

# Design Statement

## Vale of Leven Wind Farm



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Note: All plan and visualisation graphics shown within this report are included for illustrative purposes only. Refer to full scale versions accompanying this submission.

# 1. Introduction

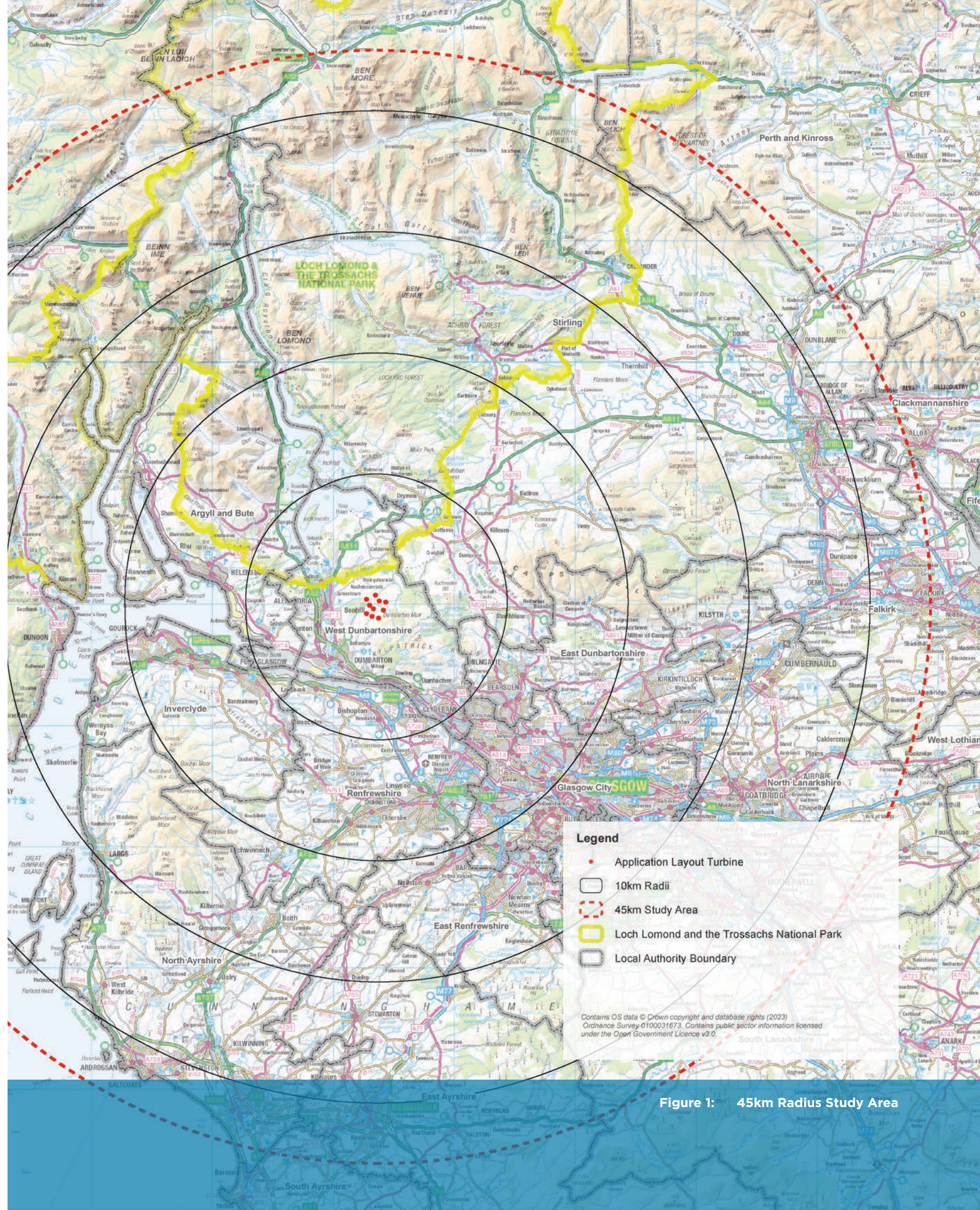


Figure 1: 45km Radius Study Area

The design process for the Proposed Development has led to an Application Layout of ten turbines with a blade tip height of up to 250 m. This layout was developed from the 19-turbine Scoping Layout (with a 200 m blade tip height) as a result of several stages of design iteration that have allowed issues that arose in relation to the Scoping Layout to be addressed and mitigated. The Application Layout has been developed on the basis of a thorough understanding and appreciation of the environmental and technical investigations carried out as part of the EIA process, including landscape and visual considerations, and in response to feedback from the community and consultees. Consequently, as well as satisfying environmental and technical requirements, the Application Layout of the Proposed Development is considered to be acceptable in landscape and visual terms, appearing as a balanced, compact and logical arrangement of turbines when seen in key sensitive views, including those from residential properties. Importantly, the setting of the Site in the interior of the upland plateau landscape provides an appropriate receiving environment that can accommodate the Proposed Development.

## 1. Introduction

Vale of Leven Wind Farm Limited is applying to the Scottish Government for consent to build and operate Vale of Leven Wind Farm (the Proposed Development), which is located in the north-western part of the Kilpatrick Hills, West Dunbartonshire. The Application Site lies just over 2 kilometres (km) to the east of Bonhill and just under 3 km to the north-east of Dumbarton. Figure 1 shows the Proposed Development and a 45 km study area.

The Application Layout of the Proposed Development consists of ten wind turbines and associated infrastructure including turbine foundations, crane hardstands, access tracks, energy storage facilities, substation compound, underground cabling, temporary construction compounds, and temporary borrow pits.

A Scoping Report was submitted to the Energy Consents Unit (ECU) in April 2022 and since then, the Applicant and consultants acting on their behalf have engaged with a range of consultees and members of the public in order to understand their response to the proposals. Optimised Environments Ltd (OPEN), a firm of landscape architects working on behalf of the Applicant, have made a number of site visits and have provided advice with regard to the turbine layout of the wind farm. The design of the Proposed Development and layout was adapted and altered in response to environmental constraints, technical factors and consultation feedback.

The layout of wind turbines at the Site (Figure 2) has evolved through a process of iterative design in accordance with Schedule 9, paragraph 3(1) of the Electricity Act. It has considered the potential impacts on landscape and visual receptors in the surrounding area in addition to key constraints such as peat and ecology. Overall generation capacity, wind resource and operational requirements of the Proposed Development have also been a consideration in design. Working within these constraints, the design process of the Proposed Development has sought to produce a layout that avoids or reduces impacts on key receptors balanced with the need to avoid increasing significant impacts on other receptors or generating significant impacts where previously there were none.

The removal of turbines from the Scoping Layout was driven largely by landscape and visual considerations, including the mitigation of likely effects on local residents, Loch Lomond and the Trossachs National Park (LLTNP) and the Loch Lomond National Scenic Area (NSA), the Kilpatrick Hills Local Landscape Area (LLA), local landscape character, and the wide range of visual receptors that lie within the study area for the wind farm, such as long distance walking routes, road routes, railway lines, settlements and tourist attractions. However, the reduction in turbine numbers has also been of considerable benefit to other technical and environmental disciplines, while also maintaining a meaningful contribution to emission reduction targets discussed further below.

The purpose of this Design Statement (DS) is to outline the considerations and constraints that have led to the Application Layout of the Proposed Development. The DS is a supporting document to the Vale of Leven Wind Farm Environmental Impact Assessment Report (EIAR) and accompanies the application for the Vale of Leven Wind Farm under Section 36 of the Electricity Act. The DS describes the iterative design process of the Proposed Development, including the design considerations/ constraints and the alternative turbine layouts that have been considered. The DS has an important role in describing and illustrating the design response of the Application Layout to technical and environmental considerations and the accommodation of the Proposed Development within the landscape and visual context.

