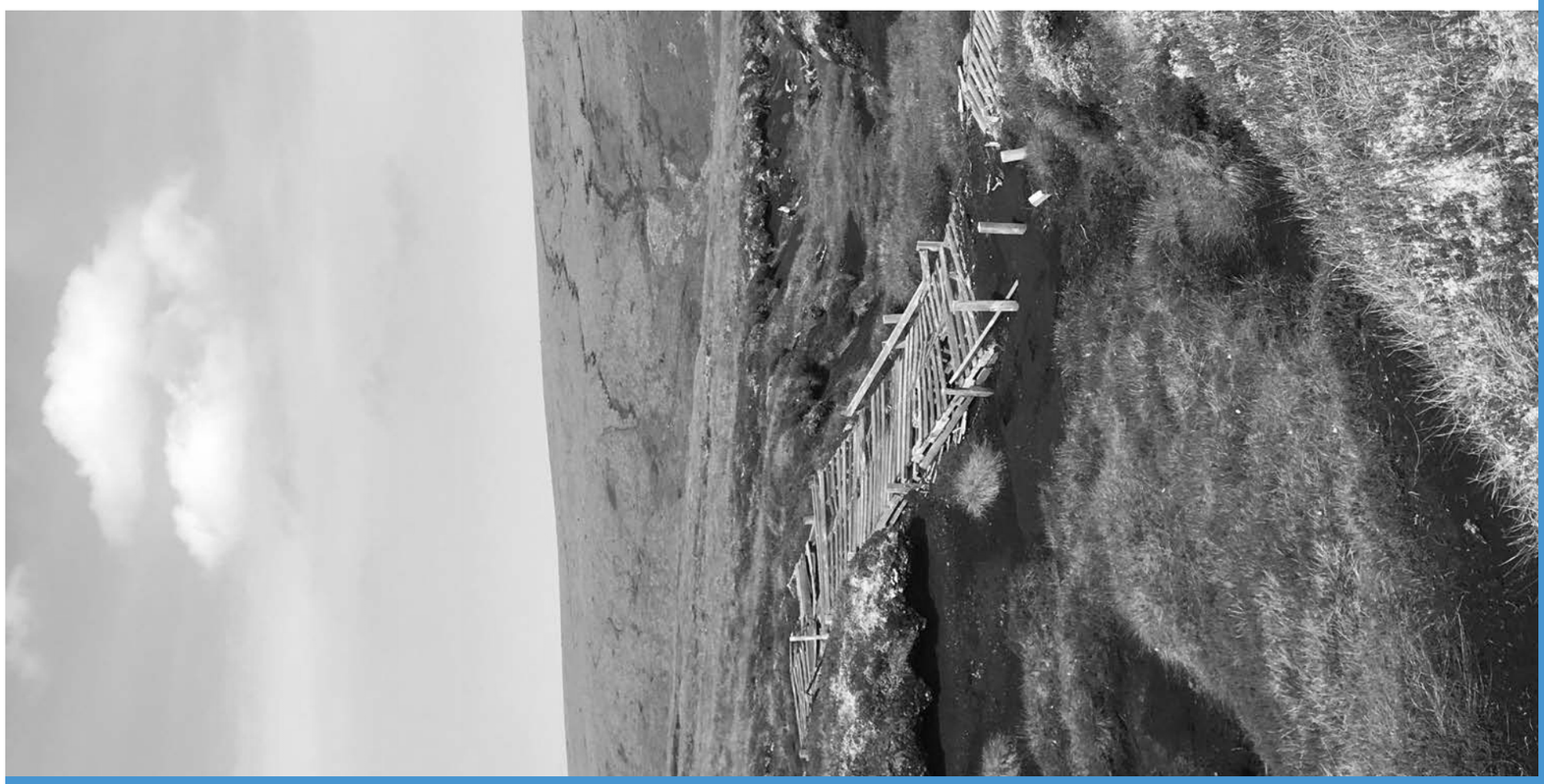
Design and Access Statement
Balnespick Wind Farm

On behalf of Fred Olsen Renewables Ltd.

Date: January 2025 I Pegasus Ref: P21-0584

Author: Pegasus Group



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Fred. Olsen Renewables

Cover image: LVIA Viewpoint 1 Photomontage: Taken from Carn Glas-Choire
Contents page image taken from within Site area (Image 2)

INTRODUCTION TO THE PROPOSED BALNESPICK WIND FARM

Background

Fred. Olsen Renewables Limited ('the Applicant') is proposing to submit an application for consent under Section 36 of the Electricity Act 1989 for a wind farm development of up to nine turbines of up to 200 m to tip (the "Proposed Development"), with associated infrastructure. The application Site is approximately 1,065 hectares and is located on upland moorland approximately 5 km east of Tomatin and 6 km north-west of Carrbridge. The Site lies within the Highland Council local authority area.

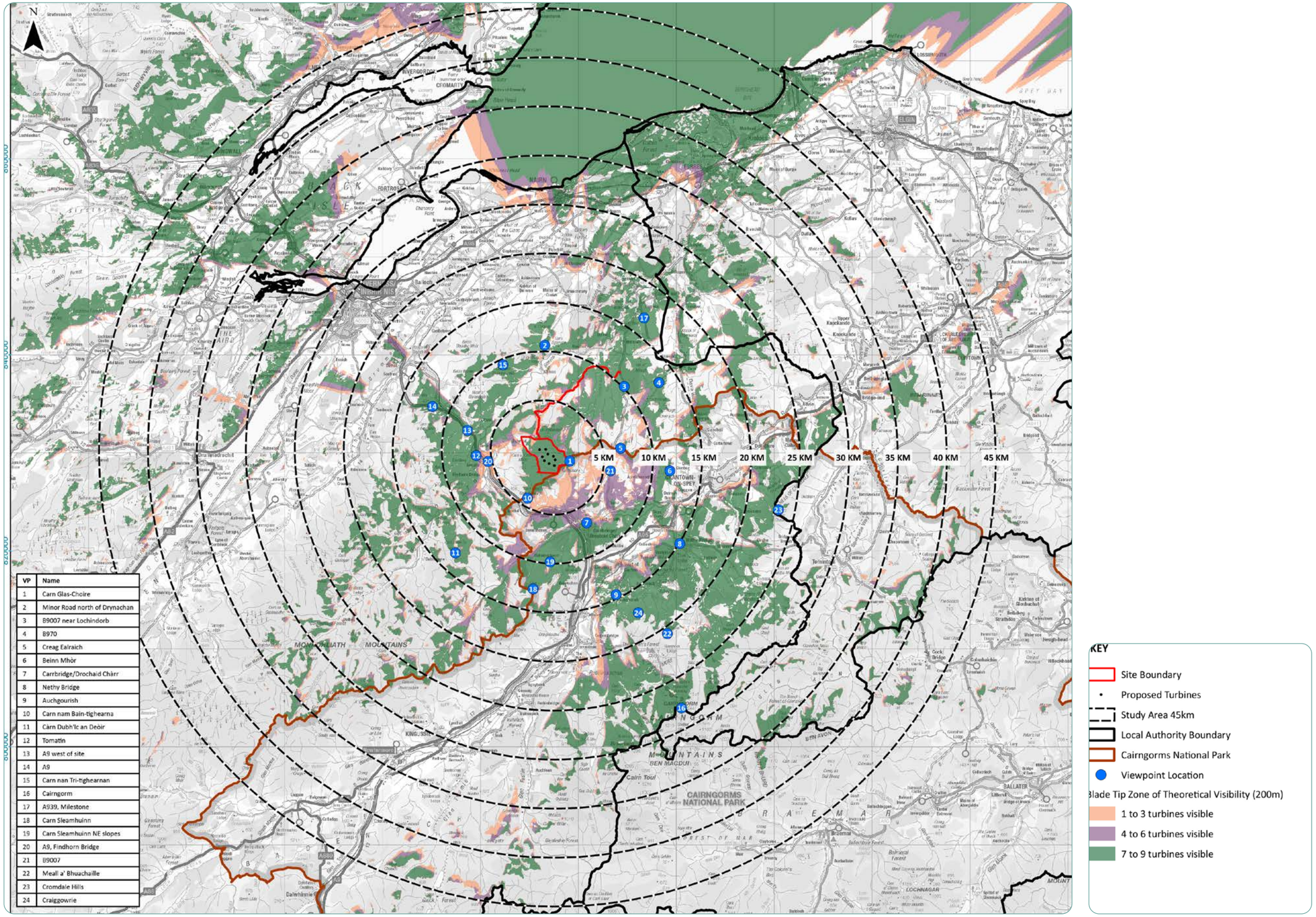
Figure 1 illustrates the location of the Proposed Development and the theoretical visibility available with the introduction of turbines within this part of the landscape.

The Proposed Development will comprise of nine stand-alone, three-bladed horizontal axis turbines up to 200 m blade tip height with a rotor diameter of around 162 m, and each with a generating capacity of approximately 7.2 MW. Based on the site specific capacity factor, the total generating capacity of the Proposed Development is anticipated to be up to approximately 64.8 MW with an additional 10 MW of energy storage. The associated infrastructure will include: site access, access tracks, crane hardstandings, underground cabling, on-site substation and maintenance building, energy storage facility, external transformers, temporary construction compounds, laydown area, batching plant and potential excavations/borrow workings.

Based on the Proposed Development's location and estimated capacity factor, the annual indicative total electricity output for the Site would be an estimated 224,220 megawatt-hours (MWh), per annum. The Proposed Development would generate enough electricity to power approximately 66,455 average Scottish households and would contribute towards international and national targets for the generation of renewable energy and reduction in greenhouse gas emissions.

The purpose of this Design and Access Statement is to outline the opportunities, constraints and decision-making processes that have led to the design of the Proposed Development. The document accompanies the application for consent for the Proposed Development under Section 36 of the Electricity Act 1989, and describes the iterative design process undertaken for the Proposed Development, including the design principles that were established at the outset of the design process and the alternative turbine layouts that have been considered throughout the process.

Image 3: LVIA Viewpoint 1 Photomontage: Taken from Carn Glas-Choire



VP	Name
1	Carn Glas-Choire
2	Minor Road north of Drynachan
3	B9007 near Lochindorb
4	B970
5	Creag Ealraich
6	Beinn Mhòr
7	Carrbridge/Drochaid Chàrr
8	Nethy Bridge
9	Auchgourish
10	Carn nam Bain-tighearna
11	Càrn Dubh'Ic an Deòir
12	Tomatin
13	A9 west of site
14	A9
15	Carn nan Tri-tighearnan
16	Cairngorm
17	A939, Milestone
18	Carn Sleamhuinn
19	Carn Sleamhuinn NE slopes
20	A9, Findhorn Bridge
21	B9007
22	Meall a' Bhuachaille
23	Cromdale Hills
24	Craiggowrie

Figure 1: ZTV with LVIA Viewpoints to 45 km

Guidance

PAN 68: Design Statements

1.1 The Design Statement has been prepared with regard to the guidance set out in Planning Advice Note (PAN) 68: Design Statements (2003). PAN 68 considers design statements, their purpose, use and presentation to review and set out the design principles which determine the design and layout of a development proposal. The content of the document covers the main issues which should be covered in a design statement, as recommended in PAN 68, to provide a clear design philosophy for the development. This approach provides an explanation of the design of the Proposed Development and seeks to demonstrate what has been done to appraise the Site and its context, and how the design has taken account of it sensitively.

Onshore Wind Energy Supplementary Guidance

1.2 The Highland Council has produced guidance to aid the location of wind farms and their design principles. The most recent version of this guidance is 'Onshore Wind Energy Supplementary Guidance', November 2016.

1.3 The guidance sets out a spatial framework which highlights areas where wind farms *'will not be acceptable', 'areas of significant protection' and areas with potential for wind farm development'*. In terms of landscape and visual effects, the guidance states that *'all proposals should seek to avoid significant adverse effects'*. Furthermore, a series of criteria have been developed to ensure developers are aware of key constraints to development. The guidance goes on to refer to wider technical design considerations in relation to residential amenity and natural heritage issues which are of importance to the design process.

Figure 2: 'Design Statements', Scottish Government, August 2003

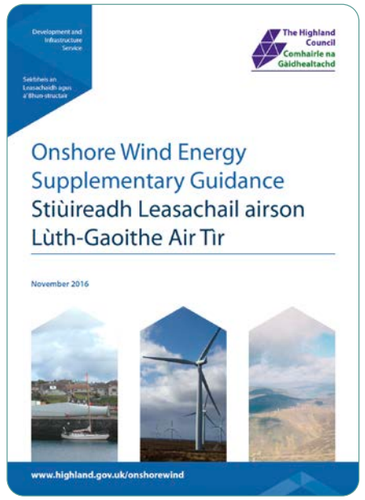


Figure 3: 'Onshore Wind Energy Supplementary Guidance, THC, November 2016

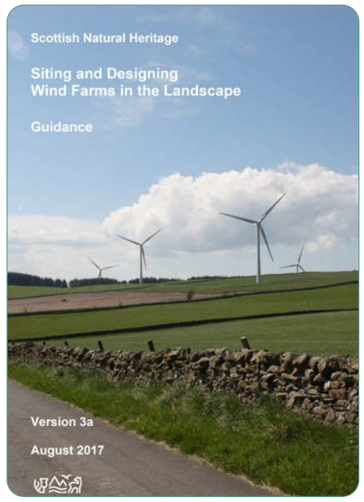


Figure 4: 'Siting and Designing Wind Farms in the Landscape' (Version 3a), SNH, August 2017

Siting and Designing Wind Farms in the Landscape

1.4 NatureScot (previously known as Scottish Natural Heritage [SNH]) has produced guidance to aid the location of wind farms and their design principles. The most recent version of this guidance is 'Siting and Designing Wind Farms in the Landscape', Version 3a, August 2017.

1.5 The guidance acknowledges that wind turbines are generally large structures with the potential to have significant landscape and visual impacts, but that more wind farms will be needed to meet renewable energy targets and the challenge is to make sure these are sited and designed well in landscapes most suited to this form of development.

1.6 The guidance only concerns landscape and visual issues. It does not refer to wider technical design considerations (such as wind speed, access to grid) or to other natural heritage issues (such as impacts on birds, other wildlife and habitats) which are also of importance to the design process.

1.7 The content of the guidance therefore focuses on Landscape and Visual Impact Assessment (LVIA) matters with regard to 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 the siting and design of wind farms in relation to landscape character, landscape with scenic value, landscape pattern, landform, perspective and focal features. The guidance has informed the content of the Design Statement, which outlines the Site context and design rationale for the Proposed Development, although it must be noted that the guidance is substantially that originally issued in 2009 and does not perhaps engage with the implications of the scale of wind energy development proposed in recent years or with the inevitabilities of scale comparisons between large modern turbines and existing older turbines.

2. CONTEXT

Image 4: Photograph taken from within site area

Figure 5: 'Scotland 2045: Our Fourth National Planning Framework - Draft', Scottish Government, 2021

Figure 6: 'Onshore Wind Policy Statement', Scottish Government, 2022

Planning Policy Context

Overview

2.1 The Environmental Impact Assessment Report (EIA Report) sets out the detailed policy context and the Planning Statement which accompanies the application provides an assessment of the extent to which the Proposed Development accords with planning policies and other material considerations.

National Planning Policy

2.2 National Planning Framework 4 (2023) (NPF4) is the national spatial strategy for Scotland. It sets out spatial principles, regional priorities, national developments and national planning policy and replaces National Planning Framework 3 (2014) and Scottish Planning Policy (2014). It represents a package of planning policies including a long-term spatial strategy to 2045, reflecting the spatial aspects of a range of Scottish Government policies, including the Infrastructure Investment Plan (IIP).

2.3 NPF4 is required by law to contribute to six outcomes, including meeting any targets relating to the reduction of emissions of greenhouse gases. It states that:

'The global climate emergency and the nature crisis have formed the foundations for the spatial strategy as a whole. The regional priorities share opportunities and challenges for reducing emissions and adapting to the long-term impacts of climate change, in a way which protects and enhances our natural environment.'

2.4 Part 1 of NPF4 - A National Spatial Strategy for Scotland 2045 sets out the six spatial principles which aim to influence plans and decisions. The following are of most relevance to wind energy development:

- Just transition
- Conserving and recycling assets
- Local Living
- Compact Urban Growth
- Rebalanced development
- Rural revitalisation

2.5 It also establishes the following three themes, linked to the United Nations (UN) Sustainable Development Goals (SDGs) and Scotland's national outcomes within the Scottish Government National Performance Framework:

- Sustainable places where we reduce emissions, restore and better connect biodiversity.
- Liveable places where we can all live better, healthier lives.
- Productive places where we have a greener, fairer and more inclusive wellbeing economy.

2.6 There are 17 UN Sustainable Development Goals. The following are of most relevance to wind energy developments:

- SDG 9 - Industry, Innovation and Infrastructure
- SDG 12 – Responsible Consumption and Production
- SDG 13 – Climate Action.

- *'This national development supports renewable electricity generation, repowering, and expansion of the electricity grid.*
- *A large and rapid increase in electricity generation from renewable sources will be essential for Scotland to meet its net zero emissions targets. Certain types of renewable electricity generation will also be required, which will include energy storage technology and capacity, to provide the vital services, including flexible response, that a zero carbon network will require. Generation is for domestic consumption as well as for export to the UK and beyond, with new capacity helping to decarbonise heat, transport and industrial energy demand. This has the potential to support jobs and business investment, with wider economic benefits.*
- *The electricity transmission grid will need substantial reinforcement including the addition of new infrastructure to connect and transmit the output from new on and offshore capacity to consumers in Scotland, the rest of the UK and beyond. Delivery of this national development will be informed by market, policy and regulatory developments and decisions.'*

2.7 Part 2 of NPF4 – National Planning Policy sets out 33 policies within three overarching themes (Sustainable Places, Liveable Places and Productive Places). Within 'Sustainable Places' the Energy Policy Intent is:

- *'To encourage, promote and facilitate all forms of renewable energy development onshore and offshore. This includes energy generation, storage, new and replacement transmission and distribution infrastructure and emerging low-carbon and zero emissions technologies including hydrogen and carbon capture utilisation and storage (CCUS).'*

Policy 11 - Energy

- *a) development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported. These*

include:

- *i. wind farms including repowering, extending, expanding and extending the life of existing wind farms;*
- *ii. enabling works, such as grid transmission and distribution infrastructure;*
- *iii. energy storage, such as battery storage and pumped storage hydro;*
- *iv. small scale renewable energy generation technology;*
- *v. solar arrays;*
- *proposals associated with negative emissions technologies and carbon capture; and*
- *vii. proposals including co-location of these technologies.*
- *b) Development proposals for wind farms in National Parks and National Scenic Areas will not be supported.*
- *c) Development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.*
- *d) Development proposals that impact on international or national designations will be assessed in relation to Policy 4.*
- *e) In addition, project design and mitigation will demonstrate how the following impacts are addressed:*
- *i. impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker;*
- *ii. significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy. Where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable;*
- *iii. public access, including impact on long distance walking and cycling routes and scenic routes;*
- *iv. impacts on aviation and defence interests including seismological recording;*
- *v. impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised;*
- *vi. impacts on road traffic and on adjacent trunk roads, including during construction;*
- *vii. impacts on historic environment;*
- *viii. effects on hydrology, the water environment and flood risk;*
- *ix. biodiversity including impacts on birds;*
- *x. impacts on trees, woods and forests;*
- *xi. proposals for the decommissioning of developments, including ancillary infrastructure, and site restoration;*
- *xii. the quality of site restoration plans including the measures in place to safeguard or guarantee availability of finances to effectively implement those plans; and*
- *xiii. cumulative impacts.'*

Locational Guidance

Scotland's Third Land Use Strategy 2021-2026: Getting the best from our land, March 2021

2.8 Scotland's Third Land Use Strategy sets out the vision, objectives and policy to achieve sustainable land use over a five year period.

2.9 In relation to semi-natural land, and specifically helping our land support climate change mitigation and adaptation, the strategy states that:

'Our land contributes to climate change mitigation in many ways. Scotland has a long and positive history of harnessing renewable energy and our capacity to generate it will need to be increased to meet our net-zero targets. Our energy will continue to be provided by a wide and diverse range of renewable technologies, including onshore wind. We will need to continue to develop wind farms, in the right places, and also look to the extension and replacement of existing sites.'

Onshore Wind Policy Statement 2022

2.10 The strategic approach to development set out within the OWPS states that :

'We believe that the current system, as described in our consultation as "business as usual", continues to represent an effective and efficient process for considering applications for developments in excess of 50 MW. However, we still expect developers of such projects to make every effort to find opportunities to collaborate, and to reduce potential local landscape impacts.'

Highland-wide Local Development Plan (2012)

2.11 The Development Plan covering the Proposed Development is currently the Highland–wide Local Development Plan (adopted 2012) (HwLDP) and the Inner Moray Firth Local Development Plan 2 (adopted 2024) (IMFLDP2). Onshore Wind Supplementary Guidance adopted in 2016 also forms part of the Development Plan documents and is considered in the guidance section below.

