



Bettyhill Wind Farm Phase 2

Non-Technical Summary



EDEN
RENEWABLES

December 2022

Bettyhill 2 Wind Limited



NON-TECHNICAL SUMMARY

Bettyhill Wind Farm Phase 2
Prepared for: **Bettyhill 2 Wind Ltd.**

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Figure 1: Site Location Plan

Figure 2: Proposed Site Layout

1.0 Introduction

- 1.1 This Non-Technical Summary (NTS) summarises the Environmental Impact Assessment (EIA) Report for the proposed Bettyhill Wind Farm Phase 2 development.
- 1.2 Bettyhill 2 Wind Limited (BH2WL) ('The Applicant') a company which is 51% owned by Eden Devco (UK) LLP (trading as Eden Renewables), is seeking planning permission to install and operate up to ten wind turbines and associated infrastructure including a potential Battery Energy Storage System (BESS) ('the proposed development'). The proposed development would be known as Bettyhill Wind Farm Phase 2 and would further develop the area where two existing turbines (Bettyhill Wind Farm Phase 1) are located.
- 1.3 The proposed development is located on Bettyhill Common Grazings land ('the Site'), immediately south of the two Phase 1 Bettyhill turbines and approximately 2 km south-east of Bettyhill in Sutherland. It lies on open moorland ground south of the main north coast road, the A836, and forms part of the Skelpick Estate within The Highland Council (THC) area. The Site extends to approximately 334 hectares (ha). The location of the Site is shown on **Figure 1** and would be centred on National Grid Reference (NGR) 274120, 959240.
- 1.4 The combined installed capacity across both turbines and BESS will be 49.9 MW. The turbine capacity alone will (most likely) be 10 x 4.8 MW turbines totalling 48 MW. The proposed development would generate approximately 166,090 megawatt hours (MWh) of renewable, carbon-free electricity for supply to the local electrical distribution grid (equivalent to the typical annual usage of 44,314 homes) and will eliminate approximately 32,362 tonnes of carbon dioxide emissions per year through the displacement of conventional fossil-fuel electricity generation.
- 1.5 The proposed development would have a positive net socio-economic impact on employment, associated local business and supply chain opportunities as well as a substantial community benefit fund package totalling over £8.7 million (£249,500 per year). Compared to the community benefit fund for the Bettyhill Phase 1 Wind Farm, the proposed package will result in the value from the turbines coming into the local community increasing by over 30 times, if the full capacity is built. Eden Renewables has engaged extensively with both the host community council and the neighbouring community councils regarding the distribution of funds. It has been agreed that 50% of the funds would go to the host community council Bettyhill, Stratnaver and Altnaharra and the remaining 50% would be shared with the six neighbouring community councils in a proportion to be agreed by them. The package includes:
- An educational fund (£5,000, index-linked, per year) for local schools to undertake annual trips to the wind farm with a technical or ecological expert on hand to provide learning resources; and,
 - Offering a Local Electricity Discount Scheme (LEDS) and eligible properties may include private residences, local businesses and public buildings. The discount per household would vary by community council area, but assuming 40% of the total package was allocated to it, as agreed with the host community council, the LEDS would range from c.£30 to c.£200 per household per year depending on the community council area.
- 1.6 In addition to the community benefit fund package, Eden Renewables is also committed to offering:
- 20% shared ownership in Bettyhill Phase 2 that will be available for local community investment. The profits, although not guaranteed, could at least double the community funds over the lifetime of the project, further enhancing the potential for social and economic change; and,
 - The Phase 2 development rent will be shared between the landowner and the Bettyhill Common Grazers providing a substantial additional income directly into about a quarter of the total households

in the community council area. These funds will likely have a multiplier effect generating additional socio-economic benefits in the area.

- 1.7 Environmental effects of the proposed development have been considered as part of an iterative design process and included within the Environmental Impact Assessment (EIA) Report and summarised in this NTS. The EIA Report informs readers of the nature of the proposed development, likely significant environmental effects and measures proposed to protect the environment, during site preparation, construction, and operation of the proposed development.

2.0 The Proposed Development

2.1 Design Evolution (EIA Report Chapter 2)

- 2.1 The overarching focus for the development's design has been consideration of potential landscape and visual effects on receptors and how the proposed development would relate to the underlying characteristics of the host landscape. The landscape is characterised by the locally very well-defined north to south alignment of ridges, hills, lochans and water courses. The proposed development has been designed therefore as a linear array to align with this landscape. Turbine scale has been carefully considered ensuring that the proposed turbines align with and do not overwhelm the landscapes.
- 2.2 Throughout the proposed development layout's detailed design evolution, the key considerations were the avoidance of deep pockets of peat (and peat with potential for restoration), ecological and ornithological protection buffers (e.g. for red-throated diver), effects on landscape amenity, visual receptors and landscape character. The design process also considered how the proposed development would be viewed in conjunction with other operational, consented and proposed wind farm sites. In particular, the scale and number of turbines proposed were considered, both in isolation and cumulatively with existing wind farms, especially the existing Phase 1 Bettyhill turbines.
- 2.3 For nearly 20 years this site has been evaluated for wind farm development. Significant amounts of that historical work have contributed to the final proposed 10-turbine layout. The key design iterations considered are summarised below.

Layout A – Pre-Scoping Layout (12 turbines)

- 2.4 Based upon earlier constraints work, a 12-turbine layout was initially developed extending from the two Phase 1 turbines and in fitting with the shallow natural trough in the landscape which frames the Clachan Burn. The northern extent of the parallel arrays of turbines was defined by acceptable proximity to the south of Bettyhill village. The southern extent was defined by the rising terrain to the south near Achamore. The east to west extent of the windfarm was designed to achieve a good landscape alignment between the natural ridgelines in the moorland and with ornithological constraints.

Layout B – Scoping Layout (11 turbines):

- 2.5 Layout A was refined taking account of the continued bird surveys' findings, further fieldwork and hard constraints on the ground – specifically phase 1 peat probing and watercourse analysis. A constraints-led design meeting was held prior to submission of the Scoping Report in March 2021 and highlighted a potential conflict between Turbine 12 and the seasonal use of lochans to the north-west of the Site by breeding red-throated divers. Turbine 12 was subsequently removed, and the remaining turbines were similarly relocated away from areas of recorded deeper peat.

Layout C – Design Chill (10 turbines):

- 2.6 A Design Chill meeting held in September 2021 resulted in further design adjustments, including micro-siting of the turbines enabling closer alignment of turbine hubs, and avoiding potential telecommunications link interference. Turbine 6 was subsequently removed.

Layout D – Design Freeze: The Proposed Development (10 turbines)

- 2.7 During a November 2021 design meeting with the THC, the Planning Case and Landscape Officers discussed key viewpoints with Turbine 1 noted to have a distinct elevation due to variance in underlying terrain. Turbine 1 was moved 182 m further south to reduce its variance with the terrain in some local views. This entailed an adjustment in Site infrastructure which moved a limited area of access, track and hardstanding (temporary and permanent) within the 50 m buffer zone from a watercourse; however, during a site visit in October 2021 this watercourse was deemed likely to be ephemeral because it was very shallow and vegetated with no defined channel.
- 2.8 Full details of design considerations of each of the infrastructure components - including Site Access, Tracks, Borrow Pits, Cable Routes, Construction Compound and Laydown, and Substation are set out within the supporting **Design and Access Statement**.

2.2 The Proposed Development (EIA Report Chapter 3)

- 2.9 The proposed development would comprise the following principal components:
- 10 three-bladed horizontal axis turbines (each with a maximum blade tip height of 149.9 m) with a combined capacity of approximately 48 MW;
 - External transformers at the base of each turbine (the bases would be approximately 10 m x 5 m);
 - Crane hardstanding areas adjacent to each turbine (approximately 28 m by 70 m and 1 m deep);
 - Approximately 7 km of upgraded (0.273 km) and new (6.7 km) access tracks with a typical 5 m running width and associated drainage;
 - Passing places and turning circles;
 - Approximately 15 km of underground power cabling linking the turbines to the proposed substation, laid in trenches with cable markers;
 - A substation compound including a control building, a potential BESS, parking and ancillary grid services equipment;
 - One new watercourse crossing and five upgraded watercourse crossings;
 - Several small areas of native woodland planting totalling 2.8 hectares to the north and east of the substation compound and battery storage units to filter local views to these features and to the turbines themselves, plus an area west of the site vehicular entrance and access track;
 - A temporary construction compound (100 m x 55 m);
 - Two temporary borrow pit search areas for the extraction of rock (covering an area of approximately 39,994 m²; and,
 - Two interpretation panels explaining the renewable energy and ecological benefits of the wind farm and local heritage and geology.
- 2.10 The potential BESS improves the project's efficiency by enabling the wind turbines' renewable energy generation to be stored on site and smooth out variances between wind resource and electricity demand.

