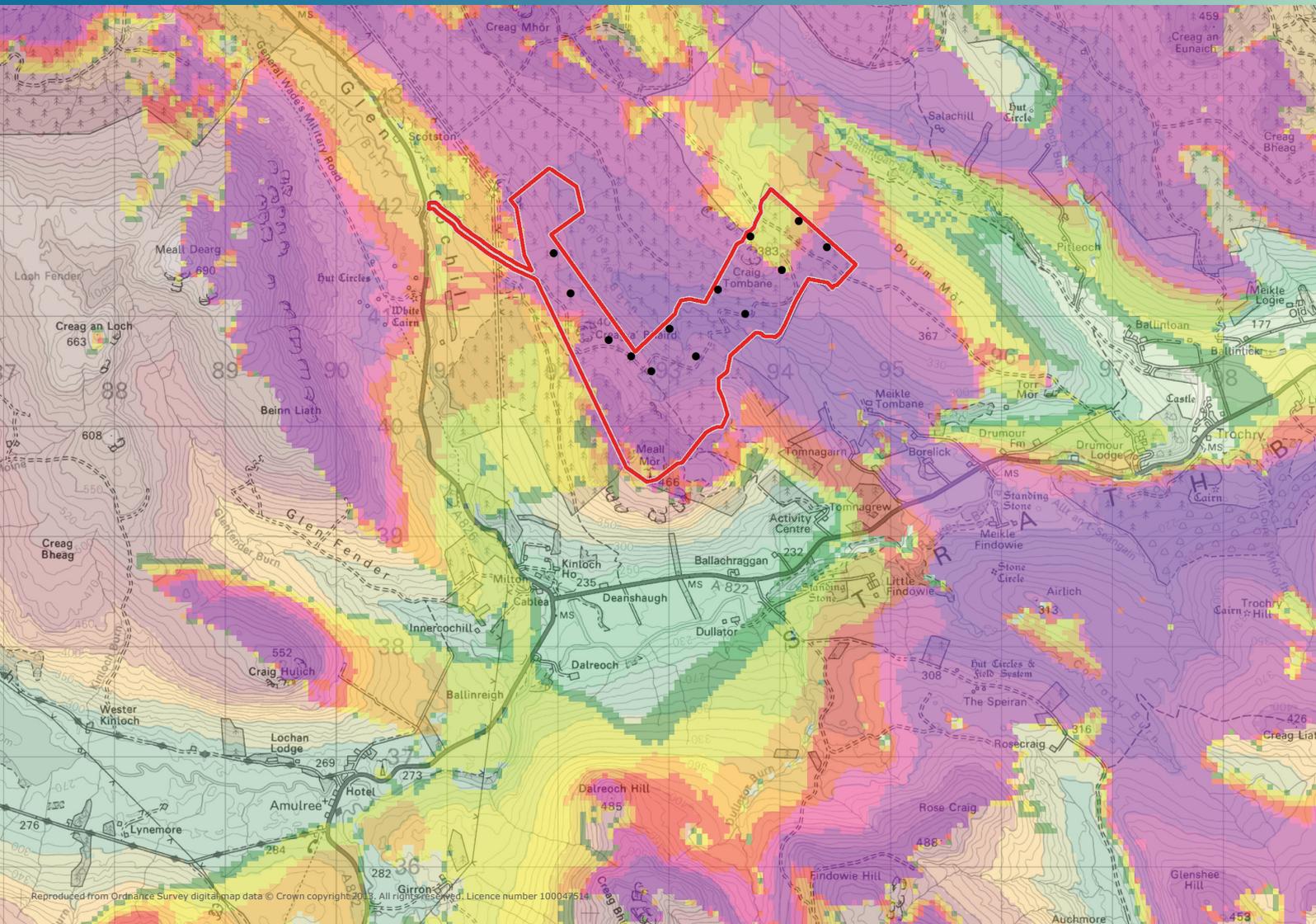


# Creag a' Bhàird Wind Farm Design and Access Statement

December 2013







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# Creag a' Bhàird Wind Farm

## Design and Access Statement

Prepared by LUC  
December 2013

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# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
	Purpose of the Design and Access Statement	1
	Development Description Summary	1
	Applicant Details	2
<b>2</b>	<b>The Design Statement</b>	<b>3</b>
	The Site and its Surroundings	3
	Design Strategy	3
<b>3</b>	<b>The Access Statement</b>	<b>7</b>
	Access to the Site	7
	Access Tracks	7
	Public Access	8

