



**Statkraft**

## **Oliver Forest Wind Farm**

# **Design and Access Statement**

**August 2024**



Photomontage of Oliver Forest Wind Farm from south on the A701

## Contents

<b>1</b>	Introduction	1
<b>2</b>	Site Location	1
<b>3</b>	Design Policies	2
<b>4</b>	Design Principles	5
<b>5</b>	Design Evolution	6
<b>6</b>	Proposed Development	10
<b>7</b>	Access	10
<b>8</b>	Conclusion	11
<b>9</b>	References	12
<b>10</b>	Figures	13
	Figure 1 – Site Location	
	Figure 2 – Site Layout	
	Figure 3 – Design Evolution	
	Figure 4 – Abnormal Load Delivery Route and Site Access	
	Figure 5 – Recreational Heritage Trail	

## 1 Introduction

- 1.1.1 Oliver Forest Wind Farm Limited (the Applicant) proposes to install and operate up to seven wind turbines with associated infrastructure (the Proposed Development) on forested land (the site) approximately 12.5 km south of Broughton, and 19 km north of Moffat, in the Scottish Borders. The Proposed Development would be located within the Scottish Borders Council (SBC) area, centred on National Grid Reference (NGR) 308300, 624200 and would be known as Oliver Forest Wind Farm.
- 1.1.2 The Proposed Development would comprise of seven three-bladed horizontal axis turbines up to 200 m blade tip height with a combined rated output over 50 MW; and 23 MW of battery storage giving a total site output of over 73 MW.
- 1.1.3 An application for consent for the Proposed Development is being submitted to the Scottish Government Energy and Consents Unit (ECU) under Section 36 of the Electricity Act 1989 (the 1989 Act), to include a request for deemed planning permission to be granted for the development under Section 57(2) of the Town and Country Planning (Scotland) Act 1997. The relevant planning authority will be Scottish Borders Council (SBC).
- 1.1.4 This Design and Access Statement (DAS) is submitted in support of the application for consent which has been submitted by Oliver Forest Wind Farm Limited for the Proposed Development. The DAS does not form part of the Environmental Impact Assessment (EIA Report). However, the DAS should be read in the context of the EIA Report.

## 2 Site Location

- 2.1.1 To understand the design of the Proposed Development, it is important to understand the location of the site and its context. A site location plan is shown on Figure 1; and the site layout is shown on Figure 2.

### 2.2 Site Selection

- 2.2.1 A number of factors were considered when selecting the site for the Proposed Development including:
- the presence of a very good wind resource (determined by initial desk-based studies and wind monitoring on site);
  - no planning policies, which in principle, preclude wind energy development;
  - no internationally or nationally designated sites for ecology, landscape or geology within the site boundary;
  - compatibility with the existing commercial forestry use;
  - a minimum distance of 1 km could be kept between the turbines and the closest residential properties;
  - suitable ground conditions with limited areas of deep peat;
  - suitable access point from the adjacent A701; and
  - there is an existing network of tracks across the site which would help minimise the length of new track required.

### 2.3 Site Description

- 2.3.1 A detailed site description is contained within Chapter 2 of the EIA Report. The following paragraphs provide a general description of the site.
- 2.3.2 The site, which measures approximately 350 hectares (ha), is located in the Tweed Valley in the Southern Uplands of Scotland. The site is dissected by the A701 with the majority of the site lying to the north of this road, where the Proposed Development infrastructure would be located. The southern area is proposed to be used for biodiversity enhancement measures. The location of the site and application boundary are shown on Figures 1 and 2.
- 2.3.3 Access to the site would be from the A701, utilising the existing forestry access point, as set out on Figure 2.
- 2.3.4 The site is comprised of commercial plantation forestry and open moorland, spread across the extent of three named hills, Upper Oliver Dod (490 m Above Ordnance Datum (AOD)); Weird Law (447 m AOD); and Glenmuck Height (472 m AOD). Elevations within the site decrease steeply outwith the site from the north-east peak of Upper Oliver Dod to the River Tweed (south-east), at approximately 260 m AOD.

The terrain is distinctly more elevated north-west of the site at Gathersnow Hill (688 m AOD) and Coombe Hill (640 m AOD).

- 2.3.5 The portion of the site located to the south-east of the A701 adjoins the River Tweed. A number of small tributary watercourses flow into the Tweed from the site including the Gala Burn, Rigs Burn, Bield Burn, Long Slack and Hallow Burn.
- 2.3.6 There are no national ecological designations within the site boundary. However, the River Tweed, adjacent to the site and into which tributaries of the site drain, is a Special Area of Conservation (SAC), and a Site of Special Scientific Interest (SSSI). The Glenmuck Bog Local Wildlife Site (LWS) and Local Biodiversity Site (LBS) is located within the site.
- 2.3.7 The site lies within the Tweedsmuir Uplands Special Landscape Area (SLA).
- 2.3.8 There are three Scheduled Monuments within the site boundary:
- Weird Law, Platform Settlement (SM3529);
  - Menzion Farm, Enclosed Cremation Cemetery (SM2702); and
  - Menzion Farmhouse, Two Enclosed Cremation Cemeteries (SM2748).

## 2.4 Surrounding Area

- 2.4.1 The surrounding area of the site is rural in nature, with residential properties restricted to the village of Tweedsmuir and the lower elevations of the Tweed Valley in proximity of the A701. There are several residential properties clustered just north of the four-way road junction at Tweedsmuir, east of the site boundary, and several others between Bield Burn and Tweedsmuir, north-east of the site boundary. Outwith Tweedsmuir, the remote setting of the site means there are no other settlements within 10 km of the site.
- 2.4.2 Other nearby natural heritage designations (within 10 km) include:
- Tweedsmuir Hills SSSI, approximately 2.4 km to the north-east;
  - Craigdilly SSSI, approximately 8.8 km to the south-east; and
  - Moffat Hills SAC, approximately 9.2 km to the south-east.
- 2.4.3 Approximately 2.4 km to the north of the site is the operational Glenkerie Wind Farm (11 turbines)<sup>1</sup>. To the west of the site lies the operational Clyde Wind Farm (approximately 6.8 km) and its Extension (approximately 2.5 km) (totalling 206 turbines), and approximately 3.0 km to the south of the site Whitelaw Brae Wind Farm (14 turbines) is under construction.
- 2.4.4 The predominant Landscape Character Types (LCTs) of the site are characterised as 'Upland Valley with Pastoral Floor' and 'Southern Uplands Borders'; whereby the Proposed Development would mostly utilise the elevated section of the site known as Southern Uplands Borders LCT.

## 3 Design Policies

- 3.1.1 This section identifies the policy and guidance documents that have been considered in the layout and design process for the Proposed Development.
- 3.1.2 During the initial period of the design process, which has been ongoing since August 2022, the national policy documents relating to the siting and design of the Proposed Development were National Planning Framework 3 (NPF3) and Scottish Planning Policy (SPP), along with the associated Planning Advice Notes (PANs), and the Scottish Government's Onshore Wind Turbines: Planning Advice (2014).
- 3.1.3 However, the revised draft of the National Planning Framework 4 (NPF4) was laid before Parliament in November 2022, and hence was a material consideration in the design of the Proposed Development by the time the EIA Scoping Report was formally submitted to the ECU in November 2022.
- 3.1.4 As of 13 February 2023, National Planning Framework 4 (NPF4) has been adopted which supersedes both SPP and NPF3 to form part of the Statutory Development Plan. Whilst NPF4 is now in force, SPP and NPF3 were considered during the design process, and hence are mentioned here, with acknowledgement that that they are now revoked.

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<sup>1</sup> All measurements taken from the nearest proposed turbine to existing/ under construction turbine.

## 3.2 National Planning Framework 4

- 3.2.1 NPF4 contains strong policy support in relation to the weight that should be given to addressing the climate emergency and nature crisis in assessing applications.
- 3.2.2 Considering Scotland as a whole, NPF4 states that “A large and rapid increase in electricity generation from renewable sources will be essential for Scotland to meet its net zero emissions targets.” This clearly establishes the strengthened need for the continued development of renewable electricity generation, and by extension, the development of onshore wind.
- 3.2.3 Within the spatial strategy, NPF4 identifies that there will be significant climate challenges for the South of Scotland Area (which includes the proposed site), stating that “Coastal erosion and flood risk is expected to be a significant challenge in the future, particularly where there is a risk of impacts on key transport corridors or settlements. Working with communities to find new ways of rural living that are consistent with climate change will be a challenge for this part of Scotland.”
- 3.2.4 Whilst this area is facing significant challenges due to climate change, the spatial strategy for this area also highlights the significant potential for future development in the area, setting out specific aims to: “Protect environmental assets and stimulate investment in natural and engineered solutions to climate change and nature restoration...” and to “Support local economic development whilst making sustainable use of the area’s worldclass environmental assets to innovate and lead greener growth.”
- 3.2.5 In terms of national planning policy, a key policy is Policy 1: tackling the Climate and nature crises. This policy requires that “significant weight will be given to the global climate and nature crises” when considering all development proposals. The other main policy that is applicable within the context of the Proposed Development is Policy 11: Energy. Policy 11 part (a) makes clear that all types of renewable energy are supported in principle, with part (b) identifying the only exception to this policy support is wind farm developments in National Parks and National Scenic Areas. Accordingly, the Proposed Development, which is located out of any such designations, draws policy support from Parts (a) and (b) of Policy 11.