2.12 The key policy of relevance to the Proposed Development is Policy 67 - Renewable energy developments:

'Renewable energy development proposals should be well related to the source of the primary renewable resources that are needed for their operation. The Council will also consider:'

- *the contribution of the proposed development towards meeting renewable energy generation targets; and*
- *any positive or negative effects it is likely to have on the local and national economy;*
- *and will assess proposals against other policies of the development plan, the Highland Renewable Energy Strategy and Planning Guidelines and have regard to any other material considerations, including proposals able to demonstrate significant benefits including by making effective use of existing and proposed infrastructure or facilities.*
- *Subject to balancing with these considerations and taking into account any mitigation measures to be included, the Council will support proposals where it is satisfied that they are located, sited and designed such that they will not be significantly detrimental overall, either individually or cumulatively with other developments (see Glossary), having regard in particular to any significant effects on the*

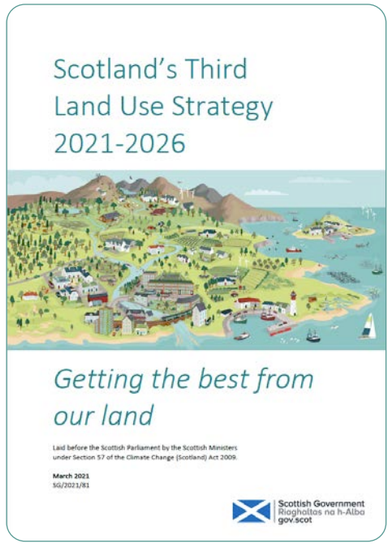


Figure 7: 'Scotland's Third Land Use Strategy 2021-2026 – Getting the best from our land', Scottish Government, 2021

following…[inter alia];

- *natural, built and cultural heritage features;*
- *visual impact and impact on the landscape character of the surrounding area (the design and location of the proposal should reflect the scale and character of the landscape and seek to minimise landscape and visual impact, subject to any other considerations);*
- *amenity at sensitive locations, including residential properties, workplaces and recognised visitor sites (in or outwith a settlement boundary);*
- *the safety and amenity of any regularly occupied buildings and the grounds that they occupy- having regard to visual intrusion or the likely effect of noise generation and, in the case of wind energy proposals, ice throw in winter conditions, shadow flicker or shadow throw…*
- *the amenity of users of any Core Path or other established public access for walking, cycling or horse riding;*
- *tourism and recreation interests;*
- *land and water-based traffic and transport interests.'*

Inner Moray Firth Local Development Plan 2 (2024)

2.13 The IMFLDP2 (adopted 27th June 2024) is an area local development plan that along with the HwLDP and supplementary guidance forms the THC's Local Development Plan. It must be read along with NPF4. It sets out planning policy and land allocations within settlements but does not advise specifically on wind energy development.

2.14 The Proposed Development lies within the boundary of Drynachan, Lochindorb and Dava Moors Local Landscape Area (LLA). This was previously referred to as a Special Landscape Area (SLA). Appendix 3 of the IMFLDP2: 'Glossary' defines Special Landscape Area as:

'A regionally significant landscape. These are areas where the scenery is highly valued locally and have been designated by the Council to ensure that the landscape is not damaged by inappropriate development and in some cases encourage positive landscape management.'

Highland Council Onshore Wind Energy Supplementary Guidance (2016) and Addendum (2017)

2.15 THC adopted their Onshore Wind Energy Supplementary Guidance (OWESG) in 2016, which also forms part of the Development Plan.

2.16 The Proposed Development is situated within both a Group 2 and Group 3 area for the purposes of Table 1 in Scottish Planning Policy, therefore within an area within which wind farms may be appropriate in some circumstances.

2.17 The OWESG lists the following ten landscape and visual criteria to which the Council will have regard when assessing proposals:

- *Relationship between Settlements/Key locations and wider landscape respected;*
- *Key Gateway locations and routes are respected;*
- *Valued natural and cultural landmarks are respected;*
- *The amenity of key recreational routes and ways is respected;*
- *The amenity of transport routes is respected;*
- *The existing pattern of Wind Energy Development is respected;*
- *The need for separation between developments and/or clusters is respected;*
- *The perception of landscape scale and distance is respected;*
- *Landscape setting of nearby wind energy developments is respected; and*
- *Distinctiveness of Landscape character is respected.*

2.18 They set out key considerations of the Council that the developer should be aware of and take account of in progressing the design and assessment of the proposals. This matter is addressed further separately in the Planning Statement.

2.19 An Addendum Supplementary Guidance: 'Part 2b Highland Strategic Capacity' was adopted in 2017 and looks at six geographical areas in relation to their strategic capacity for wind energy development. For each of the six study areas the addendum identifies the strategic capacity, the landscape sensitivity, key views, key routes and gateways before appraising each of the landscape character areas within the study area, identifying key views, routes the character area's landscape sensitivity (susceptibility) to wind energy development. The Proposed Development is located within the Loch Ness Study Area.

2.20 With reference to the Loch Ness Landscape Character Area Map the Site is located within the north-eastern corner of LCA 6, LN6: Monadhliath ridge and tops, Rolling Uplands outside of the study area defined by the OWESG. The analysis of the 'Landscape Sensitivity' of the LN6 study area identified a score of '2-3' for Large Scale Wind Farm development (on a scale of 1-4, with 1 being the most susceptible to change).

2.21 Since THC published their OWESG in 2016, NatureScot has prepared revised guidance on sensitivity assessment and advises that updating of existing studies may be required as development patterns and technology change and that reference to 'capacity' should be removed. The guidance also notes that "a finding of 'high sensitivity' does not necessarily mean that there is no ability to accommodate development and 'low' sensitivity does not necessarily mean there is definitely potential for development.

Assessment of Highland Special Landscape Areas (2011)

2.22 The Assessment of Highland Special Landscape Areas (AHSLA) was undertaken to support the interpretation of policy within the Highland-wide Local Development Plan. It reviewed the existing local landscape designations within The Highland Council area, known as Areas of Great Landscape Value, AGLV (now known as Local Landscape Areas, LLAs, but referred to as Special Landscape Areas, SLAs within the AHSLA). It provides a brief citation for each area which summarises its key landscape and visual characteristics, the special qualities for which it is valued, its key sensitivities to landscape change, and possible measures for its enhancement.

2.23 The Proposed Development lies within the boundaries of the Drynachan, Lochindorb and Dava Moors LLA. The special qualities are summarised as 'A Sense of Solitude, Views over Heather Moorland, and Big Skies' and described as follows:

- *Expansive views and broad panoramas across open, rolling moorland and vast skies instil a boundless sense of scale and space, enhanced by the consistency of moorland cover and landform character.*
- *A narrow, deep section of the Findhorn river valley at Streens offers enclosed and intimate relief in contrast to the elevated and exposed moorland. Elsewhere, valleys frame views to Lochindorb.*
- *Land management practices create distinctive abstract muirburn patterns, accentuated by*
- *ever-changing weather and light patterns.*
- *The limited extent of tree cover and human habitation creates a simple yet powerful moorland image of tranquillity, simplicity and isolation which is emphasized by Lochindorb and its ruined castle.*
- *Where buildings exist, these are of a distinctive estate character. Also building remains from pre clearance farmsteads, with enclosures, head dykes and associated field systems and improved landform one of the few built and 'managed' elements within the landscape. These engender*

a strong atmosphere which can arouse contemplative emotions of past human endeavour and hardship.

- *The long, fairly straight routes through this landscape allow an easy appreciation of the openness and simplicity of the landscape. These are typically lined with permanent snow poles which serve to reinforce the impression that this is a landscape exposed to adverse weather.*

Cairngorms National Park Local Development Plan (2021)

2.24 The Proposed Development lies outside of the Cairngorms National Park (CNP) however it adjoins the boundary of the CNP on its southern side. Therefore, the relevant non-statutory guidance has been considered.

Non-statutory guidance: Policy 5 – Landscape

"5.1 Special Landscape Qualities

There will be a presumption against any development that does not conserve or enhance the landscape character and special landscape qualities of the Cairngorms National Park including wildness and the setting of the proposed development.

Development that does not complement or enhance the landscape character of the National Park and the setting of the proposed development will be permitted only where:

a) any significant adverse effects on the special landscape qualities of the National Park are clearly outweighed by social or economic benefits of national importance; and

b) all the adverse effects on the setting of the proposed development have been minimised and mitigated through appropriate siting, layout, scale, design and construction to the satisfaction of the planning authority."

2.25 The Special Qualities of the CNP are listed in Commissioned Report No. 375 (2010) as follows:.

General Qualities

- *Magnificent mountains towering over moorland, forest and strath;*
- *Vastness of space, scale and height;*
- *Strong juxtaposition of contrasting landscapes;*
- *A landscape of layers, from inhabited strath to remote, uninhabited upland • 'The harmony of complicated curves; and*
- *Landscapes both cultural and natural.'*

The Mountains and Plateaux

- *The unifying presence of the central mountains;*
- *An imposing massif of strong dramatic character;*
- *The unique plateaux of vast scale, distinctive landforms and exposed, boulder- strewn high ground;*
- *The surrounding hills;*
- *The drama of deep corries;*
- *Exceptional glacial landforms; and*
- *Snowscapes.*

Moorlands

- *Extensive moorland, linking the farmland, woodland and the high tops; and*
- *A patchwork of muirburn*

Glens and Straths

- *Steep glens and high passes;*
- *Broad, farmed straths;*
- *Renowned rivers; and*
- *Beautiful lochs .*

Trees, Woods and Forests

- *Dark and venerable pine forest;*
- *Light and airy birch woods;*
- *Parkland and policy woodlands; and*
- *Long association with forestry.*

Wildlife and Nature

- *Dominance of natural landforms;*
- *Extensive tracts of natural vegetation;*
- *Association with iconic animals;*
- *Wild land; and*
- *Wildness.*

Visual and Sensory Qualities

- *Layers of receding ridge lines;*
- *Grand panoramas and framed views;*
- *A landscape of many colours;*
- *Dark skies;*
- *Attractive and contrasting textures; and*
- *the dominance of natural sounds.*

Culture and History

- *Distinctive planned towns;*
- *Vernacular stone buildings;*
- *Dramatic, historical routes;*
- *The wistfulness of abandoned settlements;*
- *Focal cultural landmarks of castles, distilleries and bridges; and*
- *The Royal connection.*

Recreation

- *A landscape of opportunities; and*
- *Spirituality*

Non-statutory guidance: Policy 7 – Renewable Energy

All renewable energy developments

2.26 Proposals for renewable energy generation will be considered favourably where:

- *a) they contribute positively to the minimisation of climate change;*
- *b) they complement the sustainability credentials of the development;*
- *c) they conserve and enhance the special qualities of the Park, including wildness;*
- *d) they include appropriate means of access and traffic management, including appropriate arrangements for construction areas and compounds;*
- *e) they adequately minimise all cumulative effects; and*
- *f) they adequately minimise detrimental impacts on local air quality, particularly for proposals including combustion plants such as biomass.*

2.27 Planning conditions and/or financial bonds will be used where appropriate to secure decommissioning and Site restoration.

2.28 Since the CNP published their LDP in 2021, NatureScot has updated their policy on Wild land. Within NPF4 only development within wild land areas requires a wild land impact assessment, effects of development outwith wild land areas will not be a significant consideration.

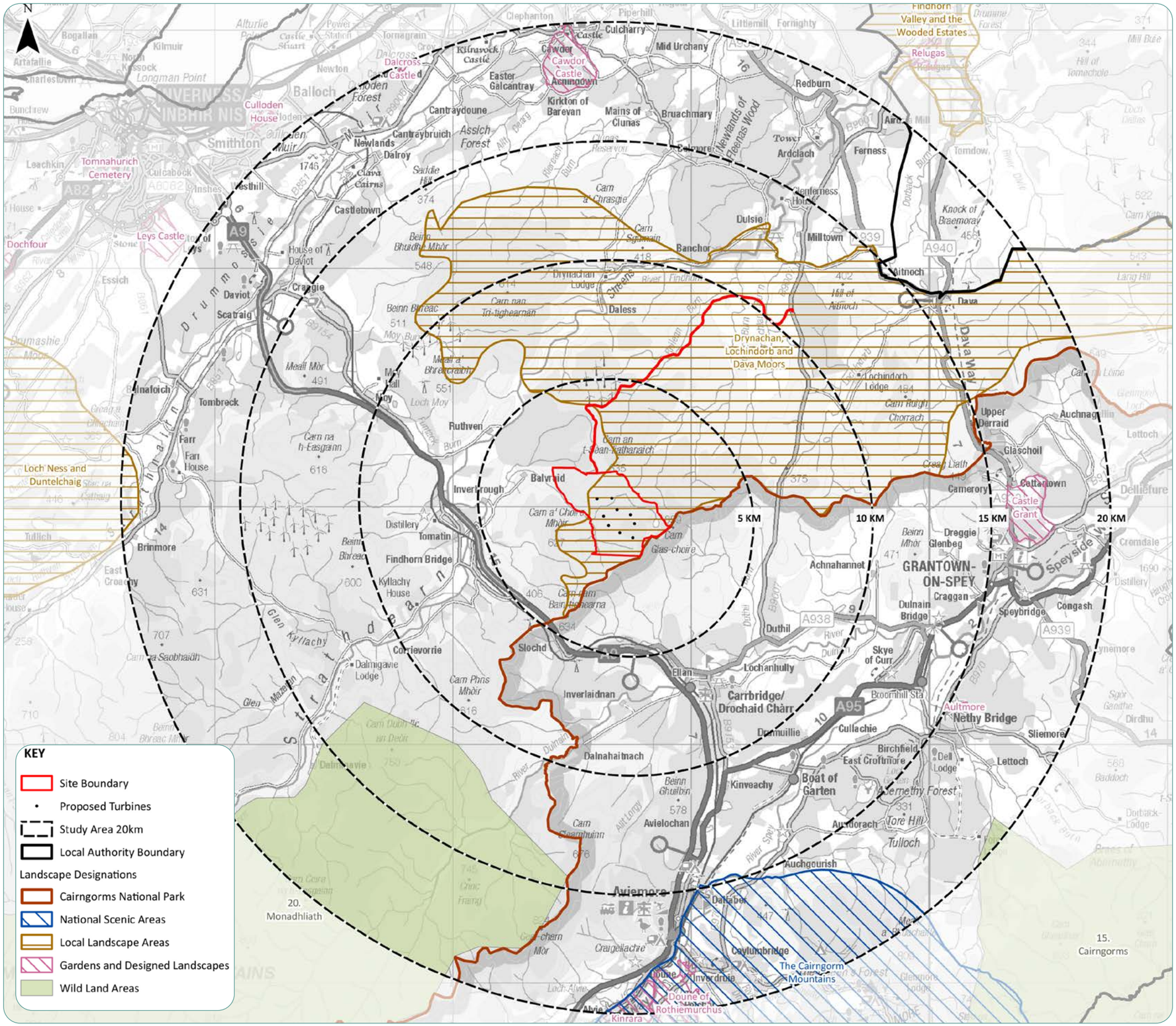


Figure 8: Landscape Designations within 20 km

Image 5: Watercourse within Site

Image 6: Meandering track within Site

The Changing Landscape

Landscape and Visual Context

2.29 The location of the Proposed Development Site is illustrated at Figure 1 and the layout of the Site is shown on Figure 16.

2.30 The Proposed Development is location in the Highlands of Scotland. The Site is centred at approximately British National Grid (BNG) 286757, 830101. The closest main settlements to the proposed turbines are Tomatin, located approximately 5.6 km to the west and Carrbridge 6.6 km to the south-east. Inverness is situated 19 km to the south-west.

2.31 The nearest main transport routes are the A9 between Inverness and Aviemore, situated approximately 4.7 km to the south-west, and the Highland Main railway line 4.5 km to the south-west at the closest point. The A938 between Carrbridge / Drochaid Chàrr and Grantown-on-Spey is situated approximately 4.5 km to the south, and the A939 between Grantown-on-Spey and Nairn passes 14.6 km to the east of the Site.

2.32 There are no international landscape designations covering the Site or located within the 45 km study area.

2.33 There are no national landscape designations covering the Site. However, the Cairngorms National Park (CNP) is situated adjacent to the southern Site boundary, approximately 0.6 km to the south of the nearest turbine, as shown on Figure 9, along with other landscape designations.

Topography

2.34 The Proposed Development is situated on undulating ground that forms part of an elevated plateau. The Site falls in a broadly westerly direction from an elevation of 659 m AOD at Carn Glas-choire (Viewpoint 1) at its south-eastern corner towards Gleann Mòr, which follows the western Site boundary. The glen descends towards the north where Allt Sguabaich meets Allt Loisgte at approximately 453 m AOD. The larger part of the Site, to the south of Allt Loisgte, is situated at a higher elevation than the area to the north. To the north of Allt Loisgte the landform rises towards Carn Leathan at 587 m AOD near to the centre, before falling towards the north-west corner of the Site which is situated at approximately 400 m AOD.

2.35 The upland plateau on which the Site is situated extends to the north and west of the Site and is wrapped around by the River Findhorn valley. To the south of the Site the land falls steeply down towards Blàr Mòr at approximately 350 m AOD before falling more gradually towards the broad Dulnain and Spey river valleys beyond.

2.36 This sweeping area of high ground that is bisected by the Findhorn Valley and incorporates the Site forms part of the Monadhliath Mountains that extend in north-easterly direction through the study area. The River Spey valley to the south-east, separates this area of higher ground to the north-west from the highly prominent Cairngorm Mountains to the south-east that extend through the southern part of the study area.

2.37 Overall, the topography of the Site and its immediate environs is characterised as an undulating plateau elevated above river valleys to the north and south, with lower lying landform further north and higher ground further south.

Watercourses and Drainage

2.38 The Proposed Development is sited on an undulating plateau that is crossed by Allt Loisgte, which flows through the centre of the Site in a roughly east to west direction before turning north-westwards at the western Site boundary. This watercourse is fed by Loch Bràigh Bhruthaich, which is situated within the eastern part of the Site. At the western Site boundary Allt Loisgte is joined by Allt Sguabach, which flows through Gleann Mór in a broadly northerly direction along the western Site boundary. The combined watercourses form Allt Bruachaig, which initially flows in a north-westerly direction, before turning south-west and flows towards the River Findhorn. The river flows in a broadly north-easterly direction off the Monadhliath Mountains in the south-western part of the study area and passes approximately 1 km to the north of the Proposed Development.

2.39 This river continues to flow in a broadly north-easterly direction towards Forres, eventually outfalling into the Moray Firth at Findhorn Bay. The river is fed by numerous small burns that flow down from the higher ground, joining the river at various points.

2.40 Elsewhere within the study area, the River Spey is the other main watercourse, flowing through the southern part of the study area at the foot of the Cairngorm Mountains, passing through Aviemore, and continuing north-east towards Grantown-on-Spey and to Charlestown of Aberlour at the eastern edge of the study area.

2.41 Apart from the Loch Bràigh Bhruthaich within the Site boundary, there are also several notable lochs present within the study area that include Loch Moy, approximately 8.4 km to the south-west of the nearest turbine, and Lochindorb approximately 10.0 km to the east north-east. Loch Duntelchaig is situated approximately 21.4 km to the west of the Proposed Development and Loch Ness approximately 26.6 km to the west. The Moray Firth is located approximately 22.7 km to the north.