## Figures

Figure 1.1: Location Plan

Figure 1.2: Development Layout

Figure 2.1: Turbine Layout Evolution



# 1 Introduction

- 1.1 The Design and Access Statement has been prepared by LUC on behalf of Force 9 Energy to accompany an application for planning permission for the construction and operation of Creag a' Bhàird Wind Farm. The wind farm comprises 13 wind turbines of up to 115m in height (to blade tip) and associated infrastructure. The site is within the administrative boundary of Perth and Kinross Council and is located approximately 8.5km south-east of Aberfeldy and approximately 20km north-west of Perth (as shown on **Figure 1.1**).
- 1.2 Force 9 Energy is applying to Perth and Kinross Council for planning permission under the Town and Country Planning (Scotland) Act 1997<sup>i</sup>, as amended. This application is categorised as a 'Major' development under the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009<sup>ii</sup> on the basis that the proposed installed capacity of Creag a' Bhàird Wind Farm is greater than 20 megawatts (MW).
- 1.3 The Design and Access Statement has been prepared in accordance with Regulation 13 (1) of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013<sup>iii</sup>.
- 1.4 The Design and Access Statement should be read in conjunction with other elements of the planning application including the Environmental Statement (ES) and Planning Statement. These documents also contain information on the design strategy, landscape and visual effects and access related effects.

## Purpose of the Design and Access Statement

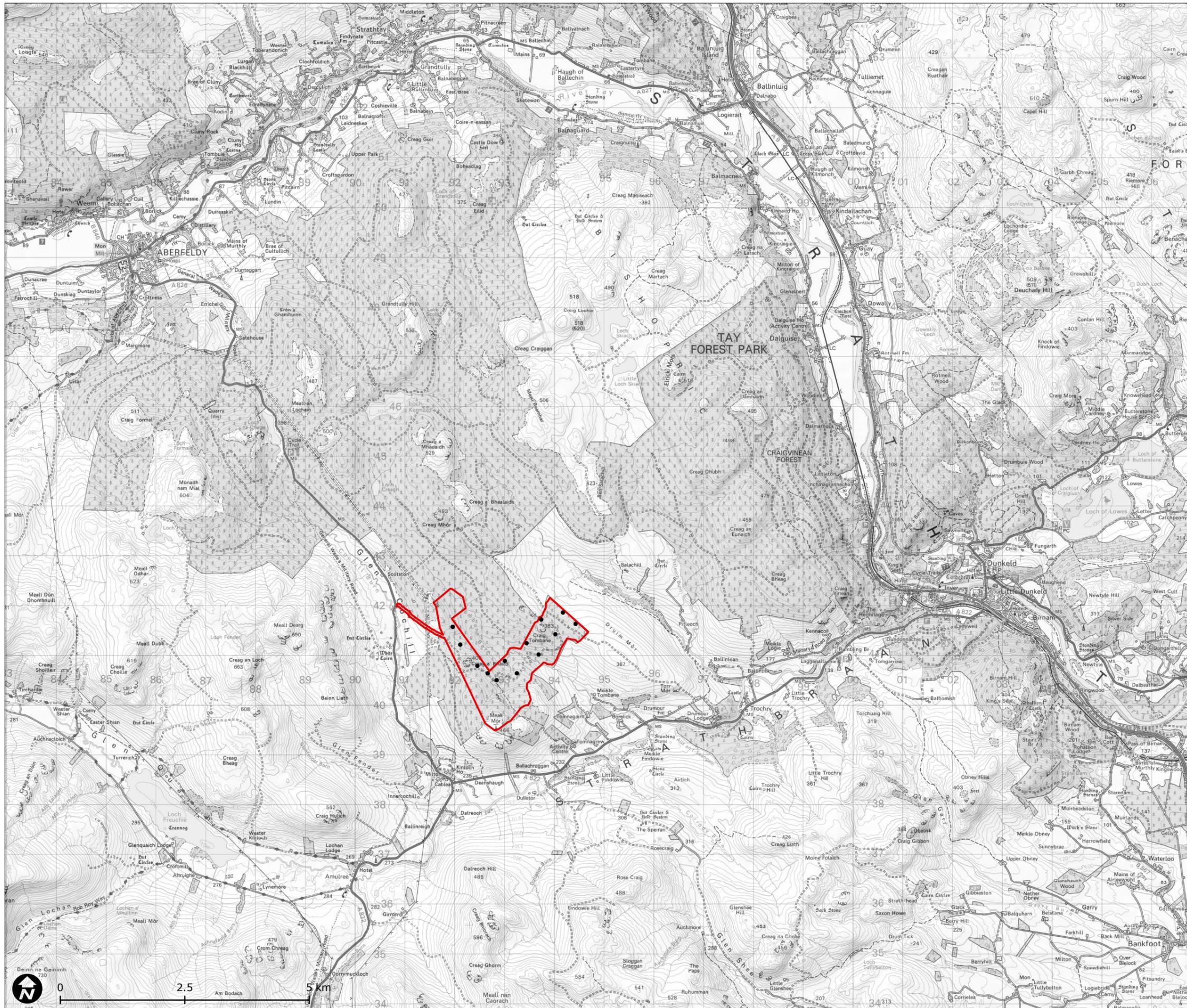
- 1.5 The purpose of this Design and Access Statement is to provide information on the principles and approach that have guided the design process and to demonstrate observance of equal opportunity requirements for access. This Design and Access Statement demonstrates how the site and its surroundings have been fully appraised to ensure that the final design is the most suitable for the site. It describes the starting point for the wind farm design, and subsequent modifications to the layout that were made in response to the environmental and technical issues that were identified as a result of the Environmental Impact Assessment (EIA) process. Details are also provided on the access arrangements.