# 2. Site Boundary

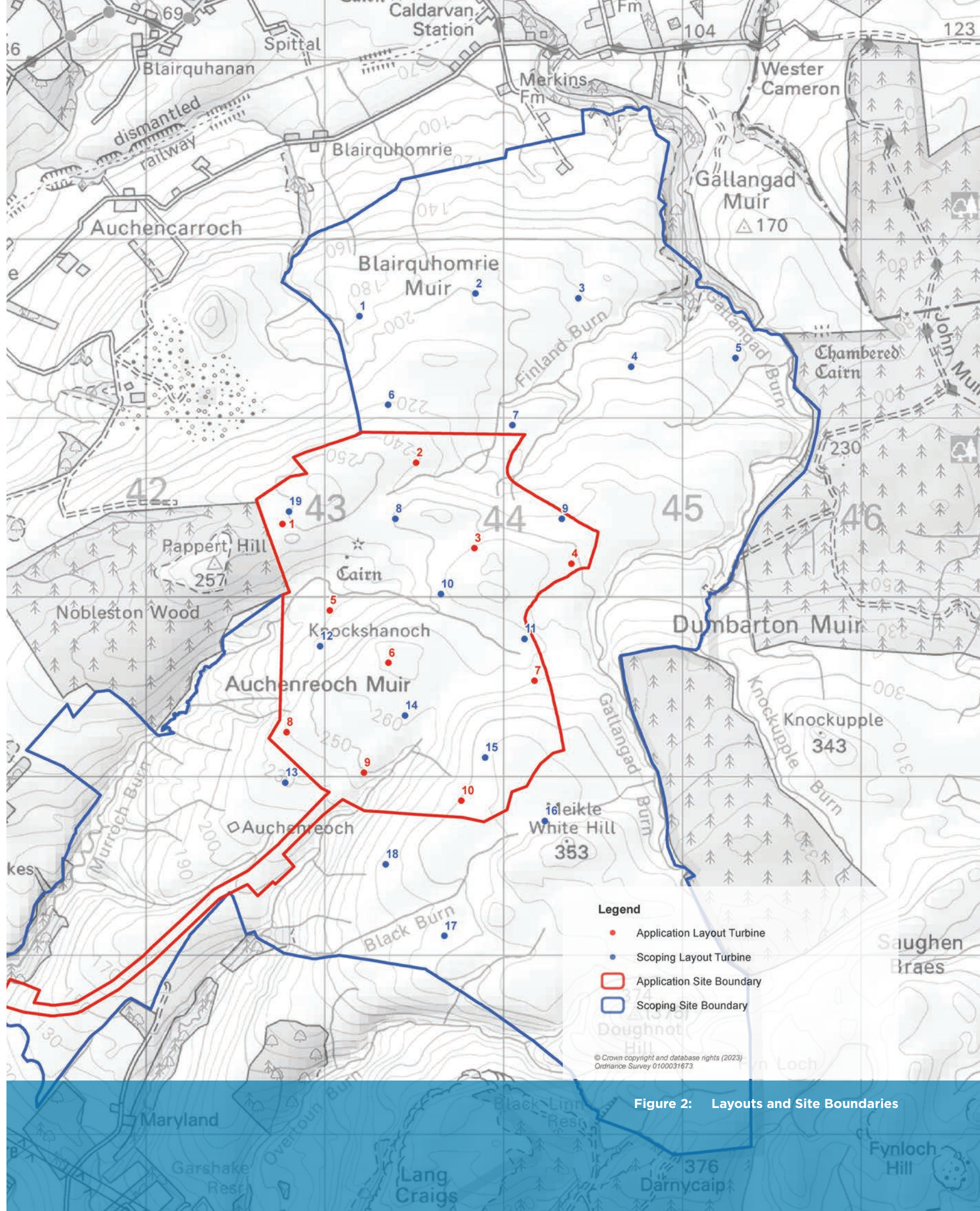


Figure 2: Layouts and Site Boundaries

## 2. Site Boundary

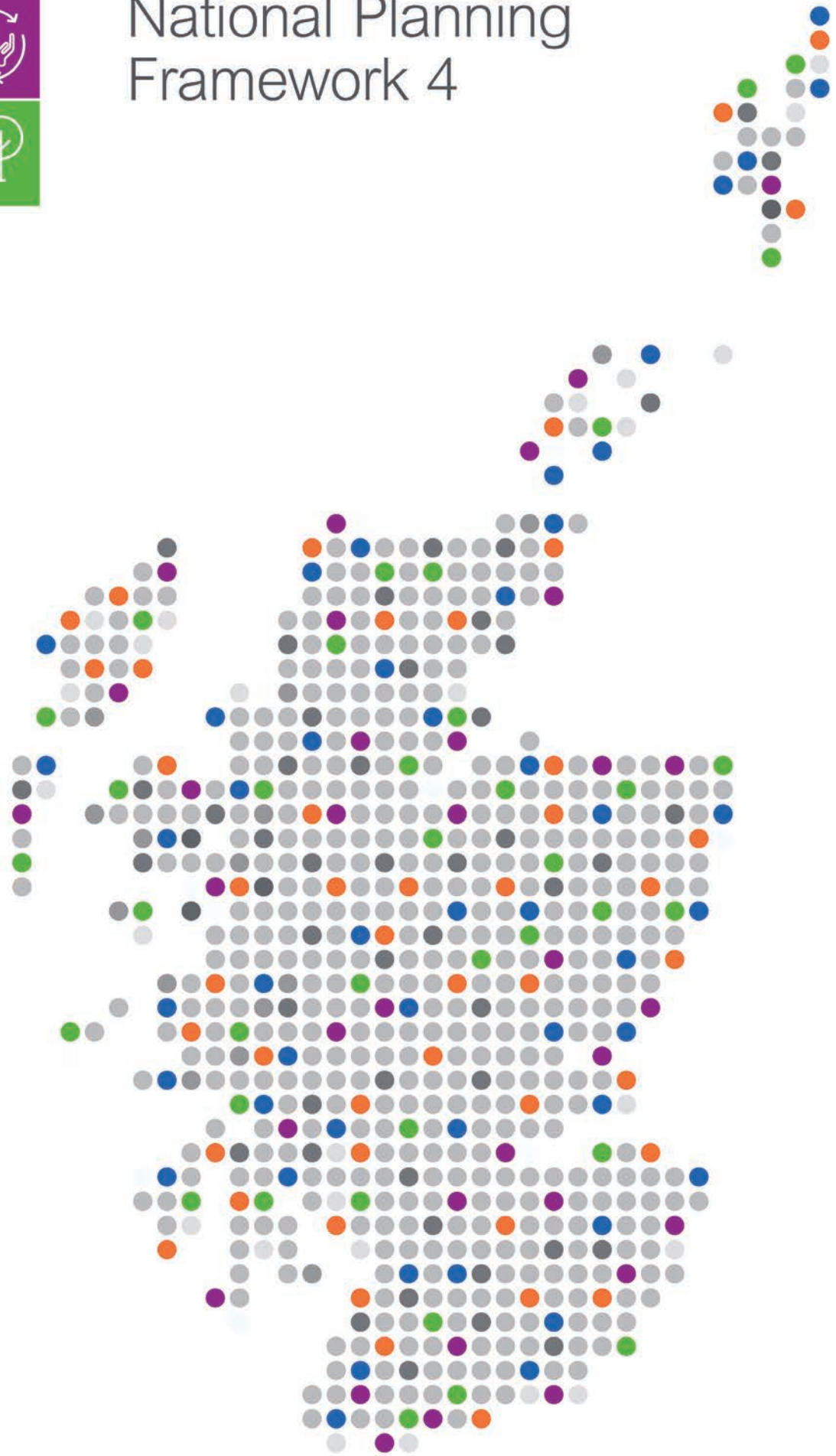
The Application Site boundary has considerably reduced in the course of the design process as technical and environmental considerations - including landscape and visual issues - have been explored and established.

