[7]. The guidance relating to the implementation of the policy was revised and updated in 2019[8].

12.2.20. The purpose of the policy is to provide direction for decisions on woodland removal in Scotland. The policy document lays out the background to the policy, places it into the current policy and regulatory context, and discusses the principles, criteria and process for managing the policy implementation. The following paragraphs summarise the policy relevant to the Proposed Development.

12.2.21. The principal aims of the policy include:

- to provide a strategic framework for appropriate woodland removal; and
- to support climate change mitigation and adaptation in Scotland.

12.2.22. The guiding principles behind the policy include:

- there is a strong presumption in favour of protecting Scotland's woodland resources; and
- woodland removal should be allowed only where it would achieve significant and clearly defined additional public benefits. In appropriate cases, a proposal for compensatory planting may form part of this balance.

12.2.23. Woodland removal, without a requirement for compensatory planting, is most likely to be appropriate where it would contribute significantly to:

- enhancing priority habitats and their connectivity;
- enhancing populations of priority species;
- enhancing nationally important landscapes, designated historic environments and geological Sites of Special Scientific Interest (SSSI);
- improving conservation of water or soil resources; or
- public safety.

12.2.24. Woodland removal, with compensatory planting, is most likely to be appropriate where it would contribute significantly to:

- helping Scotland mitigate and adapt to climate change;
- enhancing sustainable economic growth or rural/community development;
- supporting Scotland as a tourist destination;
- encouraging recreational activities and public enjoyment of the outdoor environment;
- reducing natural threats to forests or other land; or
- increasing the social, economic or environmental quality of Scotland's woodland cover.

12.2.25. The consequences of the policy are stated as:

- minimising the inappropriate loss of woodland cover in Scotland;
- enabling appropriate woodland removal to proceed with no net loss of woodland -related public benefits other than in those circumstances detailed in the policy; and
- facilitating achievement of the Scottish Government's woodland expansion ambition in a way that integrates with other policy drivers (such as increasing sustainable economic growth, tackling climate change, rural/community development, renewable energy and biodiversity objectives).

12.2.26. Addressing the policy requirements can be met through changes to forest design, increasing designed open space, changing the woodland type, changing the management intensity, or completing off site compensation planting.

[5] The Scottish Government (2022). National Planning Framework 4 Revised Draft. Available at https://www.gov.scot/publications/national-planning-framework-4-revised-draft/ [accessed 17/02/2023].

[6] Forestry Commission Scotland (2010): Right Tree in the Right Place - Planning for Forestry & Woodlands. Forestry Commission, Edinburgh.

[7] Forestry Commission Scotland (2009). The Scottish Government's Policy on Control of Woodland Removal. Edinburgh.

[8] Forestry Commission Scotland (2019): Scottish Government's policy on control of woodland removal: implementation guidance. Available at https://forestry.gov.scot/publications/349-scottish-government-s-policy-on-control-of-woodland-removal-implementation-guidance.

Woodland Strategy

12.2.27. The approved Ayrshire and Arran Forestry and Woodland Strategy (AAFWS) was launched in October 2014 (Ayrshire Joint Planning Unit, 2014[9]). It supports national policies whilst integrating with other Ayrshire Councils' strategies and plans. The AAFWS is intended to guide woodland management and expansion in Ayrshire and Arran, providing a policy and a spatial framework to maximise the contribution of woodland and forestry to the people, environment and economy of the region.

12.2.28. The AAFWS forms Non-Statutory Guidance to the East Ayrshire Local Development Plan 2 (2024[10]). It is therefore a material consideration in planning decisions involving woodland. The AAFWS supports Scottish Ministers' desire to see an expansion in woodland cover, delivering multiple benefits across the country.

12.2.29. In parallel with national policies, there is a presumption against woodland loss in the AAFWS. It is recognised that there has been pressure on woodland cover in the region due to development proposals, principally wind farms. Under the theme of 'Climate Change' the AAFWS states that one of the key priorities is to ensure that reductions in woodland cover resulting from restructuring and development are more than compensated by new woodland creation elsewhere within Ayrshire and Arran. This in turn leads to a number of Priority Key Actions including:

- CC1: implement the woodland removal policy, with compensation planting required within Ayrshire and Arran; and
- CC5: facilitate renewable energy development.

12.2.30. The AAFWS also recognises the importance of peatlands in the region many of which were planted with conifer forests. This results in a further Priority Key Action:

- CC7: encourage the restoration of peatlands during forest redesign and restructuring in locations with suitable hydrological and soil and vegetation conditions.

