RWE

Lorg Wind Farm
Section 36 Application
Volume 4 Non-Technical Summary (NTS)
November 2022

Doc Ref. 32964-WOOD-XX-XX-RP-J-0001_S0_P01.1

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Document revisions

No.	Details	Date
1	First Draft	18/11/22
2	Final	21/11/22

Terminology

For the purposes of this report the following terminology is used:

- The '**Consented Development**' – the nine turbines and associated infrastructure of Lorg Wind Farm granted planning permission by Dumfries & Galloway Council (reference: 15/P/2/0337) on 18 July 2019 and East Ayrshire Council (reference: 15/0935/PP) on 09 February 2018.
- The **'Proposed Development'** – an application to construct and operate a wind farm site known as Lorg Wind Farm, which has a greater number of turbines at an increased height than the Consented Development. The development comprises 15 wind turbines up to 200m to blade tip height and ancillary infrastructure.
- The **'2015 ES'** - the Lorg Wind Farm Environmental Statement (ES) that accompanied the planning application references 15/P/2/0337 (Dumfries and Galloway Council) and 15/0935/PP (East Ayrshire Council) for the original development of up to 15 turbines.
- The **'2017 FEI'** – the Lorg Wind Farm Further Environmental Information (FEI) that supplemented the 2015 ES and accompanied the planning application reference 15/P/2/0337 for the development of a nine turbine wind farm which forms the Consented Development.
- The '**Development Site'** - the site of the Proposed Development, located ~12.3km south west of Sanquhar and ~11km north east of Carsphairn. The national grid reference (NGR) for the Development Site centre is 266000 601400 and it encompasses land within Dumfries and Galloway and East Ayrshire.
- The '**Applicant**' – RWE Renewables UK Onshore Wind Limited.

Contents

1. Introduction

1.1.1 This Non-Technical Summary (NTS) forms part of the Environmental Impact Assessment (EIA) Report that has been prepared by WSP Environment & Infrastructure Solutions Ltd (WSP) on behalf of the Applicant. The EIA Report accompanies an application to the Scottish Ministers made under section 36 of the Electricity Act 1989, as amended, for section 36 consent (to construct and operate a generating station) and planning permission for Lorg Wind Farm (the "Proposed Development").

1.1.2 On 18th July 2019, the Consented Development was granted planning permissions by Dumfries and Galloway Council (DGC) under the Town and Country Planning (Scotland) Act 1997 (as amended) (reference 15/P/2/0337). East Ayrshire Council (EAC) granted permission for the elements of the development within their authority area on the 9th February 2018 (reference 15/0935/PP). The Consented Development is for a wind farm with a generating capacity not exceeding 50 Megawatts (MW), with up to six wind turbines at a tip height of up to 130m and up to three turbines with a tip height of up to 149.9m, together with associated infrastructure.

1.1.3 The Applicant is now submitting an application under section 36 of the Electricity Act 1989, as amended, seeking consent to construct and operate a wind farm currently anticipated to comprise up to 15 wind turbines with a generating capacity in excess of 50 MW, together with access tracks, crane hard standings, battery storage area, two electricity sub-stations, two permanent anemometer masts and two temporary construction compounds (the "Proposed Development").

1.1.4 The proposed increase in the height and number of turbines would allow the installed capacity of Lorg Wind Farm to be increased by approximately 196% from an estimated installed capacity of 32.4MW for the Consented Development to an estimated installed capacity of 96MW for the Proposed Development. This would provide an almost threefold increase in the contribution towards Scotland's targets of renewable electricity production.

1.1.5 Hard copies of the EIA Report are available at the following locations to view:

- Carsphairn Shop & Tearoom;
- Hillview Leisure Centre;
- Dalmellington Area Centre; and
- New Cumnock Community Centre.

1.1.6 Those interested in obtaining more detail about the environmental aspects of this proposal should consult the main EIA Report which accompanies the application for the Proposed Development.