The Scoping Site boundary, as shown on Figure 2, extended from Blairquhomrie Muir/Merkins Muir in the north to Doughnot Hill in the south, and from Murroch Glen in the west to Gallangad Muir in the east. The reduced Application Site boundary, also shown on Figure 2, extends from Auchincarroch Hill in the north to Meikle White Hill in the south, and from Pappert Hill in the west to Dumbarton Muir in the east.

# 3. Planning Policy Context



## National Planning Framework 4



National Planning Framework 4



### 3. Planning Policy Context

The policy framework for the Proposed Development is set out in Chapter 4 of the EIA Report and is addressed in detail in the supporting Planning and Sustainable Design Statement. A summary position is set out in this Design Statement with a focus on key policy provisions that have influenced the design of the project.

#### Energy Policy

There is an urgent need for additional onshore wind in Scotland, and a considerable increase in the deployment of this renewable energy technology is supported through a number of policy documents and by Scottish Government commitments – most recently expressed in the new Onshore Wind Policy Statement (OWPS) and in National Planning Framework 4 (NPF4).

Onshore wind was already viewed and described as “vital” to the attainment of targets in 2017, and this imperative has only increased since a ‘climate emergency’ was declared by the Scottish First Minister in April 2019. The drive to attain net zero emissions is now legally binding at the UK and Scottish Government levels. In Scotland the targets are set out in the provisions of the Climate Change (Scotland) Act 2009 and the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019.

Achieving net zero is a legal requirement, and the Scottish Government has recognised, most recently in the new OWPS, that a very substantial quantity of new onshore wind is required to meet the legal emissions reduction requirement by 2030 – namely a minimum of 20 GW of operational capacity. Deployment of more onshore wind is described as being “mission critical for meeting our climate targets” in the OWPS.

The nationally important benefits of the Proposed Development would help address the issue of global warming and the very challenging ‘net zero’ targets and would contribute to improving security of supply.

#### National Planning Framework 4

NPF4 came into force in February 2023 and forms part of the statutory development plan alongside the West Dunbartonshire Local Plan which was adopted in March 2010. Annex A (page 94) of NPF4 explains how it is to be used:

***“The purpose of planning is to manage the development and use of land in the long-term public interest ... Scotland in 2045 will be different. We must embrace and deliver radical change so we can tackle and adapt to climate change, restore biodiversity loss, improve health and wellbeing, reduce inequalities, build a wellbeing economy and create great places.”***

NPF4 is required by law to set out the Scottish Ministers’ policies and proposals for the development and use of land. It adds:

1 The 17 UN Sustainable Development Goals are set out at page 95 of NPF4 and include inter alia ‘affordable and clean energy’ and ‘climate action’.

2 The Scottish Government’s five-year Infrastructure Investment Plan (2021-22 to 2025-26) was published in February 2021. It set out a vision for Scotland’s future infrastructure in order to support and enable an inclusive net zero emissions economy.

***“It plays a key role in supporting the delivery of Scotland’s national outcomes and the United Nations Sustainable Development Goals<sup>1</sup>. NPF4 includes a long-term spatial strategy to 2045.”***

Reference is made in NPF4 to a spatial strategy, policies and identification of national developments which are aligned to the strategic themes of the Government’s Infrastructure Investment Plan (IIP)<sup>2</sup>.

NPF4 therefore for the first time introduces a suite of centralised development management policies which are to be applied Scotland wide, and also provides guidance to Planning Authorities with regard to the content and preparation of LDPs.

Annex A adds that NPF4 is required by law to contribute to six outcomes; meeting housing needs, health and wellbeing, population of rural areas, addressing equality and “meeting any targets relating to the reduction of emissions of greenhouses gases, and, securing positive effects for biodiversity”.

#### NPF4 and Landscape Designations

The design approach for the Proposed Development has had particular regard to the NPF4 policy framework with regard to landscape designations. NPF4 Policy 4 (Natural Places) is the key policy on this topic. Paragraph c) of the policy refers to proposals that can affect a National Park and National Scenic Area and it contains the longstanding planning policy approach that development proposals will only be supported where:

- “i. the objectives of designation on the overall integrity of the areas will not be compromised; or***
- ii. any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social, environmental or economic benefits of national importance.”***

In addition, Policy 4, Paragraph d) relates to proposals that affect a local landscape area as designated in an LDP and states that proposals that affect such a designation will only be supported where:

- “i. development will not have significant adverse effects on the integrity of the area or the qualities for which it has been identified; or***
- ii. any significant adverse effects on the integrity of the area are clearly outweighed by social, environmental or economic benefits of at least local importance.”***

A full assessment of effects on Loch Lomond and the Trossachs National Park (LLTNP) and the Loch Lomond National Scenic Area (NSA) is included in the Landscape and Visual Impact Assessment (LVIA). Insofar as the design approach has taken full cognisance of these planning policy provisions, the focus has been on ensuring that the Proposed Development would not have a significant adverse effect on the integrity of LLTNP, the Loch Lomond NSA, or any local landscape designation. Furthermore, the design approach has had full regard to the Special Landscape Qualities (SLQs) of LLTNP, the Loch Lomond NSA and relevant local landscape designations.

## National Spatial Strategy – Delivery of ‘Sustainable Places’

Part 1 of NPF4 sets out the Spatial Strategy for Scotland to 2045 based on six spatial principles which are to influence all plans and decisions.

The spatial strategy is intended to support the delivery of:

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

Page 6 of NPF4 addresses the delivery of Sustainable Places, with reference made to the consequences of Scotland’s changing climate as follows:

***“Scotland’s Climate Change Plan, backed by legislation, has set our approach to achieving net zero emissions by 2045, and we must make significant progress towards this by 2030.....Scotland’s Energy Strategy will set a new agenda for the energy sector in anticipation of continuing innovation and investment.”***

The National Spatial Strategy in relation to Sustainable Places is described as:

***“Scotland’s future places will be net zero, nature-positive places that are designed to reduce emissions and adapt to the impacts of climate change, whilst protecting, recovering and restoring our environment.***

***Meeting our climate ambition will require a rapid transformation across all sectors of our economy and society. This means ensuring the right development happens in the right place.***

***Every decision on our future development must contribute to making Scotland a more sustainable place. We will encourage low and zero carbon design and energy efficiency, development that is accessible by sustainable travel, and expansion of renewable energy generation.”***

Page 8 of NPF4 sets out ‘Cross-cutting Outcome and Policy Links’ with regard to reducing greenhouse gas emissions. It states:

***“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.”***

## National Developments

National Developments (NDs) are significant developments of national importance that will help to deliver the Spatial Strategy, and page 97 of NPF4 sets out the 18 NDs that have been identified. Six of these NDs support the delivery of Sustainable Places, one being ND3 ‘Strategic Renewable Electricity Generation and Transmission Infrastructure’. A summary description of this ND is provided at page 7 of NPF4 as follows:

***“electricity generation and associated grid infrastructure throughout Scotland, providing employment and opportunities for community benefit, helping to reduce emissions and improve security of supply”.***

Page 103 of NPF4 describes ND3, stating:

***“This national development supports renewable electricity generation, empowering, 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.”***

The Proposed Development, being over 50 MW in terms of installed capacity, would be a National Development.

## National Planning Policy

In terms of ‘sustainable places’ relevant policies include the following:

- Policy 1: Tackling the Climate and Nature Crises;
- Policy 3: Biodiversity;
- Policy 4: Natural Places;
- Policy 5: Soils;
- Policy 6: Forestry, Woodland and Trees;
- Policy 7: Historic Assets and Places; and
- Policy 11: Energy.

