



Contents

| | | |
|-----|---|----|
| 1 | Introduction..... | 2 |
| 1.1 | Introduction..... | 2 |
| 1.2 | Purpose of the Non-Technical Summary..... | 2 |
| 1.3 | EIA Process and Methodology..... | 3 |
| 1.4 | Copies of the EIA-Report..... | 3 |
| 1.5 | Commenting on the Application..... | 4 |
| 2 | Site Location..... | 4 |
| 3 | Proposed Development Description..... | 6 |
| 3.4 | Construction Activities..... | 7 |
| 3.5 | Operation Management and Maintenance..... | 8 |
| 3.6 | Residue and Emissions..... | 8 |
| 4 | Design Evolution and Alternatives..... | 9 |
| 4.3 | Site Selection Considerations..... | 9 |
| 4.4 | Alternatives..... | 9 |
| 4.5 | Design Evolution and Alternative Layouts..... | 10 |
| 5 | Potential Environmental Effects..... | 11 |
| 5.4 | Landscape and Visual..... | 11 |
| 5.5 | Ecology..... | 13 |
| 5.6 | Ornithology..... | 14 |
| 5.7 | Traffic and Transport..... | 15 |
| 5.8 | Noise..... | 16 |
| 5.9 | Potential Grid Connection..... | 17 |
| 6 | Summary..... | 18 |

1 Introduction

1.1 Introduction

- 1.3.1 **Renewable Energy Systems Limited (RES, ‘the Applicant’)** has applied for Planning Permission to construct and operate a wind farm and associated infrastructure with a total installed capacity of between 20 MW and 50 MW (the ‘Proposed Development’). The Proposed Development would comprise of up to five turbines on a site located approximately 4.5 km west of Thurso, on the north coast of Caithness in the Scottish Highlands. The site location is shown in Figure 1.
- 1.3.2 The Environmental Impact Assessment (EIA) Report has been prepared by the Applicant to accompany the planning application.

1.2 Purpose of the Non-Technical Summary

- 1.2.1 The Purpose of the EIA Report is to report on the potential for significant environmental effects as a result of the Proposed Development, and to specify mitigation to avoid or reduce significant environmental effects. The EIA Report comprises the following volumes:
- Volume 1: Non-Technical Summary (NTS);
 - Volume 2: Main Report;
 - Volume 3a: Figures;
 - Volume 3b: Visualisations; and
 - Volume 4: Technical Appendices.
- 1.2.2 The Application is accompanied by the following additional documents:
- Planning Application Form (including Ownership Notification Certificates);
 - Planning Statement;
 - Design and Access Statement;
 - Pre-application Consultation Report;
 - Cover Letter, confirming deposit locations for the EIA-R; and
 - Proposed Processing Agreement between The Highland Council (THC) and the Applicant.
- 1.2.3 This document provides a Non-Technical Summary (NTS) of the EIA Report.
- 1.2.4 The aim of the NTS is to summarise the content and main findings of the EIA Report in a clear and concise manner to assist the public in understanding what the significant environmental effects of the Proposed Development are likely to

be. The full EIA Report provides a more detailed description of the Proposed Development and the findings of the EIA Process.

1.3 EIA Process and Methodology

- 1.3.1 EIA is a process that identifies the potential environmental effects (both beneficial and adverse) of a Proposed Development and proposed mitigation to avoid, reduce and offset any potential significant adverse environmental effects. The EIA process adopted for the Proposed Development has followed best practice guidelines, as set out by the Institute of Environmental Management and **Assessment's Quality Mark Scheme.**
- 1.3.2 A scoping exercise was undertaken in January 2022 which invited comments from consultees regarding the Proposed Development and the key environmental issues to be addressed. This process allowed the EIA Report to focus on the main areas of interest raised by the various consultees. It was agreed with consultees that impacts which are not likely to be significant could be scoped out of further assessment

1.4 Copies of the EIA-Report

- 1.4.1 Further information is available on the project website (<http://www.cairnmorehillwindfarm.co.uk/>) and hard copies of the EIA Report and other documentation can be viewed at the following locations:
- The Highland Council
Wick Service Point and Registration Office
Caithness House
Market Square
Wick
KW1 4AB
- 1.4.2 An electronic version of the reports supporting the application, including the EIA Report, will be available to download from <http://www.cairnmorehill-windfarm.co.uk/the-project/>. This document is available at a cost of £400 in hard copy format (including postage and packaging) or on CD-ROM (price £15). A Non-Technical Summary of the EIA Report is available free of charge from the Applicant on request.

1.4.3 Copies of the EIA Report can be obtained from:

Renewable Energy Systems Limited
3rd Floor
STV
Pacific Quay
Glasgow
G51 1PQ

1.5 Commenting on the Application

- 1.5.1 Once the planning application for the Proposed Development is lodged with THC, a notice of the EIA Report and the application will be placed in a local newspaper and the Edinburgh Gazette, providing details of when representations should be made by and where the EIA Report may be inspected.
- 1.5.2 Any representations in relation to the application should be made by email to the Highland Council, Planning & Development Services mailbox at eplanning@highland.gov.uk or by post to The Highland Council, Planning & Development Services, Glenurquhart Road, Inverness, IV3 5NX identifying the proposal and specifying the grounds for representation. Written or emailed representations should be dated, clearly stating the name (in block capitals), full return email and postal address of those making representations.