1.1.7 Further copies of this NTS may be obtained free of charge from the following website or address:

https://uk-ireland.rwe.com/project-proposals/lorg
RWE Renewables UK Onshore Wind Ltd,
Greenwood House
Westwood Way,
Westwood Business Park,
Coventry,
CV4 8LG

1.1.8 Copies of the full EIA Report may be obtained from RWE Renewables UK Developments Ltd (telephone: 0131 376 0893/ email: nicholas.taylor@rwe.com at a charge of £500 per hard copy and free on DVD/CD, or can be downloaded from the Energy Consents Unit (ECU) website.

1.1.9 Any comments on the Proposed Development should be directed in writing to the ECU, case reference ECU00003283.

Energy Consents Unit
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

2. Scheme Need and Alternatives

2.1.1 In order to meet international obligations, both the UK government and the Scottish Government have adopted legally binding commitments to reduce greenhouse gas emissions in an effort to reduce the level of future climate change. This requires decarbonisation the means of production and the use of energy in society, in order to reduce the warming impact on the global climate. It remains the case that the Scottish Government expect that a significant proportion of the power generation capacity required to replace fossil fuel generation will come from onshore wind generation in Scotland. As Scotland has one of the windiest climates in Europe, it has great potential to generate electricity from wind power, and, if constructed, the Proposed Development would contribute additional renewable generation capacity towards currently unmet targets.

2.1.2 The Consented Development was predicted to have an installed renewable energy generating capacity in the order of 32.4MW. It has been calculated that through an increase in height to up to 200m for the Proposed Development and with the addition of six turbines, the installed generation capacity at the Development Site can be approximately tripled to in the order of approximately 96 MW.

2.1.3 The Applicant has reassessed the potential of the Development Site in light of changes in available turbine technology since the original planning application was consented. The proposed increase in the number, height and rotor diameter of the turbines, along with an increase in the period of consent (from the 25 years of the Consented Development to 35 years for the Proposed Development) would result in a large increase in the renewable energy generation capacity at the Development Site. The Proposed Development would therefore make a greater contribution to UK and Scottish Government renewable energy targets than the Consented Development.

2.1.4 The Scottish Government supports the use of larger turbines where they are appropriately sited. The Applicant considers that the Development Site and the surrounding landscape can accommodate the larger turbines and the additional six turbines proposed. The Scottish Government has also recently signalled that renewable generating stations with a capacity over 50MW are strategically important and are accordingly designated as "national development" (category 3: *Strategic Renewable Electricity Generation and Transmission Infrastructure*). Inclusion as a national development establishes the general need for renewable projects of strategic scale across Scotland.

2.1.5 In April 2022, the UK Government published its British Energy Security Strategy, which is applicable in Scotland. The strategy proposes to accelerate the UK towards a low-carbon, energy independent future. Of relevance to the Proposed Development, it states that there should be an *"approach to reduce global reliance on Russian fossil fuels whilst pivoting towards clean, affordable energy".* The Proposed Development would generate clean and affordable energy in the UK which would contribute to this approach.

2.1.6 A report published by the House of Commons Environmental Audit Committee in February 2021 (Growing back better: putting nature and net zero at the heart of the economic recovery) recommends that as the country recovers from the Covid-19 pandemic *"the focus must be on how to grow back better, creating a greener, healthier and more resilient economy"* and that *"It is essential that all decisions on infrastructure investment are considered with regard to UK net zero targets, impacts on biodiversity and future projections for changes in climate likely to affect the UK".* The Proposed Development would help towards creating a greener economy.

2.1.7 The evolution of the design has taken into account comments provided through various consultation discussions, desk studies and technical appraisals by the project team.

3. Description of the Site and Proposed Development

3.1.1 The location and wider geographical context of the Development Site is shown in **Figure 1.1.** The Development Site is located mainly in Dumfries and Galloway with a small proportion of it being located in East Ayrshire. The Development Site is located between Carsphairn (located approximately 11km to the south west) and Sanquhar (located approximately 12.3km to the north east). The town of New Cumnock is located approximately 10.5km to the north. The nearest residential properties to the Development Site are at Polskeoch (approximately 650m from the Development Site boundary but approximately 1,200m from the nearest turbine) and at Upper Holm of Dalquhairn (approximately 730m from the Development Site boundary but approximately 1,400m from the nearest turbine). There is also a bothy located at Polskeoch, approximately 380m from the Development Site boundary.