## 3.3 Local Development Plan

- 3.3.1 The Local Development Plan (LDP) covering the application site is the Scottish Borders Local Development Plan (LDP) (adopted 12 May 2016) and Supplementary Guidance ‘Renewable Energy’ (July 2018) (the ‘SG’).
- Scottish Borders Local Development Plan (2016)**
- 3.3.2 The LDP policy most relevant to the Proposed Development is Policy ED9: Renewable Energy Development, which sets out SBC’s support in principle for renewable energy developments. The first part of Policy ED9 states:
- “The council will support proposals for both large scale and community scale renewable energy development including commercial wind farms...” “...where they can be accommodated without unacceptable significant adverse impacts or effects, giving due regard to relevant environmental, community and cumulative impact considerations.”*
- 3.3.3 The second part of policy ED9 sets out a number of criteria that must be addressed by wind farm applications. The policy states:
- “The council will support proposals for both large scale and community scale renewable energy development including commercial wind farms, single or limited scale wind turbines, biomass, hydropower, biofuel technology, and solar power where they can be accommodated without unacceptable significant adverse impacts or effects, giving due regard to relevant environmental, community and cumulative impact considerations.”*
- 3.3.4 The policy further expands on the consideration of wind energy proposals and lists a number of considerations that will be taken into account in the assessment of wind energy proposals including:
- landscape and visual impacts, including impacts on wild land, cumulative impact and ensuring any assessment takes into account landscape, visual and cumulative impact guidance;
  - impacts on communities and individual dwellings (to include visual impact, residential amenity, noise and shadow flicker);
  - impacts on carbon rich soils, public access, the historic environment, tourism and recreation, aviation and defence interests, seismological recording, telecommunication and adjacent trunk roads and road traffic;
  - effects on natural heritage;

- opportunities for energy storage; and
- the net economic impact including socio-economic benefits.

3.3.5 Other relevant policies of the LDP include:

- PMD1 Sustainability;
- PMD2 Quality Standards;
- ED10 Protection of Prime Quality Agricultural land & Carbon Rich Soil;
- HD3 Protection of Residential Amenity;
- EP1 International Nature Conservation Sites and Protected Species;
- EP3 Local Biodiversity;
- EP4 National Scenic Areas;
- EP5 Special Landscape Areas;
- EP7 Listed Buildings;
- EP8 Archaeology;
- EP9 Conservation Areas;
- EP10 Gardens and Designed Landscapes;
- EP13 Trees, Woodlands & Hedgerows;
- EP15 Development Affecting the Water Environment; and
- IS5 Protection of Access Routes.

#### **Draft Proposed Scottish Borders Local Development Plan 2**

3.3.6 The Proposed LDP2 has not been finalised, however, a draft version is available to read. At the time of writing the SBC website states that the Proposed LDP2 is expected to be adopted in 2024.

3.3.7 The primary policy in LDP2 with respect to the Proposed Development would be Policy ED9: Renewable Energy Development.

#### **Renewable Energy Supplementary Guidance (2018)**

3.3.8 The relevant SG titled 'Renewable Energy' was adopted in July 2018. This SG sets out a Spatial Framework as per the former Scottish Planning Policy (SPP) and provides further guidance on criteria referenced within the adopted LDP Policy ED9. The SG is therefore incompatible with NPF4 insofar as it contains a Spatial Framework and refers to SPP. The SG also makes reference to the Council's Landscape Capacity Study which was updated in 2016. On adoption of LDP2, the SG will no longer have statutory status.

3.3.9 Within the Spatial Framework set out in the SG, the Proposed Development site falls under 'Group 3: Areas with potential for wind farm development', meaning that the site falls out with areas where wind farms will not be acceptable or areas of significant protection.

#### **Local Landscape Designations Supplementary Guidance (2012)**

3.3.10 Scottish Borders Local Landscape Designation Review, Revised Report (SBC, 2012) provides supplementary planning guidance in relation to the locally designated landscapes known as Local Landscape Areas (LLAs) within the SBC authority area.

3.3.11 The site sits within the Tweedsmuir Uplands LLA, which is extensive, covering the hills from the Yarrow Valley up to the western border of the Scottish Borders Council area; and from Hard Fell in the south, north to Blyth Bridge, wrapping around the Upper Tweeddale NSA.

3.3.12 The area was previously designated as an Area of Great Landscape Value (AGLV) in the 1960s when the County Councils identified specific areas to be protected under their development plans. No formal citation was provided at that time. The area continued to be reiterated as an AGLV in subsequent local plans, with the first review of justification and value undertaken in 2012, when the designations were renamed Special Landscape Areas. At that time Clyde Wind Farm had been built just outside the area to the west, and Glenkerie Wind Farm was constructed within the designated area, although neither are mentioned in the citation. Since then, Whitelaw Brae and Glenkerie Extension Wind Farms have been consented within the LLA. The location of the site within the LLA has been considered in relation to the other wind farms and the potential effects on the integrity of the LLA.

### 3.4 Other Guidance

#### Siting and Designing Wind Farms in the Landscape

- 3.4.1 NatureScot (formerly SNH) has produced guidance entitled 'Siting and Designing Windfarms in the Landscape', originally published in 2009 but updated in 2014 and 2017. NatureScot believes that good siting and design of wind farms is important for all parties involved, helping to maximise the landscape capacity to absorb development by producing schemes which are appropriate to a landscape whilst delivering Scottish renewables targets.
- 3.4.2 The content of the guidance focuses on the landscape and visual impact of wind farms, wind turbine design and layout, wind farm siting and design, and designing in landscapes with multiple wind farms. Guidance is provided on the appropriate turbine form, size, scale, layout and on siting and design of wind farms in relation to landscape character, landscapes of scenic value, landscape pattern, landform, perspective, and focal features. This guidance document has therefore informed the content of the design strategy for the Proposed Development, which outlines the site characteristics, the design principles, and the proposed design solution for the development.

#### Planning Advice Note 68: Design Statements

- 3.4.3 The DAS has been prepared in accordance with the guidance set out in the Planning Advice Note (PAN) 68: Design Statements (2003). PAN 68 focuses on design statements, their purpose, use and presentation to consider and set out the design principles which determine the design and layout of a development proposal. The content of this DAS covers the main issues which should be covered in a design statement, as recommended in PAN 68, to provide a clear and logical design philosophy for the Proposed Development. This approach provides a clear explanation of the design of the Proposed Development in a structured way and provides an opportunity to demonstrate what has been done to appraise the context, and how the design has taken account of it sensitively.

#### Onshore Wind Policy Statement 2022

- 3.4.4 The Scottish Government's 'Onshore Wind: Policy Statement 2022' (OWPS '22) was published in December 2022. The OWPS clarifies the strengthened Scottish Government position on the construction of new wind farms, stating: *"The only areas where wind energy is not supported are National Parks and National Scenic Areas. Outside of these areas, the criteria for assessing proposals have been updated, including stronger weight being afforded to the contribution of the development to the climate emergency, as well as community benefits"*.
- 3.4.5 In terms of design principles, the OWPS highlights the necessity for taller turbines in section 3.4.6 stating "...What would previously have been considered 'taller' turbines are now more common and must continue to be deployed in appropriate locations..." whilst in section 3.4.7 it reiterates why these, taller, turbines are required "Taller turbines have a higher installed capacity which results in the need for fewer turbines per site."