## Development Description Summary

- 1.6 As shown on **Figure 1.2**, the main components of Creag a' Bhàird Wind Farm comprise:
  - thirteen turbines (including external transformers) of up to 115m height (to blade tip), with a maximum combined output of up to 29.9MW;
  - crane hardstandings;
  - onsite underground electrical cables;
  - a control building;
  - two permanent meteorological masts;
  - a temporary site construction compound/laydown area;
  - two areas within which it is proposed to win rock for wind farm construction (borrow pits);
  - approximately 8km of onsite access tracks.

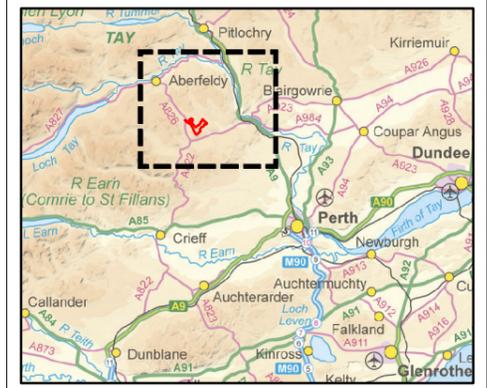
## Applicant Details

- 1.7 Force 9 Energy is a dedicated wind farm development company with offices in Scotland and England and with a focus on the UK market. To date, and at the time of writing, Force 9 Energy has taken eight developments through the planning/consenting process, four of which will have been consented without appeal or Public Inquiry, one of which was consented on appeal, and one of which was refused after public inquiry. Two developments are currently at appeal. Two of the consented developments are now in operation, one is in the final stages of construction, one is in pre-construction and work is on-going to discharge planning conditions on the remaining consented project. Force 9 Energy is continuing to expand its wind farm development portfolio in response to the Government's targets for energy generation from renewable sources and is currently awaiting determination of a further three wind farm planning applications.
- 1.8 Force 9 Energy has a joint development agreement with EDF Energy Renewables (EDF). Through the agreement Force 9 Energy leads on the development process of wind farm proposals up to the start of construction. Should a wind farm be consented, EDF will take the lead during construction and subsequently own and operate the wind farm. Force 9 Energy is supported by EDF both financially and with staff resources requested by Force 9 on issues such as grid studies, access studies and public relations.