12.2.31. The AAFWS sets out regional priorities for woodland expansion and management by broad landscape zones. The Proposed Varied Development falls within the Ayrshire Uplands zone. Within this zone one of the key issues identified is the pressure for wind farm development and the importance of securing appropriate compensatory planting where net woodland removal takes place. The priorities in existing woodlands include:

- the management, expansion and linking of existing native and mixed woodlands within the river valleys; and
- ensuring any reductions in the extent of woodland resulting from restructuring or wind energy development are compensated within Ayrshire where required by the Scottish Government Policy on the Control of Woodland Removal.

12.2.32. As the Ayrshire Uplands zone already holds such a significant proportion of the region's woodlands, it is considered that ensuring an appropriate balance of land uses, particularly in relation to wind energy proposals, will be a key consideration. It is felt likely that much of the woodland expansion into this zone will largely be compensating for losses elsewhere due to wind energy proposals and restructuring of existing forests.

12.3. Forestry Study Area

12.3.1. The Forestry Study Area (FSA), as shown on Figure 12.1, extends to approximately 2,209.6 ha and is comprised of part of the South Kyle Land Management Unit which covers 2,619 ha in total. The woodlands are part of the National Forest Estate and managed by Forest and Land Scotland. These woodlands were previously covered by a Forest Design Plan, which expired in 2022. A new Land Management Plan has been prepared and submitted to Scottish Forestry for approval. The data from the new Land Management Plan has been used in this assessment.

12.3.2. The forests contain a range of woodland types and ages due to the forest plan restructuring programme. The crops are comprised largely of commercial conifers with areas of both mixed conifers and mixed broadleaves and open ground. Further information on the composition of the woodlands in the FSA is provided in the baseline description below.

12.4. Forest Plan

12.4.1. One of the original key objectives of the Forestry Commission was forest expansion, in both state and private forests, to produce a strategic reserve of timber, and consequently, a limited range of species was planted. More recently, greater emphasis has been placed on developing multi-purpose forests, which require a restructuring of age and species in existing woodlands. Restructuring is achieved through the forest planning process.

12.4.2. A Forest Plan relates to individual forests or groups of woodlands. It describes the woodlands, places them in context with the surrounding area, and identifies issues that are relevant to the woodland or forest. Forest Plans describe how the long-term strategy would meet the management objectives of the owner, the criteria of the UK 'Forestry Standard' (UKFS)[11] and the UK 'Woodland Assurance Standard 4th Edition' (UKWAS)[12], under which the woodlands would be managed if certificated.

12.4.3. The development of a Forest Plan involves a scoping exercise whereby the views of Statutory Consultees, neighbours and stakeholders are sought, resulting in an agreed Scoping Report. The results of the scoping exercise are incorporated into the Forest Plan. A Forest Plan covers social and environment aspects, such as conservation, archaeology, landscape and the local community, in addition to forestry and silvicultural considerations.

12.4.4. Restructuring of age class and species are important factors in this process to ensure proposals meet the current standards. A Wind Farm Forest Plan is prepared along the same principles with the relevant information being provided by other members of the project team. A baseline Forest Plan (without wind farm) will typically contain felling and restocking proposals covering a 10 year period in detail, with outline proposals for the remainder of the forest.

12.4.5. Restructuring presents forest managers with many challenges and opportunities, particularly in relation to the management of potential catastrophic windblow due to storm damage. The forest planning process allows forest managers to review and revise proposals in a structured way to take account of such external factors. The inclusion of a wind farm within the forest is an example of one such external factor.

12.4.6. The current guidelines require diversification of species and woodland types as part of the forest planning process, specifically an increase in the proportion of broadleaf woodland, other conifers, and open ground. The incorporation of the Proposed Development into the forest would result in further restructuring of the forest.

[9] East Ayrshire Council (2014) East Ayrshire Local Development Plan, Non-statutory Planning Guidance: Ayrshire and Arran Forestry and Woodland Strategy. Available at: https://www.east-ayrshire.gov.uk/Resources/PDF/A/AyrshireandArranForestWoodlandStrategy2014.pdf (accessed on 30/07/2024).

[10] East Ayrshire Council (2024) Local Development Plan 2. Available at: https://www.east-ayrshire.gov.uk/PlanningAndTheEnvironment/development-plans-and-policies/ldp2/ldp2-information.aspx (accessed 30/07/2024).

[11] Forestry Commission (2017). The UK Forestry Standard: The Government's Approach to Sustainable Forestry, Forestry Commission, Edinburgh.

[12] UKWAS (2018). The UK Woodland Assurance Standard Fourth Edition, UKWAS, Edinburgh.

12.5. Development of a Wind Farm Forest Plan

Introduction

12.5.1. This Section describes the process by which a typical Wind Farm Forest Plan is prepared. Existing crop information is collated from the landowner including current forestry information on species, planting year and felling and restocking plans where available. This is followed by field surveys, in this case undertaken in 2023, and further desk-based assessment as necessary.