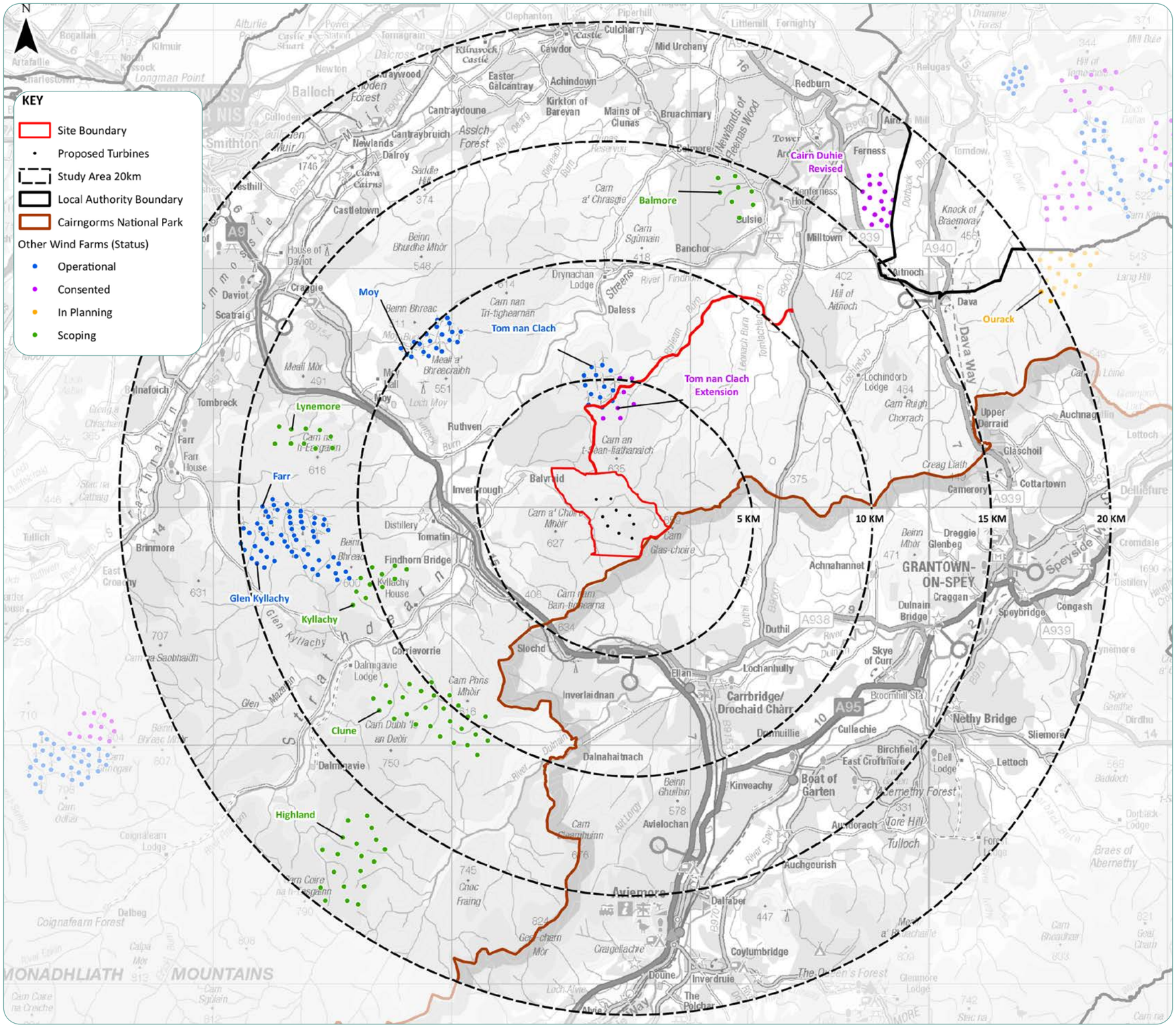


Figure 9: Other Wind Farms within 20 km

Built Infrastructure

2.42 The Site does not feature any built infrastructure due to its elevated moorland location. However, an existing moorland access track connects to the minor road between Balvraid and Findhorn Bridge, which in turn connects to the A9 between Aviemore and Inverness. The access track crosses a ford through Allt Bruachaig and heads in a south-easterly direction along the western Site boundary. At the confluence of Allt Loisgate and Allt Sguabach there is a fork in the track. One section of track heads in a southerly direction along the western Site boundary through Gleann Mòr, crossing numerous fords through Allt Sguabach. The other section of track turns towards the north-east and follows Allt Loisgte before turning northwards to climb Carn Leathan and eventually exiting the Site to the north. The section of track forks to the east and crosses Allt Loisgte via three fords before turning south-east and climbing to the summit of Càrn Lain Ruaidh within the Site.

2.43 Within the wider landscape, there are numerous individual farmsteads and small groups of properties, villages and occasional small towns, situated mainly within the more settled valley landscapes, although there are some more remote and isolated properties on the raised upland plateaux associated with the small holdings, game keeping or management of the moorland.

2.44 The primary routes crossing through the 20 km study area comprise the A9, approximately 4.7 km to the south-west of the Proposed Development, the A95 situated approximately 10.5 km to the south passing through Strath Spey, the A938 approximately 6.6 km to the south-east passing through the Dulnain valley, the A939 approximately 14.6 km to the east north-east. There are also several B roads including the B9007 approximately 5.6 km to the east-south-east of the Proposed Development. The Highland Main Line railway passes through the study area linking Inverness in the north with Perth to the south. The railway line follows a similar route to the A9 road.

2.45 Within the wider landscape there are several consented and operational wind farms in the landscape, with ones which lie within 20 km of the Site shown at Figure 9. The nearest operational wind farm to the Site is Tom nan Clach Wind Farm situated approximately 3.8 km to the north comprising 13 turbines with a blade tip height of 125 m. Other operational wind farms include Moy Wind Farm approximately 9.0 km to the south-west, Glen Kyllachy approximately 10.7 km to the west and Farr Wind Farm approximately 11.2 km to the west. The consented Tom na Clach Extension is situated approximately 3.3 km to the north of the Proposed Development, comprising seven turbines with a blade tip height of 149.9 m. The consented Cairn Duhie Wind Farm is situated approximately 15.8 km to the north-east, and the consented Aberarder Wind Farm is situated approximately 22.4 km to the west-south-west.

Sensory and Perceptual Characteristics

2.46 The Site comprises open moorland situated on a large-scale upland plateau, incised by shallow sided valleys and backed by peaks of a similar elevation. It has a simple form, with a strong horizontal emphasis. This open, upland landscape combined with its moorland vegetation, lack of tree cover within, or around the Site aside from the area of forest to the north, results a strong perception of openness and space.

2.47 Apart from the access tracks that snake across the moorland and the existing Tom nan Clach Wind Farm to the north, there is little built form with the immediate vicinity of the Site resulting in a perception of remoteness.

2.48 However, the moorland landscape also reflects the cultural importance of the landscape that has been shaped by human influences over thousands of years through its management and use for sport and recreation and for upland grazing.

2.49 The landscape's simple, open form allows broad sweeping views across it in all directions which extend west towards the chain of low hills that fringe the western edge of the plateaux and the hills to the south and east, with few prominent focal points within the vicinity of the Site.

2.50 Existing large-scale wind farms at Tom nan Clach and within the wider landscape are an existing component of views across the landscape.

Forces for Future Change in the Landscape

2.51 The moorland on which the Site is located is subject to seasonal changes in colour as the heather flowers. It is also subject to change through traditional forms of moorland management, which may over time change such as by introducing longer rotations between burning, or changes to vegetation resulting from re-wetting or rewilding which encourage greater habitat diversity.

2.52 In the wider landscape to the north of the Site the consented Tom na Clach wind farm extension would increase the influence of the wind energy in proximity to the Site. To the north-east there is a commercial wind energy development currently being considered in planning, and a second in scoping, whilst to the south-west, there are a further three commercial wind energy developments currently being considered at scoping. If consented, these developments would alter the existing nature of the landscape in those parts of the study area.

2.53 In addition to the consented or Proposed Development within the vicinity of the site it is widely recognised that climate change will have an impact on the future character of the Scottish landscape through changes to weather conditions that will in turn result in changes to vegetation that will affect the intrinsic character of the landscape.

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Image 7: View from Viewpoint 2: Minor Road north of Drynachan towards the existing Tom nan Clach Wind Farm

3. DESIGN PROCESS

Image 8: LVIA Viewpoint 10 Photomontage: Taken from Carn nam Bain-tighearna

Overview

3.1 The Proposed Development has taken into consideration a range of technical, environmental, planning and commercial factors. These factors have been considered from the initial site selection in 2020. This section describes this design process and design considerations applicable to the Proposed Development.

Site Selection

3.2 Detailed feasibility work was undertaken by Fred Olsen Renewables Limited, drawing on specialist consultant input. The appraisal work undertaken at the feasibility stage covered a range of different issues, including:

- *Wind speed data;*
- *Distance to private dwellings (over 3 km);*
- *Natural and built heritage constraints and Archaeology;*
- *Opportunities for peatland habitat restoration and biodiversity enhancement, given extensive historical modification and degradation of the peat resource and peatland habitat at the site;*
- *Opportunity to make use of existing infrastructure and tracks put in for construction of the Tom Nan Clach Wind Farm;*
- *The potential for the development to positively and significantly contribute to regional and national renewable energy and carbon reduction targets;*
- *Nearby wind farms;*
- *Grid connection distances and costs;*
- *Site access;*
- *Landscape and visual considerations;*
- *Ecology and ornithology;*
- *Local development plan policies;*
- *Electromagnetic links and utilities;*
- *Aviation areas;*
- *Good opportunity for genuine community engagement and benefit; and*
- *Local knowledge and other information about surrounding undesignated parks and tourist attractions etc.*

3.3 To supplement the above resources, the Applicant also considered the site's potential in the context of:

- *The decision to refuse a Section 36 application for a wind farm on this site in 2011, the key sensitivities identified, and consultee advice received in respect of that application;*
- *Spatial Planning for Onshore Wind Turbines – Natural Heritage Considerations' (SNH, updated in June 2015);*
- *Highland Wide Local Development Plan (HwLDP) (THC, 2012); and*
- *Scottish Planning Policy (SPP) with particular regard to Renewable Energy, paragraphs 182-186, which was the national policy in place at the time of site selection.*

3.4 These factors all remain applicable in relation the Proposed Development.

3.5 A detailed feasibility study and workshop was undertaken with planning and environmental consultants who had recent, local and relevant renewable development experience. This stage included an initial review of landscape and visual considerations.

3.6 The Proposed Development Site was successful in this feasibility stage and as such taken forward for consultation with stakeholders, via THC's pre-application process, and further investigation and survey

Design Approach

Identification of constraints

3.7 Constraint information obtained from the baseline survey and extensive field survey and consultation (through the EIA scoping process) was collated and mapped to establish the potentially developable area for the siting of wind turbines within the Site. The land within the Site covered by the following constraints was taken out of the developable area where turbines could be sited:

- *Landscape designations and visual amenity and proximity of residential properties;*
- *Archaeological and cultural heritage assets;*
- *Sensitive fauna and habitats;*
- *Ornithology;*
- *Peat and soils;*
- *Watercourses, private water supplies and sensitive surface water features;*
- *Topography and ground conditions;*
- *Public road accessibility;*
- *Recreational and tourist routes;*
- *Acoustic;*
- *Shadow flicker;*
- *Aviation and defence constraints; and*
- *Presence of utilities.*

3.8 The constraints within 10km of the Site are shown on Figure 10.

Consultation

3.9 Consultation is a key component of the EIA process. In order to inform the EIA, there has been ongoing consultation with statutory consultees, engagement through correspondence and meetings, as required.

3.10 Consultation with organisations who were contacted either directly by the Applicant or by the ECU through the formal EIA application process, is described as appropriate in each technical chapter of this EIA Report. Consultation with the general public has also been undertaken and is detailed below.

Technology, Size and Scale

3.11 The Scottish Government's Onshore Wind Policy Statement (2022) challenges the industry to develop the first 'subsidy free onshore wind farm' which is only possible if the Levelised Cost of Electricity (LCOE) of any development is low enough. Essentially the LCOE can be established by a number of factors:

- *Wind speed and wind flow across the site to determine the capacity factor;*
- *The cost of turbines;*
- *The cost of grid connection for the site;*
- *The potential for the highest wind speeds to be utilised most effectively;*
- *Improved project economics by creating the opportunity for larger rotor sizes to be delivered to site via main road networks;*
- *Efficiencies created by utilising existing tracks on site; and*
- *Close proximity to existing grid infrastructure.*

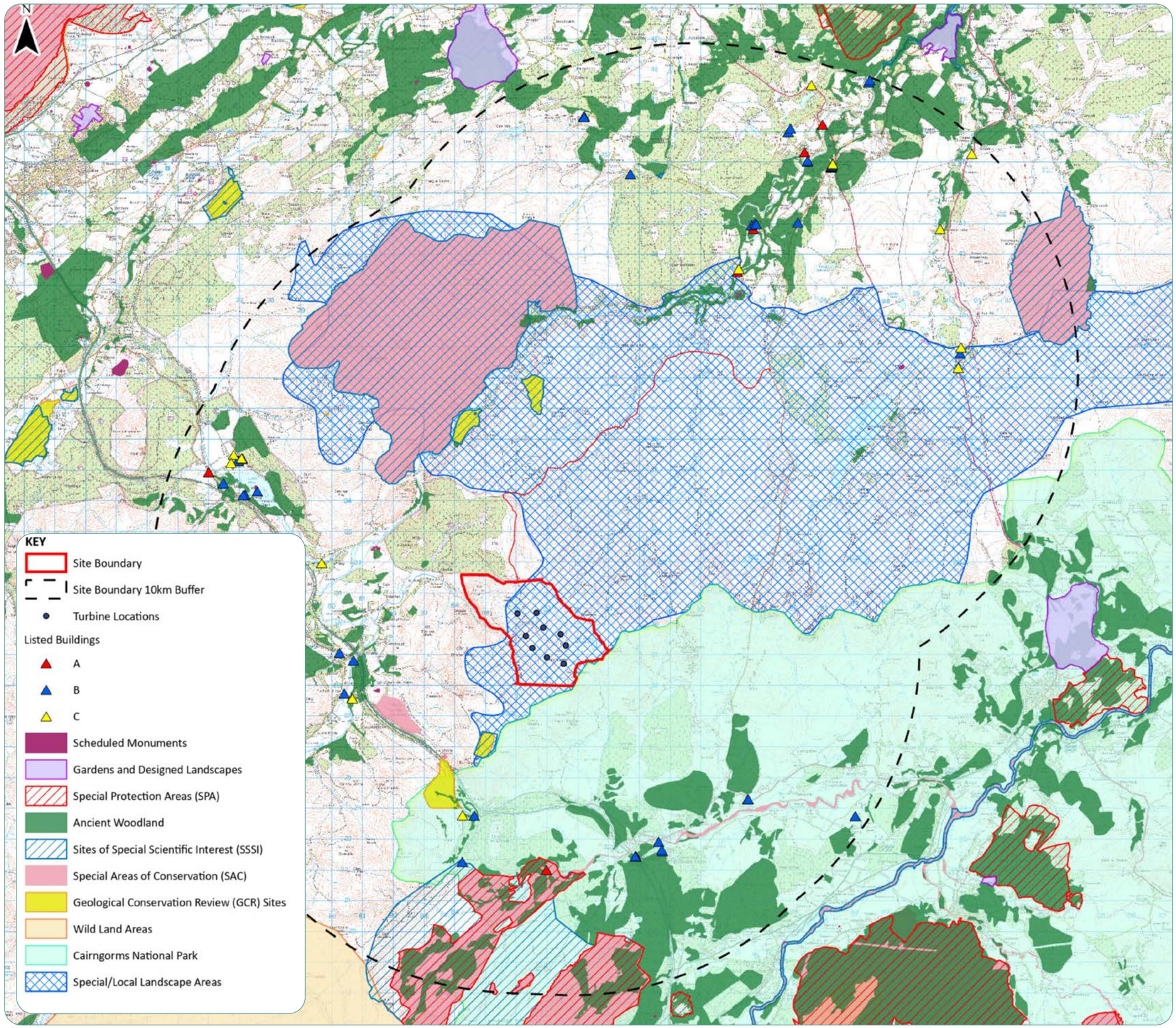


Figure 10: Constraints within 10km

Efficiency Modelling

3.12 Efficiency modelling was undertaken at key stages throughout the design evolution process to ensure commercial viability of the scheme. For turbines to work effectively, they must be spaced relative to the expected prevailing wind direction. If they are too close together, the energy will be taken out of the wind at the front edge of the array and will create turbulent air for the next row and so on through the array. This is known as the wake effect.

Public Consultation

3.13 Although not a statutory requirement for S36 applications, the Applicant has undertaken a stand-alone Pre-Application Consultation Report which gives details of the correspondence, online public consultation and other discussions which have taken place with the communities closest to the Proposed Development Site. The report also details findings of that work and illustrates the ways in which community engagement has helped identify potential issues arising from the emerging development proposal, and where appropriate, shape the final proposal which is now the subject of this application.

Design Considerations

3.14 During the EIA process the following design considerations were determined, in addition to the site based constraints listed in paragraph 3.7 above. This section explains how these considerations have influenced the design through the layout iteration process.

3.15 Constraints analysis was undertaken using Geographical Information Systems (GIS). This allowed base-mapping to be overlaid with spatial data, such as environmental constraints and protected sites, and project-specific data to provide the project team with a means of interrogating environmental and project details in a single place at technical meetings and design workshops.

Technical and Environmental Considerations

Landscape and Visual Considerations

3.16 Potential landscape and visual impacts were a key issue for the design iteration process. This is discussed in further detail subsequently in Section 4, the Design Response. Amongst the landscape and visual matters considered during the design process were the following:

- *Views from nearby residential properties;*
- *Views from other settlements, roads and public rights of way;*
- *Potential effects on Landscape Character;*
- *Potential effects on Designated Landscapes; and*
- *Additional and total cumulative effects.*

3.17 Key design viewpoints were developed and were also included subsequently as LVIA Viewpoints reflecting the key visual receptors.

Ecology and Ornithology

- *A desk study was undertaken to collate relevant public domain survey data, and to obtain historical records of protected and relevant species from within the Proposed Development and the surrounding environment. An initial desk study was completed in 2019 to inform the ecological baseline survey programme. The desk study was updated in 2024 to provide context to the results of the ecological field surveys;*
- *Ecological surveys have been carried out across the site and surrounding area from 2021 to 2024, including an Extended Phase 1 and NVC Habitat Survey, bat surveys, Peatland Condition Surveys, protected species surveys and a fisheries survey. Sensitive and protected ecological features and appropriate buffers have been avoided. Sensitive habitats within the site have been avoided where possible, or where unavoidable the potential impacts reduced as far as practicable. Areas of priority peatland habitat have been avoided where possible, and the recommended habitat standoff distances from blade swept path to key habitat features have been incorporated into the design.*
- *A minimum distance of 50 m has been maintained between the Proposed Development and watercourses, with the exception of locations where tracks cross watercourses;*
- *All proposed turbine locations are over 100 m from key habitat features for bats (such as areas of woodland or scrub), which gives more than the 85.79 m buffer as set out in current NatureScot guidance (NatureScot et al., 2024).*
- *Habitat enhancement measures targeted at dry modified/ blanket bog are proposed.*

3.18 Ornithology surveys have been carried out across the Site and surrounding area during 2020 to 2024, including VP surveys, MBBS surveys, Black Grouse surveys, Breeding Raptor surveys, Breeding Eagle surveys. Suitable buffers were considered during the design evolution process and areas have been avoided owing to the presence of sensitive bird populations.

- *Restoration and enhancement of existing peatland habitat within the Site which will improve habitat quality and availability for breeding and foraging upland waders and raptors; and*
- *Breeding Bird Surveys to monitor the use of the Site by breeding birds during operation, and to assess and monitor effectiveness of peatland habitat restoration and enhancement.*

Archaeology and Cultural Heritage

3.19 Potential heritage impacts were an important issue for the design iteration process. This is discussed in further detail subsequently in Section 4, the Design Response. Amongst the heritage matters considered during the design process were the following:

- *Views from Lochidorb Castle; and*
- *Views from Dalarossie Cottage.*

3.20 Key design viewpoints were developed and were also included subsequently as heritage Viewpoints reflecting the key heritage receptors.

- *The turbine layout has been designed to avoid heritage assets identified where possible. However, five non-designated heritage assets have been recorded within the footprint of the Proposed Development. The shooting butts (Assets 33, 37, 39, 51, 52) are expected to be removed as a result of construction works. The Applicant will contract a registered archaeologist to make an accurate record of the shooting butts to ensure their preservation by record prior to their removal.*

- *The Highland HER records the location of the settlement of Rhibanchor (Asset 66) along the existing Tom nan Clach access track which is proposed for upgrade. As the location of the settlement is recorded within the footprint of the track, there is the potential for the asset to be further truncated as a result. Based on the asset's location within a section of track identified for upgrade, there is the potential for any surviving buried remains to be further truncated or removed as a result of construction works. As such, the Applicant will contract a registered archaeological company to undertake a watching brief during any ground-breaking works within the extent of the settlement of Rhibanchor (Asset 66) as recorded within the Highland HER.*

Hydrology, Hydrogeology, Geology, peat and soils

3.21 Multiple survey efforts were undertaken to inform peat depth and peat condition, including initial 100m grid surveys followed by detailed probing at the infrastructure (see Figure 11). Peatland condition assessment was undertaken to help inform design (avoiding near natural) with subsequent assessments and opportunities for enhancement.