It may also potentially be used to provide services to help stabilise the local electricity network. The combined maximum capacity of the wind turbines and the BESS would not exceed 49.9 MW.

- 2.11 Using a site capacity factor of 39.5%, the proposed wind turbines would produce approximately 166,090 megawatt hours (MWh) of electricity annually¹, Supplying enough renewable electricity to power the approximate annual domestic need of 44,314 average UK households². Based upon the UK's current electricity grid mix, it is estimated that the proposed wind turbines will displace approximately 32,362 tonnes of CO₂ pollution per year, or 1.13 million tonnes of CO₂ pollution over its 35-year lifespan.
- 2.12 The proposed development's layout is shown on **Figure 2**. It proposes that a 25 m micro-siting tolerance for the turbines and all other ancillary infrastructure is applied to the proposed development (so long as infrastructure moves no closer to any identified watercourse). This requested micro-siting enables flexibility for localised ground conditions and other environmental constraints that might be identified during post consent survey works.
- 2.13 The Site would be accessed via the existing Phase 1 Bettyhill site entrance from the A836. A new access track would spur from the existing Bettyhill Wind Farm to the proposed development site.
- 2.14 A proposed development of this size is expected to have a construction period of approximately 12 months. The wind turbine components' port of entry will likely be Scrabster Port at Thurso. Abnormal loads transporting these components will then route via the A836 to the Site entrance. All other construction traffic would also use this entrance.
- 2.15 The proposed development will connect to the grid at the Dounreay Bulk Supply Point approximately 33.5 km to the north-east. The proposed grid connection route does not form part of this planning application and will be the subject of a separate application.
- 2.16 The proposed development has an expected operational life of 35 years and will be decommissioned at the end of its life. The Site will then be restored with removal of all infrastructure to a depth of 1m and vegetation regrown where it was before. This would be done through the preparation and agreement of a Decommissioning and Restoration Plan (DRP). It is anticipated that the DRP would be the subject of a planning condition.
- 2.17 The Highland Council and landowner require a restoration bond to be in place for the full cost of the works. The ultimate decommissioning protocol would be agreed with THC and other appropriate regulatory authorities in line with best practice guidance and requirements of the time. Alternatively, a new planning application may be submitted to repower the Site.

¹ For example, using a 39.5% capacity factor. Figures are derived as follows: 48 MW x 8,760 hours/year x 0.395 (capacity factor) = 166,090 MWh.

² Calculated using the most recent statistics from the Department of Business, Energy and Industrial Strategy (BEIS) showing that annual UK average domestic household consumption is 3,748kWh (as of December 2021, updated annually).

3.0 Benefits of the Development

3.1 Contribution Towards Renewable Energy and Climate Change Targets

- 3.1 The UK and Scottish Governments have both declared a climate emergency and committed to increasing renewable energy generation in order to meet carbon emission reduction targets set in 2019.
- 3.2 The Climate Change (Emissions Reduction Target) (Scotland) Act 2019 commits Scotland to a legally binding target for net-zero emissions of all greenhouse gases by 2045 at the latest alongside a series of ambitious and challenging interim targets for 2020, 2030 and 2040.
- 3.3 In order to achieve Scotland's emissions targets out to 2032, the Scottish Government's Climate Change Plan Update (2020) states that there will need to be "*a substantial increase in renewable generation, particularly through new offshore and onshore wind capacity.*" It expects 11 to 16 GW of new renewable capacity will need to be developed during this period.
- 3.4 The UK Government's 'British Energy Security Strategy' (2022) highlights that if the UK is to reduce rapidly increasing energy bills and keep them down long term it needs to reduce dependence on imported oil and gas and to source more of its energy domestically.
- 3.5 Through the generation of clean, renewable energy and reduced dependency on fossil fuels, the proposed development will make a meaningful, positive contribution towards these targets to combat climate change, provide energy security and meet rising energy demand.

3.2 Peatland Restoration and Habitat Management Benefits

- 3.6 A comprehensive blanket bog restoration programme is proposed as part of the development. Details are set out in the Outline Habitat Management Plan (HMP) (see **Technical Appendix 8.5 of the EIA Report**). The locations of the proposed bog restoration areas have been identified through an initial appraisal exercise focused on the highest restoration potential whilst also avoiding areas of concern raised by local stakeholders (members of the crofting community) concerned about potential impacts on their livelihoods and traditional way of life.
- 3.7 The total proposed area for peat bog restoration (79.47 ha) is approximately 3 times the area of blanket bog habitat (24.51 ha) that would be lost both directly and indirectly through the proposed development's construction. This is primarily to compensate for the expected time required for the restoration to succeed, to include whole hydrological units in order for restoration to function properly, and provide additional enhancement (even though this is not a policy requirement). The proposed bog restoration multiple is justifiable for several reasons:
 - Evidence from Scottish sites indicates that it can take half the time (15 years) for blanket bog to transition from moderate to good condition via drain blocking compared to the suggested Defra Metric 3.1 (30+ years).
 - Whilst bog restoration is difficult to achieve, it is likely that the Defra Metric 3.1. has overestimated this. The difficulty of peatland restoration varies greatly depending on the situation and required restoration methods: from more challenging areas like large expanses of bare peat at high altitude, on sloping ground; to more straightforward projects such as those involving ditch blocking at lower to moderate altitude on flat to gently sloping ground (such as the proposed development). The Defra Metric 3.1 does not distinguish between these.

- The Common Grazers acceptance of the multiplier was difficult given they want to preserve their traditional way of life. The impact on peat therefore needs to be balanced against this aspiration. Full details explaining how the proposed peat bog restoration area has been calculated is detailed in Section 5.3 of the OHMP.
- 3.8 In addition to blanket bog habitat restoration, the Outline HMP also aims to improve habitats (approximately 2.59 ha) for water vole through bracken control. 2.8 ha of native woodland planting is also proposed primarily for screening but would also be of ecological value. Once the proposed blanket bog restoration, bracken control and native tree planting has succeeded, it is considered that it would result in a net positive impact and likely biodiversity net gain.
- 3.9 The OHMP is intended as a precursor to a more detailed Habitat Management Plan (HMP), which would be produced and agreed with THC, in consultation with NatureScot and Scottish Environment Protection Agency (SEPA) post consent and before construction.
- 3.10 All the bog restoration and part of the tree planting areas lie outside the Site boundary; they are within the same land ownership and are immediately adjacent to the Site and are therefore considered geographically appropriate areas in terms of distance from the habitat expected to be lost. These areas can be secured in relation to the HMP through a planning condition.

3.3 Public Access and Outdoor Recreation Benefits

- 3.11 By making the Site more accessible through the construction access tracks it is anticipated that the Site might become more popular for public access during the operational phase. The Applicant would also be willing to discuss further with THC's Access Officer over the potential enhancement of existing footpaths within the Site (for example the Clachan Burn Core Path) where these could provide outdoor access benefits. Any agreed measures would be detailed in an Access Management Plan.

3.4 Socio Economic Benefits

- 3.12 The estimated capital investment for the overall project is approximately £65 million including: £42 million for turbines and plant, £8 million for electrical works and grid connection, £12 million for civil engineering and £3 million for project development and other costs.
- 3.13 Investment in construction and operation of the proposed development will create economic opportunities for local, regional and national businesses. Construction will directly support an estimated 24 person-years of net additional temporary employment locally and 120 person-years within Scotland during the 12-month construction period. The local economy would be expected to be boosted by approximately £1.7 million of net Gross Value Added (GVA) and the Scottish economy by approximately £8.4 million GVA. The operational phase will directly support between 2 and 3 full time equivalent jobs locally and a similar number of full-time equivalent jobs within Scotland.
- 3.14 A wide selection of supply chain businesses could expect to benefit from the investment in the local and Scottish economy, e.g. ground and road maintenance, accommodation, catering, building trades and plant hire. The Applicant is committed to maximising local procurement and would adopt established good practice measures such as 'Meet the Developer/Contractor Days' prior to construction, aimed specifically at small to medium enterprises, to discuss the types of contracts available. It is also likely that the proposed development would operate in combination with other renewable energy projects in the area to encourage the development of relevant skills and longer-term business opportunities as the north of Scotland continues to capitalise on its natural energy resources as part of its commitment to economic recovery and response to climate change. The developer has already begun by compiling a list of all businesses within a 30-miles range and contacting businesses that may wish to contract services during

construction and / or operation. So far, the following 23 businesses have stated that they could benefit and wish to be included in the future process: Bettyhill General Merchants; Bettyhill Garage; Clachan Café, Bettyhill; Dunveaden House B&B; Bettyhill Hotel; Farr Bay Inn; Craighu, Bettying Caravan and Camping Site; Geordies Byre Airbnb; Kyle of Tongue Hostel & Campsite; Cloisters B&B, Lairg; Pennyland House B&B, Thurso; Station Hotel, Thurso; Pentland Hotel, Thurso; Pentland Lodge House, Thurso; Manor House Guest House, Thurso; Holborn Hotel, Thurso; The Park Hotel, Thurso; Westlea House B&B, Thurso; The Inn at Y-Not, Thurso; Camfield House B&B, Thurso; Vistravi Taxi & Tours, Thurso; Harbour Taxis, Thurso; and, Caithness Cabs, Thurso.