For the consideration of wind energy development, Policy 11 is the lead policy. The policy provisions are set out in detail in both the EIA Report (Chapter 4) and the Planning and Sustainable Design Statement. A key provision within Policy 11 (Energy) is Paragraph e) which states inter alia:

***“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.***

***In considering these impacts, significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets.”***

The design approach for the Proposed Development has considered these specific environmental and technical topic matters in addition to the other relevant NPF4 policies.

## Local Policies

West Dunbartonshire Council (WDC) Local Development Plan 2 (LDP2) (August 2020) is not yet the adopted LDP for the area. However, it does contain a more up to date renewable energy policy than that contained within the adopted 2010 Local Plan. Policy RE1 ‘Renewable Energy Development’: states:

***“Renewable energy development in the form of new build development, infrastructure or retrofit projects will be supported in stand-alone locations and as integral parts of new and existing developments, where it can be demonstrated that there will be no unacceptable significant adverse impacts on all of the development management criteria set out in paragraph 169 of Scottish Planning Policy, but the scale of its proposal and its compatibility with the surrounding area are appropriate, and that all other relevant policies are met.”***

Policy RE1 is, however, in conflict with NPF4 Policy 11 given that it makes specific reference to the now revoked SPP and it does not contain a specific balancing provision to allow for the consideration of benefits – specifically a development proposal’s contribution to Scottish Government targets.

# 4. Landscape and Visual Context



## 4. Landscape and Visual Context

### Landform, Topography and Landscape Character

The Site lies within the north-western part of the Kilpatrick Hills, which rise between the River Leven valley in the west and Strathblane in the east. The southern edge of the hills rises steeply – including some rocky crags – from the Clyde valley while the northern edge drops more gently towards Loch Lomond. The underlying landform of the hills is an undulating plateau punctuated by rounded and sometimes craggy summits, of which the highest point is Duncolm (401 m AOD).

The majority of the Kilpatrick Hills is covered by the Rugged Moorland Hills landscape character type (LCT), classified by NatureScot as LCT216 (see Figure 3). This LCT covers three hill ranges, with the Renfrewshire Heights and Campsie Fells/Kilsyth Hills lying to the south-west and east of the Kilpatrick Hills respectively, and forms a broad arc around the north-western edge of the Clyde basin.

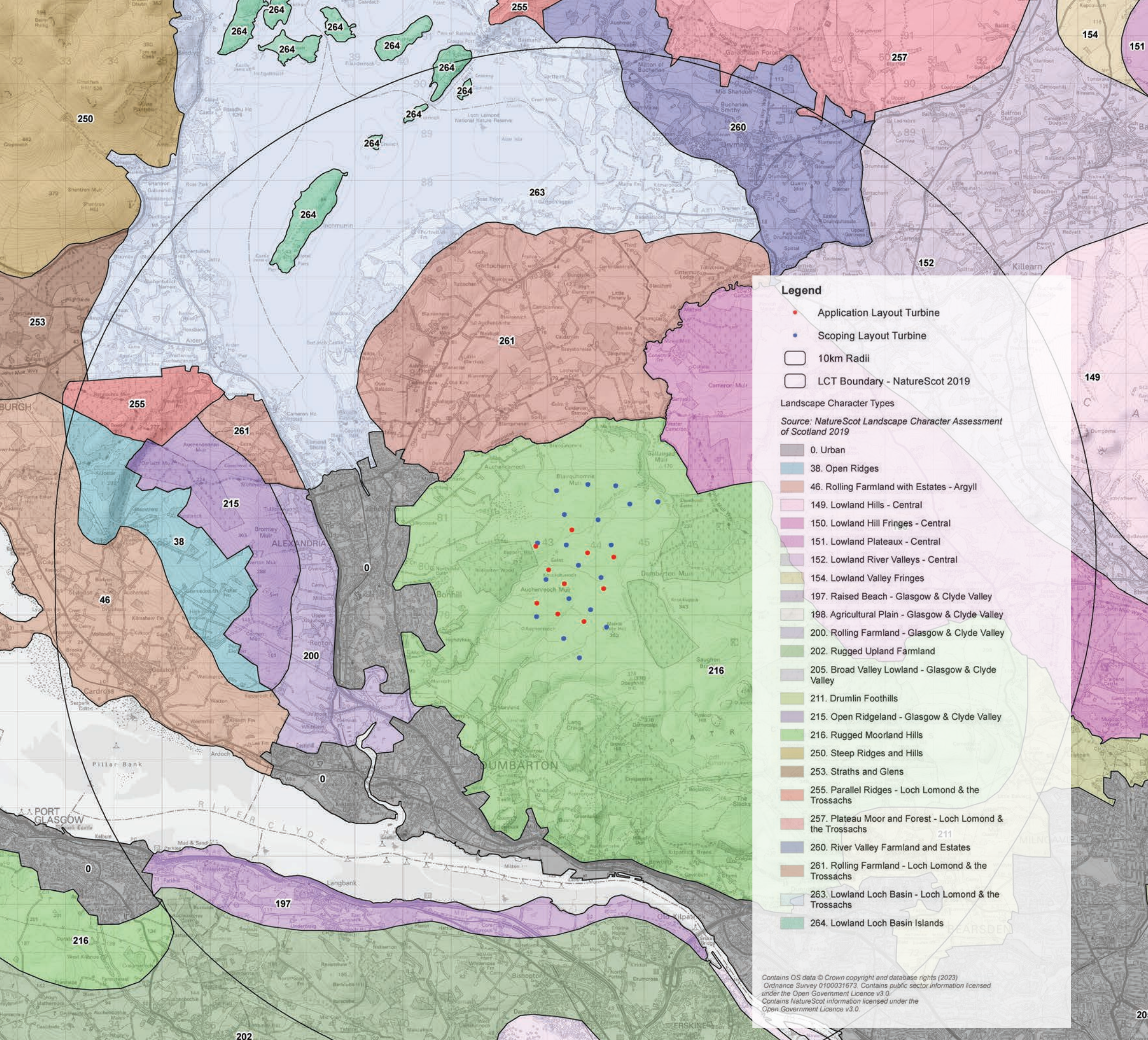
The Kilpatrick Hills is an elevated, exposed and simple landscape with a strong upland character. Both the underlying landform and the overlaid landscape patterns – field boundaries, woodland, access routes, waterbodies, development patterns and so on – are simple and large scale. This is described by NatureScot in its National Landscape Character Assessment documentation (2019), which notes that Rugged Moorland Hills is a:

***“Large-scale simple landscape” with a “Distinctive upland character created by the combination of elevation, exposure, rugged landform, including a fault line and cliffs, moorland vegetation and the predominant lack of modern development, emphasised by the proximity to low-lying valleys and coastal areas.”***

The ground cover is largely moorland and rough grassland with extensive areas of coniferous forestry, some of which has recently been felled.