**Location Plan**

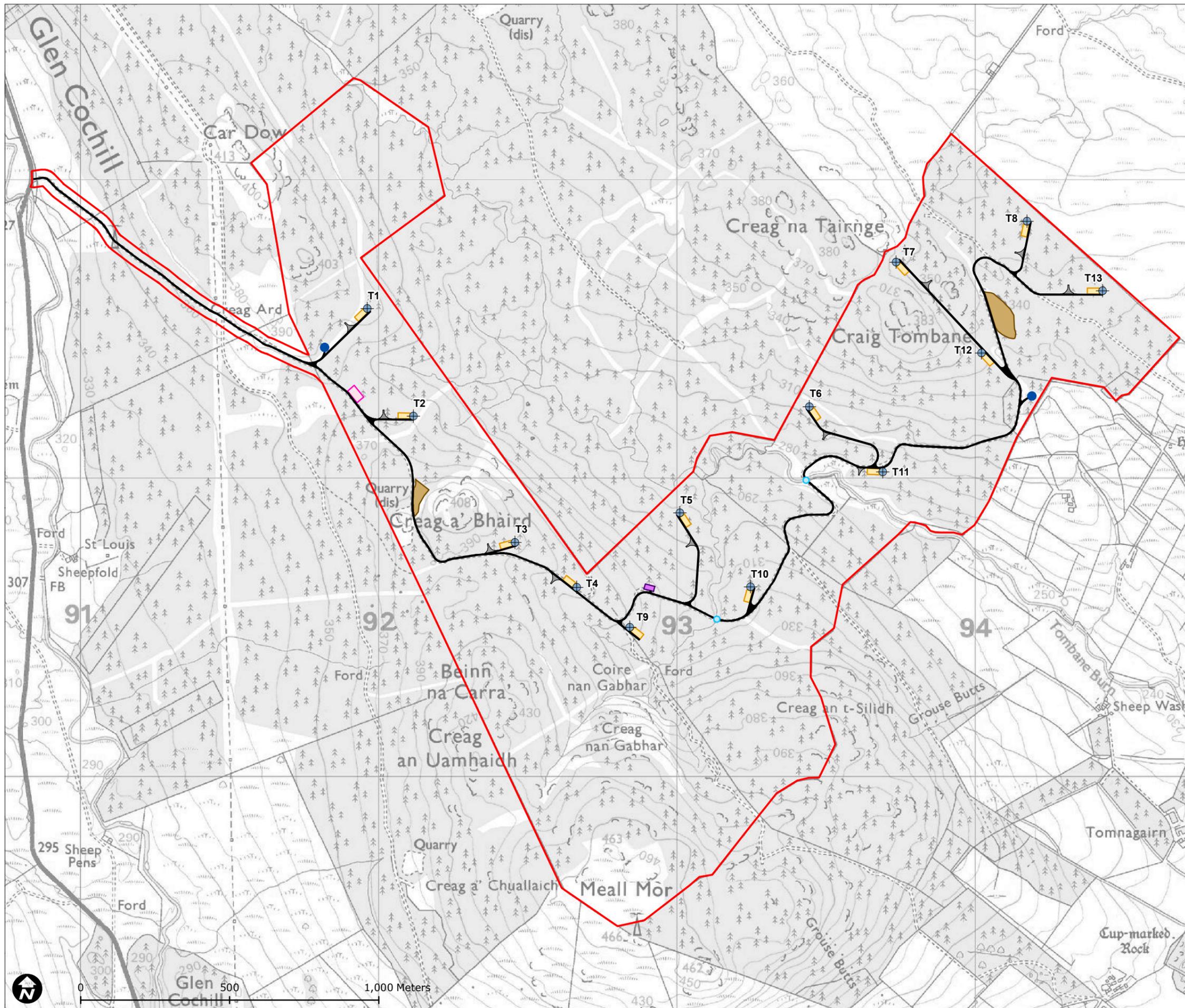
- Site boundary
- Turbine location



**Figure 1.1**

Map Scale @ A3: 1:75,000





**Development Layout**

- Site boundary
- Turbine location
- Meteorological mast
- Access track
- Turning head
- Crane hardstanding
- Construction compound
- Control building
- Borrow pit search area
- Watercourse crossing

**Figure 1.2**

Map Scale @ A3: 1:12,500

## 2 The Design Statement

### The Site and its Surroundings

- 2.1 The site, including the land occupied by the access track and construction compound, occupies a total area of approximately 305 hectares (ha.). However, the actual Development will only occupy a small percentage of the total site. The turbines are proposed to be located on elevations between 287m-385m Above Ordnance Datum (AOD).
- 2.2 The site comprises an area of coniferous woodland, semi-improved grassland and enclosed moorland (heathland) around Creag a' Bhàird (AOD 408m) and Craig Tombane (AOD 383m), north of Meall Mor (AOD 466m) and to the east of Glen Cochill. The site lies wholly within the Perth & Kinross Council area.
- 2.3 There are some areas of coniferous plantation to the north, east and west of the site, extending into the Craigvinean Forest to the north-east. Coniferous plantations to the north and west partially screen views into the interior of the site from nearby roads and properties within Glen Cochill.
- 2.4 The site has an elevated position within the landscape, being located at the edge of a wide upland plateau between Glen Cochill to the west, Strathbraan to the south and Ballinloan Burn to the east. There are several small watercourses within the site draining into the Tombane Burn which flows south to Strathbraan.
- 2.5 The site is located just off the A826 as shown on **Figure 1.1**. There are few properties within Glen Cochill, with the exception of the small hamlet of Milton at the southern end of the glen, and Scotston, a large detached property on the west side of the A826, near the entrance to Griffin Wind Farm.
- 2.6 The A822 passes through Strathbraan to the south of the site, parallel to the River Braan. There are several clusters of properties and farmsteads located on both sides of the A822. These include Little Findowie and Meikle Findowie on the north facing valley slopes, and Tomnagrew, Meikle Tombane, Borelick, Drumour and Trochry on the south facing slopes. There are also several isolated farmsteads to the east of the site, along the valley of the Ballinloan Burn.
- 2.7 Immediately to the north-east of the site is the operational Griffin Wind Farm which comprises 68 turbines and which extends north and east towards the Craigvinean Forest.

### Design Strategy

- 2.8 The overall aim of the design strategy was to create a wind farm with a cohesive design that relates to the surrounding landscape, in line with appropriate published guidance<sup>v</sup>. The inherent nature of wind turbines as tall, modern structures means that the form of the wind farm as a whole is important, and a clear design strategy is necessary. The strategy therefore considered the appearance of the wind farm as an object or composition in the landscape as the primary factor in generating the layout.
- 2.9 This section outlines the planning policy context, describes the initial objectives and sets out the approach to the wind farm design. Modifications to the design, as part of the iterative design process, are also described below.

### Planning Policy Context

- 2.10 The design of the wind farm has taken account of design policies and guidance of relevance to wind farm developments. Full details of the policy context are provided in the Planning Statement which also accompanies the application for planning permission.