## 4 Design Principles

- 4.1.1 The layout and design of the Proposed Development were considered as part of an iterative design process aimed at reducing the potential environmental effects of the Proposed Development whilst maximising yield.
- 4.1.2 The key constraints which were considered during the design process for the Proposed Development included:
- topography and ground conditions (including peat);
  - environmental designations;
  - identified landscape and visual constraints;
  - proximity to residential receptors (with regards to visual amenity, shadow flicker and noise);
  - presence of ornithology, protected habitats and species;
  - presence of watercourses, private water supplies and related infrastructure;
  - presence of cultural heritage features;
  - aviation and radar constraints;
  - recreation resource (no Rights of Way or Core Paths within the site);
  - forestry; and

- fixed communications links (none within the site).
- 4.1.3 The findings of the technical and environmental studies undertaken for the EIA were used to inform the design of the Proposed Development and hence achieved a 'best fit' within the environment of the site. Where potentially significant effects were identified, efforts were made to avoid these through evolving the design of the Proposed Development, and 'embedding' mitigation into the design. 'Embedded mitigation' includes but is not limited to:
- considering the size and scale of the Proposed Development appropriate to the location;
  - use of existing tracks within the site and upgrading these to minimise groundworks;
  - design of access tracks to minimise cut and fill, reducing landscape and visual effects as well as costs;
  - sensitive siting of the proposed infrastructure incorporating appropriate buffer distances from environmental receptors (including nearby residential properties) to avoid or reduce effects;
  - considering appearance, finish and colour of wind turbines and the control buildings in accordance with the now NatureScot (NS) (formerly Scottish Natural Heritage (SNH)) guidance 'Siting and Designing Wind Farms in the Landscape', Version 3a (SNH, 2017);
  - inclusion and design of borrow pits to minimise the amount of the material required to be imported to the site; and
  - potential for up to 100 m micrositing of infrastructure during construction to ensure the best possible location is chosen based on site investigations.
- 4.1.4 Throughout the constraints-led design process, wind and yield analysis was undertaken to ensure changes made to layouts did not adversely affect the output of the Proposed Development.
- 4.1.5 Throughout the evolution of the layout of the Proposed Development, a key driver has been the consideration of potential landscape and visual effects on receptors and how the Proposed Development would relate to the existing landscape character and the visual amenity from nearby residential properties.
- 4.1.6 Different layouts were examined from key design viewpoints to assess and optimise the number, size and layout of the proposed turbines in relation to the landform of the site and surrounds as well as existing and consented cumulative wind farm development.
- 4.1.7 Statutory consultees were invited to input to the design process for the Proposed Development. A pre-application meeting was held with SBC in January 2023 and feedback from this meeting and other consultees has been incorporated into the design evolution process.
- 4.1.8 Two public consultation events were undertaken each in Tweedsmuir and Broughton in March 2023 and March 2024 (four events in total) which allowed members of the local community to comment on the design proposals and feedback was incorporated into the design evolution process where possible.

## 5 Design Evolution

- 5.1.1 The evolution of the design and layout of the Proposed Development was an iterative constraint-led process driven by the technical and environmental studies undertaken for the EIA. The design optimisation process was iterative, involving a review of multiple layouts and related wirelines from key landscape and visual receptor locations in the study area, and adjustment to turbine locations to minimise potentially adverse landscape and visual impacts insofar as possible, whilst also taking into consideration the energy generation, particularly seeking to maintain wake loss expectations, other environmental, technical and economic considerations.
- 5.1.2 Several different turbine tip heights were explored during the design process, ranging from 200 m to 250 m.

### 5.2 Wind Turbine Layouts

- 5.2.1 The initial potential development area (for wind turbines) within the site boundary was established using constraints mapping. Constraints such as deep peat, steep slopes and watercourses were mapped as hard constraints, whereas others such as shallower peat depths were mapped as soft constraints. This constraints mapping was used to identify the areas within the site which may be suitable for wind turbines.
- 5.2.2 Potential landscape and visual effects have been considered throughout the design evolution process. Several turbine and infrastructure layouts were considered during the design process, with the layout

evolving to respond to landscape and visual constraints such as views from the A701, views from Tweedsmuir and from various recreational viewpoints within the study area. Wider landscape character and visual sensitivities have also been considered in the design process, including potential effects on landscape designations, properties and settlements in the area.

5.2.3 Four of the key design iterations for the Proposed Development are shown on Figure 3 and detailed in Table 1.

**Table 1 – Design Iterations**

Layout	No. of Turbines	Description
A (Scoping Layout)	10	<ul style="list-style-type: none"> <li>– Presented in the EIA Scoping Report November 2022.</li> <li>– Tip heights of up to 250 m.</li> <li>– Layout A took into account initial desk-based observed constraints including ecologically important sites, sites of archaeological and/or cultural heritage importance, landscape designations, residential properties, watercourses and slopes.</li> <li>– Desk-based constraints were augmented by the results of field-based survey work to input to Layout A. At Scoping, ornithological surveys had been ongoing for approximately nine months. Ecology habitat and protected species surveys, a Phase 1 peat probing exercise and a cultural heritage visit of the site and surrounding area had been completed.</li> <li>– Layout A was presented during an initial round of public and online consultation in February and March 2023.</li> </ul>
B	8	<ul style="list-style-type: none"> <li>– Layout B (March 2023) followed the first round of public and online consultation. The proximity of turbines to local properties and the settlement of Tweedsmuir were raised as concerns by attendees of the consultation events. Other concerns raised included the number of wind farms in the surrounding area, the height of the turbines and potential impacts on private water supplies (PWS).</li> <li>– Layout B sought to reduce the potential visual impact of the turbines from the village of Tweedsmuir, to reduce the cumulative impact of the Proposed Development from key viewpoints and improve the separation distance between the proposed turbines and the Weird Law Scheduled Monument (SM) in the south, reducing visibility behind the SM (as advised by Historic Environment Scotland (HES). Turbine 8 was removed from Layout A on this basis. Removal of this turbine also reduced potential noise impacts by ensuring suitable setback distances from properties.</li> <li>– Turbine 4 from Layout A was also removed as part of Layout B in order to comply with setback distances from watercourses and remove any potential for effects on PWS by locating infrastructure outwith the PWS catchment. The proximity of this turbine to the site boundary was also causing issues in allowing suitable space for laydown areas for turbine components.</li> <li>– Local Biodiversity and Wildlife Site (LBS/LWS) Glenmuck Bog was discussed during this design iteration and it was agreed that further survey work would be undertaken in order to assess the condition of this LBS/LWS to feed into the next layout iteration.</li> <li>– As set out on Figure 3, turbines were moved to improve the spacing from a landscape and visual perspective and to improve the location of hardstandings relative to the site topography.</li> </ul>
C	7	<ul style="list-style-type: none"> <li>– Layout C (August 2023) was carried out following the results of a noise monitoring survey conducted in July 2023 and was also informed of Scoping responses, discussions with consultees and further survey work.</li> <li>– Turbines renumbered 1 to 7.</li> <li>– Turbine 9 (Layout B) was removed due to concerns related to potential noise impacts, impacts on cultural heritage assets and to reduce landscape and visual effects.</li> <li>– Turbine 10 (Layout B, re-numbered to Turbine 1 in this layout) was moved out of the area in proximity of the Glenmuck Bog whilst Turbines 3 and 5 (of Layout B) were moved south to avoid an area of bog habitat identified during ecological survey work.</li> <li>– Spacing between turbines was increased to reduce the wake losses and improve operational efficiency.</li> <li>– Turbines renumbered 1 to 7.</li> </ul>

Layout	No. of Turbines	Description
		Identification that the existing on-site track would be used as a main spine road with this layout.
D (Application Layout)	7	<ul style="list-style-type: none"> <li>– Extensive design work was carried out throughout the end of 2023 and into 2024 to create an optimal layout for the Proposed Development, Layout D.</li> <li>– Layout D was developed following the additional noise modelling, results of a Phase 2 peat probing exercise and a PWS site survey.</li> <li>– Turbine 1 was moved west to increase separation from Turbine 7 and increase operational efficiency.</li> <li>– Turbine 5 was moved slightly north to avoid areas of deep peat.</li> <li>– Turbine 6 was moved west to respond to landscape and visual concerns, reducing the visual envelope of the Proposed Development..</li> <li>– Based on concerns raised during consultation regarding the scale of the proposed turbines and potential impacts on the residential amenity of nearby residents, the proposed height of the turbines was reduced to a maximum of 200 m to the blade tip.</li> <li>– This layout takes into account responses received to the EIA Scoping Report, feedback from discussions with consultees, information from the environmental survey / assessment work, and feedback received from the first round of public exhibitions and community council meetings. The design work reviewed available constraints, particularly in relation to the potential effects on noise, landscape and visual, residential amenities, peat and bog habitats, proximity to cultural heritage assets and distance to watercourses and private water supply as well as slope and constructability. The review resulted in the removal of three turbines (Turbines 4, 8 and 9 from Layout A) reducing the Proposed Development to seven turbines.</li> <li>– Layout D comprises seven turbines, with blade tip heights of up to 200 m shown on Figure 2. This was considered to be a significant improvement from the scoping layout presenting a clear design rationale for the Proposed Development. The consistent spacing and elevation of the turbines simplify the appearance of the Proposed Development and avoid the clustering and stacking of turbines associated with earlier design iterations.</li> <li>– The final design also utilises approximately 3.5 km of existing forestry access tracks on the site minimising the amount of additional track that is required to be constructed for the Proposed Development to 1.5 km.</li> <li>– The final site survey and environmental assessment work was carried out using this layout.</li> </ul>

### 5.3 Site Access and Site Tracks

- 5.3.1 The site would be accessed from the A701, utilising the existing forestry access point as set out on Figure 2.
- 5.3.2 Use of this site entrance as well as approximately 3.5 km of existing forestry tracks would minimise the amount of new track required to be built for the Proposed Development to approximately 1.5 km.
- 5.3.3 The new sections of on-site access tracks and associated drainage have been carefully designed to avoid areas of deep peat, and potential peat slide risk and minimise cut and fill requirements as far as possible in order to reduce the amount of ground disturbance, amount of material required for construction, loss of sensitive habitats and landscape and visual effects, particularly during construction. All access tracks have been designed with cognisance of the topography of the site to ensure constructability and permit the safe delivery of turbine components and associated parts.