View northwards across the Kilpatrick Hills from Doughnot Hill, showing the characteristic large-scale, simple landform and landscape patterns of the Rugged Moorland Hills LCT



The Hills are surrounded in all directions by a wide range of more developed, lowland landscapes that are generally relatively complex and enclosed, with tight patterns of field boundaries, woodland and settlement. The elevated landform and upland landscape character of the hills provides a notable contrast and setting to these surrounding developed areas. This leads to the following characteristics, as described by NatureScot:

***“Sense of apparent naturalness, wild character and remoteness which contrasts strongly with the farmed and developed lowland areas.***

***Undeveloped skylines and striking views to the Glasgow conurbation.***

***Important backdrop to neighbouring settled landscapes, creating a unique sense of place.”***

The *“sense of apparent naturalness, wild character and remoteness”* of the northern part of the Kilpatrick Hills has been affected by the Auchencarroch Recycling and Resource Management Facility, which has directly introduced a new landscape feature of large-scale human development into the Kilpatrick Hills as well as affecting perceived naturalness through visibility of the facility. Other development, including forestry, access tracks, reservoirs and extensive recreational use have also affected the *“sense of apparent naturalness, wild character and remoteness”* of the hills. NatureScot acknowledges the influence of development; *“Pylons across the Kilpatrick and Renfrewshire Heights have a local influence, and planes go quite low over the hills in preparation for landing at Glasgow Airport.”*

The eastern edge of the Kilpatrick Hills is covered by Lowland Hill Fringes – Central LCT, which shares many characteristics with the Rugged Moorland Hills LCT, described by NatureScot as *“undulating, rolling topography rising to larger scale hill landforms”*.

Overall, the landscape of the Kilpatrick Hills is large-scale and upland with simple landform and landscape patterns. The hills form an elevated plateau that is punctuated by several more distinctive hill landforms (most notably Duncolm) and drops steeply to the south, west and east, with a gentler slope to the north. This landform ensures that the Kilpatrick Hills provide an important enclosing skyline in views from the Clyde valley to the south, Vale of Leven to the west and Strathblane to the east. In views from the north, the less distinctive edge of the hills provides less containment but is an enclosing skyline nonetheless. The Kilpatrick Hills is not a dramatic or spectacular landscape, but derives importance from its contrast to the developed setting as well as from its innate characteristics. The landscape is generally undeveloped and remote but does have internal influences of development, as well as gaining human influences from the extensive surrounding urban and industrial areas.

## Residential Visual Amenity

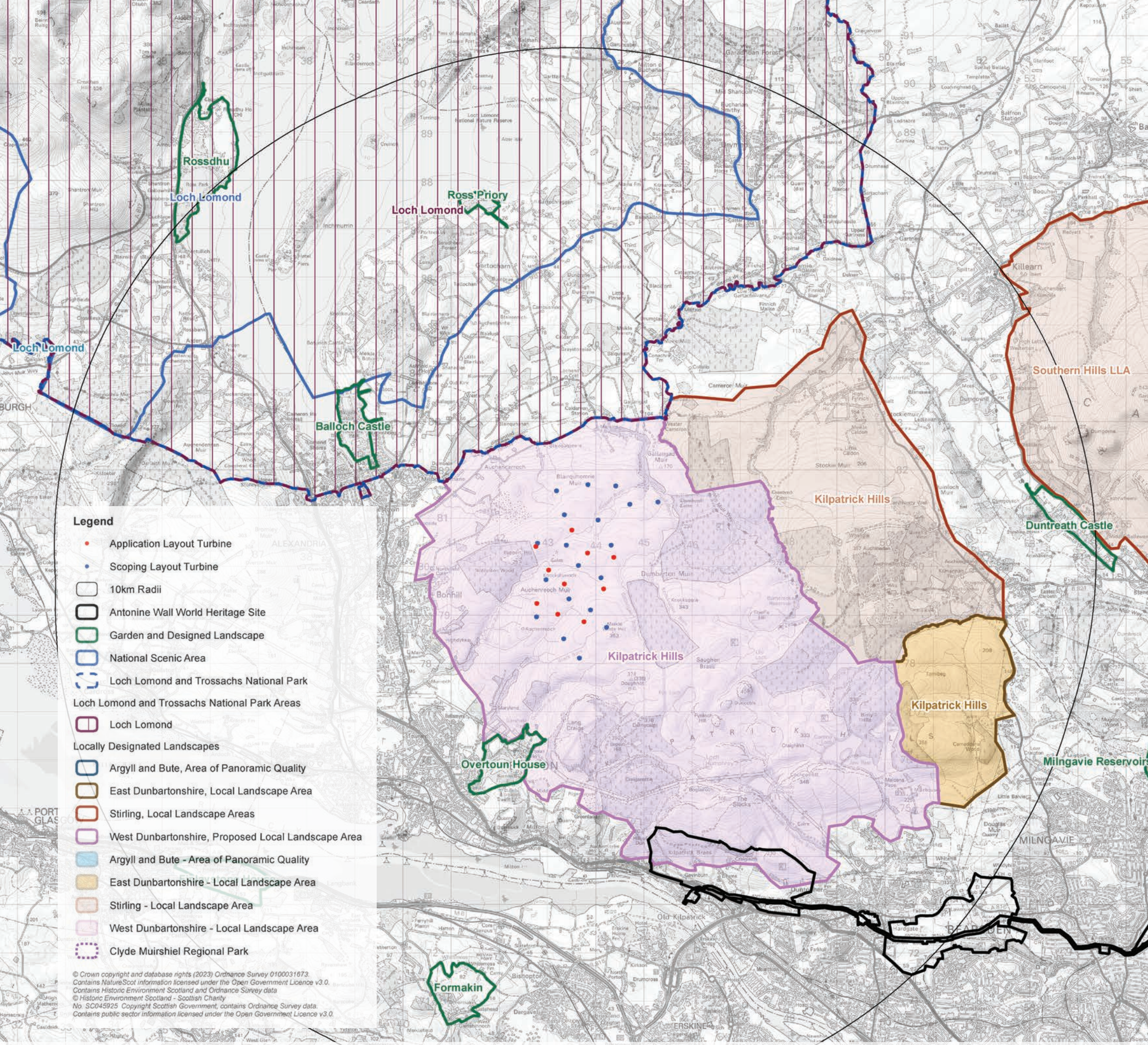
Residential properties that lie in the vicinity of the Site are considered to be highly sensitive to visibility of the Proposed Development, and a Residential Visual Amenity Assessment (RVAA) has been undertaken as a specific aspect of the visual context to the Proposed Development.

Guidance produced by the Landscape Institute (2019) indicates that it is relevant to consider the effects that the Proposed Development may have on views from residential properties that lie within a 2 km radius of the nearest turbine in the Proposed Development.

The relatively undeveloped setting of the Kilpatrick Hills ensures that there are limited properties within this radius of the Site, with almost all of these being found largely to the north of the Site, along Auchincarroch Road, with just one property lying within 2 km to the west of the Site. These are shown on Figure 32.



View northwards across the Kilpatrick Hills from Dumbarton Rock, showing the backdrop of the Kilpatrick Hills behind the settlement of Dumbarton



- Legend**
- Application Layout Turbine
  - Scoping Layout Turbine
  - 10km Radii
  - ▭ Antonine Wall World Heritage Site
  - ▭ Garden and Designed Landscape
  - ▭ National Scenic Area
  - ▭ Loch Lomond and Trossachs National Park
  - ▭ Loch Lomond and Trossachs National Park Areas
  - ▭ Loch Lomond
  - ▭ Locally Designated Landscapes
  - ▭ Argyll and Bute, Area of Panoramic Quality
  - ▭ East Dunbartonshire, Local Landscape Area
  - ▭ Stirling, Local Landscape Areas
  - ▭ West Dunbartonshire, Proposed Local Landscape Area
  - ▭ Argyll and Bute - Area of Panoramic Quality
  - ▭ East Dunbartonshire - Local Landscape Area
  - ▭ Stirling - Local Landscape Area
  - ▭ West Dunbartonshire - Local Landscape Area
  - ▭ Clyde Muirshiel Regional Park