- 2.11 As Creag a' Bhàird Wind Farm is situated within the Perth and Kinross Council area, the relevant Development Plan for the area (at the time of submission) comprises:
- The TAYplan Strategic Development Plan 2012-2032<sup>v</sup> (Approved June 2012); and
  - Highland Area Local Plan<sup>vi</sup> (Adopted 2000).
- 2.12 **Policy 6 Energy and Waste/Resource Management Infrastructure** is the most relevant policy within TAYplan against which the wind farm should be assessed.
- A. *Local Development Plans should identify areas that are suitable for different forms of renewable heat and electricity infrastructure and for waste/resource management infrastructure or criteria to support this: including, where appropriate, land for process industries (e.g. the co-location/proximity of surplus heat producers with heat users).*
- B. *Beyond community or small scale facilities waste/resource management infrastructure is most likely to be focussed within or close to the Dundee and/or Perth Core Areas (identified in Policy 1).*
- C. *Local Development Plans and development proposals should ensure that all areas of search, allocated sites, routes and decisions on development proposals for energy and waste/resource management infrastructure have been justified, at a minimum, on the basis of these considerations:*
- *The specific land take requirements associated with the infrastructure technology and associated statutory safety exclusion zones where appropriate;*
  - *Waste/resource management proposals are justified against the Scottish Government's Zero Waste Plan and support the delivery of the waste/resource management hierarchy;*
  - *Proximity of resources (e.g. woodland, wind or waste material); and to users/customers, grid connections and distribution networks for the heat, power or physical materials and waste products, where appropriate;*
  - *Anticipated effects of construction and operation on air quality, emissions, noise, odour, surface and ground water pollution, drainage, waste disposal, radar installations and flight paths, and, of nuisance impacts on of-site properties;*
  - *Sensitivity of landscapes (informed by landscape character assessments and other work), the water environment, biodiversity, geo-diversity, habitats, tourism, recreational access and listed/scheduled buildings and structures;*
  - *Impacts of associated new grid connections and distribution or access infrastructure;*
  - *Cumulative impacts of the scale and massing of multiple developments, including existing infrastructure;*
  - *Impacts upon neighbouring planning authorities (both within and outwith TAYplan); and,*
  - *Consistency with the National Planning Framework and its Action Programme".*
- 2.13 **Renewable Energy Policy 11** of the Highland Area Local Plan highlights that Perth and Kinross Council will encourage renewable energy developments in "*appropriate locations*". Renewable energy development will be assessed against the following criteria:
- "(a) The development will not have a significant detrimental effect on sites designated at national, regional or local level for nature conservation interest or archaeological interest;*
- (b) The development will not result in an unacceptable intrusion into the landscape character of the area;*
- (c) The development will not result in an unacceptable loss of amenity to neighbouring occupiers by reasons of noise emission, visual dominance, electromagnetic disturbance or reflected light".*
- 2.14 **Chapter 5: Planning Policy Context** of the ES sets out the policy and design guidance which has been taken account of in the design and assessment of the wind farm. The sections below set out the rationale for how Creag a' Bhàird Wind Farm was designed to respond to the topography of the site.

2.15 This Design and Access Statement demonstrates how the site and its surroundings have been appraised to ensure that the final design is the most suitable.

### **Design Objectives**

2.16 The objectives of the design strategy were as follows:

- to produce a layout that would relate well to its landscape setting and appear contained within its extents;
- to develop a layout that would appear cohesive and well considered from all aspects;
- to develop a layout that seeks to match the perceived scale of the turbines, and the scale of the overall wind farm, with the scale of the landscape;
- to develop a layout that relates well to other wind farms in the local area; including the adjacent Griffin Wind Farm, as well as being coherent in its own right;
- to develop a layout that fulfils the above objectives whilst respecting other environmental and technical constraints including ecological, hydrological and ground conditions (including peat) related constraints identified during the EIA process.

### **Design Approach**

- 2.17 The approach to the design of the site has been to achieve a cohesive layout which appears carefully composed from all directions, and works positively with the adjacent Griffin Wind Farm. This is so that the turbines appear well spaced, with minimal overlapping. Composition was especially important from the most sensitive receptors, including residential properties within the valley of Strathbraan to the south, the A822 and A826 to the south and west of the site respectively, the River Tay (Dunkeld) NSA to the east, and recreational receptors using the network of footpaths over higher ground to the south, east and west of the site.
- 2.18 Early design iterations demonstrated that turbines located across the higher ground of the site would increase visibility from Strathbraan, including sensitive residential receptors on both sides of the valley. Turbines located close to the western boundary of the site would increase visibility from the A826 and Glen Cochill to the west. It was also found that land ownership boundaries could result in a gap between the most south-westerly turbines of Griffin and the northern Creag a' Bhàird turbines. Design iterations have aimed to reduce the appearance of this gap in views, although it remains apparent from some close proximity viewpoints. From the more distant viewpoints this gap was found to be less pronounced, with the two developments generally reading as one.
- 2.19 The eastern part of the layout aims to tie into the layout of Griffin, with turbines located in distinct rows over Craig Tombane (383m AOD) to the south-east of Creag na Tainge. The western extent of the layout comprises a single row of 5 turbines to the east of Creag a' Bhàird (408m AOD). The final layout is relatively compact, with minimal stacking from the Creag a' Bhàird layout when viewed on its own.
- 2.20 The Creag a' Bhàird Wind Farm generally complements Griffin in terms of layout and scale, and would appear as an extension to Griffin in the majority of views. Very few locations within the study area will experience views of all 13 turbines at their full extent (turbine towers, hubs and blades), with many views limited to visibility of blades tips and hubs, or only parts of the wind farm.