3.1.2 The Development Site covers an area of approximately 1,243ha of mainly moorland with no tree cover, with the primary land use being the grazing of sheep. The elevation of the Development Site is approximately 255m to 640m above ordnance datum (AOD).

3.1.3 The Development Site is divided into two areas by the steep-sided valley formed by the Water of Ken, with Lorg Farmhouse located on the relatively flat land found north of the river and alongside the Lorg Burn. The valley of the Lorg Burn in the north-west of the Development Site is steeply sloped and surrounded by a semi-circle of high ridges and peaks, including Ewe Hill, Alwhat, Meikledodd Hill and Lorg Hill.

3.1.4 The Water of Ken runs through the south-eastern portion of the Development Site from the north-east to the south-west, it continues to run southwards roughly parallel with the C class road between the Development Site boundary and the B729. The south-east of the Development Site is defined by the north-flowing Pulmulloch Burn and surrounding peaks of Altry Hill, Craigstewart, Coranbae Hill, Cairn Hill, Black Hill, High Countam and Fortypenny Hill. This valley is less steep than that of Lorg Burn.

3.1.5 The 'Lorg Trail' footpath joins the Southern Upland Way (SUW) just north of the Development Site. The SUW continues to the east of the Development Site, before running along part of the eastern and southern site boundaries.

3.1.6 In addition to the Water of Ken and the Lorg Burn, a number of other small burns cross the Development Site.

3.1.7 The Proposed Development would comprise the following main elements:

- Up to 15 wind turbines of up to 200m to blade tip height;
- Access tracks and ancillary development connecting infrastructure elements;
- Access from B729 and C class road (Lorg road) for HGVs only (no turbine deliveries);
- Hard standing areas e.g. crane pads and storage areas;
- Borrow pit (s) (to be located within the borrow pit search areas);
- Two 'permanent' anemometer masts of up to 100m to monitor weather conditions;
- Temporary works i.e. two construction compounds and gatehouse; and

- On-site electrical infrastructure including a wind farm control building and a Scottish Power Energy Networks (SPEN) 132/33kV substation A and a SPEN 33kV substation B and underground cabling between these buildings and the turbines.

3.1.8 The location of site infrastructure is shown on **Figure 3.1 a-c.**

3.1.9 The planned operational life of the wind farm is up to 35 years following first export of electricity and for the purposes of the assessment presented in the EIA Report, it is assumed that the wind farm will be decommissioned after this period.

4. Approach to Preparing the EIA Report

4.1.1 The emphasis of the EIA Regulations is on the assessment of the likely 'significant' environmental effects which a proposed development is likely to give rise to. Accordingly, the potential significant effects identified during the scoping exercise were subject to detailed assessment, using methodologies appropriate to the different environmental topics that need to be considered as part of an EIA (all methodologies were based on recognised good practice). The environmental topics considered in the EIA and reported in the EIA Report are:

- Chapter 6 – Renewable Energy Policy, Carbon Balance and Peat Management;
- Chapter 7 – Noise;
- Chapter 8 – Shadow Flicker;
- Chapter 9 – Landscape and Visual Impact;
- Chapter 10 – Historic Environment (including archaeology and cultural heritage);
- Chapter 11 – Ecology;
- Chapter 12 – Ornithology;
- Chapter 13 – Geology, Hydrology and Hydrogeology (including flood risk);
- Chapter 14 - Traffic and Transport;
- Chapter 15 - Socio-Economics;
- Chapter 16 – Infrastructure and Other Issues; and
- Chapter 17 - Aviation.

4.1.2 Chapter 18 summarises the mitigation and residual effects for the Proposed Development. The following sections provide a brief summary of the main findings of the EIA as set out in detail within the technical chapters of the EIA Report.