12.5.2. Details of wind turbine locations, new tracks, storage compounds, borrow pits, substation compound and other infrastructure are provided by other disciplines within the project team. This data would then be amalgamated with the forestry data to construct the forestry proposals for the Proposed Development.

12.5.3. The location of wind turbines and infrastructure is heavily influenced by environmental constraints and technical considerations (e.g. sensitive habitats, wind resource capture, ground conditions, etc). The final location of wind turbines and infrastructure takes the various site constraints into consideration. Land management requirements associated with the construction of the Proposed Development would also be incorporated into the forestry proposals, where appropriate.

12.5.4. Within forests and woodlands, areas of crop may require to be felled to accommodate the construction and operation of the Proposed Development. The felling programme for the Proposed Development would largely be driven by technical constraints relating to both forestry and development.

12.5.5. In this case, taking into account the ecological constraints as referred to in Chapter 6: Ecology and Biodiversity, a 3.1 ha (100 metre (m) radius) 'keyhole' was adopted around wind turbines. These keyholes are areas that require to be felled for construction, operation and environmental mitigation.

12.5.6. A 10 m buffer has been applied around each other item of temporary and permanent infrastructure, in addition to the area required for the infrastructure. An indicative 30 m corridor has been applied to all new access tracks and upgraded existing tracks to be used for wind turbine delivery and construction purposes. This would be reviewed at the detailed design stage post consent and prior to construction.

Wind Farm Felling Plan

12.5.7. Felling required for a Proposed Development can be divided into two categories.

- firstly, that required during the construction phase of the Proposed Development, which for the purposes of this assessment, has been anticipated as commencing in 2028; and
- secondly, felling required during the operational period of the Proposed Development. In this case there is no felling required outwith that required for the construction phase.

12.5.8. The crops were assessed to identify those areas which would require to be felled for a number of reasons as described above. Due to the crop growth rates and current crop height, it has been assessed that the infrastructure within woodland areas would largely require keyholing into younger crops and in a few small areas of mature crops, clear felling of entire coupes back to either a wind firm edge or management boundaries. Where entire coupes are to be felled, the infrastructure would be incorporated into the Wind Farm Species Restocking Plan as described below.

12.5.9. Additional minor felling would be required for forest management purposes, for example, to reduce the risk of subsequent windblow; to reduce coupe isolation and fragmentation; and to ensure access for future forest operations.

12.5.10. The resultant Wind Farm Felling Plan shows which woodlands within the FSA would be felled as a result of the Proposed Development and when this felling would take place.

Wind Farm Species Restocking Plan

12.5.11. A Wind Farm Species Restocking Plan shows which woodlands would be restocked and with which species. The majority of the areas to be felled for the Proposed Development would be restocked except for the areas detailed below:

- land required for permanent infrastructure subject to the buffer zones described above; and
- land to be left unplanted for forest management or forest design purposes.

12.5.12. It has been assumed that, where possible and allowed by FLS, some temporary infrastructure such as edges of re-profiled borrow pits would be re-instated and available for restocking post construction. To ensure that the forestry establishes successfully, the soil should be restored to a depth of 1 m.

12.5.13. In preparing the Wind Farm Species Restocking Plan, a number of points would be considered as detailed below:

- fragmentation of coupes to be minimised as much as possible;
- coupe shapes would be modified to ensure that access for future forestry operations, principally harvesting, is maintained; and
- coupe shapes and edges would be modified to follow good practice.

12.5.14. Species composition was considered taking into account the Proposed Development operational requirements such as separation distances between wind turbines and forest edges, landowner objectives and forestry policies.

12.5.15. The wind farm forestry felling and restocking proposals have been assessed by each of the separate environmental disciplines / consultants as part of the EIA process where required, and the effects are reported in individual chapters of this EIAR and their supporting appendices.

12.6. Baseline

Baseline Conditions

12.6.1. The FSA consists of conifer forestry located to the east of Dalmellington in the south west of Scotland.

12.6.2. An initial desk-based assessment identified there are no woodlands within the proposed development area identified in the Ancient Woodland Inventory Scotland (Scottish Natural Heritage, 2010)[13], however there are small areas recorded as native woodland in the Native Woodland Survey of Scotland (Forestry Commission Scotland, 2013)[14],. No physical infrastructure is located within these areas, and they are unaffected by the Proposed Development.

Baseline Planting Year/Age Class Structure

12.6.3. Many woodlands established in the mid to late 1900's, were planted in large contiguous blocks, often over a limited number of years and with a limited range of species. Such woodlands develop poor structural diversity, especially

[13] Scottish Natural Heritage. (2010) Ancient Woodland Inventory Scotland [Online] Available from - https://map.environment.gov.scot/sewebmap/ [Accessed:10/10/24].