3.5 Community Benefits

- 3.15 The Applicant is motivated by a strong commitment to ensuring that people living near their renewable energy projects should have the opportunity to share in the economic benefits as well as the environmental ones. In the Eden Renewables' team's 10+ years of developing renewable energy projects they have led the industry with their approach to community benefits. These have included financial contributions to community funds administered by local people delivering meaningful social change; an innovative education programme for local schools linked to the national curriculum; and opportunities for communities to share in the ownership of projects.

Community Benefit Fund Package

- 3.16 Since 2013, the existing Bettyhill turbines have been contributing to a community benefit fund managed by Bettyhill, Strathnaver and Altnaharra Community Council, rising in line with inflation and expected to last for 25 years. The turbines contributed almost £8,000 in 2022, and over £50,000 has been disbursed from the fund since 2015 to support a wide range of different local community projects across all demographics, from primary schools to OAPs. These include local Covid-response initiatives; the Strathnaver Museum's purchase of the Rosal pre-clearance village and archaeology costs when Bronze Age remains were found during its refurbishment; and Evening Classes organised by the Farr North Community Development Trust.
- 3.17 Should the proposed development be granted planning permission, it will result in the value from the turbines coming into the local community increasing by over 30 times, compared to the community benefit fund for the Bettyhill Phase 1 turbines, if the full capacity is built. This has the potential to deliver positive social and economic change. The Applicant is committing to an overall benefits package of £5,000 per MW per annum of installed wind capacity, index-linked, in line with the Scottish Government's and the Highland Council's recommended rate. This will be payable for the lifetime of the project, expected to be 35 years. This could amount to a total of £249,500 per year, or over £8.7 million for the lifetime of the project.
- 3.18 Eden Renewables has engaged extensively with both the host community council and the neighbouring community councils regarding the distribution of funds. It has been agreed that 50% of the funds would go to the host community council Bettyhill, Strathnaver and Altnaharra and the remaining 50% would be shared with the six neighbouring community councils in a proportion to be agreed by them. These councils are Strathy & Armadale, Tongue, Durness, Kinlochbervie, Scourie and Melvich.
- 3.19 The overall package includes the Education fund and Local Electricity Discount Scheme detailed below. They are not in addition.

Educational Fund

- 3.20 The Applicant has created an innovative education programme, starting in 2013, working with Earth Energy Education to educate young people and inspire careers in climate change, energy and ecology;

relating this to their schools, communities and the wider world. This includes classroom-based learning linked to the National Curriculum plus annual field trips to its renewable energy projects. So far over 10,000 children across the UK have benefited from this programme, and it has been adopted by many other developers and asset owners.

- 3.21 As part of the Community Benefit Fund Package, the Applicant will provide an educational fund as part of the overall community benefits package for nearby schools. This would amount to £5,000, index-linked, per year and Bettyhill, Melvich and Tongue primary schools, and Farr secondary school, would all benefit from annual trips to the wind farm with a technical or ecological expert on hand and in-class learning resources.

Local Electricity Discount Scheme

- 3.22 As part of the Applicant's innovative approach to community benefits and desire for as many local people to benefit as directly as possible from the project, they are offering a Local Electricity Discount Scheme (LEDS) linked to the project. Eligible properties may include private residences, local businesses and public buildings like schools, libraries and hospitals, at the discretion of the individual community councils. Participation in the scheme is voluntary and is not linked to any particular supplier or tariff.
- 3.23 Eden Renewables is working with an experienced administrator of such schemes to ensure the costs of delivery and administration of the scheme are minimal.
- 3.24 The discount per household would vary by community council area, but assuming 40% of the total community benefit fund package was allocated to it, as agreed with the host community council, Eden estimates it would range from c.£30 to c.£200 per household per year. The proposed LEDS received positive feedback during the main community consultation. The host community council has subsequently confirmed it is in favour of participation in the LEDS, while the neighbouring community councils consulted so far have also expressed strong interest and are expected to confirm participation shortly.

3.6 Shared Ownership

- 3.25 The Applicant believes that, where possible, it is important to increase both the value of the community benefits and their geographic spread by offering the opportunity for shared ownership in the project. Shared ownership is a way for communities to participate directly with renewable energy developments in their local area. It offers the community a direct financial stake in a commercially-run wind farm with the potential to earn a commercial return from the energy produced.
- 3.26 The Eden Renewables team has significant experience in shared ownership having developed and advised on several other renewable energy projects which include shared ownership throughout the UK; and worked directly with other developers and community groups looking to do shared ownership on wind farms in Scotland.
- 3.27 The community share is purchased at a commercial value. Impartial advice on how to make the most of the opportunity and sources of grant funding is available from Local Energy Scotland, an independent organisation set up by the Scottish Government to promote community and shared ownership. Further details of the consultation effort associated with this and responses from local communities are provided in the PAC Report accompanying the application.
- 3.28 Eden Renewables is committed to offering shared ownership of up to 20% in Bettyhill Phase 2. This is in addition to the community benefit fund package.
- 3.29 Farr North Community Development Trust (FNCDT) is a charity formed in 2020 to make investments in renewable energy projects and commit to improving the lives of people living in North Sutherland. The

intention is for FNCDT to make the community investment and Eden Renewables and FNCDT continue to work together towards that goal.

- 3.30 FNCDT would distribute the profits arising from the community investment stake in Bettyhill Phase 2 which are over and above the Community Benefit funds committed to and noted above. These profits, although not guaranteed, could at least double the community funds over the lifetime of the project, further enhancing the potential for social and economic change.

Common Grazing Rental Income

- 3.31 There are 54 shareholders who comprise the Bettyhill Common Grazings within which the development sits. They already share the rental income from the Phase 1 development with the landowner; the rent receivable from the Phase 2 wind farm would therefore provide a very substantial additional income directly into the local community, with the Bettyhill Common Grazings representing about a quarter of the total households in the community council area.

4.0 Environmental Impact Assessment

4.1 Landscape and Visual Impact Assessment (EIA Report Chapter 7)

- 4.1 The scope of the landscape and visual assessment including the assessed viewpoints was discussed and agreed with THC and NatureScot (NS) during the pre-application stages of the proposal.
- 4.2 The landscape assessment sets out the effects on the landscape fabric and landscape character. The assessment includes consideration of effects upon designated landscapes including the Kyle of Tongue National Scenic Area (NSA) and other locally designated landscapes such as Special Landscape Areas (SLAs).
- 4.3 From a visual perspective, the assessment considers effects upon residents at settlements, users of roads and recreational routes, which include tourists. This was informed by assessment of visual effects at a series of representative viewpoints also agreed with NS and THC prior to submission of the application.
- 4.4 The assessment of cumulative effects, including sequential views, is incorporated into the main assessment of landscape and visual effects. The key consideration in terms of cumulative effects is with the Bettyhill Phase 1 turbines. Some cumulative visual effects will occur, particularly where both wind farms are seen at relatively close distances in the same field of view). The size, scale and layout of the proposed development has been carefully considered and the two separate developments will appear as a single combined wind farm. There will also be some locations where the proposed development will be seen in combined or successive views with the separate Armadale Wind Farm (still at the planning stage), although as this is separated from and the proposed development, the incidences will be less frequent.
- 4.5 The landscape and visual assessment was supplemented by a residential visual amenity study. It concluded that the potential relationship between residential properties in proximity to the proposed development is appropriate and will not give rise to adverse effects on residential visual amenity.
- 4.6 Similar to any other commercial scale wind farm the proposed development is expected to have significant landscape and visual effects. These include limited significant landscape effects on the landscape character of the Site and its surroundings, and significant visual effects on recreational walkers. The landscape and visual assessment concluded significant effects at 3 of the 21 viewpoints which incorporated different receptors including walkers, road users and hill walkers accessing remote mountain summits. The Kyle of Tongue NSA located within the landscape study area was assessed and it was concluded that the overall qualities and integrity of the NSA will not be altered by the proposed development. There will be locally significant effects on two local landscape character types: Sweeping Moorland and Flows; and Rocky Hills and Moorland (the host landscape of the proposed development).
- 4.7 The large-scale open rugged moorland landscape is considered to have attributes which are suited to wind farm development. The proposed development is focussed away from the scattered settlement and coastal crofting land within the moorland landscape of the interior to the south of Bettyhill which has a local landform which can accommodate the scale of development proposed. Whilst the effects will be significant locally to the Site, and for some visual receptors in relatively distant views from the Site, it is considered that the wider landscape can accommodate the proposed development.