### 5.4 Turbine Foundations and Hardstanding Areas

- 5.4.1 The turbine foundations and adjacent crane hardstanding and laydown areas have been located and orientated appropriately to ensure they are positioned on peat not greater than 1 m in depth (informed through peat probing) where possible and in accordance with contours to minimise the amount of cut and fill required. Peat stability has also been taken into account in the location of this infrastructure.
- 5.4.2 Near proposed Turbine 4 there are a few pockets of peat deeper than 1 m however these areas would be subject to additional peat probing and site investigation prior to construction to ensure that minimal disturbance results and are micro-siting the infrastructure appropriately.

## 5.5 Borrow Pit Search Areas

- 5.5.1 Borrow pits would be required as a source of rock to be used in the construction of the tracks and hardstandings. On-site borrow pit search areas have been identified based upon a review of geological mapping and site reconnaissance by an engineer and geological specialist, in order to reduce the need to transport large quantities of aggregate. The location of each borrow pit search area was considered and refined with respect to the site infrastructure and environmental constraints. Further information is set out in Technical Appendix 3.2.
- 5.5.2 During design optimisation, the locations of infrastructure and track design were refined in order to minimise the amount of earthworks and cut and fill required to construct the Proposed Development. The extent of the three borrow pit search areas has been selected to meet the estimated volume of rock required in the construction of the proposed tracks and hardstandings.
- 5.5.3 Further intrusive geotechnical investigation would be carried out to identify the expected yield and rock quality at each of the three borrow pit locations.

## 5.6 Construction Compound

### Temporary Construction Compound

- 5.6.1 Two temporary construction compounds would be required for the duration of the construction phase. The temporary construction compound locations are shown on Figure 2. The larger (main) temporary construction compound (50 m x 100 m) would be located within the southern part of the site at NGR 308075, 623220 with a smaller satellite compound (20 m x 40 m) located within the northern section of the site at NGR 307950, 624380.

### Permanent Construction Compound

- 5.6.2 An additional Scottish Power Energy Network (SPEN) construction compound (50 m x 100 m) is required by SPEN which would be located at NGR 308035, 623340, directly north of the substation compound. This compound area would be used by SPEN during construction and then host the permanent Battery Energy Storage System (BESS) proposed at the site (discussed in further detail in Section 5.6).

### Construction Compound Siting

- 5.6.3 These locations are considered appropriate as they:
- have appropriate topography;
  - have limited visibility to the surrounding area;
  - are located in areas of no peat or peaty soils (less than 0.5 m deep) with negligible peat slide risk; and
  - avoid sensitive habitat areas ensuring that appropriate buffers from known features would be maintained.

## 5.7 Battery Energy Storage System and Substation Compound

### Battery Energy Storage System (BESS)

- 5.7.1 It is proposed that a BESS (approximate rated power 35.12 MW; energy storage capacity 65.1752 MWh) and other electrical equipment would be located within the SPEN construction compound (NGR 308035, 623340), following the completion of SPEN's grid connection works. Reusing this location would avoid any additional disturbance and loss of habitat on-site.
- 5.7.2 The BESS would include 24 battery enclosures (divided into four containers) and the compound would include a water storage tank, welfare and storage buildings. The MV switchgear would be housed in the control room building.

### Substation

- 5.7.3 The proposed substation compound would be located to the south of the site at NGR 308050, 623285, and have dimensions of approximately 70 m x 120 m. This would contain the on-site substation control building, which would connect the Proposed Development to the electricity network.

### Siting

- 5.7.4 These locations are considered appropriate as they:
- have appropriate topography (slope);

- are located in an area of no peat or peaty soils (less than 0.5 m deep) with negligible peat slide risk;
  - avoid sensitive habitat areas;
  - are lower down in the landscape than the wind turbines and as such less visible;
  - are located greater than three wind turbine rotor diameters away from the wind turbines (for health and safety reasons); and
  - can easily be accessed from the public road network.
- 5.7.5 The BESS and substation compound would be located greater than the topple distance from the proposed turbines. The internal site collector cables would be undergrounded within the site from each turbine to control the building, therefore avoiding visual impact.

## 6 Proposed Development

6.1.1 The Proposed Development is described in detail in Chapter 3 of the EIA Report. An outline Construction and Environmental Management Plan (CEMP) is contained in the EIA Report as Technical Appendix 3.1. The layout of the Proposed Development is shown on Figure 2. In summary, the Proposed Development would comprise:

- seven variable pitch (three-bladed) wind turbines, each with a maximum blade tip height of up to 200 m;
  - turbine foundations (up to 30 m diameter) and a crane hardstanding area which includes areas for blade, tower and nacelle storage (approximately 2,400 m<sup>2</sup>) at each wind turbine;
  - up to 1.5 km of new on-site access track with a typical running width of 5 m (wider on bends) and 3.5 km of upgraded existing access track (widened from 2.5 m to 5 m) and associated drainage, four turning heads and five passing places;
  - underground cabling and electrical infrastructure along access tracks to connect the turbine locations, and the on-site electrical substation;
  - one on-site substation compound (70 m x 120 m) which would accommodate a control building for the Scottish Power Energy Networks (SPEN) substation and the wind farm substation;
  - one SPEN construction compound (50 m x 100 m) which would be the location for the Battery Energy Storage System (BESS) following the construction of the substation;
  - two temporary construction compounds, the main compound (50 m x 100 m) and a satellite compound (20 m x 40 m);
  - search area for up to three borrow pits (covering approximately 18,000 m<sup>2</sup>);
  - clearance of 50 ha of on-site forest and replacement planting within the site of approximately 26 ha; and
  - approximately 1 km of new path forming part of an overall 5 km recreational heritage trail with associated car parking spaces and interpretation boards.
- 6.1.2 Based upon the proposed maximum turbine tip height it is anticipated that the installed nominal capacity of each turbine would be approximately 7.2 MW, with an estimated total generation capacity of 50.4 MW. The additional 23 MW capacity in the BESS would take the total installed capacity to over 73 MW.
- 6.1.3 The grid connection point for the Proposed Development is subject to confirmation by the network operator. The anticipated connection point to the electrical grid system is the proposed new 400 kV substation near Redshaw in South Lanarkshire approximately 20 km west of the site.

## 7 Access

### 7.1 Construction and Operational Access to Site

- 7.1.1 It is proposed that access to the site for construction and operation of the Proposed Development would be via the existing forestry access point from the A701 as set out on Figure 2.
- 7.1.2 The proposed abnormal load route as set out on Figure 4 required to transport turbine components to the site would begin from George V Docks on the River Clyde, then via the M8 and M74 motorway network, and then northbound on the A701, passing through Moffat.

### Internal Access Tracks

- 7.1.3 Up to 1.5 km of new on-site access tracks with a typical running width of 5 m (wider on bends) and 3.5 km of upgraded existing access tracks (widened from 2.5 m to 5 m) and associated drainage would be required. Site visits have confirmed the presence of shallow peat across the site area, with deeper pockets of peat present within the north-west of the site. Where possible, the turbines and sections of new tracks have been positioned to avoid areas of deepest peat. It is proposed that track formation would be by cut and fill or by a cut operation where there is a slope. Where the peat layer is more than 1 m in depth and where there is a side slope the peat would be removed to an appropriate horizon.
- 7.1.4 There is one existing watercourse crossing on the current forestry track. No new watercourse crossings are required to facilitate the Proposed Development, however, subject to structural analysis at the detailed design stage of the Proposed Development, the existing watercourse crossing may need to be upgraded.
- 7.1.5 The tracks would be left in place following construction to provide access for maintenance, repairs and eventual decommissioning of the Proposed Development. At the end of the construction period, the edges of all new tracks would be restored using materials stripped from excavations.

## 7.2 Public Access - Pedestrian

- 7.2.1 The Proposed Development would include a recreational heritage trail to enhance access provision within the site, starting in the south-eastern part of the site and linking into the wind farm access tracks and wider forestry tracks, as set out on Figure 5. Interpretation boards would be provided at various points along the route to describe environmental features in and around the site focusing on those of heritage and ecological interest.
- 7.2.2 A stretch of accessible path (approximately 1.2 m wide) (to allow for all abilities' access including wheelchairs and buggies) would be created at the start of the trail approximately 380 m in length, focusing on the interpretation of the two Scheduled Monuments within the site, finishing just before the Hallow Burn.
- 7.2.3 Two small single-span wooden bridges would be installed over the Hallow Burn (and its tributary) and a new path (approximately 1.2 m wide) (not suitable for wheelchair use or buggies) would be created of locally sourced stone (approximately 620 m) leading to the Proposed Development access tracks to the west.
- 7.2.4 The path would be accessed by an existing vehicular access point off the A701 approximately 650 m south-east of Tweedsmuir village. Up to three car parking spaces and bins would be provided.
- 7.2.5 Public access to the site would be restricted during the construction of the wind farm for health and safety reasons due to construction activities, the movement of heavy plants and the erection of turbines.
- 7.2.6 During periods of maintenance, access by the public could be restricted depending on the nature of the maintenance activity.