- *Consideration has been made to the impacts on watercourses, soils, peat, slope and flood zones. The project design has been informed by an understanding of the ground conditions, which has evolved from baseline studies including an engineering site visit and peat depth surveys.*
- *Layout D was the result of micrositing several turbines to minimise impacts on peat, following receipt of scoping comments from THC and Scottish Environment Protection Agency (SEPA). T2, T3, T4, T5, T6, T8, and T9 were relocated to shallower areas of peat based on Stage 1 peat probing data. This layout was considered a design chill.*
- *Layout E was a further refinement to the layout, informed by Stage 2 peat probing of the turbine and infrastructure locations of the 'design chill'. There was no change in the location of T8 and T9 between Layouts D and E. Similarly to Layout D, whilst the primary driver behind the changes to the layout was based on reducing impacts on peat, all constraints, including engineering suitability, impacts on ecological receptors, archaeological assets and landscape and visual receptors was considered.*

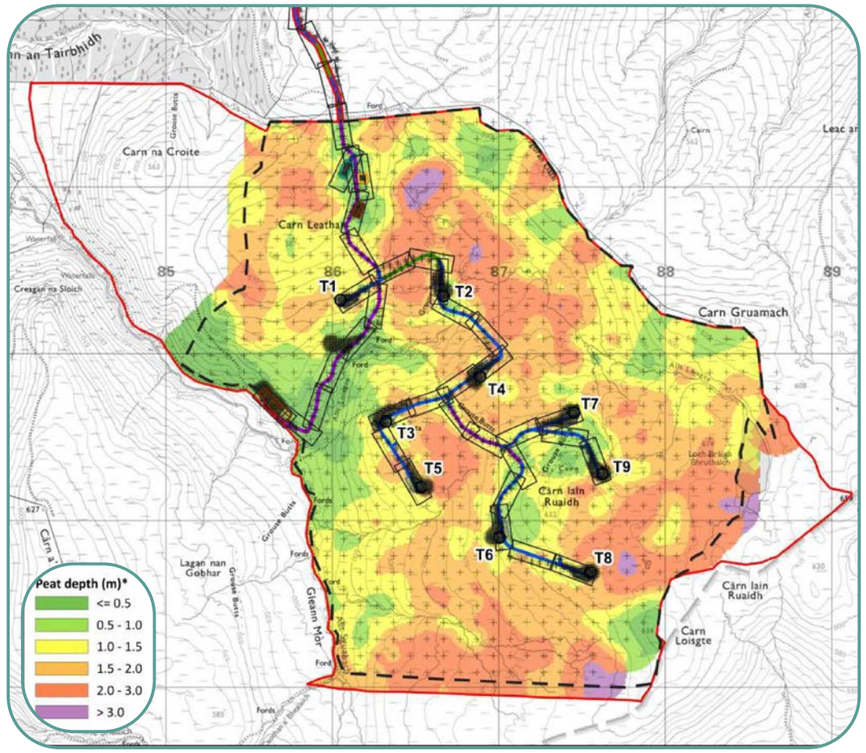


Figure 11: Peat Interpolation Overview

Traffic and Transport

- *Construction Traffic Management Plan (CTMP) which identifies measures to potentially reduce number of construction vehicles, consider construction programming, routing and identification of an individual with responsibility for managing traffic and transport effect.*
- *A sensitivity review was undertaken to inform the planning authorities of possible issues with other relevant schemes in the area, whose construction traffic would impact the study area, should they be constructed concurrently. The review found that there would be more than sufficient spare road capacity to accommodate all schemes being constructed at the same time.*

Acoustic

3.22 No properties are located within the 35dB limit.

- *No requirement for specific mitigation measures has been identified, however, predicted compliance with the adopted rating level noise limit will be confirmed during procurement of the substation and BESS equipment and finalisation of the compound location.*

Aviation and Radar

- *The Inverness Airport combined IFP and ATCSMAC assessment had yet to be completed at the time of submission. The findings of this work may result in a requirement to amend some procedures prior to the erection of the proposed turbines. In this event The Applicant would work with HIAL and their procedure designer to revise and implement affected procedures.*
- *No other aviation impacts are anticipated for all phases of the Proposed Development; commissioning, operation and decommissioning.*
- *The MOD, the CAA and other relevant local airspace stakeholders, has approved a lighting scheme consisting of visible spectrum lighting on five turbines and infra-red lighting on all turbines.*

Design Evolution

Layout Iterations

3.23 The turbine layout has undergone several principal iterations as part of the EIA and wind farm design process which started in 2020. The main iterations are described below and Figures 11 to 15 illustrate the progression through the Applicant's iterative design process.

3.24 With consideration to the key issues and constraints, up-to-date wind turbine technology and the design principles set out above, the final layout of the Proposed Development was the result of several iterations as outlined below:

Layout A

3.25 Layout A (Figure 12) was the initial turbine layout, comprising 29 turbines and seeking to maximise wind yield against known constraints at the time identified through a desk-based study and a review of the previously wind farm application for 'Glenkirk Wind Farm' covering part of the proposed Site. This 'Gate B' feasibility assessment, included a landscape and visual review and Stage 1 peat depth survey.

Layout B

3.26 Layout B (Figure 13) was developed from the initial Layout A, using a defined 'turbine development area'. The turbine development area was established following the initial landscape and visual review. As such, T1, T2, T3, T4, T7 & T28 were removed due to being outside of the turbine development area.

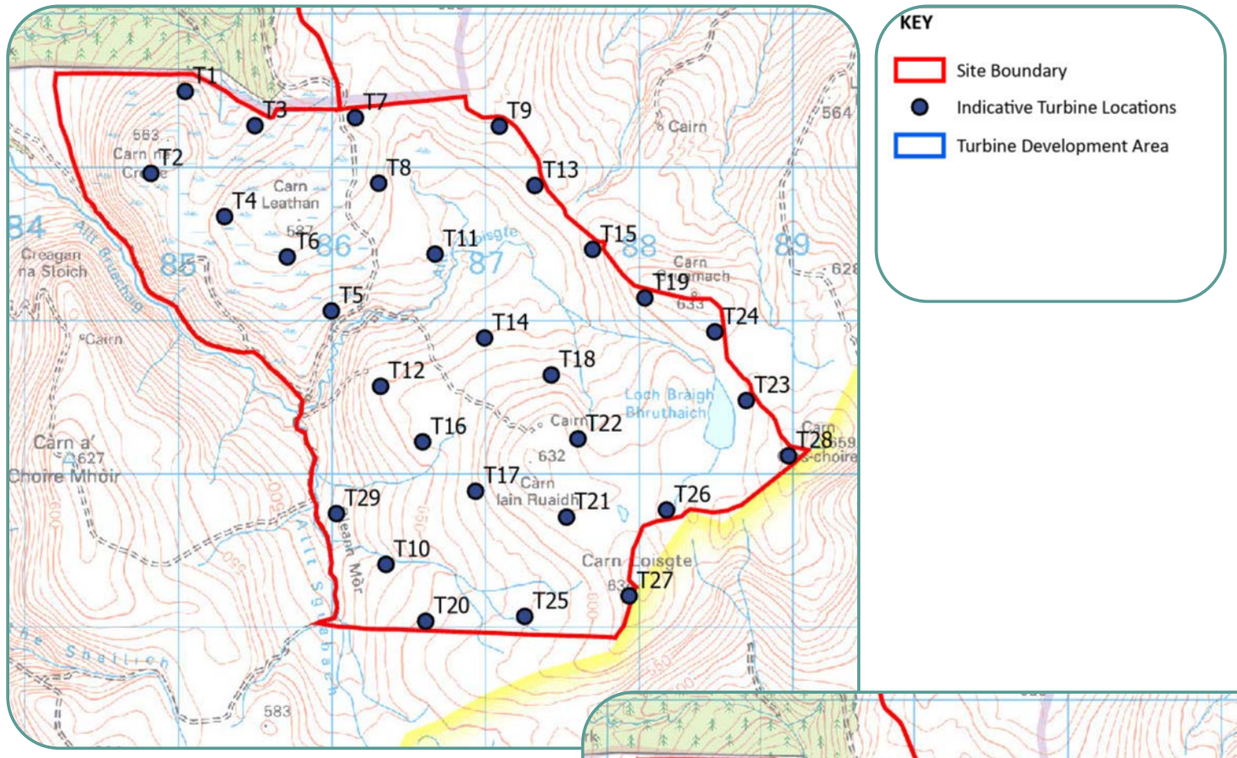


Figure 12: Layout A

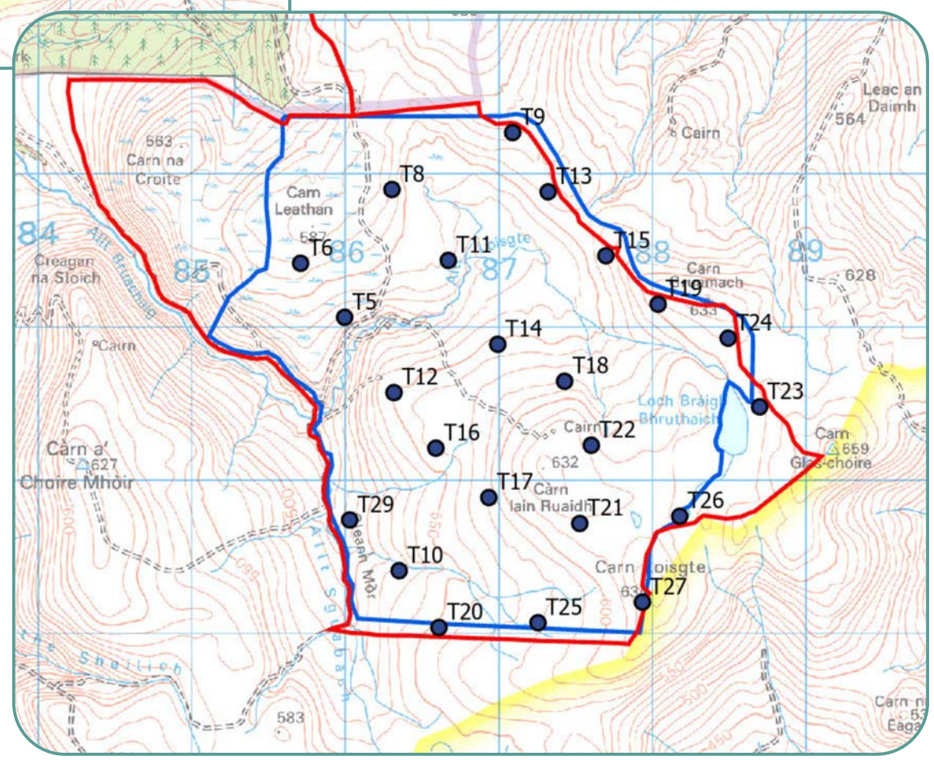


Figure 13: Layout B

Layout C

3.27 Layout C (Figure 14) was used to inform the Scoping Report and took into consideration the findings of a 'Gate C' feasibility assessment. This involved detailed consideration of environmental constraints identified through observations on site and desk-based background information. Turbines within the north-east of the Site were removed to minimise views from Lochindorb Castle. From this, a 9-turbine layout was produced, largely driven by sensitive views from Lochindorb and hill summits identified following consultation with NatureScot and Cairngorms National Park. The result is a reduction in prominence of turbines in views from the east.

3.28 This layout, with an associated on-site battery energy storage system (BESS), was taken forward for Scoping in 2023, with a maximum tip height of 200 m. Turbines were subsequently renumbered from T1-T9.

Layout D

3.29 Layout D (Figure 15) was the result of micrositing several turbines to minimise impacts on peat, following receipt of scoping comments from THC and Scottish Environment Protection Agency (SEPA). T2, T3, T5, T6, T8, and T9 were relocated to shallower areas of peat based on Stage 1 peat probing data. This layout was considered a 'design chill'.

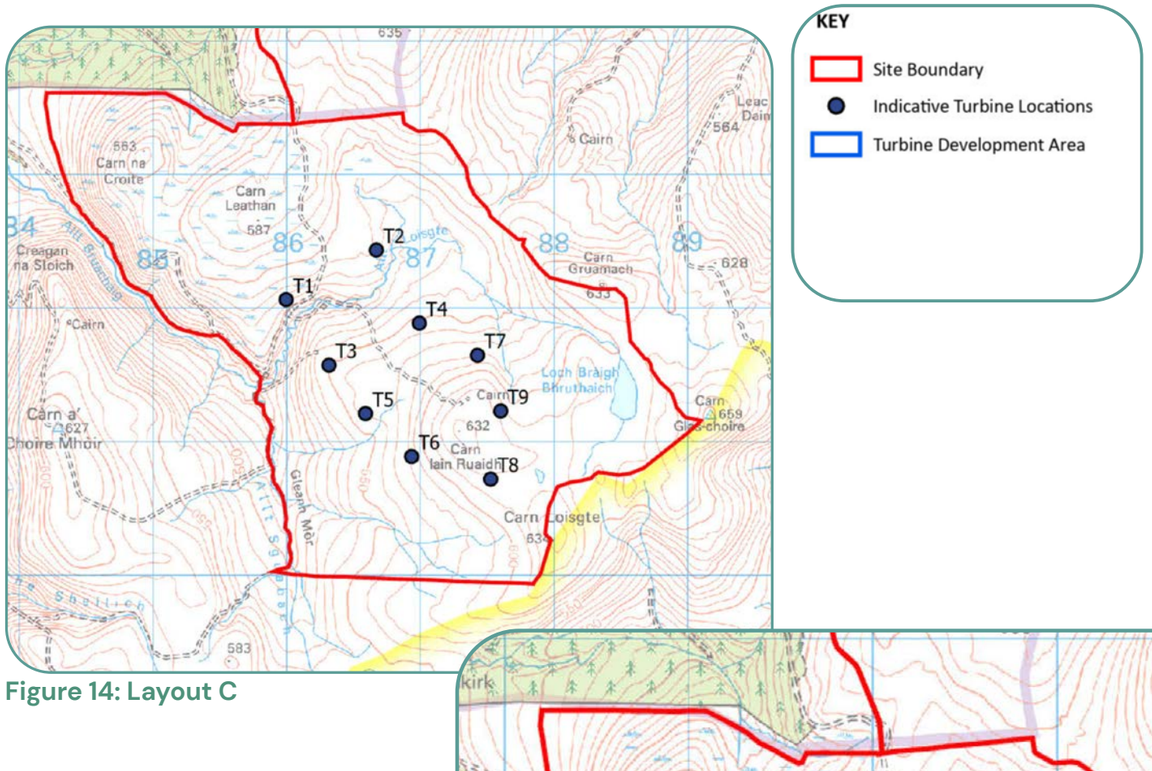


Figure 14: Layout C

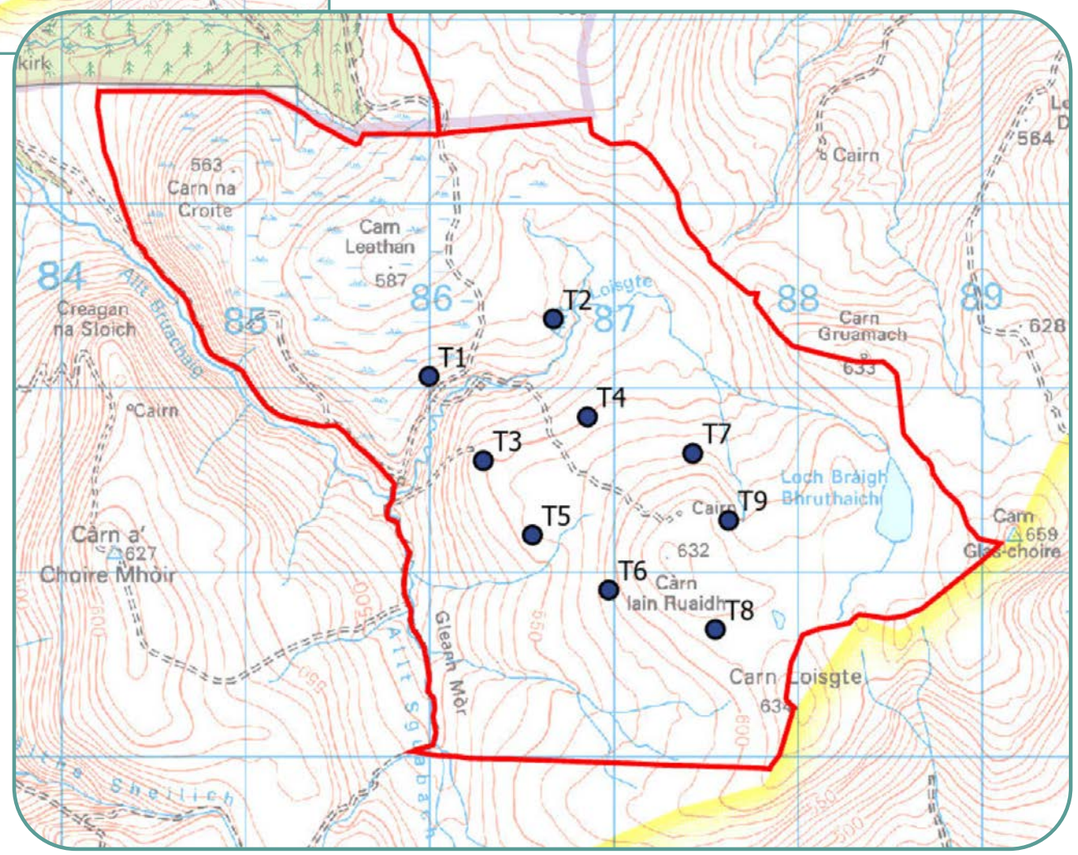


Figure 15: Layout D

Layout E (Final Layout)

3.30 Layout E (as shown in Figure 16) was a further refinement to the layout, informed by Stage 2 peat probing of the turbine and infrastructure locations of the 'design chill'. The moves incorporated into this design iterations were:

- *T1 moved approximately 250 m north-east to an area with better wind yield and more beneficial from a construction an operations perspective;*
- *T2 moved 30 m south-east and the hardstand rotated clockwise to an area of shallower peat;*
- *T3 was moved 30 m south-east;*
- *T4 was moved approximately 55 m north-east to allow for suitable spacing from T3;*
- *T5 was moved 15 m west to move away from a pocket of deep peat near the watercourse;*
- *T6 was moved 30 m east into an area of shallower peat; and*
- *T7 was moved 15 m north-east and the hardstand rotated anticlockwise to avoid being located on an area of deep peat.*

Site Infrastructure

Batteries Compound, Substation, Energy Storage and Cabling

3.31 The electrical power produced by the individual turbines will be fed to an on-site substation and energy storage facility via underground cables.

3.32 The wind farm array cables on site will be laid in trenches, typically approximately 0.5 m deep and 1 m wide, laid on a sand bed and backfilled using suitably graded material. The trenches will also carry earthing and communication cables for the operation of the Proposed Development. Cabling will mainly be located adjacent to the access tracks within the wind farm itself.

3.33 The substation and energy storage facility (as shown in Figure 17) will be approximately 50 m by 100 m, to incorporate a substation and control room building, energy storage facility, and potential some external electrical equipment. The substation and control building will accommodate all the equipment necessary for automatic remote control and monitoring of the Proposed Development, in addition to the electrical switchgear, fault protection and metering equipment required to connect the Proposed Development to the electricity transmission network. Depending on the nature of the connection, there may be external electrical infrastructure adjacent to the control building. Subject to economic viability, a battery energy storage system (BESS) with an output of around 10 MW will be located adjacent to the control building. The energy storage facility will be approximately 500 m^2. The BESS will store excess renewable electricity generated by the Proposed Development and discharge to the grid when required. The BESS compound will enclosed by security fencing, and will house approximately 10 BESS container units and external ancillary equipment including inverters. The BESS units are similar in size to a 20 x 8 x 8 ft container and will be situated on a hardstanding area with small concrete foundations. Cabling will then be routed from each BESS container to a transformer which will then be routed to the substation compound.

3.34 The Proposed BESS would be expected to utilise a modern lithium-ion cell chemistry. There is very low risk of fires starting or spreading through what is called 'thermal; runaway' with the latest generation of lithium-ion battery energy storage systems, which benefit from a layered protection strategy.