4.2 Ecology (EIA Report Chapter 8)

- 4.8 The Ecology chapter and the associated Technical Appendices assess the potential impacts of the proposed development upon ecological interests within the Site or connected to the Site. Ecological

interests evaluated as important ecological features (IEF) of local or higher importance, and all legally protected species known or likely to be present, were assessed in full.

- 4.9 The fully assessed interests include the Caithness and Sutherland Peatlands Special Area of Conservation (SAC) & Ramsar; Lochan Buidhe Mires Site of Special Scientific Interest (SSSI); degraded blanket bog; blanket bog (*fla5*); purple moor grass and rush pastures (*f2b*); upland flushes, fens and swamps (*fc2*); dry heaths; upland (*h1b5*); rivers (*R2a*); acid peat-stained lakes and ponds (*r1c7*); common lizard; European otter; pine marten; water vole; bats; and fish (i.e. Atlantic salmon, brown trout).
- 4.10 Field surveys were undertaken to determine the baseline for the Site. These comprised a UK Habitat Classification (UKHab) survey; National Vegetation Classification (NVC) survey; protected mammal survey (excluding bats); and a fish habitat survey. The potential for Ground Water Dependent Terrestrial Ecosystems (GWDTEs) was also considered as part of the vegetation and habitat walkover surveys.
- 4.11 Consultees including THC, the Royal Society for the Protection of Birds (RSPB), NatureScot and Scottish Environmental Protection Agency (SEPA) were consulted as part of the Scoping process which provided feedback on key ecological points to be addressed in the EIA Report.
- 4.12 A total habitat loss of 28.59 ha (including habitats not considered IEFs) is anticipated for the construction phase. Total peatland habitat loss (degraded blanket bog, blanket bog, purple moor grass and rush pasture, upland flushes, fens and swamps) is 18.87 ha. Dry heath habitat loss is anticipated to be 5.64ha (3.77ha permanent).
- 4.13 This loss of bog and heath habitat would subsequently be offset via the proposed bog restoration, which will result in a significant positive effect and would also provide additional biodiversity enhancements. Following the completion and maturation of the proposed bog restoration work, significant improvements to the extent and condition of these habitats are expected.
- 4.14 No significant negative effects were determined for all other named IEF during the construction phase, provided that embedded mitigation, standard mitigation outlined within the Construction Environmental Management Plan (CEMP) and peatland mitigation detailed within the Outline Habitat Management Plan (OHMP) are adhered to. No significant operational effects are anticipated for named designated sites or habitats. No significant operational effects are determined for otter, water vole, pine marten, deer, bats, reptiles and fish.
- 4.15 The loss of bog and heath habitats (24.51 ha) due to construction noted above would be significant at a local to regional level. Using a multiplier of 2.56 x the area of habitat lost (62.75 ha) plus the tree planting areas (2.8 ha) suggests the total area for bog restoration should be 65.55 ha. However, taking into account the Council's likely requirement to provide at least 10%³ additional area (6.56 ha) to contribute to biodiversity enhancement and the requirement for restoration areas to include whole hydrological units in order for restoration to function properly (an additional 7.36 ha is proposed totalling 13.92 ha, which represents a total enhancement of 17.5%), the total area of bog restoration proposed is 79.47 ha, c. 3.2 x the area lost. Full details are set out in the Outline HMP (**Technical Appendix 8.5**). This level of compensation and enhancement would represent a significant positive effect at a regional level and would also provide a significant biodiversity enhancement. Additional biodiversity enhancement would be achieved from bracken control measures and new tree planting as previously discussed.
- 4.16 With the implementation of continued good practice measures and the Outline HMP, including the proposed bog restoration, no significant negative effects are predicted during the operational phase.

³ The 10% figure is taken from the Environment Act 2021, which requires developers to demonstrate a commitment to provide at least a 10% net gain in biodiversity. Although the Environment Act does not apply in Scotland, in the absence of a Scottish alternative the 10% figure is also considered relevant here.

4.3 Ornithology (EIA Report Chapter 9)

- 4.17 Study areas used for surveys undertaken to inform the ornithological impact assessment differ according to receptor as recommended by the good practice survey guidance. A variety of buffer distances were applied to each turbine location and all other infrastructure in accordance with current guidance and evidence-based research.
- 4.18 All ornithological interests evaluated as Valued Ornithological Receptors (VORs) of local or higher importance known to be present onsite or within relevant buffer distances were fully assessed. Effects assessed included:
- habitat loss or damage (permanent and temporary) due to construction of wind farm infrastructure;
 - inadvertent destruction of nests during construction;
 - disturbance to birds during construction;
 - disturbance to birds caused by wind turbine operation;
 - barrier effects caused by wind turbine operation; and
 - mortality of birds caused by turbine blade collisions.
- 4.19 Impacts upon species of less than local importance; impacts upon species not susceptible to significant effects from wind farms; and impacts upon common scoter were scoped out of the assessment.
- 4.20 Baseline determination was compiled from a desk study review of available data and designated site data. The baseline was supplemented by ornithological surveys undertaken from April 2018 to March 2019, and from September 2020 to August 2021. These included flight activity surveys, breeding wader surveys, breeding raptor surveys, lochan surveys for breeding diver and diver focal vantage point. Target species were defined by their associated legal and/or conservation status and vulnerability to impacts caused by wind farms. Full details are presented in **Technical Appendices 9.1-9.4**.
- 4.21 Primary target species of high conservation importance listed as designated features of the adjacent Caithness & Sutherland Peatlands SPA and/or Ramsar include Black-throated diver (*Gavia arctica*); Red-throated diver (*Gavia stellata*); Hen harrier (*Circus cyaneus*); Golden eagle; Merlin (*Falco columbarius*); Golden plover (*Pluvialis apricaria*); Wood sandpiper (*Tringa glareola*); Short-eared owl (*Asio flammeus*); Dunlin (*Calidris alpina schinzii*); Common scoter (*Melanitta nigra*); Greenshank (*Tringa nebularia*); Wigeon (*Mareca penelope*); and Greylag goose (*Anser anser*).
- 4.22 Other species considered in the assessment, though not associated with the SPA and Ramsar designation include Whooper swan (*Cygnus cygnus*); White-tailed eagle (*Haliaeetus albicilla*); Osprey (*Pandion haliaetus*); Peregrine (*Falco peregrinus*); Migratory wildfowl (i.e. pink footed goose *Anser brachyrhynchus*); Kestrel (*Falco tinnunculus*); Curlew (*Numenius arquata*); Buzzard (*Buteo buteo*); and Kestrel.
- 4.23 No significant effects were determined for nest damage or destruction following the implementation of good practice measures, or for direct habitat loss and disturbance/displacement effects during the construction phase. No residual effects were determined for the construction of the proposed development and no significant negative disturbance/displacement effects were predicted for the operational phase of the wind farm.
- 4.24 The collision mortality for kestrel is not predicted to be significant and may also have been over-estimated because the kestrel flight activity was not consistent across the survey period. Mortality is more likely to affect birds in their first year (due to their infancy and inexperience) which have a higher background mortality. Collision mortality for curlew and for the qualifying features of the Caithness and Sutherlands

SPA was also predicted to be not significant due to low levels of flight activity recorded within the collision risk zone during surveys. Overall, no significant effects were determined for VORs of local or higher importance for the construction, operational and decommissioning phases of the proposed development, nor for in-combination cumulative effects for the relevant Natural Heritage Zone (Peatlands of Caithness and Sutherland).