2 Site Location

- 2.3.1 The Proposed Development site ('the site') covers an area of approximately 3.58 km² and is located approximately 4.5 km west of Thurso (Figure 1: Site Location). The spot height named 'Cairnmore Hillock' at 135 m Above Ordnance Datum (AOD) is within the site boundary. The highest point at Hill of Forss, within the centre of the site is lying at 138 m AOD.
- 2.3.2 The only major watercourses on site are the two tributaries of the Burn of Brims, flowing from both the east and west of the site before their confluence to form the main Burn of Brims channel. There are a number of minor watercourses including the Thusater Burn to the northeast and the Burn of Brimside to the south of the site.
- 2.3.3 The A836 runs parallel with the northern boundary of the site with neighbouring agricultural land adjoining to the east, south and west. The majority of the site comprises rough grazing land with a number of tracks running through and adjacent to the site.

- 2.3.4 There are seven properties located within the site boundary, two are privately occupied, two belong to landowners of the Proposed Development and three have been identified as unoccupied. The Applicant has visited these properties with the opinion being formed that these wouldn't offer the immediate opportunity for habitation due to the state of disrepair. There are more properties along major roads surrounding the site.
- 2.3.5 The operational Baillie Wind Farm is located c.5 km to the west of the site and the consented Limekiln Wind Farm is located c.10 km to the southwest of the site.

3 Proposed Development Description

3.3.1 The layout of the Proposed Development is shown in Figure 2.

3.3.2 Permission is sought for the Proposed Development comprising:

- Five three-bladed horizontal axis wind turbines, of a maximum ground to tip height of up to 138.5 m;
- Turbine foundations;
- Crane hardstanding area at each turbine base;
- A total of approximately 4.14 km of new on-site access track and turning points with associated watercourse crossings, the Proposed Development would also make use of approximately 1.12 km of existing tracks within the site boundary;
- A wind farm control building/substation compound containing provision for battery energy storage;
- Temporary site construction compound;
- One temporary enabling works compound;
- Underground cabling linking the turbines with the substation;
- Public access and heritage enhancement measures including installation of noticeboards/information boards and signage, restoration of existing historic sheepfold, use of dry-stone walling and seating, and car parking using the temporary enabling works compound area located close to the site entrance¹;
- Associated ancillary works; and
- Engineering operations.

3.3.3 Some flexibility is requested, where necessary, in the exact location of components of the Proposed Development, to account for unexpected variations in ground conditions (50 m deviation in plan from the indicative design). Any repositioning should not further encroach into environmentally constrained areas. Therefore, 50 m flexibility in turbine and infrastructure positioning would help mitigate any potential environmental effects e.g. avoidance of archaeological features not apparent from current records.

3.3.4 Following consultation with the Ministry of Defence (MoD) it has been agreed to install infrared lighting on the turbines in a pattern that is acceptable for aviation visibility purposes. Infrared lighting cannot be detected with the naked eye, thereby reducing visual effects in hours of darkness.

¹ It is proposed that these measures are conditioned, and a final design approved by The Highland Council (THC).

- 3.3.5 A plan showing an indicative corridor of the Proposed **Development's connection** to the national grid network is provided in Figure 3. The grid connection route to the Thurso South Substation would be by a combination of underground cable and overhead line and would generally follow the most logical route to the substation; however, the final form and route would be subject
- 3.3.6 to a separate application by the relevant network operator (Scottish and Southern Hydro Electric Transmission thereafter referred to as SHET) under the Electricity Act 1989 after further detailed surveys and assessments.

3.4 Construction Activities

- 3.4.1 It is anticipated that the construction of the Proposed Development would take approximately 12 months.
- 3.4.2 It is envisaged that the construction hours of work would be Monday to Saturday 07.00 to 19.00. There would be no working on a Sunday unless previously approved by the planning authority. Out with these hours, development at the site would be limited to turbine delivery and erection, commissioning, maintenance and pouring of concrete foundations (provided that the Applicant notifies the planning authority of any such works within 24 hours if prior notification is not possible).
- 3.4.3 A detailed Traffic Management Plan (TMP) would be written in consultation with the Highland Council (THC) prior to construction commencing should consent for the Proposed Development be granted to avoid and reduce effects associated with construction traffic during working hours.
- 3.4.4 A Construction Environmental Management Plan (CEMP) would be implemented during construction to avoid, reduce or control associated adverse environmental effects. The CEMP would, as a minimum, include details of:
- construction methodologies;
 - pollution prevention measures;
 - public liaison provision;
 - peat slide, erosion and compaction management;
 - ecological management;
 - archaeological mitigation measures;
 - control of contamination/pollution prevention;
 - drainage management and Sustainable Drainage Systems (SuDS);
 - water quality monitoring;
 - management of construction traffic;

- control of noise and vibration; and
- control of dust and other emissions to air.

3.4.5 An Outdoor Access Management Plan has been prepared to manage public access to the site during the construction phase of the Proposed Development and for access during the operation of the Proposed Development.

3.5 Operation Management and Maintenance

3.5.1 The expected operational life of the turbines would be 35 years from the date of final commissioning.

3.5.2 Despite being designed to operate largely unattended, staff would be employed to monitor the turbines and to manage the Proposed Development.

3.5.3 Routine maintenance of the turbines would be undertaken approximately twice yearly. This would not involve any large vehicles or machinery.

3.5.4 A sign would be placed at the site of the proposed wind farm giving details of emergency contacts. This information would also be made available to the local police station and SHET.