## 7.3 Public Access – Vehicular

- 7.3.1 Once the Proposed Development is operational, vehicular access would be limited to individuals directly involved in the maintenance of the wind farm, the landowners and their agents, and emergency vehicles.

## 7.4 Turbine Access and Substation Compound

- 7.4.1 It is not proposed that there would be public access to the proposed wind turbines BESS or substation compound. Due to health and safety reasons, access to these areas will be restricted to employees of, and contractors appointed by, Oliver Forest Wind Farm Limited.

# 8 Conclusion

- 8.1.1 The evolution of the design and layout of the Proposed Development was an iterative constraint-led process driven by the technical and environmental studies undertaken for the EIA along with inputs arising from public consultation.
- 8.1.2 The design optimisation process was iterative, involving a review of multiple layouts and related wirelines and adjustment to turbine locations to minimise potentially adverse impacts insofar as possible.
- 8.1.3 In conjunction with the design evolution and optimisation process, EIA studies have been used to achieve a 'best fit' within the environment of the site. Access to the site would largely use existing tracks

in order to minimise construction work and environmental impacts. Enhancement of public access within the site is promoted through the creation of the new recreational heritage trail.

- 8.1.4 The final layout comprises seven wind turbines. This is considered to be the most appropriate number of turbines to be accommodated by the site balancing both energy yield and contribution towards renewable energy generation targets, with key planning and environmental constraints.

## 9 References

Scottish Borders Council, Local Development Plan (2016)

Scottish Borders Council, LDP2 Proposed Plan (2020)

Scottish Borders Council, Renewable Energy Supplementary Guidance (2018)

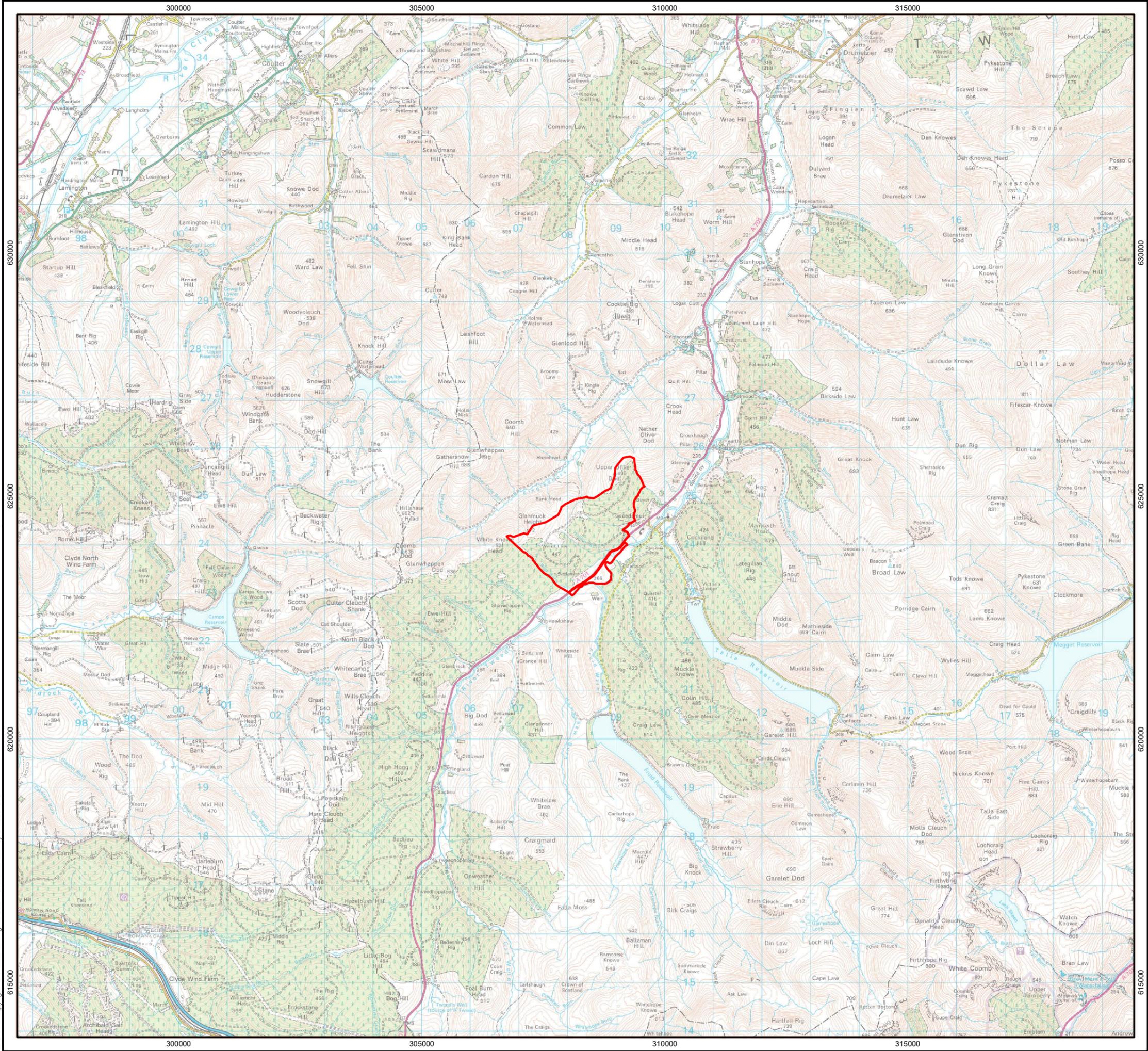
Scottish Government (2022), National Planning Framework 4.

Scottish Government (2022), Onshore Wind Policy Statement.

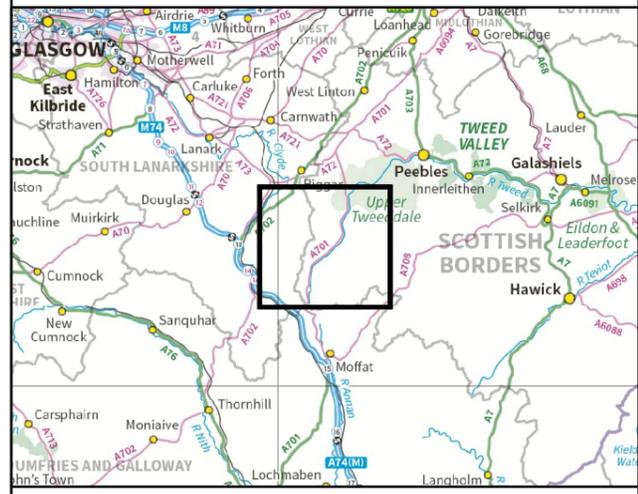
Scottish Government 2003.PAN 68 - Design Statements,

SNH (2017) Siting and Designing Wind Farms in the Landscape Version 3.