5. Environmental Impact Assessment

5.1.1 EIA is a process by which information about the environmental effects of a proposed development is collected, evaluated and presented to assist consultation and to enable decision makers to take account of any significant effects on the environment when determining whether or not a project should proceed and, if it does, what particular controls over its construction and operation are needed to avoid or reduce any significant effects on the environment.

5.1.2 Under section 36 of the Electricity Act 1989, as amended, consent is required from the Scottish Ministers for the construction and operation of a wind farm that would have an installed capacity of more than 50 megawatts (MW). Planning permission under the Town and Country Planning (Scotland) Act 1997 (as amended), is also required and is sought from and can be granted by the Scottish Ministers in conjunction with section 36 consent. The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 apply to wind farm applications which would generate more than 50MW. The Proposed Development falls into this category and the EIA which accompanies the application is compliant with this legislation.

5.1.3 The EIA has identified the likely effects of the Proposed Development on the environment (including people) and a determination has been made as to whether any of these could be significant. 'Mitigation' measures to reduce or avoid significant adverse effects were incorporated into the design of the Proposed Development and a summary of these Mitigation measures is provided in the EIA Report (chapter 18).

5.1.4 The EIA Report, which comprises four volumes: Volume 1 – Main Text, Volume 2 – Illustrative Figures, and Volume 3 – Technical Appendices, and includes this NTS (Volume 4), accompanies the section 36 application and reports the findings of the EIA. The assessment of effects is undertaken in an impartial manner using professional experience and judgement, and the findings are presented in a systematic way in the EIA Report, which will be used by Scottish Ministers to help inform their decision about whether or not the Proposed Development should be approved.

5.2 Consultation

5.2.1 Consultation is a vital aspect of the EIA process, both to agree what work should be carried out to inform the EIA and to seek feedback on the proposals from key stakeholders. Consultation (including public consultation) was undertaken throughout the design evolution of the Proposed Development.

5.2.2 The Applicant also previously undertook public consultation both as part of the statutory pre-application consultation process required by the planning regulations for the Consented Development, and through other mechanisms such as the formation of a community liaison group.

5.2.3 Due to the outbreak of Coronavirus (COVID-19) in 2020 and in accordance with Scottish Government Guidance, Public Consultation on the Proposed Development was hosted both online and in-person to maximise attendance and accessibility. A project website for the Proposed Development www.rwe.com/lorg was developed and went live on 22 June 2022 and has remained so throughout the consultation period.

5.2.4 The Applicant held an in-person public exhibition at the Lagwyne Hall in Carsphairn on 22 June (2:30pm – 6:30pm). A question-and-answer session via interactive text from the

project website was hosted on 29th June and provided an opportunity for residents and other stakeholders to directly engage with members of the project team as a follow-up from the in-person event the week previous, or if they were unable to attend.

5.2.5 Dialogue has been maintained with community councils, stakeholders, neighbours and other community groups up to the point of submission and will continue through determination of the application.

5.3 Planning Policy

5.3.1 Chapter 5 of the EIA report sets out the legislative context, in terms of the Electricity Act 1989 and the Town and Country Planning (Scotland) Act 1997. The chapter also summarises national and local planning policy relevant to the proposed development.

5.3.2 National Policy comprises the National Planning Framework (NPF3) and Scottish Planning Policy (SPP), soon to be replaced by the emerging NPF4, which will have Development Plan status once in force. In addition, subject specific national planning policies, National Planning Advice and Circulars are also included within this chapter. NPF3 and SPP recognise that renewable energy generation, including onshore wind, will contribute to more secure and diverse energy supplies, and sustainable economic growth in response to climate change, and provide support in principle (subject to siting and environmental considerations).

5.3.3 In terms of local planning policy, the Development Plan is considered to be a material consideration in the determination of an application under Section 36 of the Electricity Act 1989. The level of weight apportioned to it as a material consideration will be determined by the Scottish Ministers.

5.3.4 The Development Site falls within the two administrative areas of Dumfries and Galloway, and East Ayrshire. The relevant Development Plans for the Proposed Development are:

- The Dumfries and Galloway Local Development Plan 2 (LDP2), adopted on 3 October 2019, and its associated Supplementary Guidance.
- The East Ayrshire Local Development Plan (EALDP), adopted on 3rd April 2017, and its supplementary guidance. Work on the second LDP for East Ayrshire is currently underway.