4.4 Soils, Geology and the Water Environment (EIA Report Chapter 10)

- 4.25 Chapter 10 and its associated Technical Appendices presents a detailed review of the soils, geology and existing (baseline) hydrology and hydrogeology of the Site. Characterisation of existing baseline conditions includes data and information held by THC and SEPA, evidence obtained during consultation with stakeholders, and detailed and site-specific field investigations.
- 4.26 The Site drains to the Clachan Burn. It has been confirmed that the superficial and bedrock deposits beneath the Site are not rare and regionally contain little groundwater. No private water supplies have been identified in proximity to the proposed development. Habitat that could be groundwater dependent has been investigated and found to be sustained by surface water and rainfall rather than groundwater.
- 4.27 A comprehensive programme of peat depth probing has delineated areas of deep peat and the Site design has avoided these where possible. A site-specific Peat Landslide Hazard Risk Assessment (PLHRA) and Peat Management Plan (PMP) have been prepared to show how peat landslide risk is mitigated and how peat resources on site can be managed and safeguarded. The assessment has shown, subject to the adoption of best practice construction techniques, that the proposed development would not result in a significant effect on soils (inc. peat), geology, or water (hydrology or hydrogeology) including private water supplies, fisheries, and designated sites.
- 4.28 Notwithstanding this, monitoring of water quality in the Clachan Burn (and its tributaries) during the construction phase of the project has been proposed in order to confirm there are no impacts on water resources. It is also proposed that a geotechnical risk register is maintained during construction to safeguard soils and geology.
- 4.29 A historic landfill exists within the application Site boundary with further site investigation proposed as part of the detailed site design to confirm that there are no ground gases or leachate that could impair the proposed site infrastructure or users of the Site. In the unlikely event ground gas or leachate is found, mitigation and controls can be specified and included in the Site design and agreed with THC prior to construction.
- 4.30 Overall, the effect of the proposed development during the construction phase on pollution, erosion and sedimentation, flood risk, infrastructure and man-made drainage is of negligible significance. Subject to good practice techniques and confirmatory water quality monitoring, no additional mitigation measures are required during operation. A negligible significance of effect is also predicted for the post-operational stage and, there are no predicted cumulative effects of the development within the hydrological study area.

4.5 Archaeology and Cultural Heritage (EIA Report Chapter 11)

- 4.31 Chapter 11 assesses the potential impact on cultural heritage assets from the construction, operation and decommissioning of the proposed development. The report made the following assessments:
- the potential direct impacts on heritage within the Site boundary;
 - the potential indirect impacts on select nationally and regionally important assets within 10 km;

- a cumulative assessment of indirect impacts accounting for other wind farms built, consented and in the planning process; and,
 - the potential impacts of decommissioning the development.
- 4.32 The Historic Environment Record, historic mapping and archaeological reports of the Site were reviewed creating a list of all known assets within the Site. Assets within 1 km of the Site were also listed to provide the wider historic and archaeological context of the surrounding area and help predict potential unknown archaeology.
- 4.33 Analysis of assets within the Site boundary highlighted that the area formed part of a significant prehistoric landscape. Prehistoric remains formed the majority of assets within the Site boundary and within 1 km. There was no evidence for iron age, roman, or medieval activity within the Site, while a small number of post-medieval assets related to agricultural use of the area. Several prehistoric and post-medieval assets are located close to the proposed positioning of turbines and are truncated by proposed access tracks. The assessment concludes that there is a high potential for unknown heritage assets that could be directly impacted by the proposed development, with a high possibility of unknown prehistoric remains and a moderate possibility of post-medieval remains. Potential direct impacts are noted on several prehistoric hut circles (SLR2/SLR70, SLR 78), a possible hut circle with a cairn at the same location (SLR105), a cist (SLR68), a wall (SLR45) and a farmstead (SLR46).
- 4.34 The report proposes several forms of mitigation to negate/minimise this direct impact. Mitigation has been embedded into the design to ensure that the proposed development will have the smallest possible impact on heritage. Known assets in close proximity to construction would be fenced off to ensure they are avoided. All elements of construction that could impact known/unknown heritage assets will be accompanied by archaeological mitigation using watching briefs and evaluations. Enhancements to the heritage landscape would be achieved by improving the local infrastructure and creating signage, making assets more visible and accessible to the public as set out in 'Our Place in Time' (OPiT). The precise nature of mitigation works would be negotiated and agreed with THC pre-commencement.
- 4.35 Indirect impacts on assets within 10 km were assessed in line with current legislation and planning policy considering the potential impacts that the proposed development could have on the significance of the asset and the effect on appreciating the asset within its setting. Ten designated assets were selected for analysis in consultation with Historic Environmental Scotland, and assets were scoped out where it could be determined that the proposed development would not have a predicted impact.
- 4.36 The assessment of the potential impact of decommissioning of the proposed development concluded that there would be no further direct or indirect impact on heritage assets from decommissioning and the landscape would return to its previous historic character.
- 4.37 The assessment found that the proposed development would have a moderate significance of effect on the scheduled monument of Fiscary Cairns (SM1790) which is considered significant in EIA terms. The impacts on other assets are considered below significant in EIA terms including a slight significance of effect on the scheduled monuments of Lochan Druim an Duin (SM1879), Dun Chealamy Broch (SM5632), Dun Viden (SM1860), and Cnoc Carnacadh (SM1850), and a very slight significance of effect on the Ivy Cottage and Steading (LB7158) listed building and the Dalmore Homestead (SM10500) scheduled monument.
- 4.38 The cumulative assessment considered other wind farms (either consented or in the planning process) that were either within 5 km of regionally important assets or 10 km of assets of national importance that are predicted to receive an above Slight effect. One asset, Fiscary Cairns scheduled monument, met this criterion, and the assessment concluded that in relation to a potential cumulative effect with other wind farms there is the potential for only a negligible significance of effect.

- 4.39 Overall, although the impact upon Fiscary Carins scheduled monument is considered moderate in EIA terms, it would not be so severe as to significantly diminish the overall integrity of its setting. It would therefore not conflict with paragraph 145 of Scottish Planning Policy (SPP) and is therefore deemed to be acceptable.

4.6 Access, Traffic and Transport (EIA Report Chapter 12)

- 4.40 Chapter 12 of the EIA Report considers the environmental impacts likely to result from traffic flows associated with the proposed development. The assessment focuses on the construction phase as the worst-case scenario for traffic generation. The transport of turbine components and import of construction materials will generate a total of 1,612 loads/3,224 two-way movements. The assessment predicts the potentially significant traffic-related environmental effects that may result from these additional vehicle movements.
- 4.41 The potential route impacts associated with the transport of the wind turbine components have also been considered in the separate Abnormal Loads Route Assessment (ALRA) document (**Technical Appendix 12.1** refers) which includes swept path analysis and a detailed review of the preferred access route. The route follows the A9 from the port of Scrabster to the junction with the A836, then west along the A836 through Forss, Melvich and Strathy, to the Site entrance. The ALRA demonstrates that the transport of 67 m length blades would be possible with a range of measures to ensure that the impacts are fully mitigated. The findings of the ALRA have been used to inform the assessment of traffic-related environmental effects.
- 4.42 During operation, the proposed development would generate regular maintenance trips of no more than five vehicle trips (light vans or similar vehicles) in any one day and zero trips on most days. This is in line with existing variations in traffic, therefore assessment of operational effects was scoped out of the assessment. Similarly, the decommissioning phase is expected to generate less vehicle traffic than the construction phase, and so this is also not included.
- 4.43 The traffic predictions show that increases in total construction traffic (5.7% on an average day) are below the IEMA thresholds⁴ (i.e. an increase of 30%). Whilst the increase in HGV traffic along the A836 would exceed the IEMA thresholds (117% on an average day), the A836 has a theoretical spare capacity of approximately 93%. Additionally, the existing road network has substantial reserve capacity for existing traffic and the study area has a low level of recorded accidents.
- 4.44 The assessment concludes there are no significant effects during the construction phase due to noise and vibration, on driver severance and delay, community severance and delay, road safety or due to dust and dirt. However, effects on vulnerable road users and from hazardous and dangerous loads are of moderate significance. Appropriate mitigation measures will be followed which will ensure there are no significant residual effects. These include a traffic management plan for the movement of abnormal loads, carrying out a trial run for abnormal loads before construction, keeping local residents and users of local amenities informed, executing good construction practices and implementing a Construction Traffic Management Plan (CTMP).
- 4.45 In the unlikely event that all other consented and in-planning wind farms in the vicinity are built at the same time, the A836 would still operate significantly below capacity. If the proposed development was built at the same time as another wind farm, the assessment concludes this would not lead to any

⁴ The IEMA guidelines provide two thresholds when considering predicted increases in traffic, whereby a full assessment of the impact is required:

- where the total traffic would increase by 30 % or more (10 % in sensitive areas); and/or
- where the HGV traffic would increase by 30 % or more (10 % in sensitive areas).

additional environmental effect in transportation terms, beyond that already assessed, provided that abnormal load movements and days of specific high density traffic movements are scheduled not to occur on the same day.