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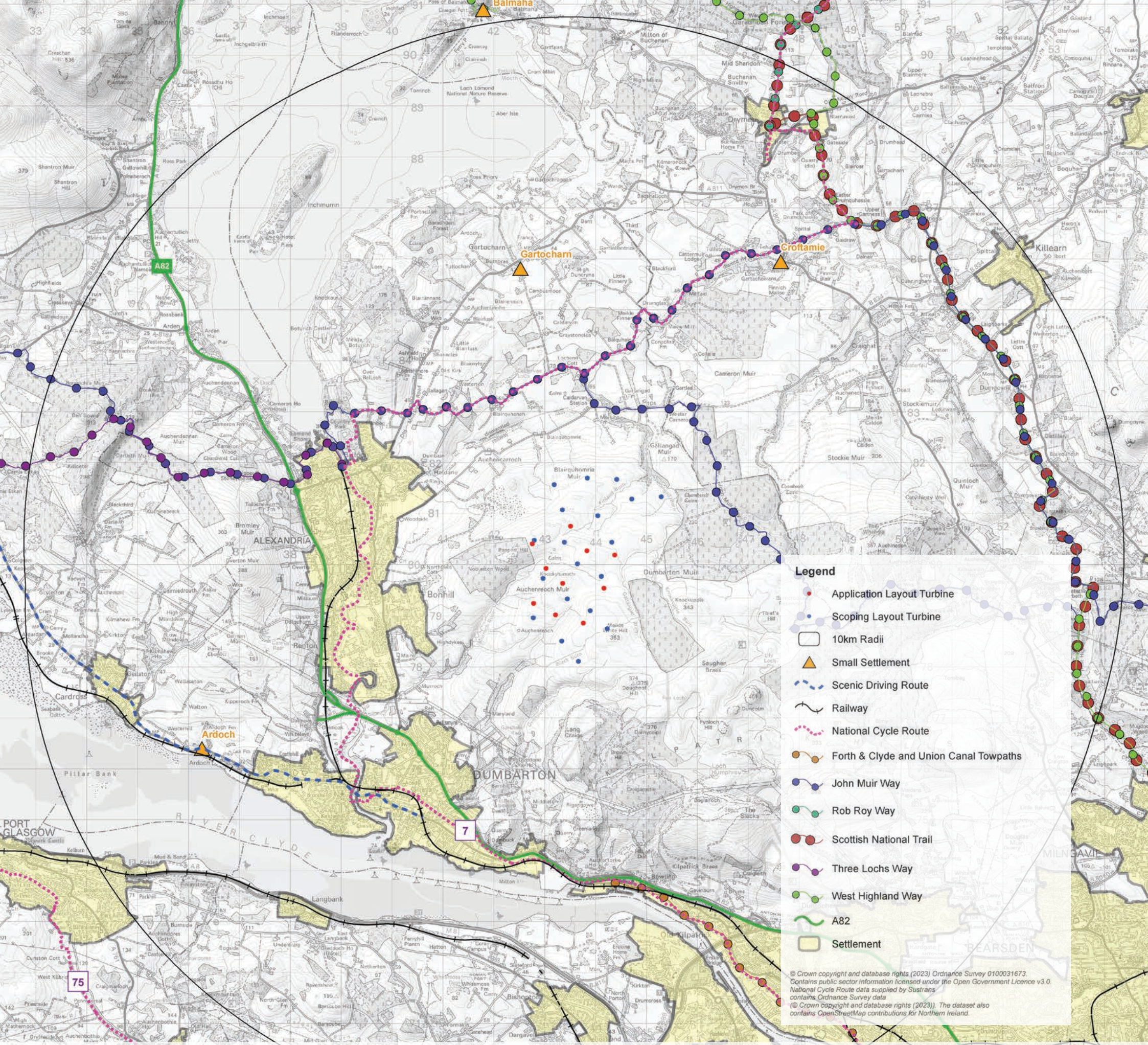
Figure 4: Landscape Planning Designations



## Landscape Planning Designations

The Site lies within the Kilpatrick Hills LLA, as designated by WDC. This LLA extends into two adjoining local authority areas; East Dunbartonshire Council and Stirling Council. In its entirety, the LLA covers the landform of the Kilpatrick Hills irrespective of local authority boundaries.

LLTNP and Loch Lomond National Scenic Area (NSA) both lie to the north of the Site. The Site is entirely outwith both of these designated areas, with the nearest turbine in the Application Layout lying approximately 1.9 km to the south of LLTNP boundary and 3.7 km to the south of the NSA boundary. These designations, along with others that lie within a 10 km radius of the Site, are shown on Figure 4.



## Visual Context

While the Kilpatrick Hills are relatively undeveloped, there are a number of settlements, routes and other locations in the surrounding area from where people may gain views of the Proposed Development. These include:

- long distance walking/recreational routes (e.g. the West Highland Way, the John Muir Way, waterborne routes on Loch Lomond, and National Cycle Route 7);
- settlements (e.g. the closer proximity settlements of Dumbarton and Vale of Leven, settlements to the south of the Clyde such as Langbank and Port Glasgow, and smaller settlements around Loch Lomond such as Balmaha, Drymen, Gartocharn and Luss);
- walking destinations (e.g. Conic Hill, Ben Lomond, Dumgoyne Hill, Duncryne Hill, The Whangie, the Kilpatrick Hills and the Luss Hills); and
- visitor attractions (e.g. Balmaha, Dumbarton Rock, Finlaystone Estate, Luss, and the waterbody of Loch Lomond and its islands).

The settlements and routes that lie within a 10 km radius of the Site are shown on Figure 5.

## Viewpoints

The LVIA is informed by a series of 33 viewpoints that represent visibility of the Proposed Development from a range of landscape and visual receptors, including LCTs, landscape planning designations and principal visual receptors around the study area. These include locations of specific importance such as the settlements, routes, walking destinations and visitor attractions that are described above. The viewpoints are listed in Table 1 below and show on Figure 6.

Eleven of the viewpoints have been chosen as 'design viewpoints'; that is, locations from where the appearance of the Proposed Development is considered to be of particular importance. These viewpoints are used to monitor the appearance of the Proposed Development throughout the design process and measure the acceptability of layout iterations. The design viewpoints are shaded in green in Table 1.