3.6 Residue and Emissions

3.6.1 The EIA Report has considered the potential for residues and emission associated with the construction and operation of the Proposed Development, including consideration of: water; air; soil and subsoil; noise and vibration; light; heat and radiation; and waste. All discharges would be managed in accordance with relevant guidance and regulations. With the implementation of the CEMP, no significant residues or emissions have been identified during the construction phase. No significant residues or emissions would result from the operation of the Proposed Development.

3.6.2 The Applicant would be required by a condition of consent or planning agreement to arrange for a decommissioning bond to be in place to cover full decommissioning costs of the Proposed Development, before construction work starts at the site. Prior to decommissioning of the Proposed Development, a method statement would be prepared and agreed with THC to ensure that any residues or emissions would be managed in an environmentally acceptable manner.

4 Design Evolution and Alternatives

4.3 Site Selection Considerations

- 4.3.1 The site covers an area of approximately 3.58 km² (Figure 2) and has been chosen for wind farm development for a number of reasons:
- being outside the boundaries of any statutorily protected environmental features;
 - a positive location for the Proposed Development in terms of adopted planning policies; and
 - a large amount of existing infrastructure including Thurso South Substation and existing on-site tracks.

4.4 Alternatives

Do-Nothing Alternative

- 4.4.1 **The “do nothing” scenario is considered in the EIA-R** as a basis for comparing the development proposal under consideration. This scenario is considered to represent the current baseline situation as described in the individual chapters of this EIA-R.
- 4.4.2 In the absence of the Proposed Development, it is anticipated that the site would continue to be managed as a combination of grazing livestock. These land uses would continue on the site whether or not the Proposed Development proceeds.
- 4.4.3 It is recognised that the baseline would not remain static for the lifetime of the Proposed Development. In particular, and apart from any changes arising from economic and agricultural policies and economic market considerations, it is predicted that biodiversity and landscape would undergo some level of change as a result of climate change. Two publications from the Landscape Institute² and Scottish Natural Heritage³ consider the potential climate change effects on the landscape character. Due to the complexities and uncertainties inherent in attempting to predict the nature and extent of such changes to landscape and biodiversity during the lifetime of the Proposed Development, it has been

² Landscape Institute (2008) Landscape architecture and the challenge of climate change, Position Statement, London, October 2008 - URL: <https://www.landscapeinstitute.org/wp-content/uploads/2016/03/LIClimateChangePositionStatement.pdf>

³ Land Use Consultants (2012) An assessment of the impacts of climate change on Scottish landscapes and their contribution to quality of life: Phase 1 - Final Report. Scottish Natural Heritage Commissioned Report 488 - URL: http://www.snh.org.uk/pdfs/publications/commissioned_reports/488_1.pdf

assumed that the current baseline would subsist. It is considered that this represents an appropriate approach for ES Preparation purposes.

4.5 Design Evolution and Alternative Layouts

4.5.1 Figure 4 summarises the design evolution of the proposed turbine layouts for the Proposed **Development from the original (known as ‘Hill of Forss’ Layout) to the final Design Freeze Layout.**

4.5.2 A range of site layouts were assessed with six principal iterations, taking account of a range of environmental considerations including:

- landscape character and visual amenity within a 40 km study area;
- cultural heritage, including mapping all known assets within the site, and designated assets within a 10 km study area to assess the potential for visibility and setting effects;
- sensitive fauna, with the mapping of the presence of European protected species;
- sensitive habitats, particularly peat forming habitats (supported by habitat and peat probing surveys) and habitats dependent on groundwater;
- ornithology, including surveys for bird flight activity and breeding bird activity on the site;
- cumulative operational noise levels and exposure at nearby properties; and
- hydrology and hydrogeology, including identifying all sensitive surface water features.

5 Potential Environmental Effects

5.3.1 The EIA process is designed to identify the potential significant effects that the Proposed Development could have on the environment. The EIA considered the environmental impacts across a range of factors, in accordance with the EIA Scoping Opinion issued by THC⁴. The conclusions of the EIA are that potentially significant effects were identified for a number of topics (see bullet list below) however that these would be reduced to a non-significant level through the application of mitigation. The only exceptions to this are for Landscape and Visual Amenity and Archaeology and Cultural Heritage where some significant residual effects would remain:

- Landscape and Visual Amenity;
- Non-Avian Ecology;
- Ornithology;
- Archaeology and Cultural Heritage
- Traffic and Transport; and
- Noise.

5.4 Landscape and Visual

5.4.1 The study area for the landscape and visual assessment comprises a variety of landscapes ranging from Farmed Lowland Plain to High Cliffs and Sheltered Bays. The Proposed Development is located within an undulating lowland that varies in elevation between sea level and up to 144 m AOD, the highest points comprising low hills and ridges.

5.4.2 The landscape and visual assessment considered the current landscape and visual baseline context of the Proposed Development, which is linked to the baseline of cumulative wind farm developments in the vicinity of the site and identified key sensitive receptors within 40 km.

5.4.3 During the construction and operation of the Proposed Development, there would be no predicted significant residual effects on landscape fabric relation to loss of characteristic land cover.

5.4.4 Careful siting and design of the Proposed Development has aimed to minimise potential effects on landscape and visual receptors. There would be predicted significant effects and predicted significant cumulative effects on three of the eight landscape character types (LCT) in the study area.