- 4.46 Overall, taking account of all the potential effects that are likely to arise and having tested the worst-case scenario, the proposed development would not lead to a significant adverse effect due to traffic impacts; the temporary nature of the construction phase and the application of mitigation measures will further reduce any impacts in traffic and transportation terms.

4.7 Noise (EIA Report Chapter 13)

- 4.47 A noise assessment for the construction and operation of the proposed development is reported in Chapter 13 of the EIA Report, following current national guidance and best practice for wind farm construction, operation and decommissioning.
- 4.48 Construction noise levels were calculated at the closest construction receiver locations and were based on the potential construction programme and standard wind farm construction activities. The assessment concludes that construction noise impacts would be not significant.
- 4.49 Decommissioning the wind farm is likely to result in less noise than construction. The construction phase has been considered to have no significant noise effects, therefore decommissioning will, in the worst case, not be significant.
- 4.50 A background noise survey was undertaken at three properties considered representative of the receptors in the assessment to inform the current baseline and set appropriate noise limits for the wind farm. Concurrent measurements of wind speed were taken at the Site during the noise survey to ensure sufficient data to assess noise impacts across the wind turbine's operational range of wind speeds.
- 4.51 A cumulative assessment of the potential combined effect of the noise from the proposed development along with Bettyhill Phase 1 turbines, Strathy North, Strathywood, and Strathy South wind farms and the proposed Armadale wind farm has been undertaken. Other wind farms located further away were not assessed because they do not contribute acoustically to the cumulative noise levels.
- 4.52 The assessment concludes that operational noise impacts from the proposed development would be within acceptable levels determined by national guidance, when considered both in isolation and cumulatively with other wind farms.

4.8 Socio-economics, Tourism and Recreation (EIA Report Chapter 14)

- 4.53 Chapter 14 assesses the potential impacts of the proposed development on land use and socio-economics on the local area, including the effects on recreation and tourism. A two-tiered study area has been used for the assessment. This comprises a Wider Study Area (WSA) encompassing the area within which significant effects on employment and the local economy, including the tourism economy, could occur. The WSA is primarily set at the Highland administrative area but effects are also considered within the rest of Scotland and the UK where relevant. A Local Area of Influence (LAI) is the basis for assessing effects on land use, recreation and tourism at a more local level. The LAI is slightly larger than a 5 km radius of the Site including Torrisdale to Armadale on the northern coast, whilst focusing on the largest settlement, Bettyhill.
- 4.54 In terms of employment, a total of 24 person-years of net additional temporary employment is predicted for the WSA economy during the construction phase of the proposed project. The equivalent total for Scotland is 145 person-years, and for the UK it is 274 person-years. The effect on the local employment base is therefore considered to be negligible and so not significant.

-
- 4.55 In terms of output, a net additional total of £1.6 million of GVA is predicted for the project in the local WSA economy during the development, construction, and commissioning phase. The equivalent predicted total for Scotland is £10.2 million and for the UK it is £19.3 million. The effect on the value of the local economy is therefore considered to be negligible and so not significant.
- 4.56 The construction phase would benefit the economy of the WSA through spending on accommodation, food, drink, fuel, etc. for the construction workforce. These benefits would mainly affect businesses in the tourism sector.
- 4.57 Anecdotal evidence arising from other wind farm construction projects in Scotland shows that local businesses such as accommodation providers welcome the increased occupancy from construction contractors using their accommodation year-round, including the 'low season'. The temporary benefits of increased occupancy enables investment which provides long-term benefits. A local example of this was the benefits the Bettyhill Hotel obtained from the Phase 1 wind farm; the owner told the applicant in December 2022 that he attributes the initial success of the hotel under his ownership (having only purchased the hotel in 2011) to the income received during the Phase 1 construction and stated this was extremely important to the hotel and their ability to invest significantly more in renovations and improvements. The positive impacts during the construction period would more than offset possible temporary losses to the tourism economy that may occur if, say, holiday accommodation was in use by construction workers during this phase.
- 4.58 Whilst overall effects on the tourism economy are considered to be negligible and not significant because they would occur over a temporary period of 12 months and mitigation will be provided through the implementation of an Accommodation Strategy (as part of the detailed CEMP), the benefits to individual businesses may be substantial and may indeed be significant. However, until such time as contracts are agreed, it is not possible to identify the level of benefit to individual businesses.
- 4.59 Allowing for the implementation of embedded mitigation, no significant effects have been identified in respect of socio-economic receptors in the WSA arising from construction of the proposed development and therefore no mitigation measures are required to reduce or remedy any adverse effect.
- 4.60 Regarding effects on the LAI, minor, temporary adverse impacts upon land use are identified during the construction phase, specifically, on the footpath south of Bettyhill Viewpoint and on grazing land. Given the sensitivity of both receptors is low, neither effect would be significant in EIA terms.
- 4.61 Minor, temporary adverse impacts upon LAI tourism and recreational receptors are also identified during the construction phase. As recreational receptors of only local value outside the Site were scoped out of the assessment, Torrisdale Stables was the only recreational receptor assessed. Given construction traffic will not travel west of the Site, it is beyond 3 km away and there are intervening buildings, infrastructure, vegetation and moorland, the assessment concludes it is unlikely the construction, or operation, of the development would have significant impact on the business or its activities.
- 4.62 Minor, temporary adverse impacts are identified on the Clachan Burn Core Path, but with appropriate mitigation including measures for ensuring public safety set out within a detailed Construction Environmental Management Plan (CEMP) the residual effects would be minor. Similarly, minor temporary adverse impacts are identified on the experience of the A836 as a tourism route which can be mitigated by including appropriate management measures in a CTMP such that the residual effects would be minor.
- 4.63 Local businesses including accommodation and food and drink businesses may experience beneficial impacts during construction due to use by construction workers. The level of effect may be high for individual businesses, and as the sensitivity of these receptors is low the effect would be moderate which may be significant (beneficial).
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- 4.64 In terms of cumulative effects, the access, traffic and transport assessment found that there would be no significant cumulative effects on local roads used by tourists.
- 4.65 In terms of cumulative economic effects, there are not expected to be any employment and additionality effects. Cumulative effects resulting from accommodation demands would be managed by means of the proposed Accommodation Strategy that would account for any potential overlap of construction period, particularly within the peak tourist season. No other construction cumulative impacts are expected.
- 4.66 Allowing for the implementation of embedded mitigation, no significant effects have been identified in respect of socio-economic receptors arising from construction of the wind farm and therefore no mitigation measures are required to reduce or remedy any adverse effect.
- 4.67 The predicted socio-economic effects associated with the operation of the proposed development include beneficial effects (negligible) on the WSA labour market, the WSA economy and on the WSA tourism economy. Negligible to Minor adverse effects, which are not significant in EIA terms, have been identified on LAI tourism and recreational receptors, specifically, the A836 tourist route. The assessment refers to the visual assessment within the LVIA that indicates the effects on tourism users of the A836 would be low, resulting in a minor level effect on a medium sensitivity receptor, which is not significant. No significant socio-economic operational effects have been identified and therefore no mitigation measures are required to reduce or remedy any adverse effect.
- 4.68 Regardless, the proposed community benefits are notable, including community benefits fund package of over £8.7 million in total (£249,500 per year) and this will result in the value from the turbines coming into the local community increasing by over 30 times compared to the community benefit fund for the Bettyhill Phase 1 turbines, if the full capacity is built. The package includes an educational fund (£5,000, index-linked, per year) and innovative Local Electricity Discount Scheme (LEDS). Assuming 40% of the total community benefit fund package was allocated to it, as agreed with the host community council, the applicant estimates that the LEDS would range from c.£30 to c.£200 per household per year. In addition, shared ownership of up to 20% in Bettyhill Phase 2 would be available for local communities to acquire, which could result in nearly double the community funds being generated over the life of the project. Lastly, the rent receivable from the Phase 2 development would provide additional income directly into the local community, with the Bettyhill Common Grazings representing about a quarter of the total households in the community council area.
- 4.69 Overall, the suite of proposed community benefits adds significant socio-economic benefits to the proposed development.