[14] Forestry Commission Scotland. (2013) The Native Woodland survey of Scotland [Online] Available from - https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18 [Accessed: 04/10/24].

on upland sites. Restructuring the age class and species of such forests is desirable and would yield both forest management and environmental benefits.

12.6.4. The woodlands within the FSA are currently undergoing restructuring by felling and restocking and as a result the structural diversity of the woodlands is relatively diverse. Their age class is detailed below in Table 12.1 'Baseline Age Class Composition' and shown in Figure 12.2 (EIAR Volume 2a).

12.6.5. Please note there may be minor discrepancies in the totals within the tables contained in this chapter. This is due to rounding of the individual values for the different parameters in the database.

Table 12.1: Baseline Age Class Composition

Age	Area (ha)	Area (%)
0	846.2	38.3
<10 years	287.9	13.0
11-20 years	195.6	8.8
21-30 years	2.0	0.1
31-40 years	541.9	24.5
51-60 years	334.7	15.1
90+ years	1.3	0.1
Total	**2,209.6**	**100.0**

Baseline Species Composition

12.6.6. The current baseline species composition of the woodlands within the FSA is shown in Figure 12.3 (EIAR Volume 2a) and illustrated in Table 12.2 below.

Table 12.2: Baseline Species Composition

Species	Area (ha)	Area (%)
Sitka spruce	1,043.4	47.2
Other conifer	198.1	9.0
Mixed broadleaves	122.0	5.5
Open ground	846.2	38.3
Total	**2,209.6**	**100.0**

12.6.7. The main species are commercial conifers, principally Sitka spruce, which in pure or mixed stands accounts for approximately 47.2% of the total FSA. Other conifers account for 9% of the FSA and broadleaf woodland 5.5%. Open ground accounts for approximately 38.3%.

12.6.8. The species composition reflects the practice and guidance which prevailed at the time the woodlands were established. Restructuring as part of a long-term forest plan would aim to introduce an increased proportion of broadleaves and other conifers into the woodland composition.

Baseline Felling Plan

12.6.9. The baseline felling plan forms part of the current Forest Plans prepared by the forest managers. It considers the requirement to restructure the age class of even aged forests as described above. The baseline felling plan is illustrated in Figure 12.4 and presented in Table 12.3 below.

Table 12.3: Baseline Felling Phases

Fell Phase	Area (ha)	Area (%)
No Felling	846.2	38.3
Phase 1	161.6	7.3
Phase 2	166.8	7.5
Phase 3	37.7	1.7
Phase 4	91.8	4.2
Long Term Retention	54.5	2.5
Natural Reserves	14.4	0.6
Outside Plan Period	836.7	37.9
Total	**2,209.6**	**100.0**

12.6.10. A proportion of the FSA is designated as "Outside Plan Period" due to earlier felling and restocking as part of the Forest Plan; the age or growth rates of the crop. The prospective felling year of these areas lies outside of the current forest plan period.

12.6.11. A large area of the FSA is designated as "No Felling". These areas are unplanted land such as designed open ground or other land which is unplantable for various reasons.

12.6.12. Other areas within the FSA have been designated as Natural Reserves (NR). These are areas which are considered of high conservation interest or potential and are managed by minimum intervention unless alternative management has higher conservation or biodiversity value. The identification NRs is part of the requirements of UKWAS and the UKFS.

12.6.13. Similarly, areas are designated as Long Term Retentions (LTR) which are defined in UKWAS as *"individual, stable stands and clumps of trees retained for environmental benefit significantly beyond the age or size generally adopted by the woodland enterprise."*

12.6.14. The baseline felling programme is designed to provide the required separation between felling coupes, where possible. This may take more than one rotation to achieve, especially in the uplands where windfirm boundaries between felling coupes are limited.

Baseline Restocking Species Composition

12.6.15. The baseline restocking plan as detailed in the Forest Plan is illustrated in Figure 12.5 (EIAR Volume 2a) and outlined in Table 12.4 below.

Table 12.4: Baseline Restocking Species Composition

Species	Area (ha)	Area (%)
Sitka spruce	940.0	42.5
Sitka spruce/Other conifer	152.9	6.9
Other conifer	138.9	6.3
Mixed woodland	4.2	0.2
Mixed broadleaves	449.8	20.4
Open ground	523.7	23.7

Species	Area (ha)	Area (%)
Total	**2,209.6**	**100.0**

12.6.16. The baseline restocking proposals illustrate how the forest would be structured at the end of the Forest Plan period if the entire plan was implemented. Table 12.5 below compares the baseline current species composition and the baseline restocking species composition at the end of the plan period without the implementation of the Proposed Development.