⁴ A Scoping Opinion was received from THC on 8 August 2016. Contents of the Scoping Opinion are summarised in EIA-R Volume 4: Technical Appendix 4.2: Scoping Opinion

- 5.4.5 There are no designated landscapes within the site. No significant effects would be experienced by any designations and landscape classifications assessed as a result of the Proposed Development.
- 5.4.6 Visual receptors are individuals or defined groups of people whose visual amenity or viewing experience may be affected by development and include: residents and visitors to settlements; road users; walkers on long range recreational trails and Core Paths; cyclists on national cycleways; and hill walkers at summits.
- 5.4.7 A detailed viewpoint assessment was undertaken using representative locations and receptors. This identified predicted significant effects at seven of the 18 selected viewpoints and predicted significant cumulative effects at none of the 18 selected viewpoints.
- 5.4.8 An assessment of settlements concluded that significant effects were predicted in parts of Thurso. However, such effects are not anticipated to be present everywhere in each settlement:
- 5.4.9 A Residential Visual Amenity Assessment (RVAA) containing a detailed assessment of effects on the visual amenity of properties within 2 km of the Proposed Development has also been undertaken. It is apparent from the RVAA that, whilst a number of properties would be subject to significant visual effects, none were considered sufficient to be deemed to breach the residential visual amenity threshold.
- 5.4.10 The assessment included a review of transportation routes and concluded that of the routes assessed, significant effects are predicted on sections of the following highway and transportation routes:
- A836 (and NC500);
 - A9 (and Wick to Thurso Railway Line); and
 - Stromness Ferry (both routes)
- 5.4.11 No nationally or regionally important recreational routes would be significantly affected by the Proposed Development. However, significant effects were predicted on parts of the following Core Paths, radiating north, west and south of Thurso, as represented by Viewpoint 3 and 18. Short sections of Core Paths to the east of Westfield, as represented by Viewpoint 2; and short sections of Core Paths around Crosskirk Bay, as represented by Viewpoint 4 and National Cycle Routes (NCR) 1 which are of local importance.
- 5.4.12 It is apparent from this analysis that significant effects would be geographically limited in extent and would not significantly affect nationally important landscapes.

- 5.4.13 The decommissioning phase of the Proposed Development would be of a shorter duration to that of the construction phase, with the dismantling of all above ground structures and reinstatement of disturbed ground. Below ground structures would be left in place to avoid further disturbance. There would therefore be a temporary impact from the activities on site to remove structures, but this would be of relatively short duration. Accordingly, the decommissioning phase is considered to be likely to have a minimal effect on the landscape and visual amenity of the locality.

Archaeology and Cultural Heritage

- 5.4.14 A desk-based assessment and walk-over field survey have been carried out to establish the archaeology and cultural heritage baseline within the site. The assessment has been informed by consultation with Historic Environment Scotland and THC.
- 5.4.15 The layout of the Proposed Development has been designed to avoid, as far as possible, direct effects on the identified heritage assets within the site and to minimise the effect of the Proposed Development on the settings of designated heritage assets in the wider landscape.
- 5.4.16 Two heritage assets have been identified that could be affected by construction of the Proposed Development. There would be no significant direct effects on the two heritage assets that lie in close proximity to the Proposed Development.
- 5.4.17 Moderately significant effects on the settings of two scheduled monuments **(Thing's Va broch (SM587) and Scrabster Mains broch (SM579))**, both located outwith the site, are predicted. The introduction of the Proposed Development would not however result in a change that would be so significant as to reduce the cultural significance or amenity value of the assets or to detract from the ability for any visitor to appreciate and understand the assets or their settings.

5.5 Ecology

- 5.5.1 An ecological assessment focussed on the effects of construction, operation and decommissioning of the Proposed Development on ecological features identified during the review of desk-based information and field surveys. Effects of the following features were considered: designated sites, habitats, protected species (e.g. otter, water vole, badger, pine marten, red squirrel, reptiles, amphibians, fish and bats) and Groundwater Dependent Terrestrial Ecosystems (GWDTE).
- 5.5.2 It was possible to scope out most species and habitats recorded in the respective study areas from the assessment by virtue of their absence from the site, their

low conservation value, the type and frequency of field signs present, the small extent of the sensitive habitat, or the negligible scale of potential effects. There are seven Sites of Special Scientific Interest of nature conservation interest within 5 km of the site, none of which have connectivity with the site and so these were scoped out of further assessment.

- 5.5.3 No further specific construction mitigation is proposed in addition to the in-built mitigation (e.g. CEMP, Species Protection Plans, presence of an Ecological Clerk of Works (ECoW)) to be implemented as standard.
- 5.5.4 Potential construction and operational effects on wet dwarf shrub heath were assessed. The main effect being direct and indirect habitat loss due to land take for infrastructure and associated hydrological disturbance. Habitat losses would not be significant.
- 5.5.5 With the implementation of the mitigation measures, no residual significant adverse effects on any ecological receptors are predicted as a result of the Proposed Development.

5.6 Ornithology

- 5.6.1 The ornithology assessment considered the potential effects on the ornithological features present at the site associated with the construction, operation and decommissioning phases of the Proposed Development.
- 5.6.2 On the basis of the results it was concluded that Greenland white-fronted goose, greylag goose, whooper swan, pink-footed goose, golden plover, curlew and lapwing were the only important ornithological features identified as likely to experience significant effects due to the Proposed Development during construction, operation and decommissioning.
- 5.6.3 Due to the proximity of the Caithness Lochs Special Protection Area (SPA) and the potential for connectivity with the Proposed Development, the SPA populations of Greenland whitefronted goose, greylag goose and whooper swan were also assessed under the Habitats Regulations.
- 5.6.4 With no unmitigated significant effects predicted, no specific mitigation is required. However as best practice, a Breeding Bird Protection Plan will be produced which would seek to ensure that any breeding birds, their nests, eggs or young are not directly affected by construction activities with the presence of an ECoW.
- 5.6.5 In order to maintain/improve habitat suitability for breeding /wintering waders within the site, it would be proposed to retain boggy ground and create new wet

areas within the site, but away from turbines, by measures such as blocking any active drains and ditches in selected areas. In addition, controlled grazing would be used to create a variable sward length to maintain areas of shorter vegetation for foraging whilst retaining taller vegetation for nesting.