### **Design Modifications**

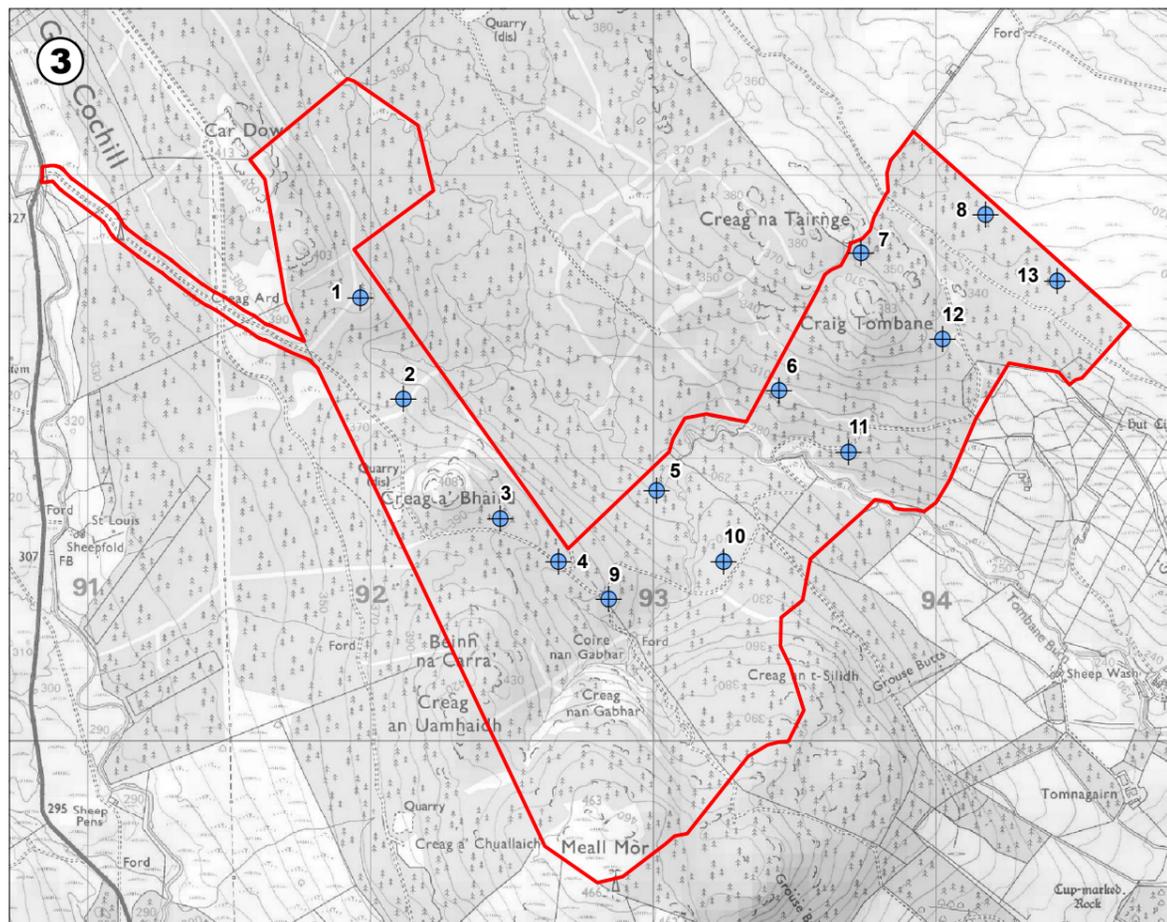
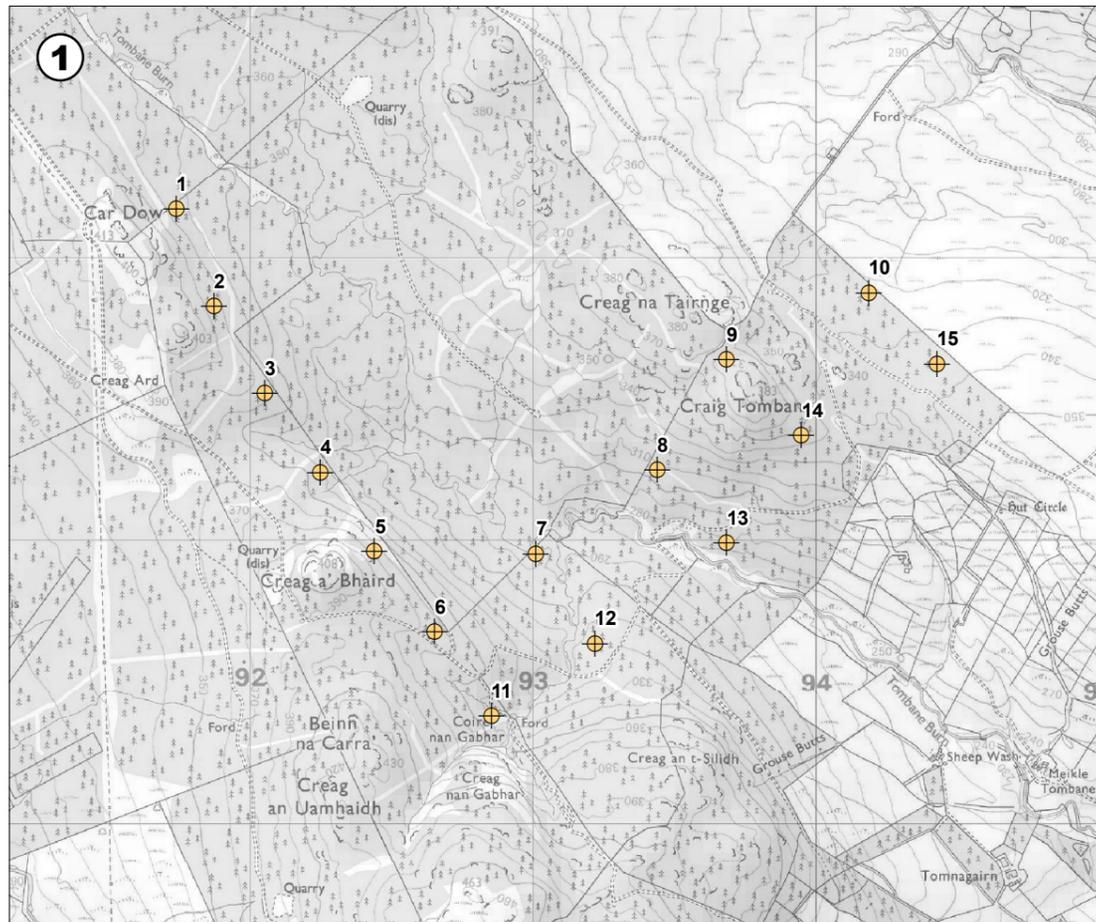
- 2.21 An early 19 turbine (125m to blade tip) wind farm design, based purely on technical and operational efficiency criteria, was developed by the applicant prior to specialist landscape design advice being sought in 2011. This led to the 15 turbine layout design which was refined further as described below.
- 2.22 As a result of the EIA process, there have been a number of modifications to the design, to avoid or minimise environmental effects without compromising the overall design strategy. These modifications have been made as a result of the findings of the baseline survey work and consultation undertaken with consultees and the public.