Table 12.5: Baseline Species Comparison

Species	Baseline Species Area (ha)	Restock Species Area (ha)	Variance Area (ha)	Variance Area (%)
Sitka spruce	1,043.4	940.0	-103.4	-4.7
Sitka spruce/Other conifer	0.0	152.9	152.9	6.9
Other conifer	198.1	138.9	-59.1	-2.7
Mixed woodland	0.0	4.2	4.2	0.2
Mixed broadleaves	122.0	449.8	327.9	14.8
Open ground	846.2	523.7	-322.5	-14.6
Total	**2,209.6**	**2,209.6**	**0.0**	**0.0**

12.6.17. The changes between the current baseline current species composition and that contained within the baseline restocking plan are discussed below:

- the proportion of primary conifer crops (Sitka spruce, Sitka spruce/Other conifer) increases by 49.5 ha, while the proportion of other conifers decreases by 59.1 ha; and
- the area of broadleaf woodland increases by 327.9 ha.

12.6.18. The majority of these changes reflect the ongoing proposed restructuring of the first rotation crops to meet the management objectives, particularly the increase in native broadleaves.

12.7. Proposed Development Forest Plan

Introduction

12.7.1. The effect of the Proposed Development on the structure of the woodlands within the FSA has been compared against the Baseline Forest Plan. This has concentrated on changes to the Felling Plan and Restocking Plan required to accommodate the Proposed Development.

Proposed Development Felling Plan

12.7.2. The Proposed Development Construction Felling Plan is shown across two figures. Figure 12.6 (EIAR Volume 2a) which identifies the felling required for construction of the Proposed Development and the advanced felling as a result of the Proposed Development, Figure 12.7 (EIAR Volume 2a) shows the construction felling within the felling phase plan, these data are summarised in Table 12.6 and 12.7 below.

Table 12.6: Felling Required for Construction

Fell Phase	Area (ha)	Area (%)
No felling – open ground	846.2	38.3
Infrastructure felling	61.5	2.8
Advanced felling	148.7	6.7
No felling - woodland	1,153.3	52.2
Total	**2,209.6**	**100.0**

12.7.3. The total felling required to accommodate construction of the Proposed Development, including infrastructure and advanced felling, totals 210.1 ha.

Table 12.7: Proposed Development Felling Plan

Fell Phase	Area (ha)	Area (%)
No Felling	846.2	38.3
Phase 1	158.9	7.2
Phase 2	335.3	15.2
Phase 3	37.6	1.7
Phase 4	71.4	3.2
Long Term Retention	53.1	2.4
Natural Reserves	14.3	0.6
Outside Plan Period	692.8	31.4
Total	**2,209.6**	**100.0**

12.7.4. Table 12.8 below compares the baseline and windfarm felling plans.

Table 12.8: Comparison of Felling Plans

Species	Baseline Fell Phases Area (ha)	Proposed Development Fell Phases Area (ha)	Variance Area (ha)	Variance Area (%)
No Felling	846.2	846.2	0.0	0.0
Phase 1	161.6	158.9	-2.7	-0.1
Phase 2	166.8	335.3	168.5	7.6
Phase 3	37.7	37.6	-0.1	0.0
Phase 4	91.8	71.4	-20.4	-0.9
Long Term Retention	54.5	53.1	-1.5	-0.1
Natural Reserves	14.4	14.3	0.0	0.0
Outside Plan Period	836.7	692.8	-143.9	-6.5
Total	**2,209.6**	**2,209.6**	**0.0**	**0.0**

12.7.5. There would be advanced felling of 168.5 ha during Phase 2, resulting from the construction of the Proposed Development. This is balanced out by reduced felling in subsequent periods.

12.7.6. Felling is required for infrastructure and construction of the Proposed Development. Where possible the Proposed Development infrastructure will be "keyholed" into the crops, where only the crops required for the infrastructure and its associated buffer zones will be cleared as detailed earlier. Where this is not possible the crops will be felled back to the nearest wind firm edge or management boundary and the Proposed Development infrastructure will be keyholed into the restocking.

Proposed Development Restocking Plan

12.7.7. The Baseline Restocking Species Plan has been amended to integrate the Proposed Development infrastructure requirements into the forest design and to take account of the site conditions. The Proposed Development Restock Species Composition plan is shown in Figure 12.8 (EIAR Volume 2a) and summarised in Table 12.9. Proposed Development open ground refers to the permanent loss of existing crops, or crops to be restocked on land currently felled and awaiting restocking in the baseline restocking species plan, to permanent infrastructure only of the Proposed Development.