4.9 Other Issues (Chapter 15)

4.9.1 Climate and Carbon Balance

- 4.70 Onshore wind farms by their very nature tackle the issue of climate change. The proposed development would displace approximately 2.64 million tonnes of CO₂ over its 35-year operational life, when compared to the amount of CO₂ fossil fuels would have produced to generate the same amount of electricity.
- 4.71 The calculations of total carbon dioxide emission savings and payback time for the proposed development (using the Scottish Governments Carbon Calculator tool) indicates the overall payback period of a wind farm with ten turbines with an average (expected) installed capacity of 4.8 MW each would be approximately 1.1 years when compared to the fossil fuel mix of electricity generation. The proposed development would effectively be in a net gain situation following after 13 month contributing to national carbon-reduction objectives.

4.9.2 Shadow Flicker

- 4.72 Shadow flicker may occur under certain combinations of geographical position and time of day when the sun passes behind the rotors of a wind turbine casting a shadow over neighbouring properties and as the blades rotate, the shadow flicks on and off. The effect can only occur inside buildings, where the flicker appears through a window.
- 4.73 Flicker effects are known to be strongest and most likely to cause significant effects within 10 rotor diameters of a turbine, though THC works to 11 rotor diameters to account for the northern latitudes of the Highland area. The nearest residential receptor, Swordly Mill, is located approximately 1.9 km from the nearest turbine. This distance is considerably more than 11 times the diameter of the turbine blade length (less than 1.5km). Therefore, no shadow flicker effects from the proposed development would be experienced by residential receptors.

4.9.3 Aviation

- 4.74 The Site is clear of all wind turbine consultation zones around licensed and unlicensed aerodromes, civil airport radars and Met Office radars. Therefore, the only potential Site aviation constraints are:
- Ministry of Defence (MoD) radar coverage;
 - National Air Traffic Services (NATS) radar coverage; and
 - Military low flying.
- 4.75 However, mapping has revealed there are no MoD radar constraints, nor NATS radar constraints on the proposed development.
- 4.76 The Site lies within Low Flying Area 14 in the UK daytime Military Low Flying System and Allocated Region 1B East (AR1BE) in the Night Low Flying System. It also straddles the boundary of Low Flying Area (LFA) 14(T), the Northern Scotland Tactical Training Area.
- 4.77 While the southerly four turbines are in a “high priority” low flying area, this is assessed as unlikely to lead to an MoD objection on low flying grounds as the MoD low flying zones mapping is out of date having been published more than ten years ago when the volume and intensity of military low flying were many times greater than they are today. In addition, there are no known examples of the MoD sustaining an objection on low flying grounds to a wind farm proposal within LFA14(T) and/or R610A. There are not, therefore, predicted to be any effects on aviation due to the proposed development.

4.9.4 Telecommunications

- 4.78 Wind turbines can potentially cause interference to telecommunication links through reflection and shadowing to electro-magnetically propagated signals including terrestrial fixed microwave links managed by telecommunications operators.
- 4.79 The Ofcom Spectrum Information Portal (SIP) and Wireless Telegraphy Register (WTR) were searched for links in the vicinity of the Site. The WTR identified four links routing in a south south-westerly direction from Kirtomy which cross the Site.
- 4.80 To ensure adequate separation from the four microwave fixed links that cross the Site from the Kirtomy mast, Turbine 6 was dropped from the design and Turbine 4 was micro-sited east. Following a period of consultation all operators agreed to the micro-sited position for Turbine 4. There are not, therefore, predicted to be any effects on telecommunications due to the proposed development.

4.9.5 Risk of Accidents or Disasters

- 4.81 The vulnerability of the proposed development to major accidents and natural disasters, such as flooding, sea level rise, or earthquakes, is considered to be low due to its geographical location and the fact that its purpose is to ameliorate some of these issues. The nature of the proposals and remoteness of the Site means there would be negligible risks of accidents and disasters to population and human health; biodiversity; land, soil, water, air and climate; and material assets, cultural heritage and the landscape.
- 4.82 With regard to risks of accidents during the construction phase, the construction works for the proposed development would be undertaken in accordance with primary health and safety legislation, including the Health and Safety at Work Act 1974 and the Construction (Design and Management) (CDM) Regulations 2015 which would include a requirement to produce emergency procedures in a Construction Phase (Health & Safety) Plan.
- 4.83 Overall, there are no significant risks of accidents nor disasters either during the construction period nor during the operational life of the project.

5.0 Next Steps and Further Information

5.1 THC will consider the planning application and the findings of the EIA. Before making a decision on the application, THC will consult a number of consultees including SNH and SEPA and will consider all representations received from other parties including members of the public.

5.2 A copy of the NTS will be made available for download from the applicant's website at: <https://uk.edenrenewables.com>. Hard copies of this NTS are available free of charge from:

SLR Consulting Limited
Floor 2
4/5 Lochside View
Edinburgh Park
Edinburgh
EH12 9DH
Tel: 0131 335 6830

5.3 Hard copies of the EIA Report may also be purchased by arrangement from the address for £1,200 per copy, or £15 per DVD/USB. Specific sections of the EIA Report are also available on request at appropriate cost. The price of the hard copy reflects the cost of producing all of the Landscape and Visual photographs at the recommended size. As such, a DVD/USB version is recommended. Electronic copies of the EIA Report may be obtained from the address above.

5.4 A hardcopy of the EIA Report is available for viewing by the public during normal opening hours at the following locations:

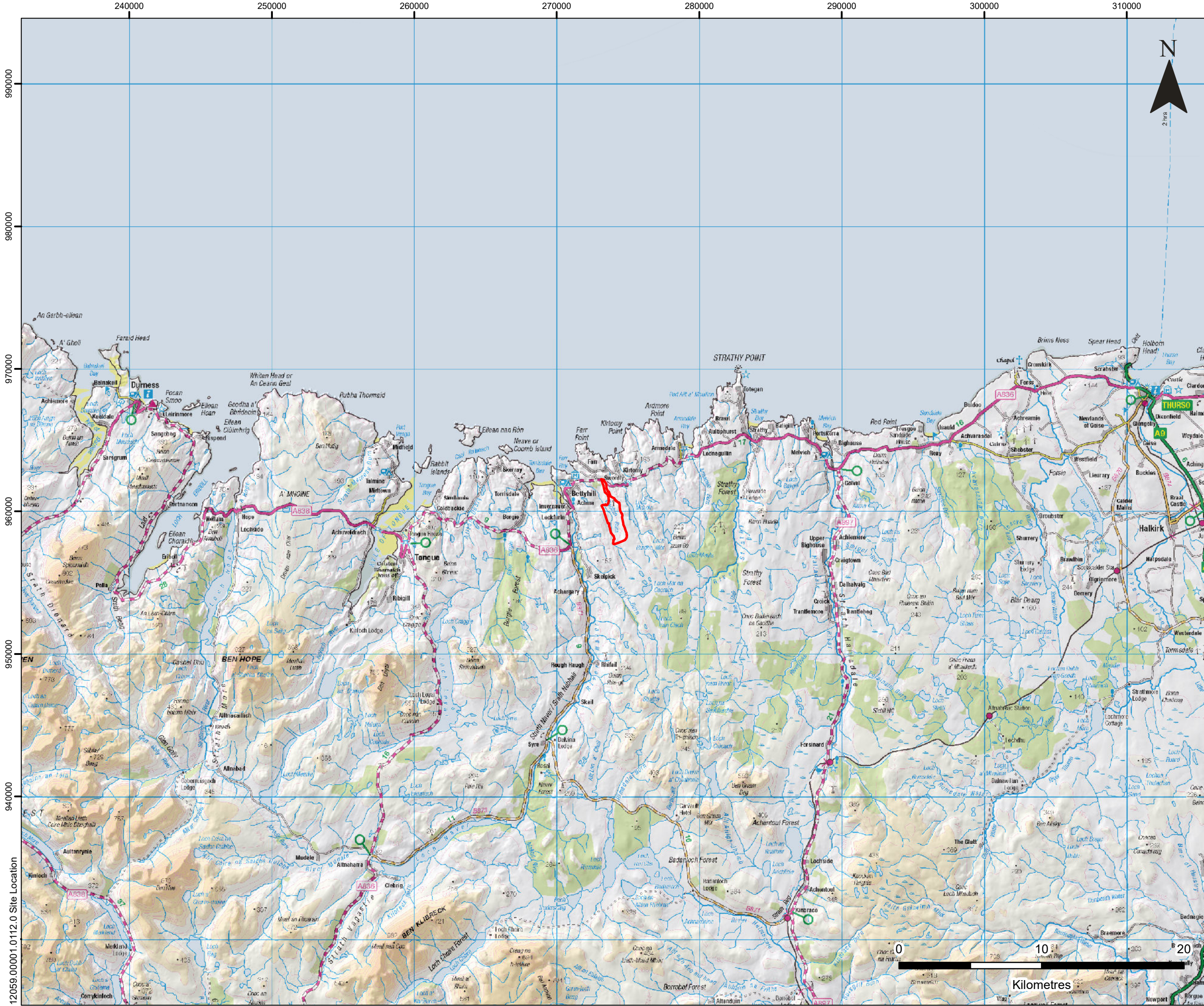
- Bettyhill Library and Service Point; and
- Tongue Village Hall.