- 2.23 A summary of the modifications to the design of the wind farm is provided in **Table 2.1** below and these are illustrated in **Figure 2.1**. These modifications have been made to:
- ensure that predicted wind farm noise levels from the wind farm operating in an unconstrained mode do not exceed noise limits derived in accordance with ETSU-R-97;
  - avoid construction activity in areas of potentially deeper peat and in the vicinity of steep slopes (see **Chapter 8: Geology, Hydrology and Hydrogeology**);
  - ensure appropriate buffer distance (minimum 50m buffer) between wind farm infrastructure and the site boundary;
  - minimise the number of watercourse crossings required and ensure appropriate buffer distances between surface waters and Groundwater Dependent Terrestrial Ecosystems (GWDTEs) zones and turbine bases and associated infrastructure;
  - minimise the visual effects of the wind farm in views from Strathbraan.

**Table 2.1 Modifications to the Wind Farm Design**

Layout Number	No. of Turbines	Purpose of Modification
Layout 1	15 turbines	-
Layout 2 (Scoping Layout)	13 turbines	Reduction in the number of turbines from 15 turbines to 13 turbines (removal of the two northernmost turbines) to ensure that operational noise levels lie below derived noise limits.
Layout 3 (Application Layout)	13 turbines	Minor adjustments (between 13m (T6) and 179m (T3)) to all but one (T13) of the turbine positions following peat probing survey, hydrological walkover and National Vegetation Classification (NVC) survey in order to establish an appropriate buffer in relation to watercourses, GWDTEs zones and to avoid areas of deeper peat and steeper slopes. Adjustments were made in the context of minimising visual effects in the views from the wider landscape, in particular views from Strathbraan, whilst ensuring that a buffer of at least 50m from the site boundary to the proposed infrastructure locations was maintained.