5.3.5 The chapter summarises policies within the two Development Plans which are considered to be relevant to the Proposed Development. In addition, an overview of adopted supplementary planning guidance is given, including East Ayrshire's Supplementary Guidance: Planning for Wind Energy, and Dumfries and Galloway's Wind Energy Development: Development Management Considerations, and their Wind Farm Capacity Study.

5.3.6 An assessment of the Proposed Development against the identified policies within this chapter is provided within the Planning Statement submitted in support of this application.

5.4 Renewable Energy Policy, Carbon Balance and Peat Management

5.4.1 The primary purpose of the Proposed Development is to generate renewable energy, thereby assisting in the reduction of greenhouse gas emissions by reducing the need for production of electricity from combustion of fossil fuels. Chapter 6 of the EIA Report summarises the prevailing renewable energy policy framework, including international, UK

and Scottish policy and targets, which are supportive of onshore wind farms in principle, subject to siting and environmental considerations.

5.4.2 The Scottish Government's target is to reduce CO_2 emissions by 75 % by 2030 with net zero targets of all greenhouse gases by 2045. In June 2022, the Scottish Government stated that in 2020, 25.4 % of total Scottish energy consumption came from renewable sources, against a target of 50 % by 2030. A significant increase in wind energy capacity will be required if Scotland is to achieve its ambition to reduce greenhouse gas emissions by 75% by 2030 and to a net-zero state by 2045. The Proposed Development would contribute substantially to achieving these targets.

5.4.3 It also describes the 'carbon balance' (the length of time the Proposed Development would have to operate to offset the carbon emissions from component manufacture and its construction and decommissioning), taking account of carbon losses from peat disturbance within development areas. The carbon savings for the Proposed Development are calculated using accepted Scottish Government guidance.

5.4.4 It is predicted that the carbon emissions in developing the Proposed Development will be 'paid back' (i.e. offset by carbon savings) in approximately one year and five months (approximately 4% of the operational life of 35 years). Even on the most conservative assumptions, it is predicted that the carbon emissions would be offset within approximately two years and seven months.

5.4.5 Based on the methodology in Scottish Government guidance described in full within the EIA Report, the Proposed Development is expected to provide a total carbon saving of approximately 4.8 million tonnes over its 35-year lifetime, equivalent to the emissions from supplying electricity from a mix of conventional power stations to 81,062 average UK homes.

5.5 Noise

5.5.1 An assessment of the potential significant effects of the Proposed Development with respect to noise has been undertaken. This has included a construction noise assessment including construction traffic noise assessment for residences lining construction traffic routes, and an operational noise assessment of the Proposed Development (alone and cumulative with other development). For operational noise, five receptors were considered: Upper Holm of Dalquhairn; Nether Holm of Dalquhairn; Polskeoch, Corlea and Cairnhead (which mirrors those assessed in the 2015 ES and 2017 FEI)..

5.5.2 The results of the construction noise assessment show that no noise sensitive receptors (NSRs) fall within the distance at which impacts from piling would be likely and therefore effects from construction are predicted to be not significant.

5.5.3 When assessing construction traffic routes, it is established that the effect of construction traffic noise on residential noise sensitive receptors is not significant.

5.5.4 An operational noise assessment has been carried out following the industry standard methodology prescribed in ETSU-R-97 and the associated Institute of Acoustics Good Practice Guide on the use of ETSU-R97. The results of the operational noise assessment show that, based on conservative assumptions and depending on the final turbine model selected, the ETSU-R-97 noise limit criteria at all NSRs would not be exceeded for the Proposed Development in isolation and therefore effects are predicted to be not significant.

5.5.5 A nearby development currently going through planning, Euchanhead Wind Farm, has proposed that during the construction and operation of Euchanhead Wind Farm Polskeoch will be under the ownership and management of ScottishPower Renewables

and will be removed from residential use for the life of Euchanhead Wind Farm. Therefore, the following cumulative situations have been considered:

- all cumulative developments, including Euchanhead Wind Farm, excluding Polskeoch as a receptor; and
- all cumulative developments excluding Euchanhead Wind Farm, including Polskeoch as a receptor.