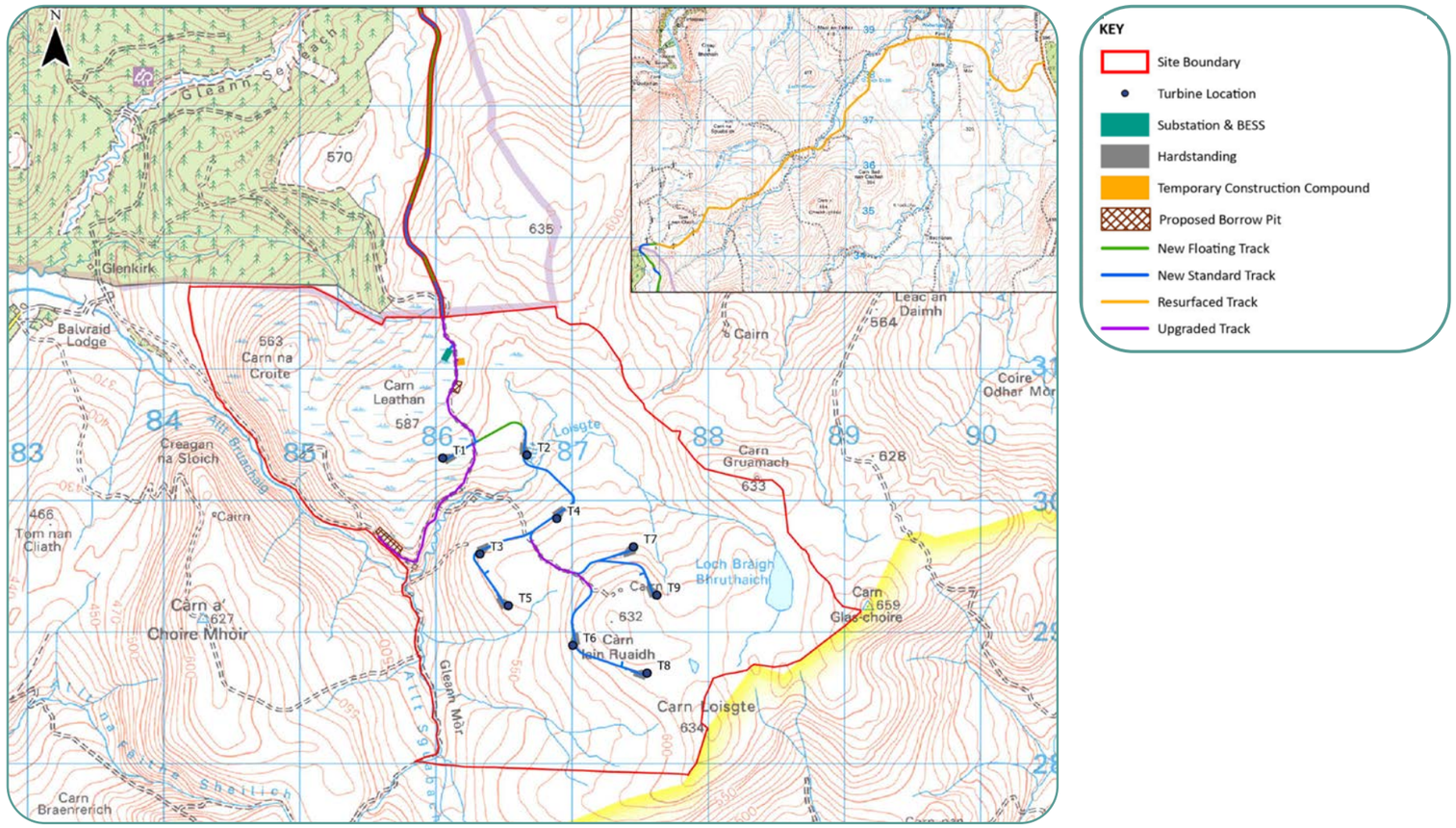


Figure 16: Layout E (Final Layout)

Hardstands

3.35 To enable the construction of the turbines, a crane hardstanding area and turning area at each turbine location will be required to accommodate assembly cranes and construction vehicles. This will comprise a permanent crushed stone hardstanding area measuring approximately 49 m long by 20 m wide.

Temporary Compounds

3.36 A temporary construction compound (as shown in Figure 18) will be constructed to provide a secure area for office facilities and storage of materials and components. The temporary construction compound of 50 m x 50 m will be required in the northern extent of the Site.

3.37 The compound area will house temporary portable cabin structures to be used as the main site office and welfare facilities, including toilets, clothes drying and kitchen, with the provision for sealed waste storage and removal. They will also be used for the storage and assembly of wind turbine components, parking for vehicles, containerised storage for tools and small parts, and storage for cables, oil and fuel as required.

3.38 A concrete batching plant will be located within the construction compound and will comprise aggregate and cement hoppers, water bowsers/tanks, a mixer and a control cubicle. Aggregates and sand would be stockpiled and contained adjacent to the plant.

3.39 The proposed location of the compound is on firm ground and avoid habitats of highest sensitivity. Prior to commencing construction work, a detailed appraisal of the areas will be required, including an assessment by the project ecologist and also trial pits and/or boreholes to confirm the nature of the sub-strata.

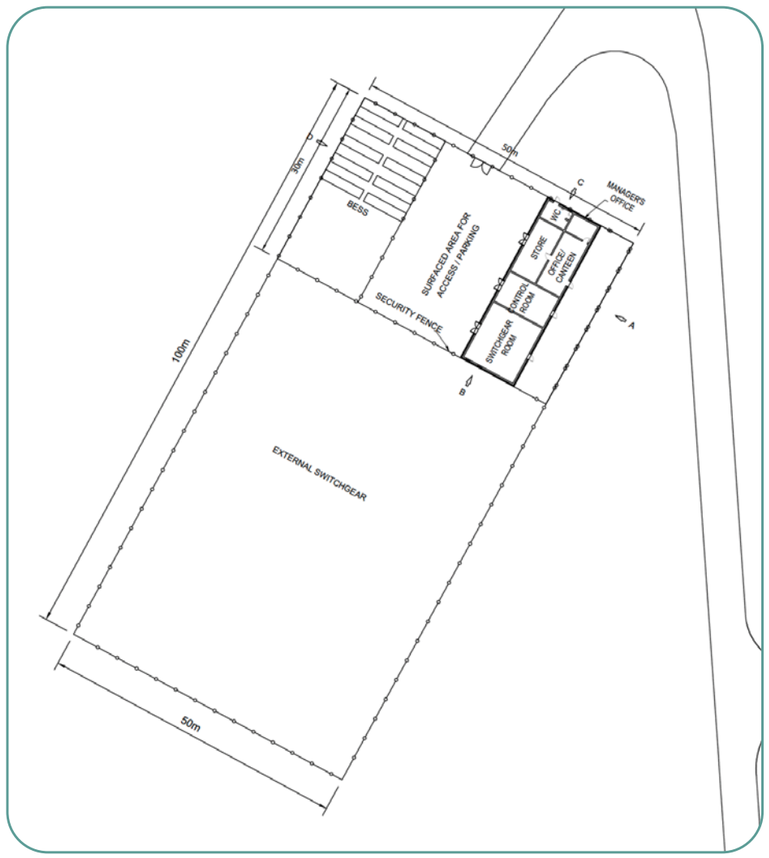


Figure 17: Indicative BESS Layout

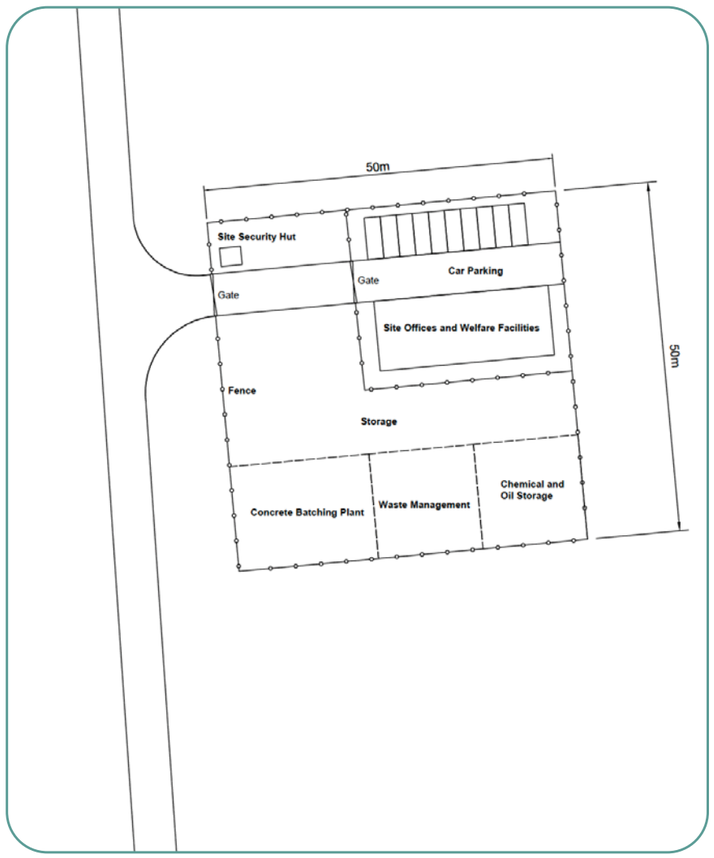


Figure 18: Indicative Compound Layout

Selection of the Borrow Working Search Areas

3.40 To minimise the volume of imported material brought onto the Site and any associated environmental impact, borrow pits located within the Site will be used to source stone for access track and compound construction.

3.41 Two borrow pit search areas have been identified within the Proposed Development boundary, as shown on Figure 16.

3.42 Detailed site investigations prior to construction will be carried out to further confirm the rock type, rock characteristics and suitability, as well potential volumes to be extracted from the search areas. The final borrow pit(s) identified during the geotechnical evaluation will be defined within the detailed Construction Environmental Management Plan (CEMP). An outline CEMP has been prepared to support the EIA and the pollution control measures to be implemented during usage of the borrow pit(s) and its reinstatement will also be covered within this document.

3.43 The borrow pit(s) will require the use of plant to both win and crush the resulting rock to the required grading. It is anticipated that rock will be extracted by breakers and other relevant methods that may be required.

3.44 Environmental considerations have influenced the location of the borrow pit search areas to minimise the effect on ecology and hydrology, and to allow successful reinstatement measures to be put in place as appropriate. Following, the borrow pit(s) will be restored and reinstated to agreed profiles.

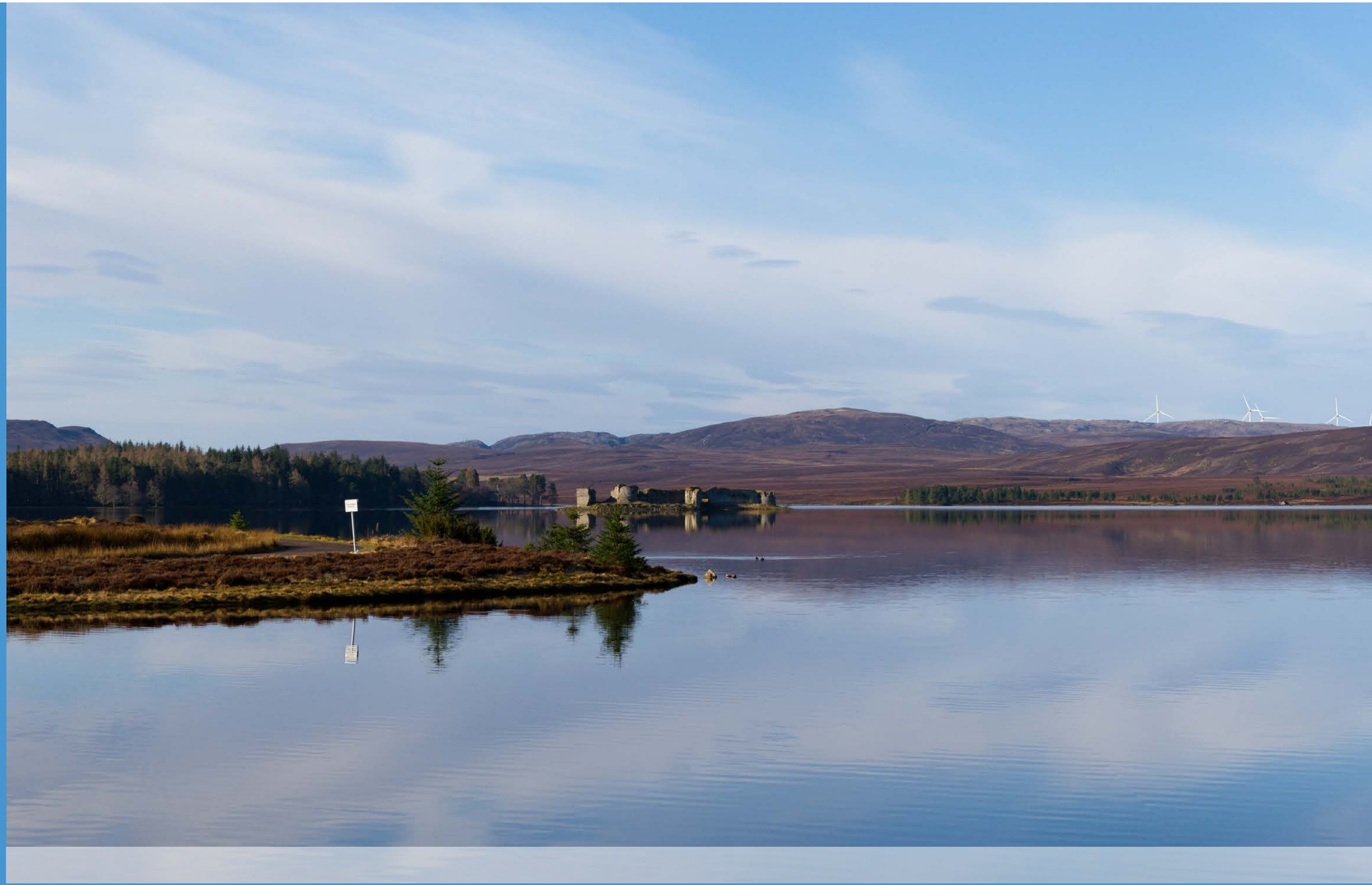
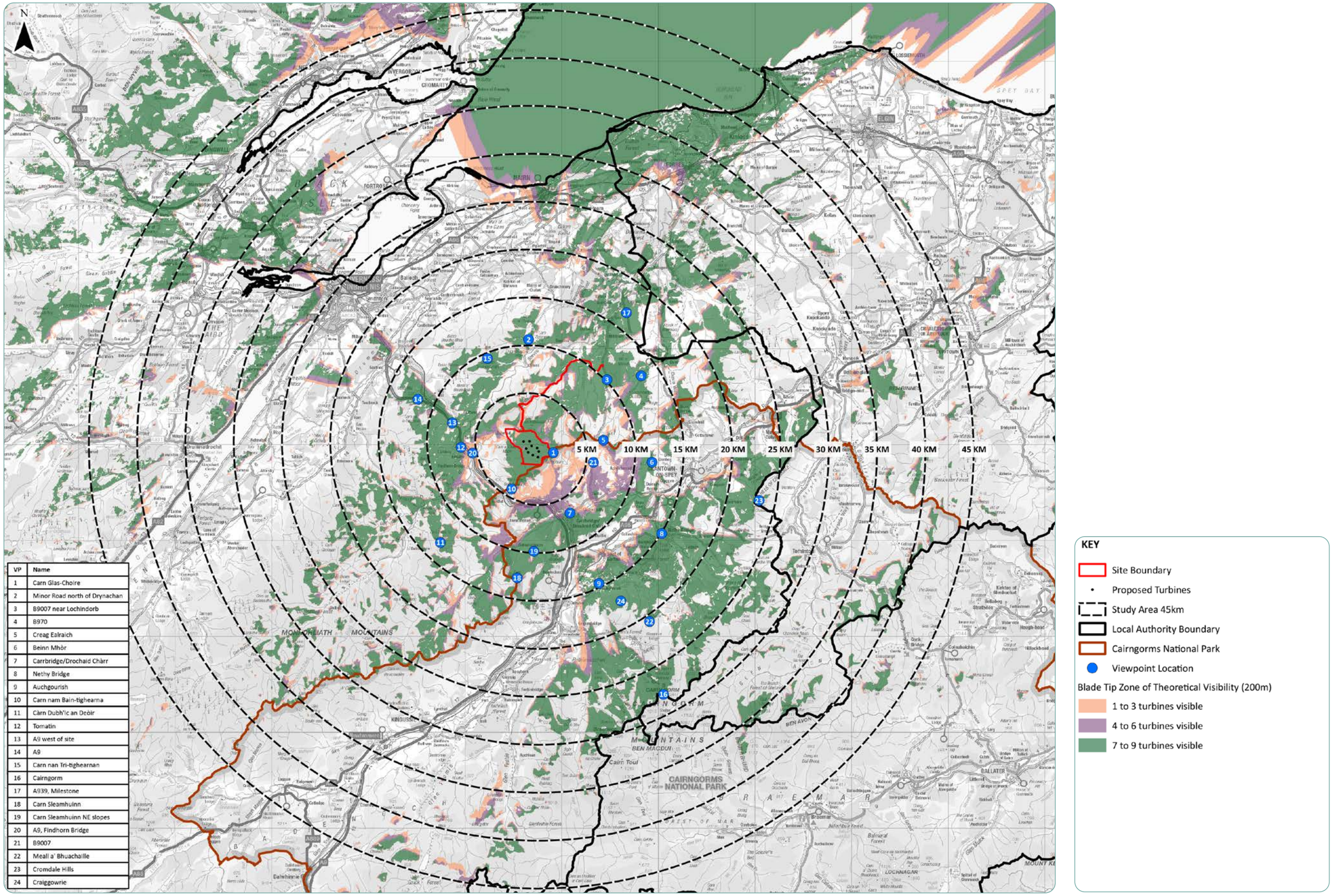


Image 9: LVIA Viewpoint 4 Photomontage: Taken from minor road at Lochindorb



VP	Name
1	Carn Glas-Choire
2	Minor Road north of Drynachan
3	B9007 near Lochindorb
4	B970
5	Creag Ealraich
6	Beinn Mhòr
7	Carrbridge/Drochaid Chàrr
8	Nethy Bridge
9	Auchgourish
10	Carn nam Bain-tighearna
11	Càrn Dubh'ic an Deòir
12	Tomatin
13	A9 west of site
14	A9
15	Carn nan Tri-tighearnan
16	Cairngorm
17	A939, Milestone
18	Carn Sleamhuinn
19	Carn Sleamhuinn NE slopes
20	A9, Findhorn Bridge
21	B9007
22	Meall a' Bhuachaille
23	Cromdale Hills
24	Craiggowrie

Figure 19: LVIA Principal Visual Receptors to 45 km with Blade Tip ZTV and Viewpoints

Landscape and Visual Design Response

4.1 The final design for the Proposed Development seeks to respond to the specific characteristics and qualities of the landscape and how these are experienced.

4.2 A key component of the design process has been the consideration of landscape and visual effects. This process was informed by Pegasus' own observations and experience of key landscape and visual issues relating to wind energy development and the pre-application consultation responses. It also was informed by a review of the key landscape and visual matters raised in the Reporter's Report and Decision of the Scottish Government in relation to the previous refused (at appeal) Glenkirk Wind Farm that covered part of the Site. This previous scheme comprised 26 no. turbines with a blade tip height 110 m and associated infrastructure (anemometer mast, temporary construction compound, access tracks, three borrow pits, a control building and substation and site cabling).

4.3 Key landscape and visual matters of concern raised in relation to the Glenkirk scheme set out in the Report (dated 1 August 2012) to the Scottish Ministers were:

- Adverse visual impacts from the development close to the Cairngorms National Park boundary;
- Significant adverse visual impacts from the extended horizontal scale of the development when seen across Dava Moor and from Tomatin; and
- The turbines would dominate the ridge and the River Findhorn valley when seen from the Tomatin area and the A9 corridor.

4.4 The output of the landscape and visual review was advice regarding where design development to the scheme could address these areas of potential landscape and visual concern.

4.5 A summary of the key findings of the landscape design review, and how the feedback subsequently influenced the development is set out below.

Key Landscape and Visual Design Consideration

4.6 It is generally accepted that it is a challenge for the design of an onshore wind farm to achieve a layout that reduces or minimises effects for all landscape or visual receptors in all directions. Therefore, the following aims for the design of the scheme were set at an early stage within the design process to seek to ensure the landscapes or visual receptors most sensitive to the appearance of large-scale wind development were key considerations through the design evolution:

- Seek to minimise the visual impact of the development on the Cairngorms National Park;
- Seek to minimise the visual impact of the development on the Drynachan, Lochindorb and Dava Moors Local Landscape Area; and
- Seek to minimise the visual impact of the development from the Tomatin area, the River Findhorn Valley and the A9 corridor.

4.7 Each of these are discussed in turn below.

4.8 A number of LVIA viewpoints enable a consideration of how the development would be seen in the context of the Cairngorms National Park and these have been used to aid the design process. These comprise Viewpoint 5 Creag Ealraich, to show how the Proposed Development would appear from the northern boundary of the Park, Viewpoint 7 Carrbridge to illustrate the appearance of the development in views north from within the Park, Viewpoint 10, Carn nam Bain-tigheama to illustrate the appearance of the development in views from the north-western boundary of the Park, Viewpoint 13 to illustrate views from the A9 road corridor looking south-east towards the Park and Viewpoint 15 to illustrate views looking south towards the Park.

Seek to minimise the visual impact of the development on the Cairngorms National Park

4.9 Important design considerations relevant to the perception of the development in the context of the Cairngorms National Park are: maximising the separation distance of the development from the Park within the available Site area balanced against other on-site technical constraints; and reducing both the horizontal and vertical extent of the turbines in the view and the manner they would relate to the overall scale of the landscape and the surrounding landform.

4.10 It was acknowledged that turbines of 110 m to blade tip had previously been refused consent at the Site. However, that did not necessarily mean that turbines taller than this could not be successfully accommodated in the landscape, should the landscape and visual effects be sufficiently minimised through design iteration and consideration of the number of turbines proposed.

4.11 The progression of the design has maximised the distance from the Park boundary, reduced the number of turbines from a maximised yield layout of 29 turbines (Layout A, Figure 12) to nine turbines (Layout E Final Layout, Figure 16) and has significantly reduced the north south and west to east lateral extent of the layout. This has been achieved by retaining turbines within the central core of the initial layout in order to reduce their prominence in views to and from the Park.