# 10 Figures



Site Boundary

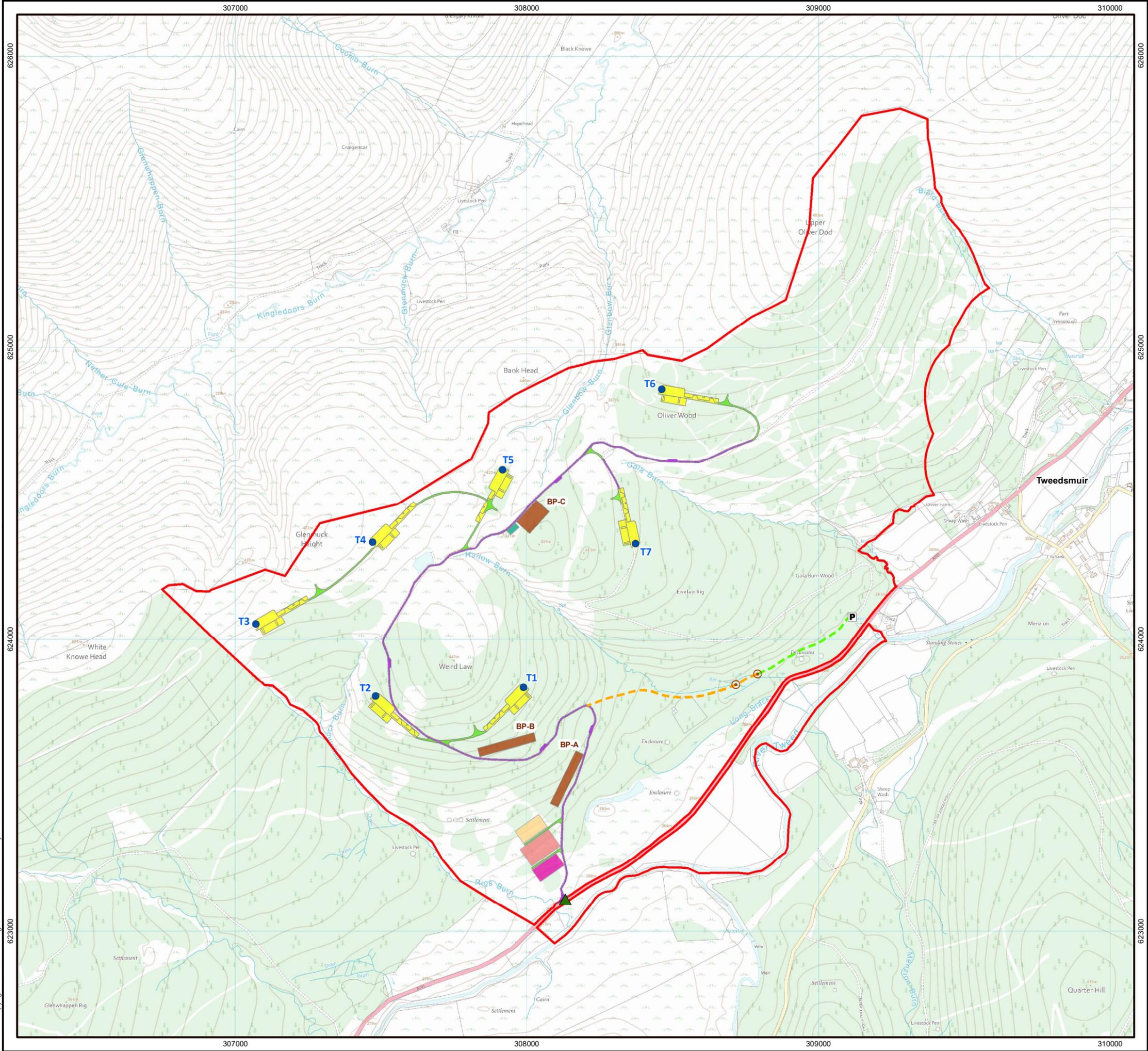


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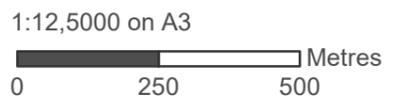
**Figure 1**  
**Site Location**