- 5.6.6 The assessment concludes that there would be no significant residual effects on ornithology as a result of the Proposed Development due to the adaptation of the above measures.

5.7 Traffic and Transport

- 5.7.1 During the construction phase of the Proposed Development there would be a temporary increase in traffic flows, but the increase would not be significant. However, general construction traffic movements would be managed through the provision of a Construction Traffic Management Plan (CTMP) to reduce the traffic impacts and effects associated with the Proposed Development. Where applicable the CTMP would include management of construction vehicle routing, delivery control, use of warning and information signs etc.
- 5.7.2 With regards to the movement of Abnormal Indivisible Load (AIL) (e.g. for turbine blade deliveries) the following mitigation measures would be put in place:
- All AIL vehicles would be restricted out-with the peak hours when existing traffic flows along the route would be lower;
 - Information on the movement of AIL would be provided to the local press to help inform the public and those directly affected by the Proposed Development;
 - An escort would accompany all AIL vehicles; and
 - Appropriate warning and information signs would be provided along the AIL delivery route.
- 5.7.3 The Proposed Development would not result in any significant effects in relation to cumulative construction traffic.
- 5.7.4 Once the Proposed Development is operational, the volume of traffic associated with the operations would be minimal, relating to maintenance of wind turbines only. There may, on rare occasions, be the need for HGV access to the wind turbines. There would be no significant residual effects from the operational phase of the Proposed Development. Also, no significant decommissioning effects were identified

5.8 Noise

- 5.8.1 An assessment of the acoustic impact from both the construction and operation of the Proposed Development was undertaken taking into account the identified nearest residential properties.
- 5.8.2 The operational noise impact was assessed according to the guidance described **in the ‘The Assessment and Rating of Noise from Wind Farms’, referred to as ‘ETSU-R-97’, as recommended** for use in relevant planning policy. The methodology described in this document was developed by a working group comprised of a cross section of interested persons including environmental health officers, wind farm operators and independent acoustic experts. It provides a robust basis for assessing the noise impact of a wind farm and has been applied at the vast majority of wind farms currently operating in the UK.
- 5.8.3 ETSU-R-97 makes clear that any noise restrictions placed on a wind farm must balance the environmental impact of the wind farm against the national and global benefits that would arise through the development of renewable energy sources. The assessment also adopts the latest recommendations of the Institute of Acoustics **‘Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise’**.
- 5.8.4 **Representative baseline conditions (the “background noise level”) at nearby residential properties** were established by undertaking noise surveys. These measured levels were then used to infer the background noise levels at other nearby residential properties as the ETSUR-97 document recommends. As background noise levels depend upon wind speed, as indeed do wind turbine noise emissions, the measurement of background noise levels at the survey locations were made concurrent with measurements of the wind speed and wind direction. These wind measurements are made at the wind turbine site rather than at the survey locations, since it is this wind speed that would subsequently govern **the wind farm’s noise generation**.
- 5.8.5 A sound propagation model was used to predict the noise levels due to the Proposed Development at nearby residential properties over a range of wind speeds, taking into account the position of the proposed wind turbines, the nearest residential properties, and the candidate wind turbine type. The model employed (which considered downwind conditions at all times) took account of attenuation due to geometric spreading, atmospheric absorption, ground effects and barriers. It has been shown by measurement-based verification studies that this model tends to slightly overestimate noise levels at nearby residential properties.

- 5.8.6 The relevant noise limits were then determined through analysis of baseline conditions and the criteria specified by the ETSU-R-97 guidelines. The general principle regarding the setting of noise criteria is that limits should be based relative to existing background noise levels, except for very low background noise levels, in which case a fixed limit may be applied. This approach has the advantage that the limits can directly reflect the existing noise environment at the nearest residential properties and the impact that the wind farm may have on this environment. Different limits are applicable depending upon the time of day. The daytime limits are intended to preserve outdoor amenity, whilst the night-time limits are intended to prevent sleep disturbance.
- 5.8.7 The predicted operational noise levels are within noise limits at nearby residential properties at all considered wind speeds with the implementation of an appropriate noise management strategy. The Proposed Development therefore complies with the relevant guidance on wind farm noise and the impact on the amenity of all nearby properties would be regarded as acceptable.
- 5.8.8 A construction noise assessment, incorporating the impact due to increased traffic noise, indicates that the noise levels at nearby residential properties could exceed construction noise criteria for a short period of time although appropriate mitigation measures have been identified.