4.12 Regarding turbine heights, it is noted that modern onshore wind turbine technology means the greater generation capacity can be delivered from taller turbines, with turbines taller than 250 m now commercially available to deploy at the right locations.

4.13 Having carefully considered a range of blade tip heights, it was considered that turbines of 200 m to blade tip provided an appropriate balance between minimising landscape and visual effects as far as reasonably practicable and maximising energy generation on the Site.

Seek to minimise the visual impact of the development on the Drynachan, Lochindorb and Dava Moors Local Landscape Area

4.14 Key design considerations relevant to the LLA are: reducing the direct effects on the LLA; reducing both the horizontal and vertical extent of the turbines in the view and the manner they would relate to the overall scale of the landscape and the surrounding landform; maintain a clear separation from the existing operational and consented wind farms in the vicinity.

4.15 The design process has reduced the direct effects on the LLA by reducing the number of turbines from a maximised yield layout of 29 turbines (Layout A, Figure 12) to nine turbines (Layout E Final Layout, Figure 16) and has significantly reduced the north south and west to east lateral extent of the layout. This has been achieved by retaining turbines within the central core of the initial layout, which has also reduced visual effects on the LLA and maximised the distance between the Proposed Development and the consented Tom na Clach Wind Farm which is located within the LLA along with the operational Tom nan Clach Wind Farm.

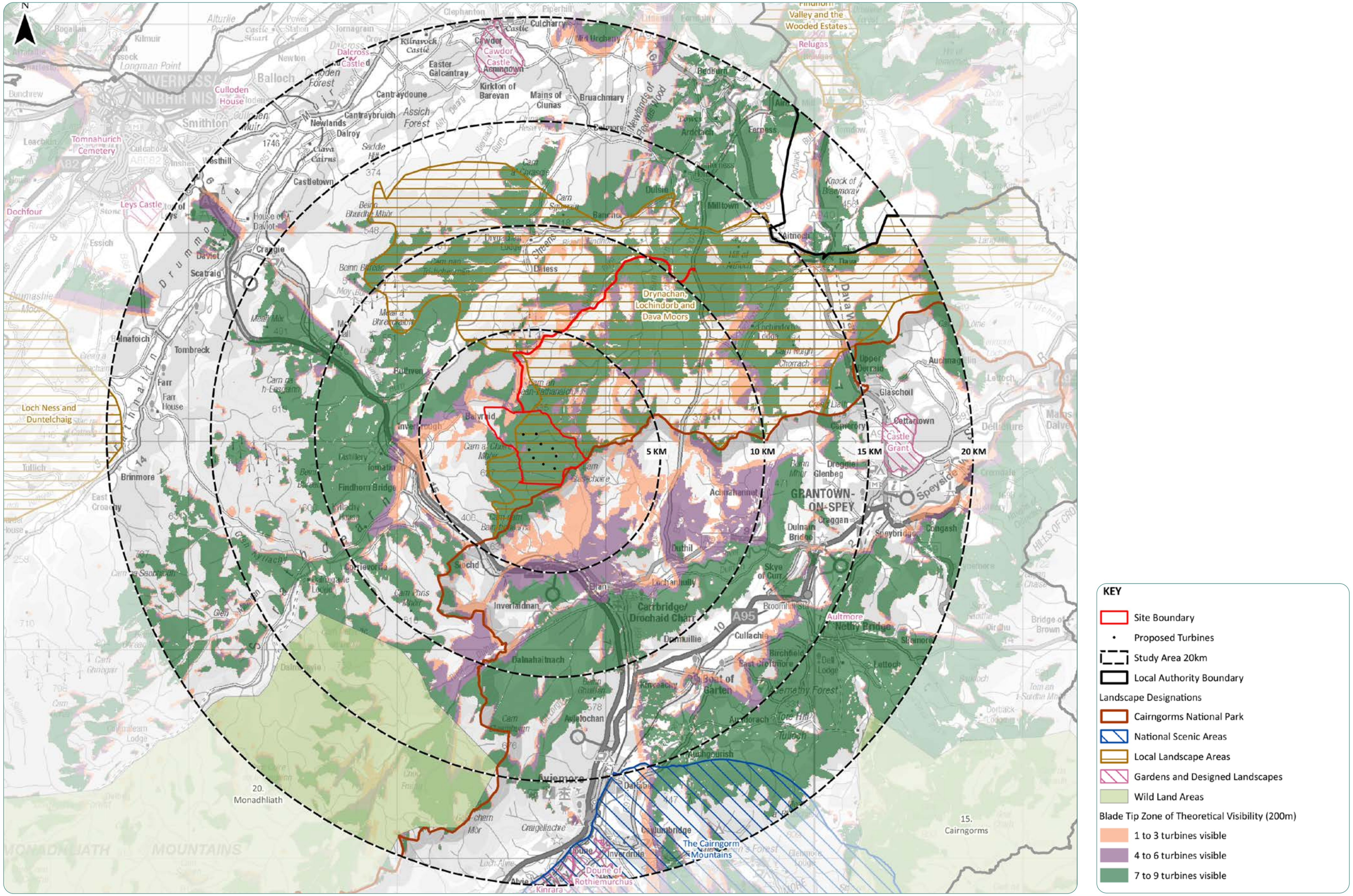


Figure 20: LVIA Landscape Designations to 20 km with Blade Tip ZTV

4.16 Whilst there would be both significant effects on landscape character and visual amenity on parts of the LLA, the design response has ensured that the Proposed Development would not prevent the understanding or the appreciation of the underlying landscape or the special qualities of the LLA.

Seek to minimise the visual impact of the development from the Tomatin area, the River Findhorn Valley and the A9 corridor

4.17 As set out above, a key strand of the landscape and visual reason for refusal for the previous Glenkirk scheme was "Significant adverse visual impacts from the extended horizontal scale of the development when seen across Dava Moor and from Tomatin" and that "The turbines would dominate the ridge and the River Findhorn valley when seen from the Tomatin area and the A9 corridor."

4.18 Key design considerations, therefore, have been to: avoid siting turbines on high ground to the east of Tomatin and the A9; reduce the appearance of the vertical scale of the turbines in views east from the A9, Tomatin and the River Findhorn Valley; and reduce the north lateral extent of the wind farm in views east from these areas.

4.19 The design process has minimised these effects by reducing the number of turbines from a maximised yield layout of 29 turbines (Layout A, Figure 12) to nine turbines (Layout E Final Layout, Figure 16) and has significantly reduced the lateral extent of the layout in views east from these areas. This has been achieved by omitting the outermost turbines and retaining turbines within the central core of the initial layout.

4.20 The design evolution has also avoided areas of higher ground within the Site such as at Carn Leathan where the previous Glenkirk scheme proposed turbines. Together with the compact arrangement of the final layout (Layout E, Figure 16) this has reduced the prominence of turbines seen above the landform to the east of the A9.

4.21 Referring to the blade tip ZTV at Figure 1, there is no theoretical visibility from the section of the A9 to the south-west of the Site and theoretical visibility of a limited number of turbines from the Tomatin area and the River Findhorn Valley.

Landscape and Visual Illustrations

4.22 The following wirelines illustrate the benefit of the landscape and visual design considerations which have been made throughout the design process and evolution of the project.

4.23 The wirelines below show the evolving layouts from Initial Layout to Design Freeze, which consisted of the following:

- *Layout A - 29 turbine initial layout, each with a maximum blade tip height of 200 m;*
- *Layout B - 23 turbines, each with a maximum blade tip height of 200 m;*
- *Layout C (Scoping Layout) - 9 turbine layout, each with a maximum blade tip height of 200 m;*
- *Layout D - 9 turbine micro-sited layout, each with a maximum blade tip height of 200 m; and*
- *Layout E - 9 turbine micro-sited layout, each with a maximum blade tip height of 200 m.*

4.24 The wirelines below are a representation of five LVIA viewpoint locations that have formed part of the LVIA chapter, although it should be noted that an overall total of 24 Viewpoints listed in Table 1 are included within the LVIA and have all been used to help inform the design process.

4.25 These locations are as follows:

- Viewpoint 5 - Creag Ealraich;
- Viewpoint 7 - Carrbridge;
- Viewpoint 10 - Carn nam Bain-tigheama;
- Viewpoint 12 - Tomatin;
- Viewpoint 13 - A9, west of the Site; and
- Viewpoint 15 - Cam nan Tri-tigheaman.

4.26 The full list of LVIA Viewpoints is provided at Table 1.

Viewpoint Number	Viewpoint Location
1	*Carn Glas-Choire*
2	*Minor road north of Drynachan*
3	*B9007 near Lochindorb*
4	*B970*
5	*Creag Ealraich*
6	*Beinn Mhor*
7	*Carrbridge/Drochaid Charr*
8	*Nethy Bridge*
9	*Auchgourish*
10	*Carn nam Bain-tighearna*
11	*Carn Dubh'lc an Deoir*
12	*Tomatin*
13	*A9 west of Site*
14	*A9*
15	*Carn nan Tri-tighearnan*
16	*Cairngorm*
17	*A939, Milestone*
18	*Carn Sleamhuinn*
19	*Carn Sleamhuinn NE slopes*
20	*A9, Findhorn Bridge*
21	*B9007*
22	*Meall a' Bhuachaille*
23	*Cromdale Hills*
24	*Craiggowrie*