Table 12.9: Proposed Development Restocking Plan Species Composition

Species	Area (ha)	Area (%)
Sitka spruce	894.0	40.5
Sitka spruce/Other conifer	139.1	6.3
Other conifer	132.6	6.0
Mixed woodland	2.9	0.1
Mixed broadleaves	438.2	19.8
Open ground	523.7	23.7
Proposed Development open ground	79.0	3.6
Total	**2,209.6**	**100.0**

12.7.8. The Baseline Restocking and Proposed Development Restocking Plans have been compared to assess the changes that construction of the Proposed Development would have on the species composition of the forests. These data are presented in Table 12.10.

Table 12.10: Comparison of Restocking Plans

Species	Baseline Restock Species Area (ha)	Proposed Development Restock Species Area (ha)	Variance Area (ha)	Variance Area (%)
Sitka spruce	940.0	894.0	-46.0	-2.1
Sitka spruce/Other conifer	152.9	139.1	-13.8	-0.6
Other conifer	138.9	132.6	-6.3	-0.3
Mixed woodland	4.2	2.9	-1.3	-0.1
Mixed broadleaves	449.8	438.2	-11.7	-0.5
Open ground	523.7	523.7	0.0	0.0
Proposed Development open ground	0.0	79.0	79.0	3.6
Total	**2,209.6**	**2,209.6**	**0.0**	**0.0**

12.7.9. The change in area of stocked woodland in the forests due to the Proposed Development is shown in Table 12.11 below.

Table 12.11: Stocked Woodland Area Comparison

Woodland Type	Baseline Species Area (ha)	Proposed Development Restock Species Area (ha)	Variance Area (ha)	Variance Area (%)
Stocked	1,685.9	1,606.9	-79.0	-3.6
Unstocked	523.7	602.7	79.0	3.6
Total	**2,209.6**	**2,209.6**	**0.0**	**0.0**

12.7.10. The changes in the structure of the woodlands due to the Proposed Development can be summarised as follows:

- there would be a net reduction in the area of Sitka spruce (whether pure or in a mix) of 59.8 ha;
- there would be a decrease in the area of broadleaf woodland of 11.7 ha;
- there would be a decrease in the area mixed conifer woodland of 6.3 ha;
- Proposed Development permanent open ground would total 79.0 ha; and
- the net reduction in stocked woodland area within the FSA would be 79.0 ha equivalent to 3.6% of the FSA.

Preferred Access

12.7.11. The above calculations are based on access to the Proposed Development being via the southern access point, which is the alternative access for the Proposed Development. However, the preferred access route comes in via the north of the Proposed Development and will include felling for infrastructure. No Advanced Felling would be required. This would result in an additional net loss of woodland.

12.7.12. The total area of stocked woodland which would be lost if the northern alternative access is used would be minimal at 0.2ha. The majority of the woodland removed would be broadleaves.

12.8. Requirement for Compensatory Planting

12.8.1. As a result of the construction of the Proposed Development, there would be a net loss of woodland area. The area of stocked woodland in the FSA would decrease by 79.0 ha.

12.8.2. In order to comply with the criteria of the Scottish Government's Control of Woodland Removal Policy, compensation planting would be required. The Applicant is committed to providing appropriate compensatory planting. The extent, location and composition of such planting to be agreed with SF, taking into account any revision to the felling and restocking plans prior to the commencement of construction of the Proposed Development.

12.9. Forestry Waste

12.9.1. The Scottish Environment Protection Agency (SEPA) guidance document WST-G-027, 'Management of Forestry Waste' (SEPA, 2017)[15] highlights that all waste producers have a statutory duty to adopt the waste hierarchy as per the Waste (Scotland) Regulations 2012 (the Scottish Government, 2012)[16], which amended Section 34 of the Environmental Protection Act (EPA) 1990 (duty of care) (UK Government, 1990)[17]. This places a specific duty on any person who produces, keeps or manages (controlled) waste to take all such measures available to them to apply the waste hierarchy in Article 4 (1) of the revised Waste Framework Directive (rWFD)[18], which is:

- prevention;
- preparing for re-use;
- recycling;
- other recovery, including energy recovery; and
- disposal, in a way which delivers the best overall environmental outcome.

12.9.2. Further guidance is contained in the document LUPS-GU27, 'Use of Trees Clear Felled to Facilitate Proposed Development on Afforested Land'" (SEPA, 2014)[19].

12.9.3. A hierarchy of uses for forestry materials is proposed, derived from the waste hierarchy contained within the Regulations, summarised as follows:

- prevention via the production of timber products and associated materials for use in timber and other markets;
- the re-use of materials on-site for a valid purpose, where such a use exists e.g. track construction including floating tracks;
- there is no valid re-cycling use for forestry residues;
- other recovery via collection and use as biomass for energy recovery or other markets, where not included above; and
- where no valid on-site or off-site use can be found for the material, disposal would be in a way that is considered to deliver the best overall environmental outcome.