**Oliver Forest Wind Farm**  
**Design and Access Statement**



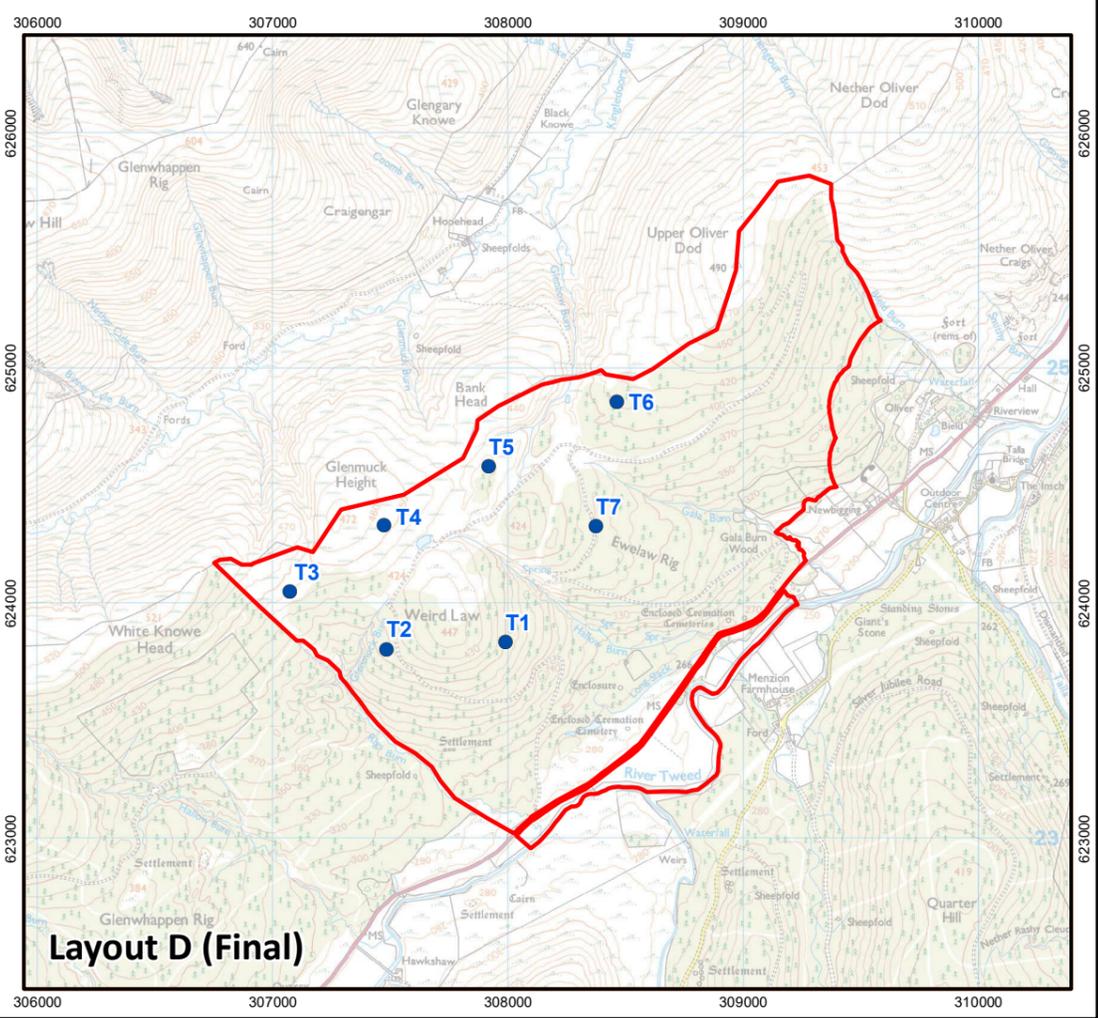
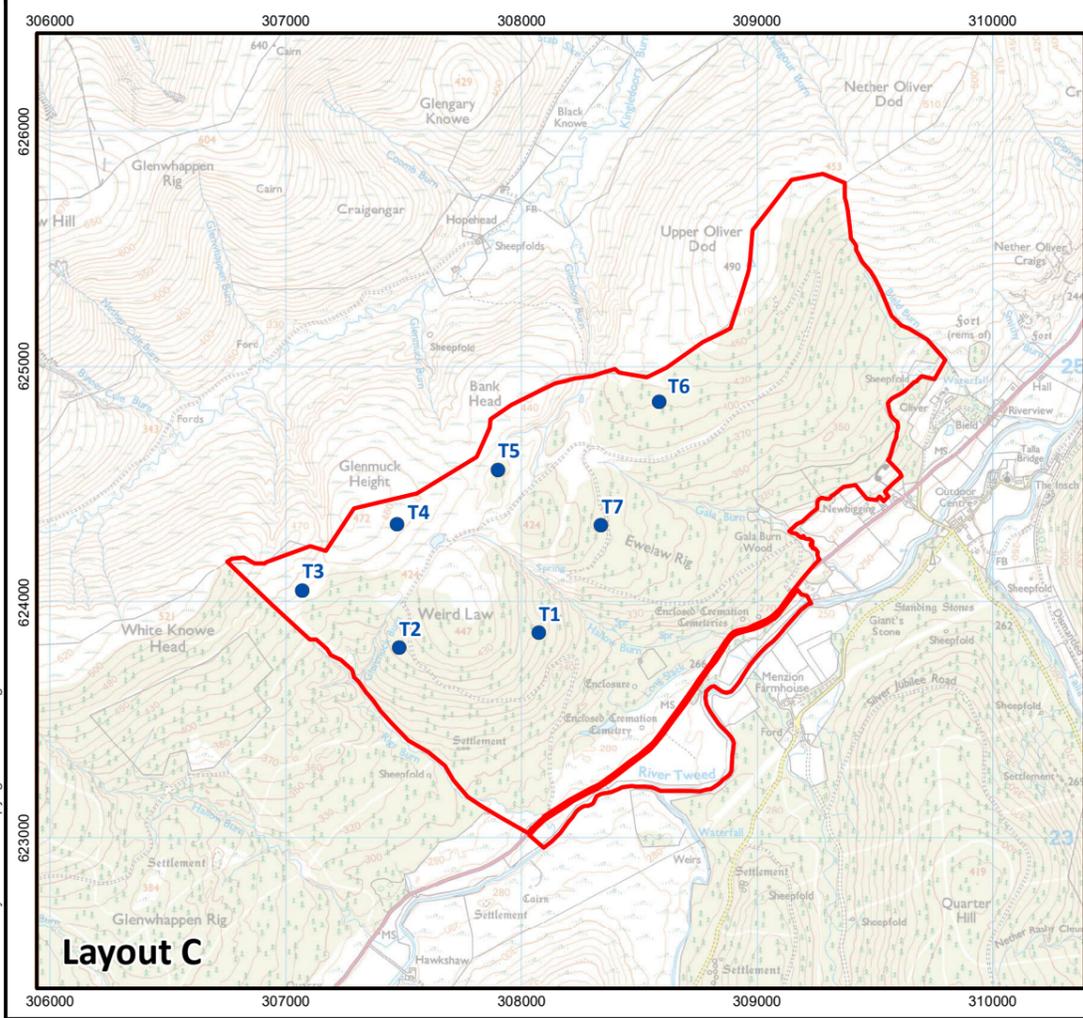
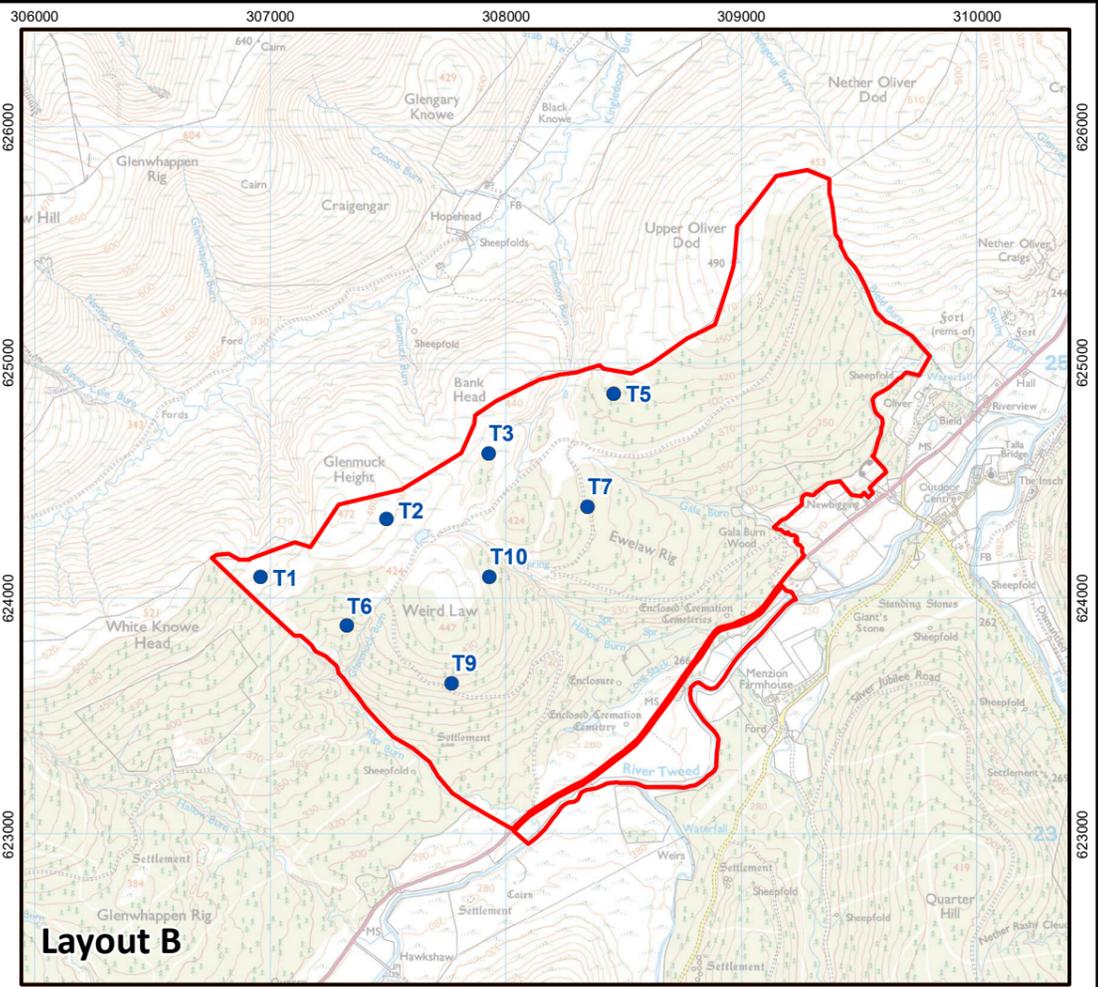
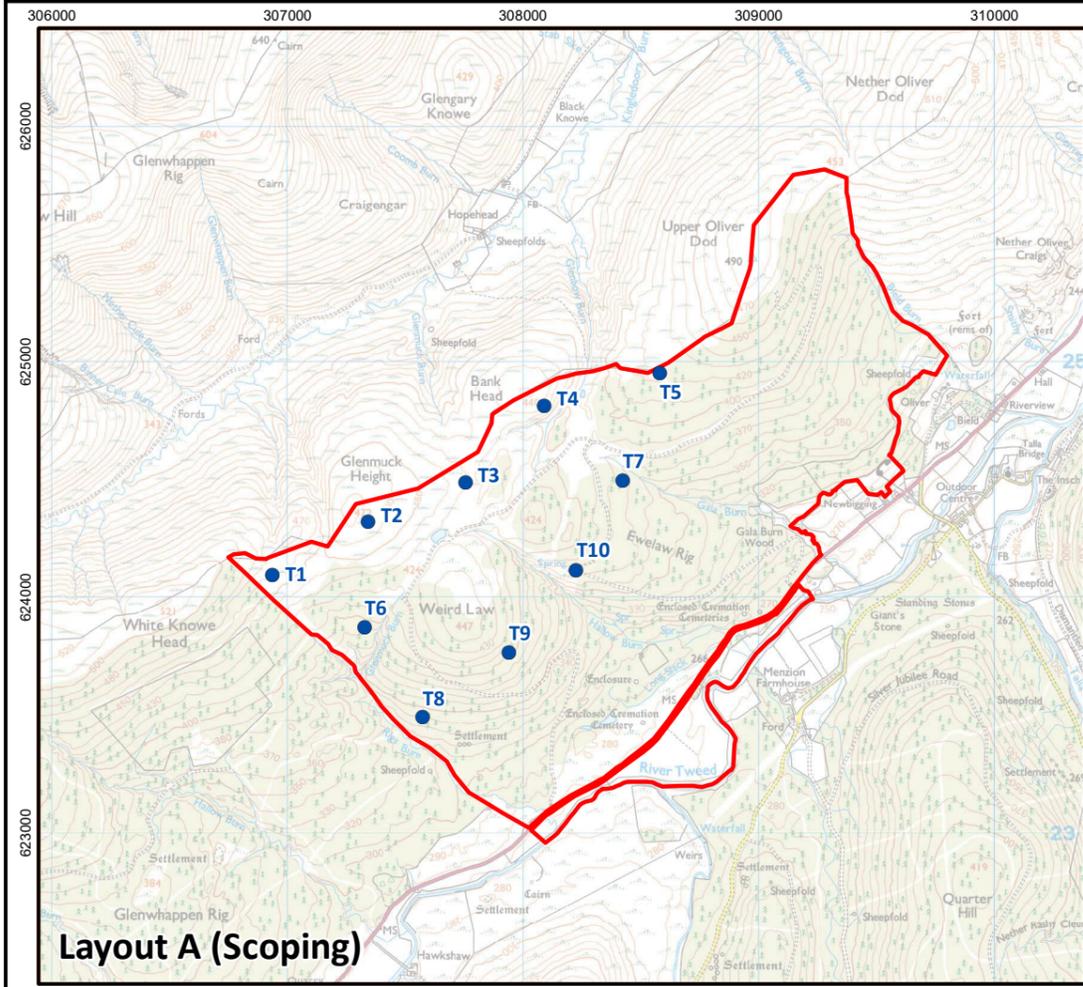
- ▭ Site Boundary
- Proposed Turbine Location
- ▲ Proposed Access Location
- Proposed New Access Track
- Proposed Upgrade to Existing Track
- Proposed Temporary Wind Farm Construction Compound
- Proposed Temporary Satellite Construction Compound
- Proposed Scottish Power Energy Network (SPEN) and Wind Farm Substation
- Proposed Scottish Power Energy Network (SPEN) Compound and location for Battery Energy Storage System (BESS)
- Proposed Hardstanding
- Proposed Borrow Pit Search Area
- Proposed Recreational Heritage Trail**
- - - New Path (Not Suitable for Wheelchairs)
- - - New Path (Wheelchair Accessible)
- P Proposed Recreational Heritage Trail Car Park
- Proposed Watercourse Crossing

**Note:** Turbine and access symbols are not to scale



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**Figure 2**  
**Site Layout**  
**Oliver Forest Wind Farm**  
**Design and Access Statement**