Table 1 LVIA Viewpoints

Viewpoint	Approx distance to nearest turbine	Comments
1. Doughnot Hill	1.54 km	High point within the Kilpatrick Hills, within the Kilpatrick Hills LLA. An important recreational viewpoint, included to represent views gained by people walking in the hills.
2. Minor road (John Muir Way/ NCR 7) north of site	2.89 km	Viewpoint on John Muir Way, core path, and NCR7. Within LLTNP. Similar views are gained by residential receptors.
3. A82 near Bellsmyre Roundabout (A813 junction)	3.84 km	View from the A82 on the western edge of Dumbarton, representing views gained by local residents, workers and visitors.
4. Balloch Castle Country Park access road	4.28 km	Viewpoint within Balloch Castle Country Park and GDL, on the access road. On NCR7 and John Muir Way and within LLTNP.
5. A811 Near Balloch	4.32 km	View from the A811 in Alexandria/Balloch. Just within LLTNP (this road forms the Park boundary) the view would be gained by people arriving at/leaving LLTNP as well as local residents and workers.
6. The Whangie	4.82 km	Viewpoint accessed from core path and popular with recreational users. Within the Kilpatrick Hills LLA. The viewpoint is located on the high ground that rises to the east of the geological feature of The Whangie.
7. Duncryne Hill	5.18 km	Popular local high point with car parking provided and accessed by signposted core path. Within LLTNP.
8. Dumbarton Rock	5.54 km	Elevated viewpoint that is recognised on OS mapping, signposted, and near Dumbarton Castle. Car parking provided.
9. Cameron House seaplane jetty	5.85 km	Gathering point on the shore near Cameron House, at the seaplane jetty. Near core path and within LLTNP.
10. Langbank	7.37 km	Viewpoint on core path (on-street) that runs through Langbank, parallel to A82. Similar view would be gained by nearby residents.
11. Inchcailloch	9.85 km	Viewpoint on core path on the island of Inchcailloch, accessible by frequent boats.
12. Endrick Viewpoint	7.46 km	Signposted but unmarked viewpoint accessed by core path. Within LLTNP and Loch Lomond NSA.
13. Finlaystone Estate	8.48 km	View from within 'Finlaystone Country Estate', visitor attraction and GDL.
14. WHW Near Drymen	8.70 km	Viewpoint to the south-east of Drymen, just within LLTNP and on the WHW/core path.
15. Ben Bowie	9.12 km	Hilltop viewpoint just within the southern edge of LLTNP and Loch Lomond NSA, accessed by a path. The John Muir Way and Three Lochs Way pass nearby.
16. Dumgoyne Hill	10.11 km	Popular recreational destination at the western end of the Campsie Fells, accessed by core path. Within Southern Hills LLA.
17. Balmaha Harbour	10.22 km	Viewpoint at Balmaha Pier, used by boat trips. Within LLTNP and Loch Lomond NSA.
18. Port Glasgow	10.67 km	Elevated view from residential area in Port Glasgow.
19. Conic Hill	11.49 km	Popular recreational destination within LLTNP and Loch Lomond NSA, WHW/core path runs close by.
20. Waterbus	13.11 km	Viewpoint on Loch Lomond, taken on cruise boat. Within LLTNP and Loch Lomond NSA.
21. Bat a Charchel	12.60 km	Elevated viewpoint near a transmission mast on NCR7 and Rob Roy Way (also a minor road). On the eastern edge of LLTNP.
22. Balfron Cemetery	13.31 km	Viewpoint in Balfron Cemetery, represents views gained by people in Balfron.
23. Luss Campsite	14.62 km	Viewpoint on shore of Loch Lomond at Luss campsite. Within LLTNP and Loch Lomond NSA.
24. Sallochy	14.98 km	Open view from rocky shoreline of Loch Lomond, reached by informal path off WHW. Within LLTNP and Loch Lomond NSA.
25. Lyle Hill, Greenock	17.23 km	Elevated viewpoint at trig point on Greenock golf course.
26. Beinn Dubh	17.55 km	Hilltop north-west of Luss, within LLTNP and the periphery of Loch Lomond NSA. On the Beinn Dubh - Glen Striddle horseshoe walk.
27. Inverbeg	19.20 km	Viewpoint at Inverbeg adjacent to West Loch Lomond cycle path.
28. Misty Law	21.77 km	Popular walking destination in the Clyde Muirshiel Regional Park. On a recognised walking route, within WLA 04 Waterhead Moor-Muirshiel and on the edge of an SLA.
29. Ben Lomond	23.13 km	Popular Munro for recreational receptors, within LLTNP and Loch Lomond NSA and accessed by core path.
30. Dunoon	24.60 km	Viewpoint on the waterfront in Dunoon, on a core path. Similar views gained by residents.
31. Ben Venue	25.72 km	Popular Graham for recreational receptors. Within LLTNP and The Trossachs NSA, accessed by a core path.
32. Tarbet	26.54 km	Viewpoint on A82 to the east of Tarbet, within LLTNP and Loch Lomond NSA.
33. Ben Ledi	31.69 km	Popular Corbett within LLTNP and WLA 07 Ben More-Ben Ledi, accessed by core path.

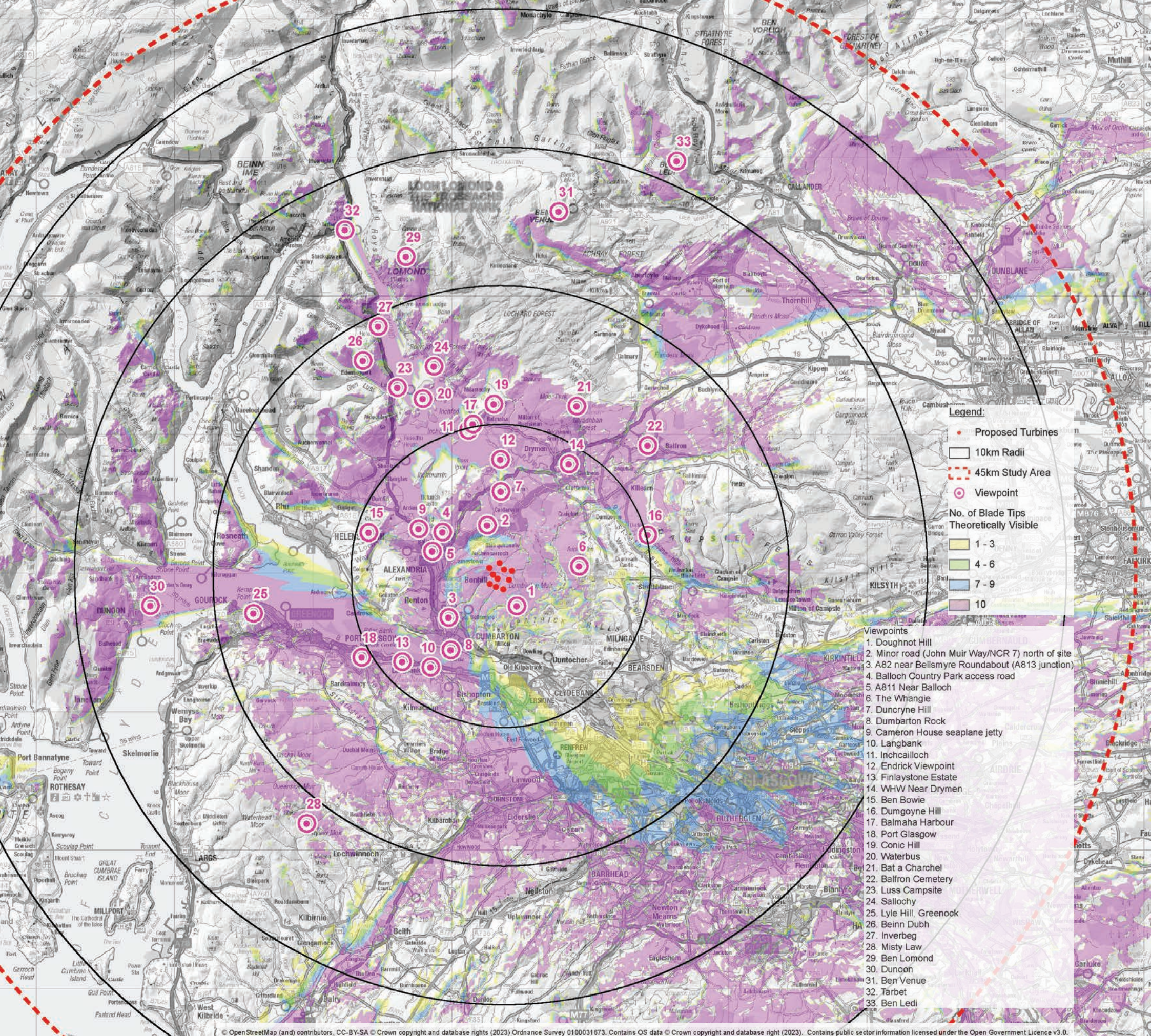


Figure 6: Viewpoints With Zone of Theoretical Visibility

# 5. Design Objectives and Principles



Baseline Photography: Viewpoint 23: Luss Campsite

## 5. Design Objectives and Principles

The design of the Proposed Development has taken into consideration a range of technical, environmental, planning and commercial factors that have been considered from the initial site selection through the design process to the Application Layout of the Proposed Development. This section describes this design process and the design considerations which have been applied to the Proposed Development. While no single discipline takes precedence, the Applicant has given substantial weight to landscape and visual aspects of design in order to achieve a viable development that is designed to fit within the Site and wider context.