Table 1: LVIA Viewpoint locations

Figure 21: Viewpoint 5: Creag Ealraich

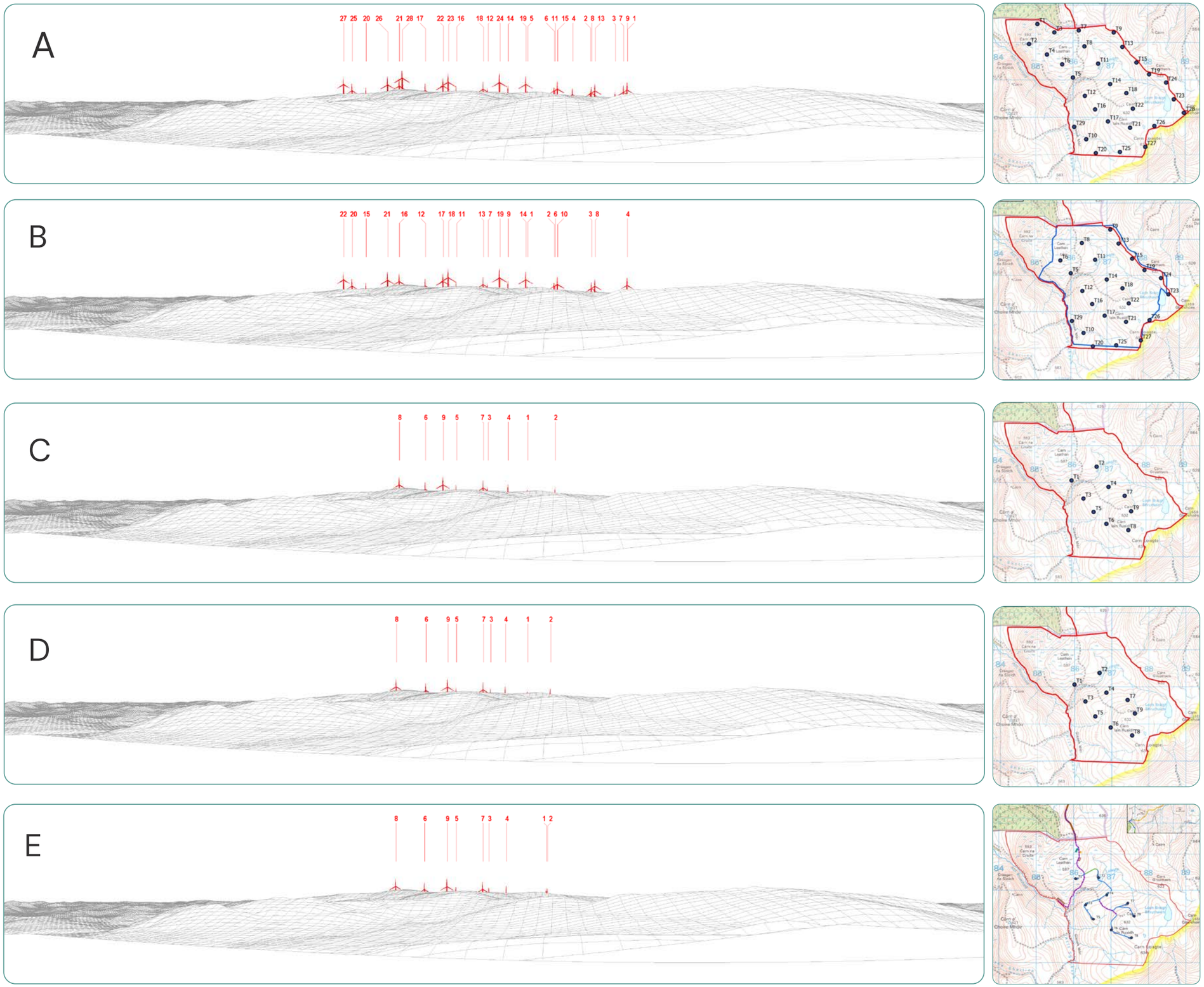


Figure 22: Viewpoint 7: Carrbridge

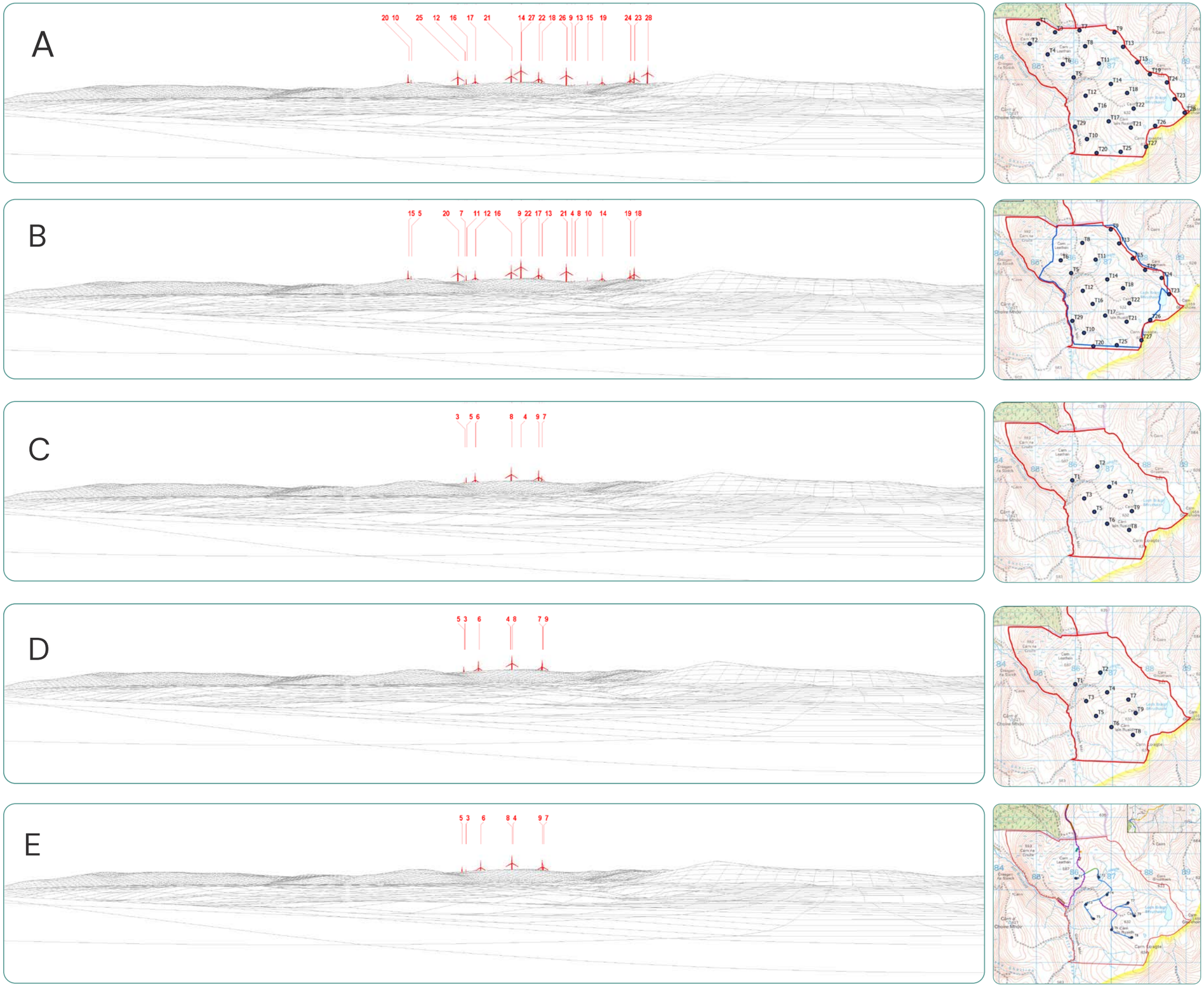


Figure 23: Viewpoint 10: Carn nam Bain-tigheama

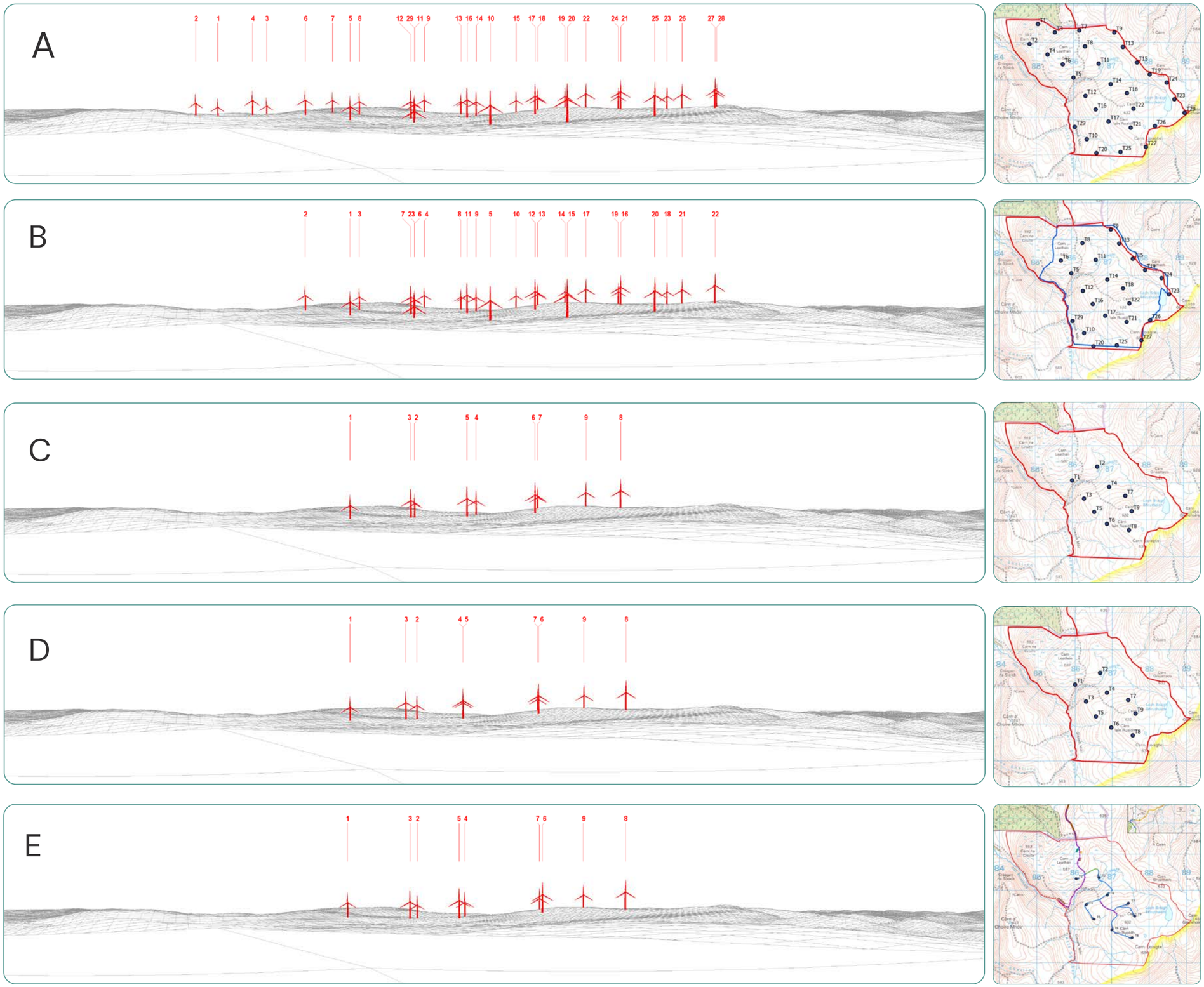


Figure 24: Viewpoint 12: Tomatin

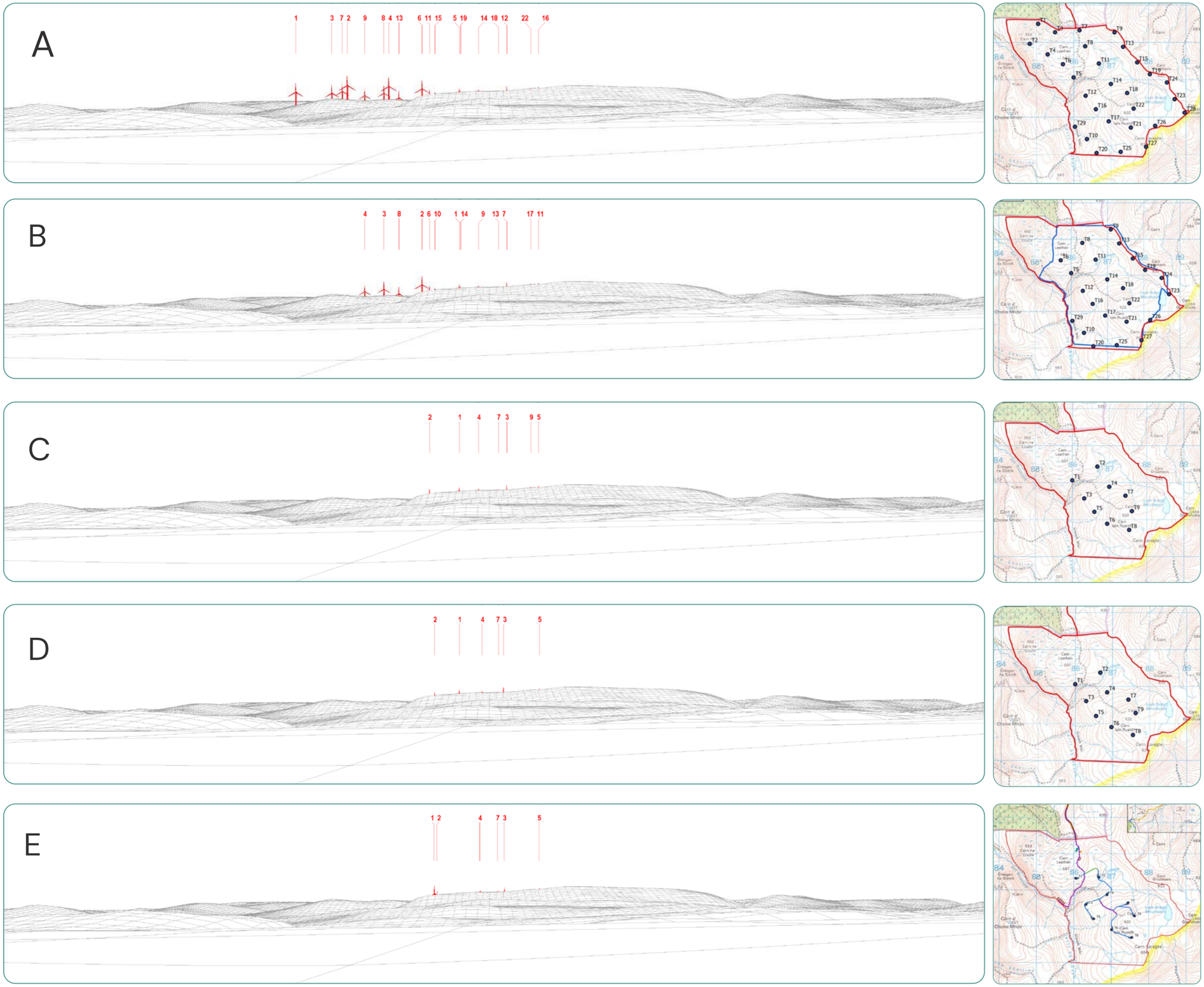


Figure 25: Viewpoint 13: A9, west of the Site

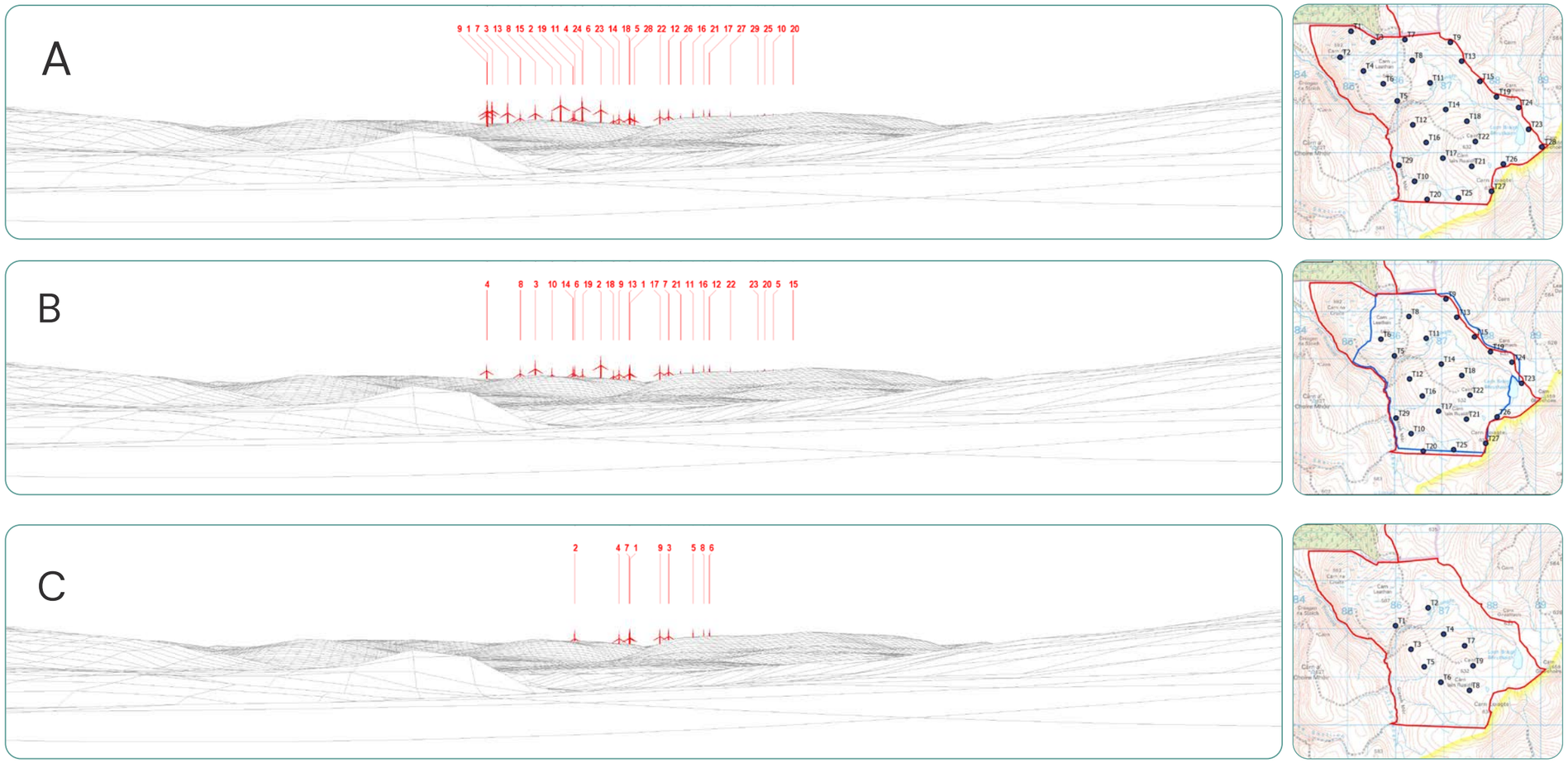


Figure 26: Viewpoint 15: Cam nan Tri-tigheaman

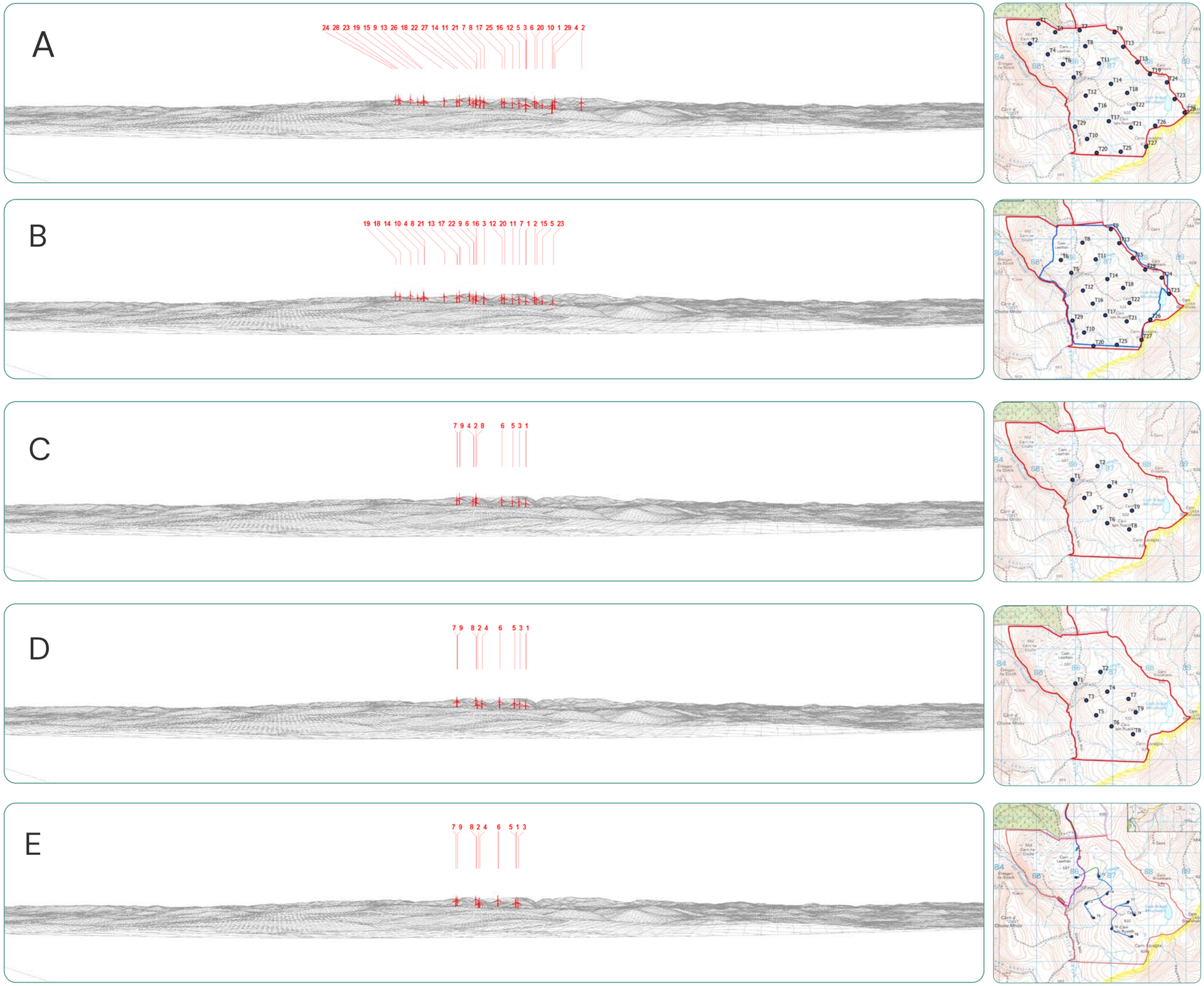
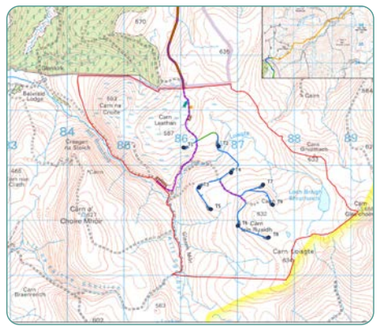


Figure 27: - Night-time Visualisation from Viewpoint 13: A9, west of the Site - Based on Layout E



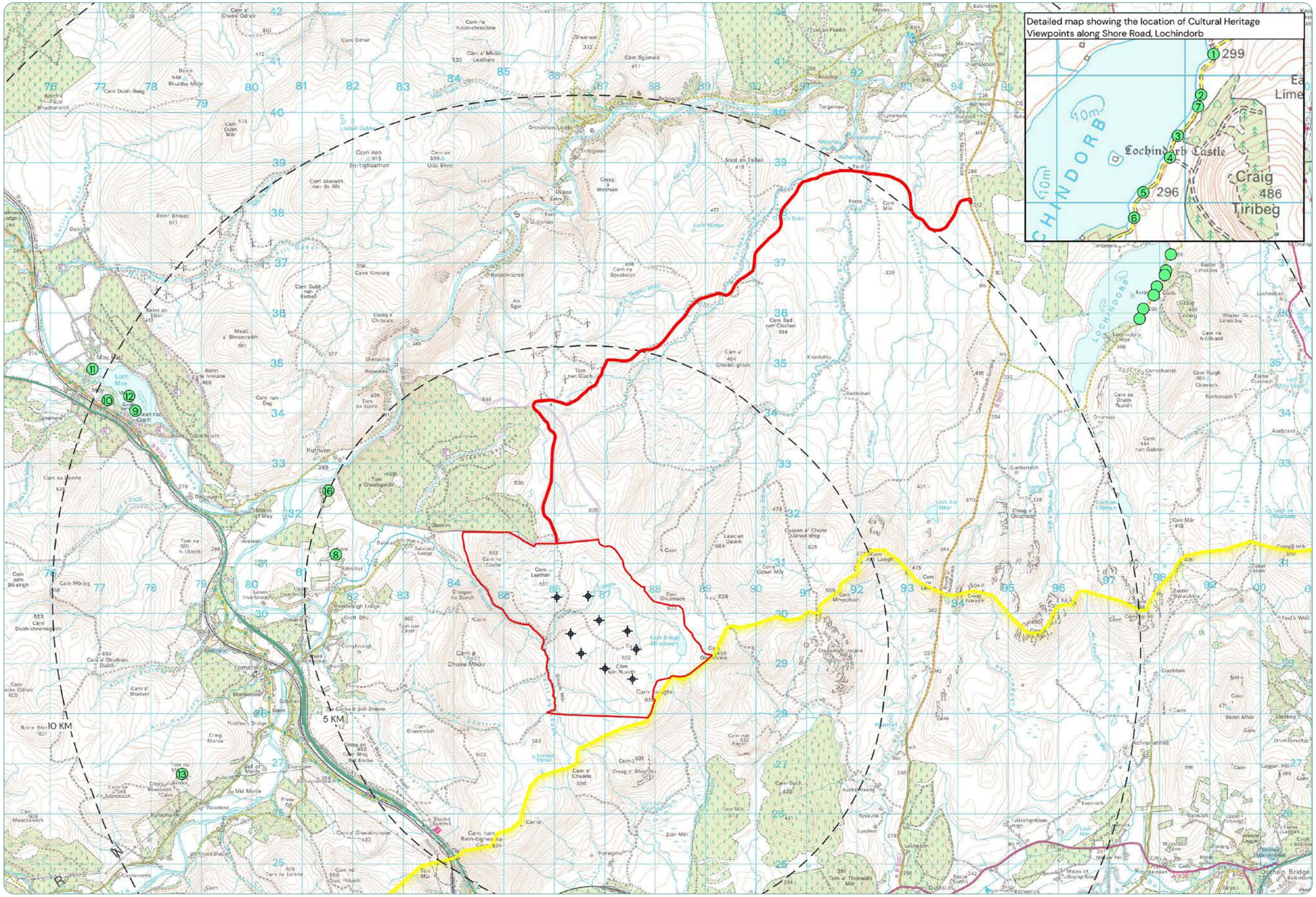


Figure 28: Cultural Heritage Viewpoint Location Map

Heritage Design Response

4.27 Potential impacts on the setting of designated heritage assets were a key issue for the design iteration process. As illustrated in Figure 28 (left), 15 representative viewpoint locations were visited to assess the impact of the proposed development on heritage assets.

4.28 Figure 29 below illustrates the progression through the iterative design process in relation to the setting of Lochindorb Castle (SM1231). This view is taken from the north-eastern shore of the loch from where it would be possible to see the Proposed Development directly backdropped by the castle and was identified as the worst case scenario view. Important design considerations in relation to the setting of Lochindorb Castle included reducing both the horizontal and vertical extent of the turbines seen behind the castle in the view as well as the way they would relate to the scale of the castle and the surrounding landform.

4.29 The progression of the design has maximised the distance from the castle, reduced the number of turbines from 29 turbines (Layout A, Figure 29) to nine turbines (Layout E Final Layout, Figure 29), significantly reducing the horizontal spread of turbines as well as reducing the proportion of each turbine that would be visible. This has been achieved by retaining turbines within the central core of the Site and moving them west so that the majority sit behind the intervening ridgeline thus reducing overall visibility in views towards Lochindorb Castle from the north-eastern loch shore.

4.30 Figure 30 below illustrates the progression through the iterative design process in relation to Dalarossie Cottage Cairn (SM11815). The design process has minimised the number and extent of turbines visible from Dalarossie Cottage Cairn by reducing the number of visible turbines from 29 (Layout A, Figure 30) to eight turbines (Layout E Final Layout, Figure 30). This has significantly reduced the lateral extent of the layout in views east from these areas. This has been achieved by omitting the outermost turbines and retaining turbines within the central core of the Site. This has reduced the prominence of turbines seen above the landform in views north-east from the cairn.