5.5 The application documents, including the EIA Report, will also be available via THC's planning portal (<https://wam.highland.gov.uk/wam/>)

5.6 Comments in relation to the application should be forwarded to the address below:

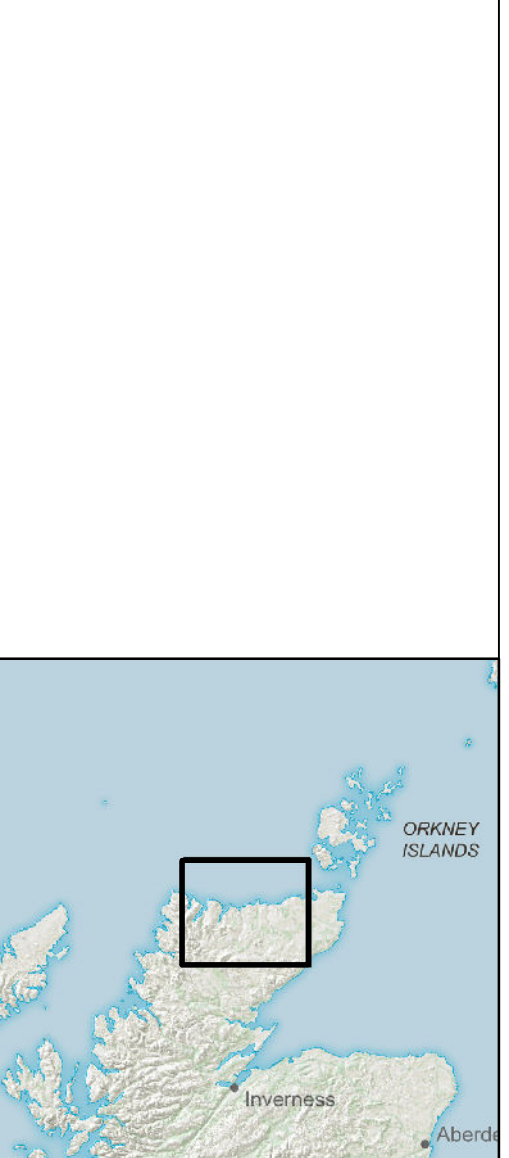
Development and Infrastructure Services
The Highland Council Headquarters
Glenurquhart Road
Inverness
IV3 5NX
eplanning@highland.gov.uk

FIGURES



LEGEND

Application Site



BETTYHILL 2 WIND LTD

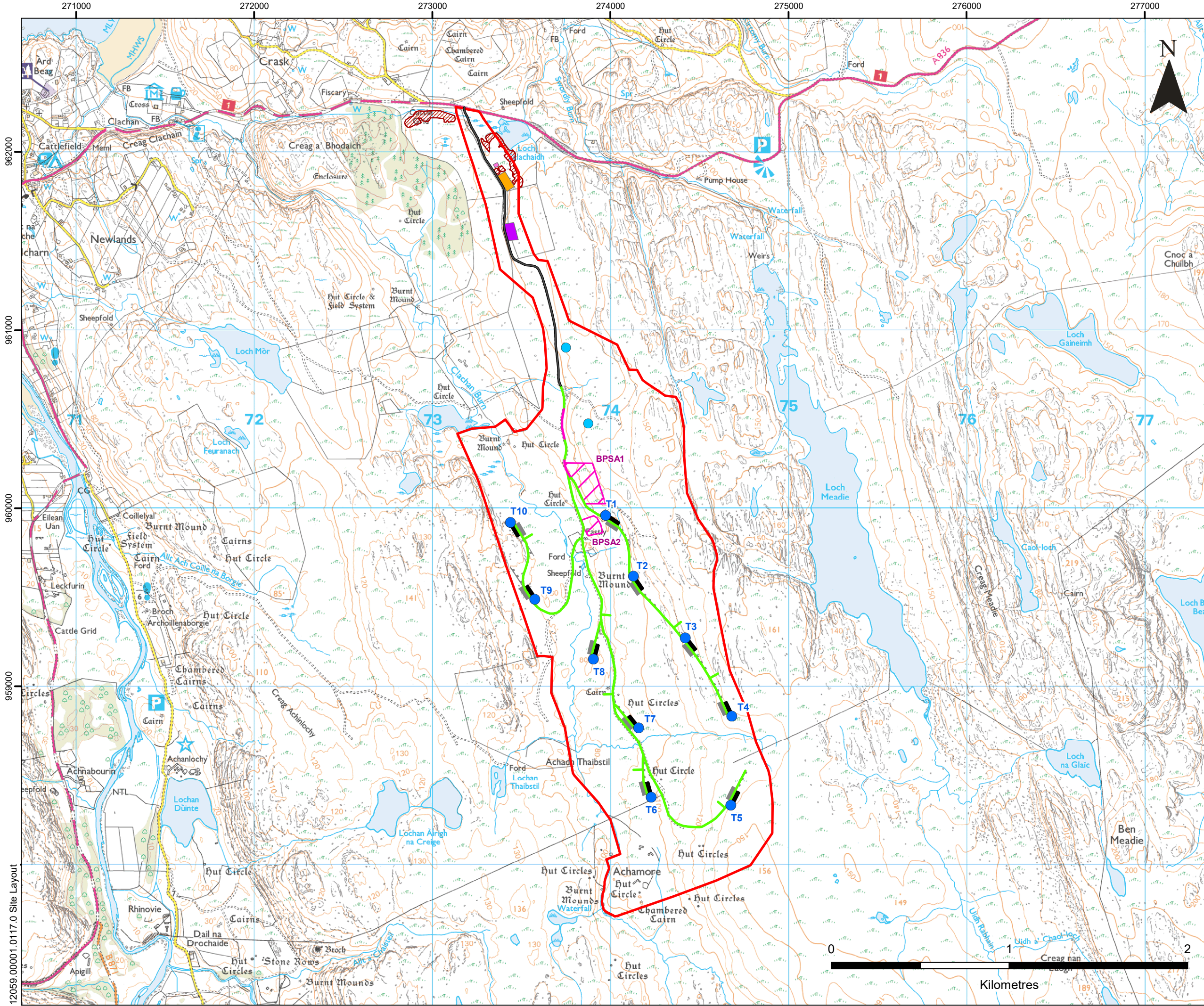
4/5 LOCHSIDE VIEW
EDINBURGH PARK
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T: +44 (0)131 335 6830
www.slrconsulting.com

**BETTYHILL WIND FARM PHASE 2
NON-TECHNICAL SUMMARY
SITE LOCATION**

FIGURE 1

Scale 1:250,000 @ A3 Date DECEMBER 2022



LEGEND

- Site Boundary
- Proposed Turbine Location
- Existing Turbine Location
- Proposed Access Track
- Upgraded Access Track
- Existing Access Track
- Proposed Substation incl. Battery Energy Storage System (BESS) Compound
- Existing Substation Compound
- Permanent Hardstanding
- Temporary Hardstanding
- Borrow Pit Search Area
- Proposed Woodland Planting



BETTYHILL 2 WIND LTD

SLR

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BETTYHILL WIND FARM PHASE 2
NON-TECHNICAL SUMMARY
SITE LAYOUT
FIGURE 2

Scale 1:20,000 @ A3 Date DECEMBER 2022

12059.00001.0117.0 Site Layout

EUROPEAN OFFICES

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