### Site Selection

In the process of site selection, the Applicant follows a series of key stages: site identification and Geographic Information System (GIS) site screening, site feasibility studies, initial EIA studies and survey work; and finally detailed EIA investigation including iterative turbine layout design analysis.

In the first stage of this process, the Applicant considers a number of criteria when ascertaining the appropriateness of sites for the development of onshore wind projects. These include:

- suitable wind conditions/wind yield analysis;
- feasibility of access for abnormal indivisible loads (AILs);
- favourable topography and access to enable the construction of projects;
- planning policies which support the development of renewable energy;
- connection to the national electricity transmission network;
- suitable ground conditions and avoidance of environmental constraints, where possible;
- land availability; and
- avoidance of the most sensitive landscapes.

A review of the site selection requirements for the Site found the following:

- **initial desk-based assessments and a review of wind resource suggest that there are high wind speeds, and the Site is available for a renewable energy development; and**
- **there are no planning policies which, in principle, preclude wind farm or renewable energy development.**

Overall, the site was considered as a viable option to take forward through the subsequent stages of development.



View of a site developed by the Applicant at Assel Valley

## Consultation

Consultation with statutory organisations, non-statutory organisations and the general public has taken a number of forms, including pre-application consultation, EIA Scoping, community engagement and design workshop meetings.

### Pre-Application Consultation

A comprehensive programme of consultation with statutory consultees and other organisations has been undertaken throughout the EIA process to obtain environmental information, to discuss and agree the scope of individual environmental assessments and the adopted methods of assessment, and to develop appropriate environmental mitigation measures.

### EIA Scoping

A scoping exercise was carried out with statutory consultees including pre application meetings with WDC. The following considerations were factored into the Scoping process.

- **The nature of the receiving environment and the type of operations associated with the Proposed Development are such that environmental effects could arise during construction, operation and decommissioning stages.**
- **The need for early consultation and commencement of ecological and ornithological surveys, peat depth probing and noise monitoring to accommodate data collection within seasonal and programme constraints.**
- **The local and national planning context, as well as relevant technically specific, planning and environmental policy and guidance.**
- **The need for early consultation with NatureScot, LLTNP, Stirling Council and West Dunbartonshire Council on the selected preliminary viewpoints to minimise potential impact on sensitive landscape and visual receptors.**
- **The requirement for early liaison with stakeholder and regulatory authorities (e.g., telecommunication link operators were consulted, as well as the WDC Environmental Health Officer) to provide input for the EIA and design development processes.**
- **The potential to scope out the environmental factors of which the Proposed Development was assessed to have a negligible (adverse) and Not Significant effect.**

### Community Engagement

The Applicant is aware of the value of engaging with and seeking to involve local communities in the Proposed Development, both prior to and following the submission of the application. While not a statutory requirement for Section 36 applications, the Applicant is committed to undertaking meaningful public consultation.

Public consultation has been held at key stages in the development process to inform the general public and other interested parties of project updates and the emerging findings of the EIA, and to elicit comment and feedback on the Proposed Development. The Applicant wrote to host and neighbouring Community Councils, local councillors, local MSP and MP to introduce the plans and the company in March 2022 and to offer to meet and/or attend Community Council meetings. The Applicant attended Community Council meetings in April 2022 (Balloch and Haldane Community Council) and September 2022 (Kilmarnock Community Council). Three in-person consultation events were held in October 2022 in Gartocharn, Balloch and Bonhill which are three of the closest residential settlements to the Proposed Development.

The Applicant also attended the Bonhill and Dalmonach CC meeting (February 2023) and held a further consultation event in Bonhill at the Loch Lomond Rugby Club on 23 March 2023 following requests from residents for an additional event to take place.

Further engagement with local communities and the public will be undertaken after the application is submitted, with the intention of showcasing the final plans, to allow the public the opportunity to find out how to provide representations on the plans.

Regular project updates have been communicated on the project website as the project has progressed to ensure that the general public and other interested parties are kept up to date regarding the development.

In the context of the design process, the purpose of the consultation process was to seek views on the potential turbine layout to help establish a preferred design to take forward. The results of the consultation process undertaken at scoping and throughout the EIA are detailed within each of the specialist chapters within the EIAR.



Pre-Application consultation in Balloch, October 2022.



## Design Considerations and Constraints

The EIA process has included a number of specialist surveys in order to establish existing conditions on and around the Site. These surveys, which provide a baseline of environmental conditions that is used to inform the design process, fall into two broad categories: technical and environmental constraints and landscape and visual design considerations. These are described below.

Two design workshop meetings were held with relevant technical specialists in August 2022 and February 2023. Feedback from these meetings and site visit were incorporated into the design evolution process.

### Technical and Environmental Constraints

Constraints analysis was undertaken using GIS. A project-specific workspace, based on ArcGIS Online, was developed specifically for the Proposed Development. 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.

Initial onsite constraints identified can be seen on Figure 7 and Figure 8. In addition to the application of GIS, 3D Civils (a 3D civil infrastructure design service) was used to assist in the constraints mapping and design of the Proposed Development. This allowed for greater inspection of topography and visual aspects.

As part of the iterative design process for the Proposed Development, environmental constraints identified through baseline survey results were considered to avoid or reduce negative effects on features where possible. The following design principles and buffers were applied during the design process:

- **50 m buffer from watercourses;**
- **turbine separation distances of approximately 6 and 4 rotor diameters in downwind and cross wind directions respectively (based on a 162 m rotor diameter);**
- **30 m buffer from designated heritage assets of medium importance and 10 m buffer from non-designated heritage assets;**
- **avoidance of areas of deep peat (>1 m depth);**
- **avoidance of development on slopes greater than 15% gradient;**
- **avoidance of the most sensitive habitats and protected species; and**
- **75 m buffer from Dumbarton Muir Site of Special Scientific Interest (SSSI).**

## Landscape and Visual Design Considerations

The landscape and visual environment of the Proposed Development has been a key consideration throughout the design process. Landscape and visual considerations do not generally constitute technical or 'hard' restrictions to development but are rather considerations that inform the layout design process. These considerations, many of which relate to the mitigation of effects on key sensitive landscape and visual receptors, are found both on the Site and within the surrounding study area.

On Site considerations include:

- **relating to the landform of the Site, in terms of its scale, elevation, and complexity; and**
- **relating to the topography of the Site, including the patterns of the landscape such as watercourses, field boundaries, and woodland.**

Considerations in the wider study area include:

- **mitigation of effects on the landscape character and landform of the Kilpatrick Hills, and the role that these hills play in the wider landscape context;**
- **mitigation of effects on national landscape designations, including LLTNP and Loch Lomond NSA, which lie to the north of the Site;**
- **mitigation of effects on views from key sensitive visual receptors, including;**
  - long distance walking/recreational routes (e.g. the West Highland Way, the John Muir Way, waterborne routes on Loch Lomond, and National Cycle Route 7);
  - settlements (e.g. the closer proximity settlements of Dumbarton and Vale of Leven, settlements to the south of the Clyde such as Langbank and Port Glasgow, and smaller settlements around Loch Lomond such as Balmaha, Drymen, Gartocharn and Luss);
  - walking destinations (e.g. Conic Hill, Ben Lomond, Dumgoyne Hill, Duncryne Hill, The Whangie, the Kilpatrick Hills and the Luss Hills);
  - visitor attractions (e.g. Balmaha, Dumbarton Rock, Finlaystone Estate, Luss, and the waterbody of Loch Lomond and its islands);
  - the 33 LVIA viewpoints, and particularly the eleven design viewpoints that have been used to monitor the design process; and
- **mitigation of effects on the Residential Visual Amenity of residents of the area around the Site.**