5.9 Potential Grid Connection

- 5.9.1 As mentioned before, the grid connection is subject to a separate consenting process and is not under the responsibility of the Applicant. However, as part of the EIA process, the Applicant has assessed the secondary and indirect environmental effects associated with the grid connection, insofar as is possible. The assessment has been made of predicted environmental effects of the grid connection based upon its best understanding of a potentially suitable route corridor (Figure 3).
- 5.9.2 As shown in Figure 3, the Proposed Development would most likely be connected to the Thurso South substation via sections of both overhead line and underground cable. The potential grid connection corridor would begin at the on-site substation within the Proposed Development, travel initially southeastwards and thereafter would follow the public road corridor to Thurso South substation.
- 5.9.3 On the assumption that the final grid connection route and design is informed by any environmental sensitivities identified, and that mitigation measures and good practice methods are adopted, no significant residual impacts are anticipated to occur for all assessed topics as listed below:

6 Summary

- 6.3.1 Environmental constraints and considerations have been taken into account in the site layout and design. As a result, most of the potentially significant effects have been avoided or reduced.
- 6.3.2 The EIA Report reports on the potential significant effects under the following headings:
- Landscape and Visual Amenity;
 - Non-Avian Ecology;
 - Ornithology;
 - Archaeology and Cultural Heritage;
 - Traffic and Transport; and
 - Noise.
- 6.3.3 The EIA Report has identified that there would be some residual significant effects only in relation to landscape and visual amenity and archaeology and cultural heritage. No residual significant effects are predicted for ecology; ornithology; traffic and transport; and noise.





CAIRNMORE HILL WIND FARM

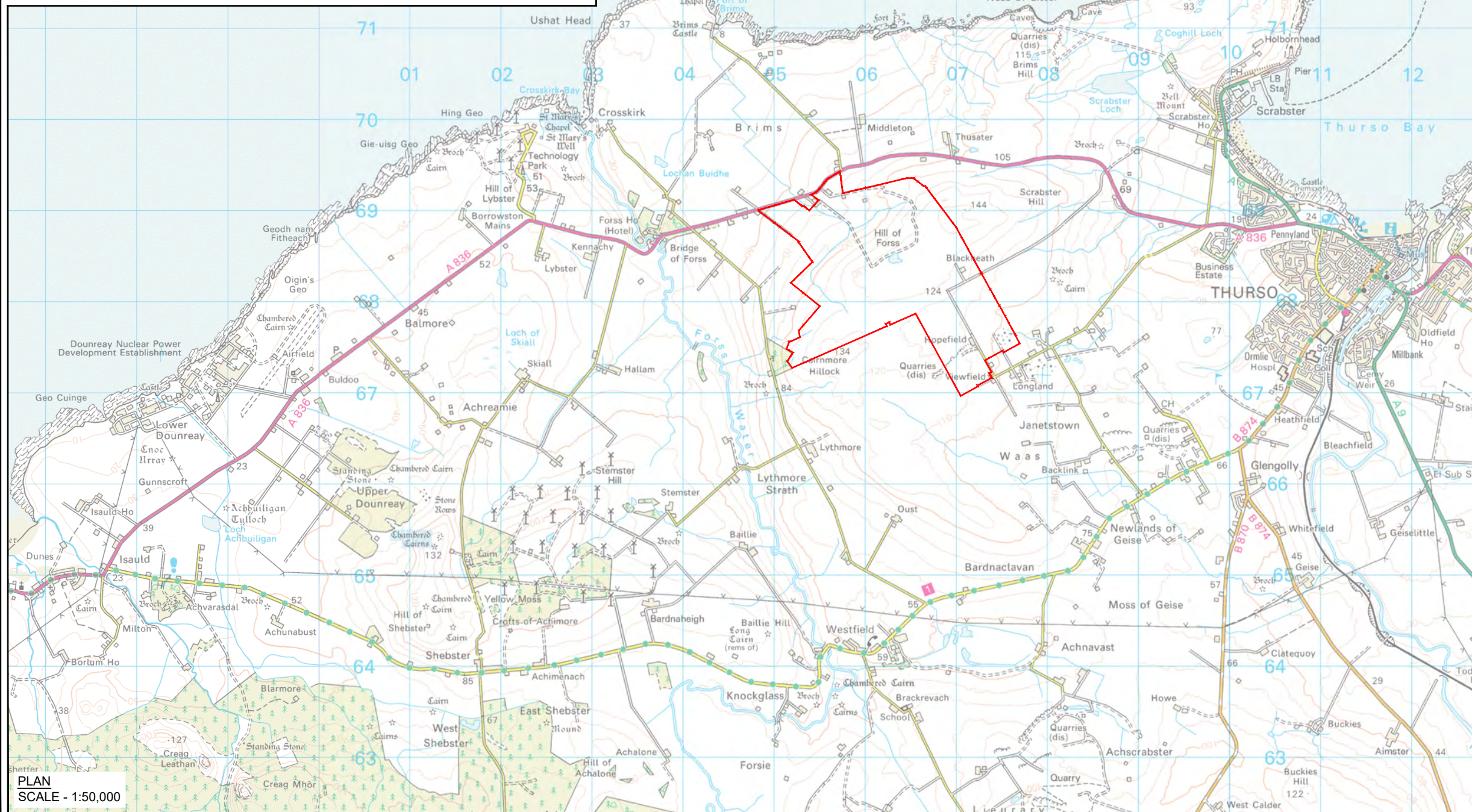
FIGURE 1

LOCATION PLAN

© CROWN COPYRIGHT, ALL RIGHTS RESERVED.
2022 LICENCE NUMBER 0100031673.