- 2.24 As the infrastructure layout is directly influenced by the turbine layout, the design of the infrastructure was undertaken once the likely geographical positioning of the turbines was defined but not yet fixed.
- 2.25 The infrastructure was designed to take account of environmental characteristics which had informed the iterations to the turbine layout, including presence of watercourses and minimising the number of watercourse crossings, avoidance of areas of deeper peat and reducing the potential visibility of ancillary infrastructure.
- 2.26 The final layout comprising thirteen wind turbines each with a height of 115m to blade tip and associated infrastructure, as shown in **Figure 1.2**, represents the outcome of this iterative design process. Further details are provided in **Chapter 6: Landscape and Visual Amenity** of the ES.



- ①  Layout 1 - February 2012  
Initial layout - 15 turbines
- ②  Layout 2 - February 2013  
Scoping report - 13 turbines
- ③  Layout 3 - June 2013  
 Site boundary  
Environmental Statement - 13 turbines

**Turbine Layout Evolution**

**Figure 2.1**

Map Scale @ A3: 1:25,000



## 3 The Access Statement

### Access to the Site

- 3.1 It is proposed that the site will be accessed via the existing site access track which connects to the A826 to the west.
- 3.2 In addition, new sections of access track will be constructed and will branch off from the existing forestry access track to facilitate access to the turbines and other infrastructure.
- 3.3 It is anticipated that turbine components will arrive into the Port of Rosyth. These will then be transported to the site via the A90 northbound, B980, M90, A9 and the A822. Upon reaching the site entrance off the A826, traffic will use the existing forestry track.
- 3.4 No major modifications are anticipated to be made to the transport route, however minor works, such as the temporary removal of signs may be necessary to accommodate the swept path of abnormal loads. All minor works will be agreed with the appropriate Roads Authority (Perth & Kinross Council) and any items removed will be reinstated as soon as possible after abnormal load deliveries have been completed.

### Access Tracks

- 3.5 New sections of access track, branching off from the existing forestry access track, which will be upgraded to accommodate wind farm construction traffic, will be constructed to facilitate access to the turbines and other infrastructure locations (as shown in **Figure 1.2**). In total, approximately 3km of new onsite access track will be constructed.
- 3.6 Passing place construction will be minimised through consideration of the layout of junctions or turbine hardstandings which can generally be used by traffic as an alternative to dedicated passing places. The passing places are not shown on any of the figures accompanying this ES as their locations will be established during construction. They will, however, be sited to avoid ecological, archaeological and hydrological features on site.
- 3.7 The tracks will generally be limited to a running surface width of 5m (depending on the turbine supplier specifications), except at bends where surface width will be widened as required to accommodate the 'swept path' of vehicles carrying long and wide loads.
- 3.8 As there is limited peat onsite, a cut track design will be used and will be constructed by excavating through to a suitable formation. During construction, vegetation, topsoil and subsoil will be placed to the sides of the tracks. A layer of stone will be compacted on top of the base formation to a thickness of around 150-250 millimetres (mm) dependent upon ground conditions. The total track thickness will depend on the strength of the base formation and the gradient of the slope being traversed but is typically 450 to 800mm thick. Drainage ditches will then be constructed (as described below). Surplus soil will be placed and dressed alongside the track to blend in with the surrounding landscape and finally topsoil will be placed on the track shoulders and seeded to promote vegetation.
- 3.9 A drainage ditch will be formed on the upslope side of the track, dependent on a detailed drainage design. Cross pipes will be laid as required in areas where the position of the site track could lead to ponding on one side. As far as possible these will coincide with naturally occurring drainage channels.
- 3.10 Final track drainage design will be determined prior to the commencement of construction of the relevant track section. The design of track and ancillary drainage will comply with Sustainable Drainage Systems (SuDS) standards and be agreed with SEPA.
- 3.11 The access tracks will be retained once the wind farm is operational.

## Public Access

- 3.12 The site is not currently used for any formal recreation activities and there are no Rights of Way (RoW) or Core Paths within the site.
- 3.13 There will be no access to construction areas for informal recreational purposes for the duration of the construction period, and the existing site access track is likely to be closed to pedestrians for extended periods during construction.
- 3.14 Appropriate signage and controls will be adopted to ensure compliance with Construction Design and Management (CDM) and other health and safety legislation as well as accepted good practice procedures. During the operational phase of Creag a' Bhàird Wind Farm, public access to the site will be reinstated to pre-development conditions.

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<sup>i</sup> Town and Country Planning (Scotland) Act 1997

<sup>ii</sup> Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009

<sup>iii</sup> Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013

<sup>iv</sup> Scottish Natural Heritage. (2009). Siting and Designing Windfarms in the Landscape (Version 1)

<sup>v</sup> Strategic Development Planning Authority for Dundee, Angus, Perth and North Fife (2012). TAYplan Strategic Development Plan 2012-2032. Downloaded on October 04, 2013, from <http://www.tayplan-sdpa.gov.uk/FINAL%20Approved%20Plan%20June%202012%20low%20res.pdf>

<sup>vi</sup> Perth and Kinross Council (2000). Highland Area Local Plan (2000). Perth and Kinross Council. Perth, Scotland.