Figure 29: Heritage Viewpoint 7: Lochindorb Castle

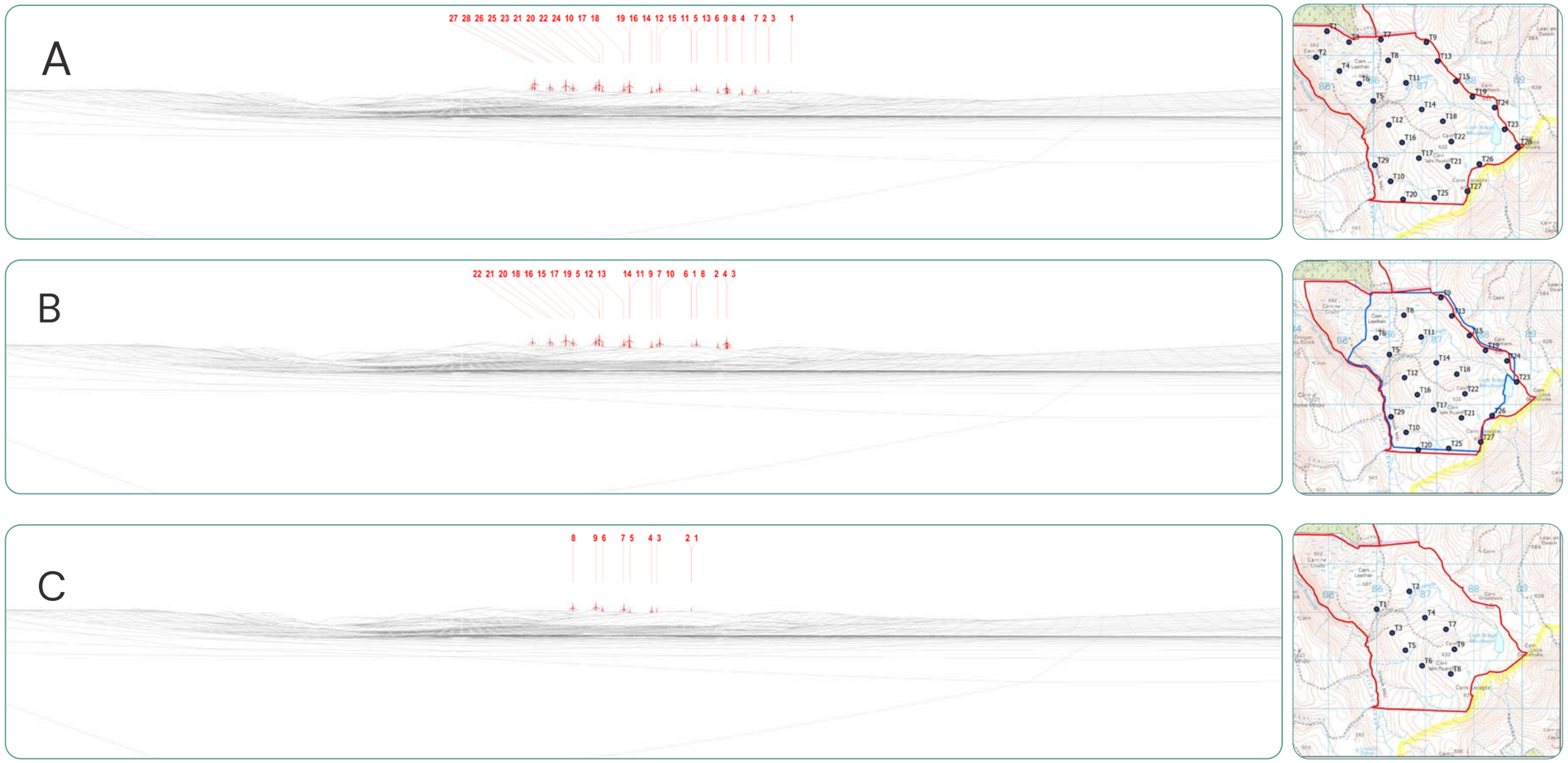
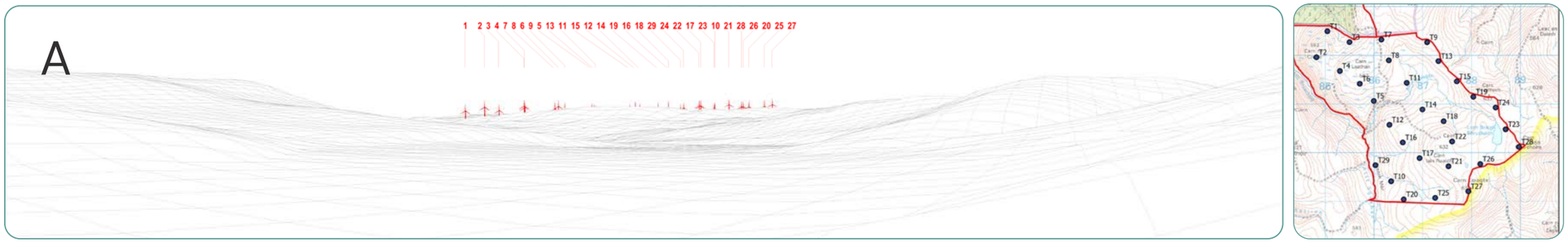
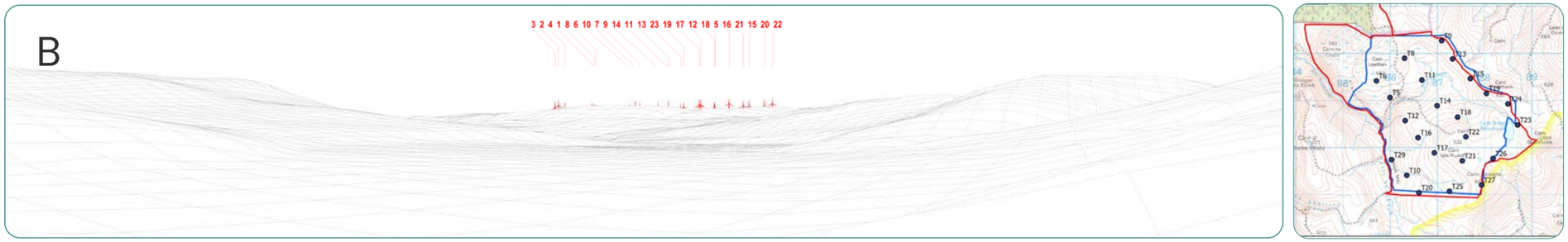
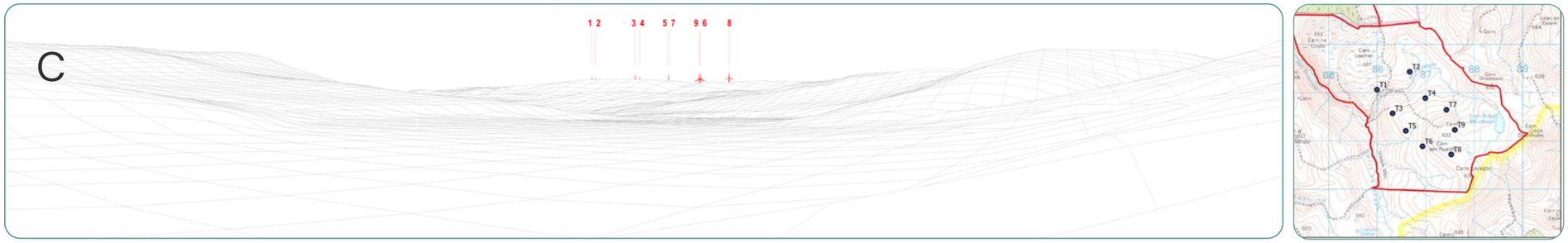
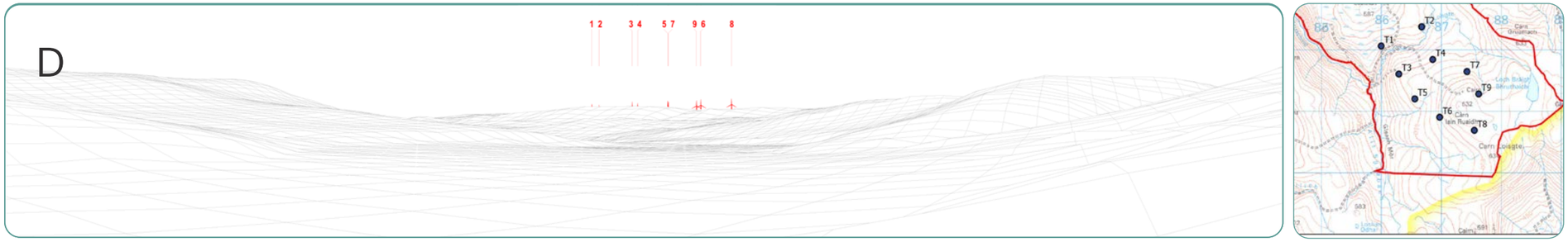


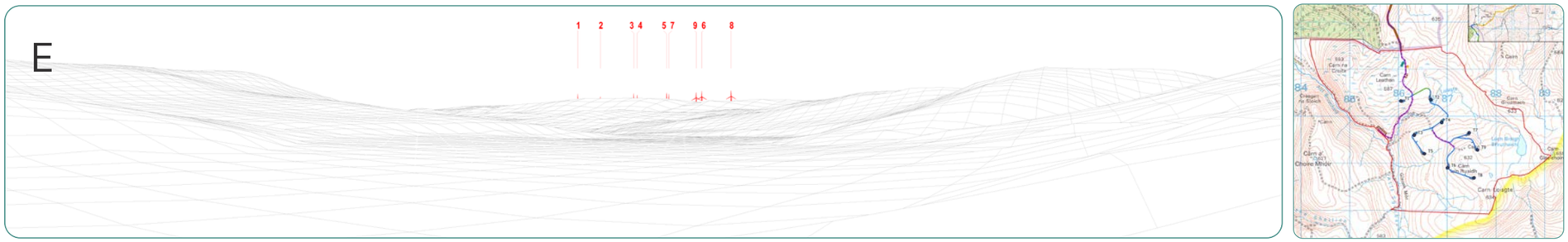
Figure 30: Heritage Viewpoint 14: Dalarossie Cottage











5. OTHER CONSIDERATIONS

Traffic and Transport

Abnormal Load Route

5.1 Due to the abnormal size and loading of wind turbine delivery vehicles, it is necessary to review the public highways that would provide access to the Site to ensure they are suitable and to identify any modifications required to facilitate access. Detailed site visits were undertaken to review the proposed access route and potential constraints for both general construction traffic and AILs.

5.2 The following abnormal loads delivery route has been identified:

- *Loads would exit Inverness Harbour and turn left onto Stadium Road;*
- *At Longman Roundabout loads would turn left and continue south on the A9;*
- *North of Granish loads would turn left onto the A95 and then left again to stay on the A95 northbound;*
- *At Dulnain Bridge loads would turn left onto the A938 westbound; and*
- *At Duthil loads would turn right onto the B9007 northbound and proceed to the proposed site access. Access to turbine locations will be made by purpose built access tracks or upgraded existing tracks.*

5.3 A more detailed study would be carried out by the turbine supplier should the Proposed Development be granted consent. As the turbine delivery vehicles are abnormal indivisible loads, a Special Order is required under The Road Vehicles (Authorisation of Special Types) (General) Order 2003.

5.4 The detailed off-site access requirements would be confirmed with Transport Scotland and Moray Council's Roads Department once the exact requirements are established. A Traffic Management Plan would also be put in place to ensure safe operation, and this would also be established in conjunction with the aforementioned authorities.

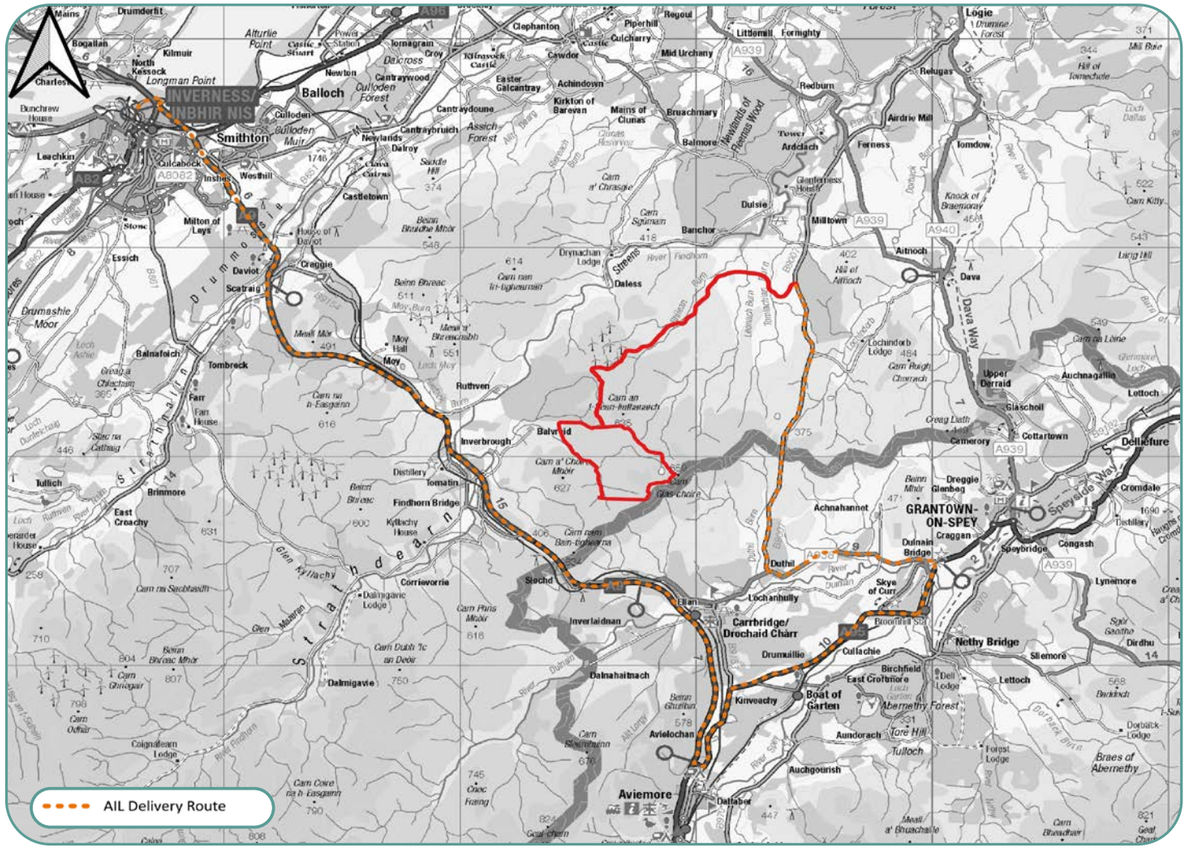


Figure 31: Abnormal Load Route

Access to Site

5.5 The proposed access to the Site has been carefully considered throughout the design process, with different construction and operational access options being identified and thoroughly considered. The Applicant has looked at several options for the proposed access route to the Site. The main options are outlined below and Route D is illustrated at Figure 32.

5.6 The Applicant initially looked at entering the Site via the existing access track, 2.1 km to the north-east of the Site and constructing a new access track to the Site (Route A). This option was discounted because it was preferred to come from Tom Nan Clach Wind Farm, so that the existing access infrastructure to the B9007 could be utilised.

5.7 Two further route options were assessed coming from Tom Nan Clach Wind Farm. Route B looked at following the forestry edge south from Tom Nan Clach to the Site and Route C looked at constructing a new route following the topography. Route B was discounted as it was in closer proximity to the forestry, it would require vehicle pulling assistance due to the gradient exceeding 8% in several locations, and two watercourse crossings would be required.

5.8 Route C was microsited following peat surveys, to avoid areas of deeper peat. This gave Route D, the currently proposed route. The site tracks have been designed to follow a route which minimises the landscape and visual impacts and impacts on peat.

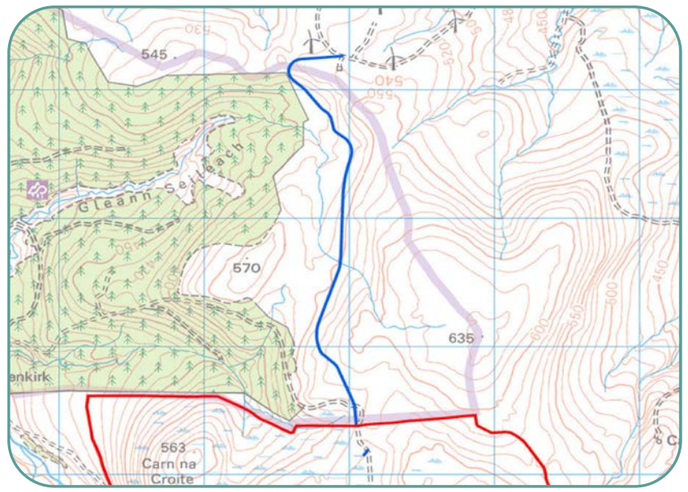


Figure 32: Access to Site - Route D

Internal Access Tracks

5.1 Proposed new tracks have been designed to take into account existing site topography, ground conditions including peat depth, and to minimise and appropriately locate water crossings.

5.2 The option to utilise existing track through the site from T1 and T2 to the remaining turbines was considered. The watercourse channel gets deeper and steep further west from the currently proposed crossing location between T2 and T4. The utilisation of the existing crossing was not considered viable as the track would not meet horizontal and vertical geometry requirements for turbine delivery. Additionally, using the existing track would require greater earthworks volume and two additional turbine heads than required if constructing a new track between T2 and T4.

5.3 The proposed track between T2 and T4 has been microsited to maintain a maximum distance from both watercourses on either side.

5.4 Where crossing an area of deep peat between T1 and T2, floating tracks are proposed.

Floated Track

5.5 Floated access track construction may be adopted where the ground conditions dictate. This system involves installing a geosynthetic reinforcement directly onto the organic vegetated layer and placing layers of crushed stone and additional geosynthetic reinforcement (if required by the design) above. If ground conditions require it, a geotextile membrane may be applied also.

Construction Materials

5.6 The main materials likely to be required in part or total for the construction of the track, turbine and substation foundations, and hardstanding areas are described below:

- *crushed stone;*
- *geotextile;*
- *cement;*
- *concrete;*
- *steel reinforcement; and*
- *electrical cable.*

5.7 Excavations will be made, initially by stripping back the soil from the area to be excavated. This soil will typically be stored separately either in a mound adjacent to the excavation area for backfill, if required, or stored at a designated area on site for further use or reinstatement of temporary works areas. The location of the designated storage areas will avoid sensitive receptors and will be approved by SEPA prior to construction.

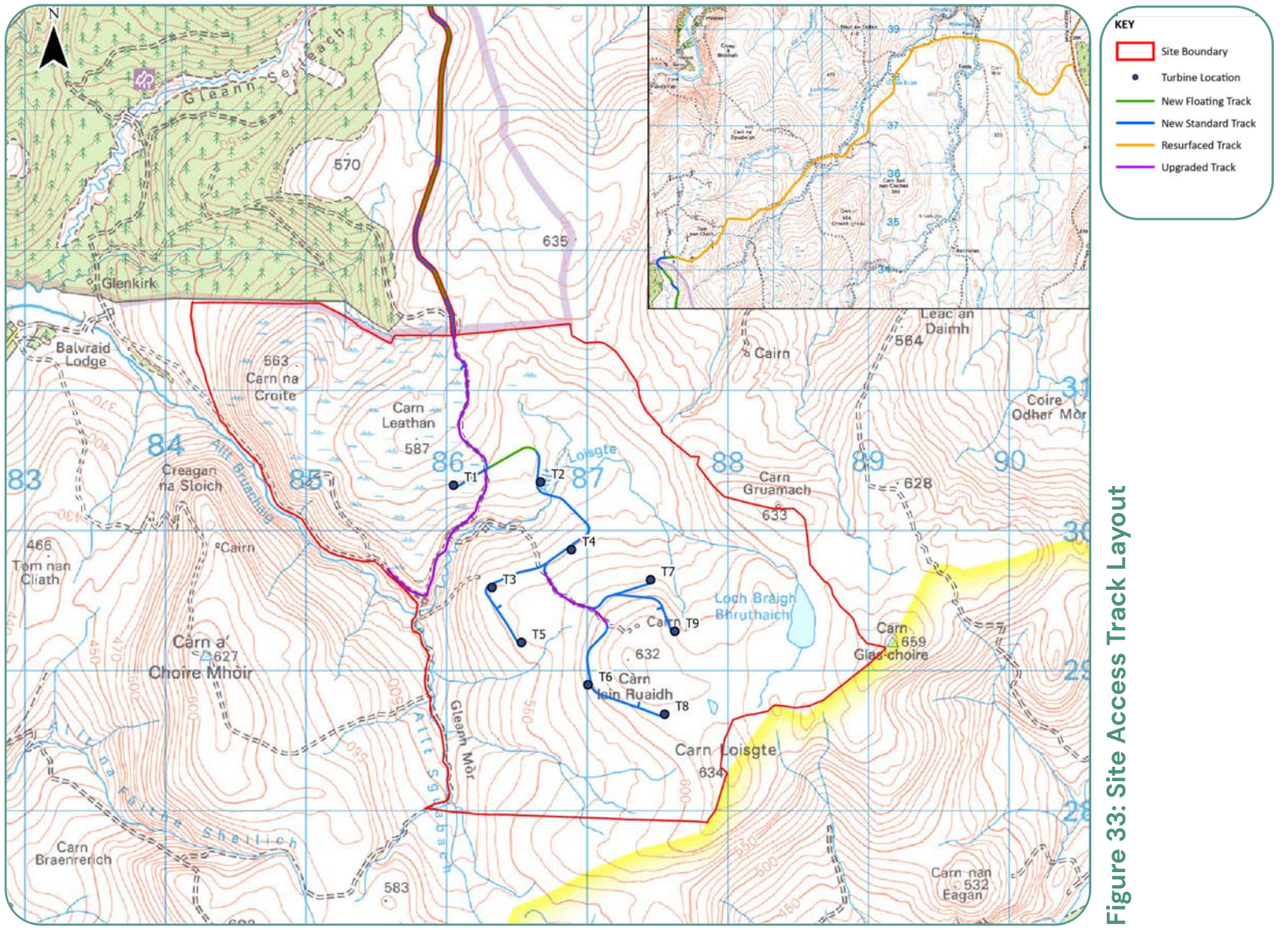


Figure 33: Site Access Track Layout

The handling of peat/soils will be undertaken in accordance with best practice techniques.

5.8 For the purposes of the transport assessment, it has been assumed that concrete will be batched on site within the identified concrete batching areas and materials will be delivered to site on a spread programme.

5.9 Should surface water run-off or groundwater enter the excavation during construction of the turbine foundations, appropriate pumping measures away from watercourses will be implemented to ensure the works are safely carried out and the excavation is sufficiently dry to allow concrete placement. These measures will be outlined within the CEMP. Once the concrete is cast, the excavated material will be used for backfill and compacted to the required design density. Once this backfill is completed, the crane hardstanding areas will be constructed.

5.10 The proposed method for constructing the turbines is as follows. The turbines will be erected using a large mobile crane or crawler crane, positioned on the hardstanding adjacent to the turbine base. A smaller tail crane will be positioned adjacent to the delivery position of the turbine components. The two cranes will lift the tower sections and blades into their assembly positions, and the main crane will lift the tower sections, nacelle and blades into their operational positions.

5.11 As soon as practical, once installation is complete, the immediate construction area will be restored to its original profile, although the crane hardstandings will be retained for future maintenance. The soils will be replaced and reseeded where appropriate and as advised by the on-site ECoW. Any surplus soils will be used to restore track edges after construction. This progressive reinstatement has been found to assist with re-establishment of the local habitats as it minimises the time soils are in storage.

6. CONCLUSION

Conclusion

This Design Statement explains the approach to design of the Proposed Development and illustrates how environmental effects have been avoided or reduced as far as reasonably possible. A detailed explanation of environmental effects resulting from the Proposed Development is set out in the Environmental Impact Assessment (EIA) Report that accompanies this application and sets out the mitigation measures to avoid or reduce the effects.

The design of the Proposed Development is the result of a considered design process that has evolved over the course of five proposed layouts, from an initial layout comprising 29 turbines to the final 9 turbine proposed layout has been designed to respond to character and scale of the landscape, in addition to other environmental and technical constraints. The associated infrastructure has also been sited sympathetically so as to limit its influence on the surrounding landscape ensuring any significant effects are localised.

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