12.9.4. Where no valid on-site or off-site use, or other disposal method, can be found for the material, it should be regarded as waste and handled accordingly. Disposal of timber residues as waste in or on land requires a landfill permit or a waste exemption licence and should be considered the option of last resort.

12.9.5. As discussed above, the crops will be replanted except where the land is required for infrastructure associated with the Proposed Development. Brash would be left in situ to provide nutrients for the next rotation where the crops are being replanted as per standard forestry practice. Where crops are not being replanted brash would be removed and treated in line with the proposed hierarchy described above.

12.9.6. Stumps would be left in situ as per good practice guidance, except where excavated as part of the construction activities. Excavated stumps would be treated in line with the proposed hierarchy described above.

12.9.7. In areas of lower yielding crops, into which the Proposed Development infrastructure would be keyholed, the objective would be to recover as much merchantable timber as possible. Failing that to treat them in line with the hierarchy outlined above. Where suitable, whole trees would be extracted and used in the biomass market. As a result, it is anticipated the forestry waste arising from the works will be minimal.

12.9.8. It is proposed that full consideration and further clarification on this issue would be included in a Forestry Waste Management Plan to form part of the Construction Environmental Management Plan (CEMP) following receipt of planning consent and prior to commencement of construction.

12.10. Forestry Management Practices

Crop Clearance

12.10.1. Areas of crops of sufficient tree size and standing volume would be harvested conventionally. Timber operations would be undertaken with conventional harvesting and forwarding equipment utilising, as required, flotation tracks.

12.10.2. Stemwood down to 7 centimetres (cm) or below would be removed from site and sold into the timber markets. The harvester would maximise timber recovery wherever possible, this would result in the maximum timber volume being recovered to ensure the volume used in the brash mats is kept to a minimum. On wetter ground the harvester would build stronger brash mats to ensure there would be minimal damage to the peat and soil structure by the forwarder during extraction. On soft ground, the bottom layers of brash mats become embedded into the soil and removal could result in more environmental damage than leaving the material to naturally degrade.

12.10.3. In areas of young or lower yield class crops, where little or no merchantable timber would be recovered, a number of options could be utilised depending on the factors prevailing at the time of clearance. The methodology used would depend on tree size; site conditions; the availability of suitable equipment; and the markets prevailing at the time of the works being carried out. Where there is suitable access and ground conditions the trees could be whole tree harvested and extracted to roadside for chipping as biomass.

12.10.4. Where trees are very small due to age or poor growth it may be more viable to fell the crop manually using scrub cutters or chainsaws. The end use of the material would depend on the factors mentioned above but in some cases there would be no recoverable material. Where material was recoverable it could potentially be used on-site in the base of floating roads; extracted and processed for biomass; or used for ecological enhancement if applicable.

12.10.5. Stumps would be left in situ as per the guidance contained in the Forestry Commission Research Note '"Environmental effects of stump and root harvesting'" (Forestry Commission, 2011)[20] except where they would be removed for borrow pits, excavated tracks, wind turbine foundations and other infrastructure requiring excavation. Such material would be treated as described above.

[15] SEPA (2017): SEPA Guidance Notes WST-G-027 "Management of Forestry Waste". https://www.sepa.org.uk/media/28957/forestry_waste_guidance_note.pdf [accessed 04/03/2022].

[16] The Scottish Government (2012): The Waste (Scotland) Regulations 2012 No. 148 available at https://www.legislation.gov.uk/sdsi/2012/9780111016657 [accessed 20/01/2019].

[17] UK Environmental Protection Act 1990 1990 c. 43 Part II Duty of care etc. as respects waste Section 34 available at http://www.legislation.gov.uk/ukpga/1990/43/section/34 [accessed 20/01/2019].

[18] EU Waste Legislation Waste Framework Directive https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098 [accessed 20/01/2019].

[19] SEPA (2014): LUPS-GU27 "Use of Trees Cleared to Facilitate Development of Afforested Land. https://www.sepa.org.uk/media/143799/use_of_trees_cleared_to_facilitate_development_on_afforested_land_sepa_snh_fcs_guidance-_april_2014.pdf [accessed 20/01/2019].

[20] Forestry Commission Research Note "Environmental effects of stump and root harvesting" (Forestry Commission, 2011). https://www.forestry.gov.uk/pdf/FCRN009.pdf/$FILE/FCRN009.pdf [accessed 20/01/2019].