KEY

-  SITE LOCATION
-  SITE BOUNDARY



| | | | |
|----------------|--------------------------------|--------------|-----|
| LAYOUT DWG | N/A | T-LAYOUT NO. | N/A |
| DRAWING NUMBER | 03022-RES-LAY-DR-LE-001 | | |

SCALE - AS SHOWN @ A3

Non-Technical
Summary

THIS DRAWING IS THE PROPERTY OF RENEWABLE ENERGY SYSTEMS LTD. AND NO REPRODUCTION MAY BE MADE IN WHOLE OR IN PART WITHOUT PERMISSION



CAIRNMORE HILL WIND FARM

FIGURE 2

SITE LAYOUT

© CROWN COPYRIGHT, ALL RIGHTS RESERVED.
2022 LICENCE NUMBER 0100031673.

KEY - INFRASTRUCTURE LAYOUT

- PLANNING APPLICATION BOUNDARY
- WIND TURBINE LOCATION
- UPGRADED SITE TRACKS
- NEW SITE TRACKS
- TEMPORARY SITE TRACKS
- WATERCOURSE CROSSING
- CRANE HARDSTANDING AREA
 - PERMANENT
 - TEMPORARY
- WATERLESS WHEEL WASH
- TEMPORARY ENABLING WORKS COMPOUND
- TEMPORARY CONSTRUCTION COMPOUND
- CONTROL BUILDING & SUBSTATION COMPOUND WITH PERMANENT HARDSTANDING AREA
- SITE ENTRANCE LOCATION

NOTES

1. TURBINE T2 ROTOR ASSEMBLY PAD MOVED TO AVOID WATERCOURSE BUFFER.

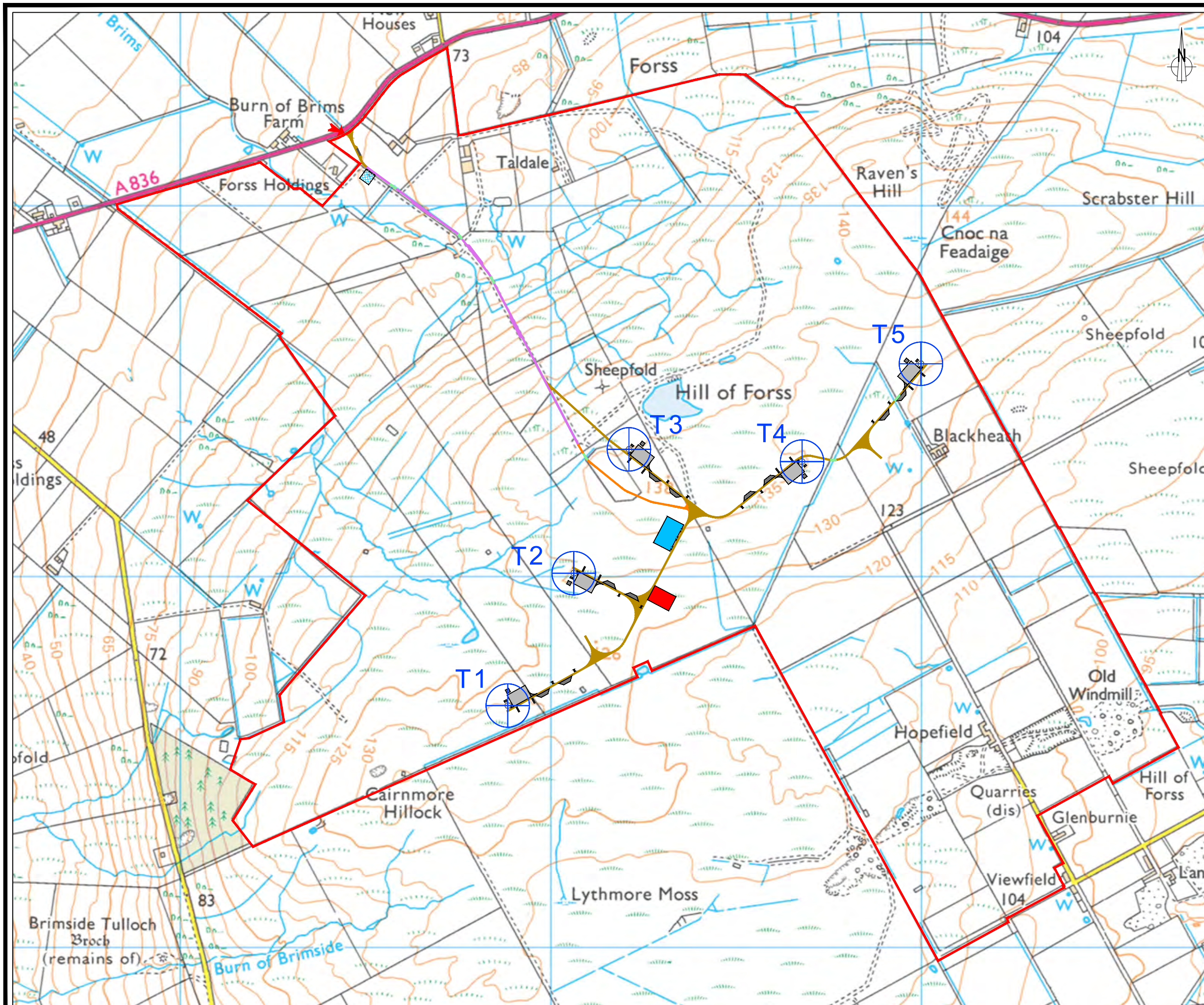
LAYOUT DWG N/A T-LAYOUT NO. N/A

DRAWING NUMBER
03022-RES-LAY-DR-PE-001

SCALE - 1:10,000 @ A3

**Non-Technical
Summary**

THIS DRAWING IS THE PROPERTY OF RENEWABLE ENERGY SYSTEMS LTD. AND NO REPRODUCTION MAY BE MADE IN WHOLE OR IN PART WITHOUT PERMISSION