- ▭ Site Boundary
- Proposed Turbine Location

**Note:** Turbine symbols are not to scale

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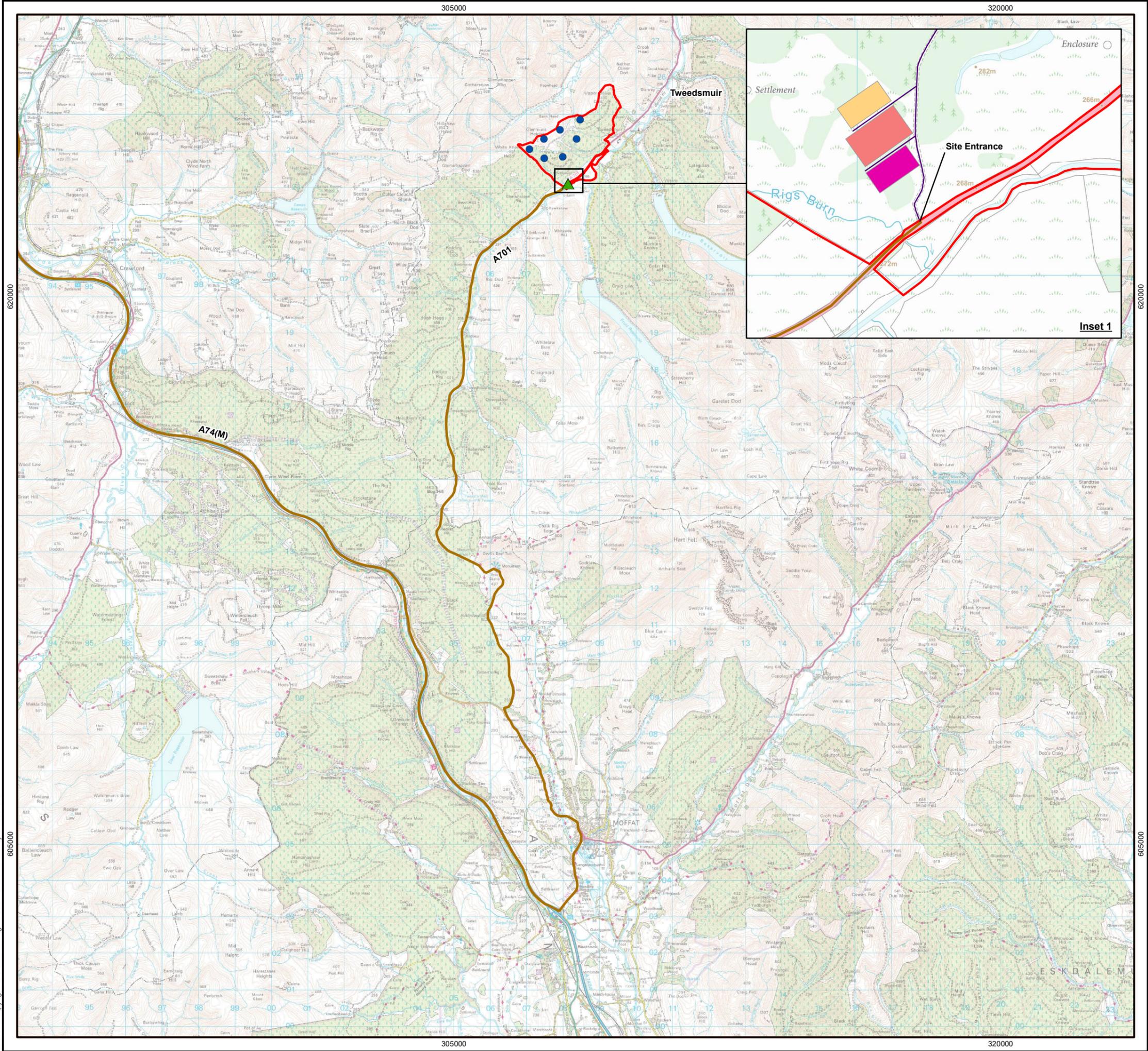
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**Figure 3**

**Wind Turbine Location Design Evolution**

**Oliver Forest Wind Farm**

**Design and Access Statement**



**Statkraft**

**Legend:**

- Site Boundary
- Proposed Turbine Location
- ▲ Proposed Access Location
- Proposed Track
- Proposed Hardstanding
- Proposed Temporary Wind Farm Compound
- Proposed Temporary Satellite Compound
- Proposed Scottish Power Energy Network (SPEN) and Wind Farm Substation
- Proposed Scottish Power Energy Network (SPEN) Compound and location for Battery Energy Storage System (BESS)
- Abnormal Indivisible Load (AIL) Delivery Route

**Note:** Turbine and access symbols are not to scale

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0                      2.5                      5

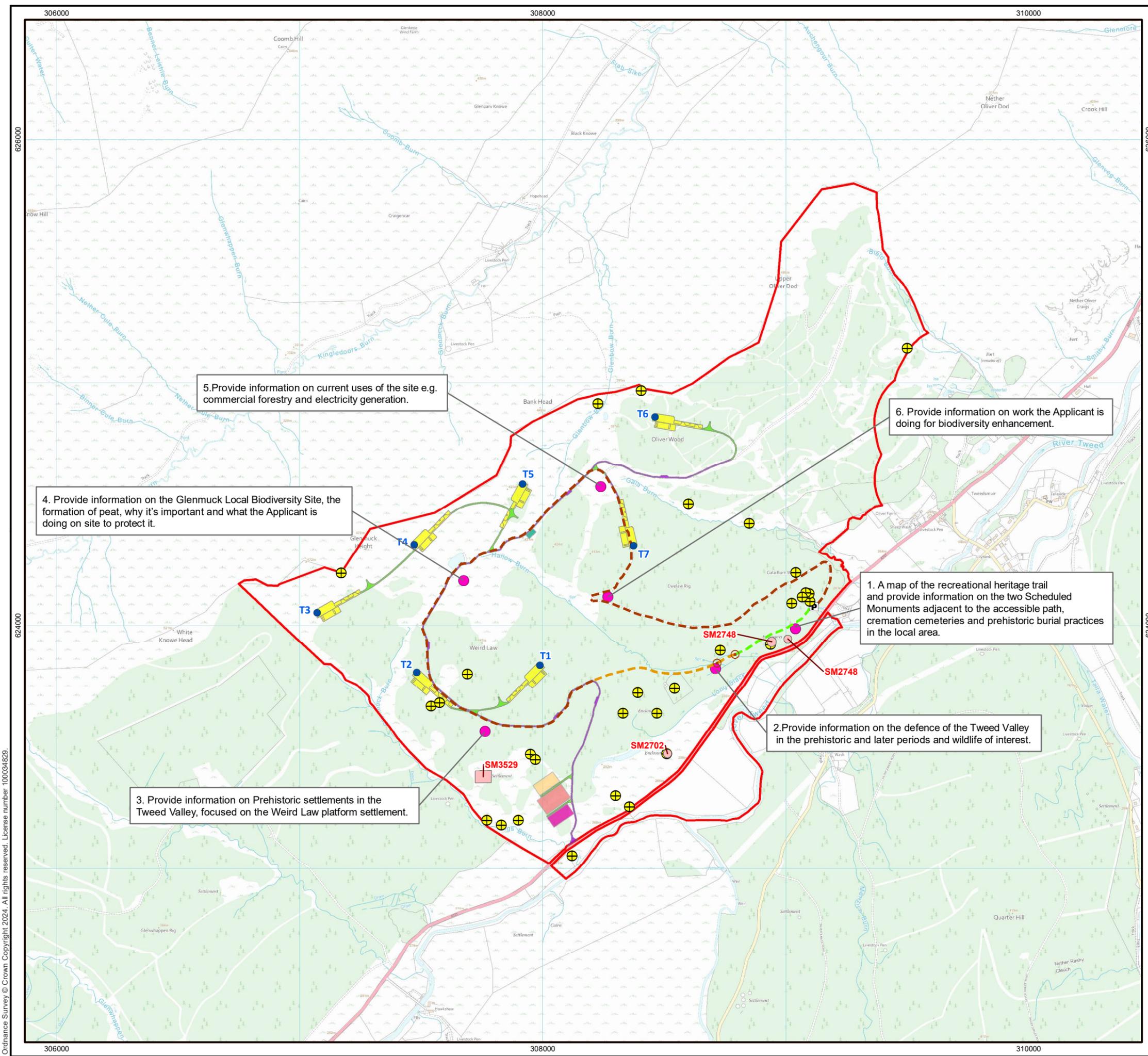
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**Figure 4**

**Abnormal Load Delivery Route and Site Access**

**Oliver Forest Wind Farm**

**Design and Access Statement**



- Site Boundary
  - Proposed Turbine Location
  - Proposed New Wind Farm/ Forestry Track (Not Suitable for Wheelchairs)
  - Proposed Upgrade to Wind Farm/ Forestry Track (Not Suitable for Wheelchairs)
  - Proposed Hardstanding
  - Proposed Temporary Wind Farm Construction Compound
  - Proposed Temporary Satellite Construction Compound
  - Proposed Scottish Power Energy Network (SPEN) and Wind Farm Substation
  - Proposed Scottish Power Energy Network (SPEN) Compound and Location for Battery Energy Storage System (BESS)
- Proposed Recreational Heritage Trail**
- Existing Track (Not Suitable for Wheelchairs)
  - New Path (Not Suitable for Wheelchairs)
  - New Path (Wheelchair Accessible)
  - Proposed Recreational Heritage Trail Information Board
  - P Proposed Recreational Heritage Trail Car Park
  - Proposed Watercourse Crossing
- Heritage Assets**
- Scheduled Monument
  - ⊕ Gazetteer Asset

**Note:** Turbine symbols are not to scale

1:50,000 on A3

0 0.5 1 Kilometres

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**Figure 5**

**Recreational Heritage Trail**

**Oliver Forest Wind Farm**

**Design and Access Statement**

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