Restocking/Planting Methodology

12.10.6. Wind Farm Restocking would be carried out to current standard practice, the forest manager's internal guidance and practices and in accordance with the guidelines contained in the UKFS and UKWAS as a minimum, where applicable. The methodology would vary depending on the type of restocking being carried out. The following information is provided for guidance as to the restocking methodology which may be adopted.

12.10.7. On commercial conifer areas the methodology would normally include:

- site preparation by machine cultivation and drainage;
- manual planting;
- subsequent follow-up establishment operations such as the replacement of failures, weeding and protection measures until the crops are satisfactorily established; and
- replanting would be carried out with the conifer species identified in the restocking plan at the minimum density of 2,500 trees per ha.

12.10.8. Restocking within the broadleaf woodland areas would be carried out to the same specification with the following changes:

- a lower planting density of 1,600 trees per ha; and
- the principal species would be mixed native broadleaves including, for example, downy and silver birch with small components of other species as appropriate to site such as oak, rowan, hazel, gean, grey willow, goat willow, alder and woody shrubs.

Aftercare Works

12.10.9. Aftercare establishment works would normally include, but are not limited to, the following:

- the woodlands would be beaten up (replacement of failures) to ensure satisfactory stocking levels by year 5, broadleaf woodlands by year 10;
- the woodlands would be weeded as necessary to ensure satisfactory establishment by year 5 / year 10 for broadleaf woodlands;
- the woodlands would be protected against pine weevils by management inspections and remedial treatment as necessary;
- the woodlands would be protected against browsing damage from wild and domestic animals;
- the woodlands would be protected against fire;
- fertiliser would be applied as necessary to ensure satisfactory establishment and growth; and
- other works as reasonably required ensuring satisfactory establishment of the woodlands.

Standards and Guidelines

12.10.10. All forestry operations would be carried out in strict accordance with current good practice and guidelines. This would include, but not be limited to:

- UK Forestry Standard (Forest Research, 2023);
- Forest Industry Safety Accord Guides (or equivalent) (FISA, 2014)[21]; and
- current relevant legislation including, but not limited to, Health and Safety at Work Act 1974 (UK Government, 2014)[22].

[21] Forest Industry Safety Accord (2014). FISA Safety Guides (various). Edinburgh.

12.11. Conclusion

12.11.1. The total study area extends to 2,209.6 ha and is comprised of woodlands within the National Forest Estate managed by Forest and Land Scotland.

12.11.2. Felling would comprise 210.1 ha for construction of the Proposed Development.

12.11.3. The species composition of the forest would change as a result of the Proposed Development forestry proposals. In particular, the area of Sitka spruce (whether pure or in a mix) would reduce by 59.8 ha.

12.11.4. The area of unplanted ground would increase and, as a result, there would be a net loss of woodland area of 79.0 ha.

12.11.5. In order to comply with the Scottish Government's Control of Woodland Removal Policy, compensation planting would be required to mitigate for the loss of woodland area. The Applicant is committed to providing appropriate compensatory planting. The extent, location and composition of such planting to be agreed with SF, taking into account any revision to the felling and restocking plans prior to the commencement of construction.

12.12. Non-Technical Summary

12.12.1. The Proposed Development is located within commercial forestry. The forestry assessment has identified that areas of forestry would require to be felled for the construction and operation of the Proposed Development.

12.12.2. Forestry is not being regarded as a receptor for EIA purposes. Commercial forests are dynamic and their structure continually undergoes change due to normal felling and restocking by the landowner; natural events, such as storm damage, pests or diseases; and external factors, such as a wind farm or other developments. The forestry proposals are interrelated with environmental effects, which are assessed separately in other chapters of the EIA Report.

12.12.3. The forestry proposals have been developed to identify areas of forest to be removed for the construction and operation of the Proposed Development; and those areas which may or may not be replanted on site.

12.12.4. The FSA extends to approximately 2,209.6 ha and is comprised of woodlands within the National Forest Estate managed by Forest and Land Scotland. The forests are comprised largely of commercial conifers with areas of mixed broadleaves and open ground planted in the late 1990s. The crops are in the mid restructuring phase and there have been recent felling and replanting programmes.

12.12.5. A total of 210.1 ha will require to be felled to enable the construction and operation of the Proposed Development. The majority of the areas to be felled for the Proposed Development would be restocked except for land required for the Proposed Development's permanent infrastructure and land to be left unplanted for forest management; or forest design purposes.

12.12.6. On site replanting of felled areas and restoration of habitat within the woodlands results in a decrease in the area of stocked woodland. There would be a decrease of 79.0 ha within the FSA and as such compensatory planting will be required.

[22] UK Government (1974): Health and Safety at Work etc. Act 1974 available at http://www.legislation.gov.uk/ukpga/1974/37/contents +[access 20/01/2019].