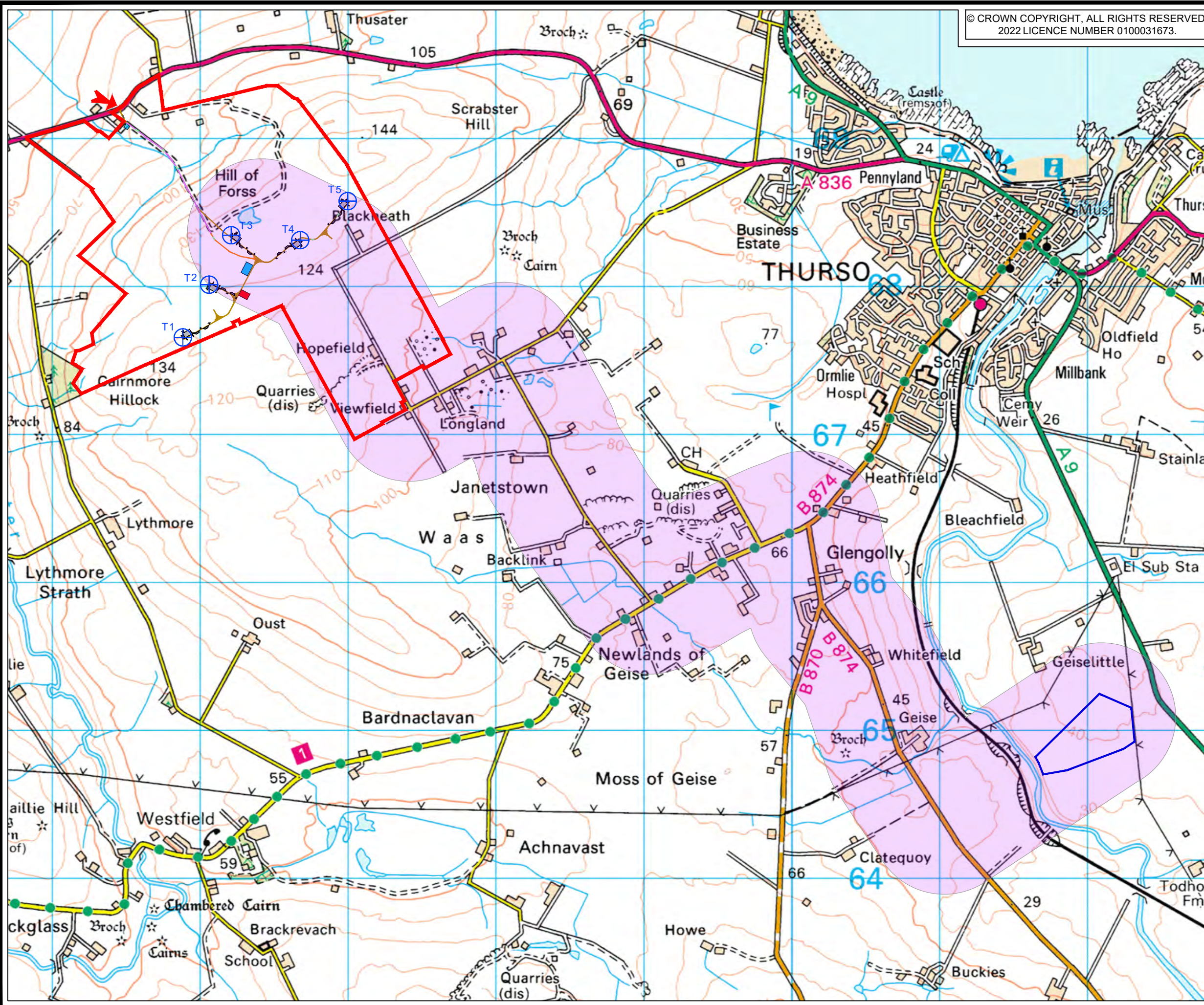
© CROWN COPYRIGHT, ALL RIGHTS RESERVED.
2022 LICENCE NUMBER 0100031673.



CAIRNMORE HILL WIND FARM

FIGURE 3

INDICATIVE GRID CONNECTION



- KEY**
- POTENTIAL GRID CONNECTION CORRIDOR (1 km)
 - THURSO SOUTH SUBSTATION
- KEY - INFRASTRUCTURE LAYOUT**
- PLANNING APPLICATION BOUNDARY
 - ⊕ WIND TURBINE LOCATION
 - UPGRADED SITE TRACKS
 - NEW SITE TRACKS
 - TEMPORARY SITE TRACKS
 - WATERCOURSE CROSSING
 - CRANE HARDSTANDING AREA
 - PERMANENT
 - TEMPORARY
 - TEMPORARY ENABLING WORKS COMPOUND
 - TEMPORARY CONSTRUCTION COMPOUND
 - CONTROL BUILDING & SUBSTATION COMPOUND WITH PERMANENT HARDSTANDING AREA
 - ➔ SITE ENTRANCE LOCATION



LAYOUT DWG N/A T-LAYOUT NO. N/A

DRAWING NUMBER
03022-RES-GRD-DR-CE-001

SCALE - 1 : 25,000 @ A3

Non-Technical Summary

THIS DRAWING IS THE PROPERTY OF RENEWABLE ENERGY SYSTEMS LTD. AND NO REPRODUCTION MAY BE MADE IN WHOLE OR IN PART WITHOUT PERMISSION