5.5.6 When looking at all cumulative developments including Euchanhead Wind Farm, the predictions show that, based on conservative assumptions and depending on the final turbine model selected, the ETSU-R-97 criteria at all NSRs (excluding Polskeoch) would not be exceeded and therefore the effects are predicted to be not significant.

5.5.7 When looking at all cumulative developments excluding Euchanhead Wind Farm, the predictions show that, based on conservative assumptions, there is potential (depending on final turbine model selected) for an exceedance of the ETSU-R-97 criteria at Polskeoch during the daytime only at wind speeds of 9 m/s and above. The ETSU-R-97 criteria would not be exceeded at any of the other receptors.

5.5.8 A variety of solutions are available to ensure compliance with the ETSU-R-97 noise limits, for example using serrated edge blades for certain turbine models or using reduced operating modes at certain wind speeds. The exact nature of mitigation measures will depend on the turbine selected for use at the Proposed Development. The maximum broadband sound power levels possible for compliance with the ETSU-R-97 limits at Polskeoch, based on the candidate turbine octave spectrum, are presented as a guide.

5.5.9 It would be a condition of any planning consent that the Proposed Development is operated within the agreed noise limits. The assessment shows that this achievable for the proposed turbine typologies with or without the existence of Euchanhead Wind Farm.

5.5.10 By adhering to the environmental measures outlined in EIA Report Chapter 7, the predicted residual effects of the Proposed Development would be not significant.

5.6 Shadow Flicker

5.6.1 Under certain combinations of geographical position, time of day and year, mainly in the winter months when the sun is low in the sky, the sun may appear behind turbine rotors and cast a shadow over any neighbouring properties. Where the shadow falls through a narrow opening (e.g. window), the rotation of the turbine blades results in it appearing to flick on and off; this effect is known as 'shadow flicker'.

5.6.2 Guidance indicates that only properties within 130 degrees either side of north of the turbines can be affected at UK latitudes, and that the potential for shadow flicker at distances greater than ten rotor diameters from a turbine position is very low. On this basis, the shadow flicker assessment considers a study area of 1,670 m (162 m rotor diameter x 10 plus 50 m micrositing allowance).

5.6.3 There is only one residential property (Polskeoch) within the study area which has potential to be theoretically affected by shadow flicker.

5.6.4 The shadow flicker analysis was conducted using a computer software programme which reports an theoretical ‘worst case’ scenario, that is, a situation where there is always sunshine, the wind is always blowing, the wind and the wind turbine rotor track the sun by yawing the wind turbine exactly as the sun moves, and ignoring any potential screening effect from existing vegetation and buildings.

5.6.5 Using this conservative modelling it is predicted Polskeoch may experience shadow flicker up to 38 hours/year, up to a maximum of 0.44 hours per day. The guidelines (Northern Irish PPs 18) recommend that shadow flicker does not exceed 30 hours per year or 30 minutes per day for dwellings within 500m from a wind turbine. The dwelling Polskeoch is located approximately 1,200m from the nearest turbine (T10).

5.6.6 As the receptor is well in excess of 500m from the nearest wind turbine, the assessment is based upon worst-case modelling, and taking into account the amount of sunny daylight hours per year, it is considered that the realistic scenario impact will be below 30 hours a year and 30 minutes a day.

5.6.7 Mitigation measures could be implemented if deemed appropriate. Following implementation of mitigation through design and best practice and the mitigation measures identified above, it is considered that there would be no significant effects in terms of the EIA regulations in relation to shadow flicker.

5.7 Landscape and Visual

5.7.1 The Landscape and Visual Impact Assessment (LVIA) has been undertaken in accordance with best practice guidance by chartered landscape architects at WSP E&IS UK Limited. The assessment has assessed the landscape, visual and cumulative effects of the Proposed Development, encompassing the construction, operation, and decommissioning periods.

5.7.2 The Proposed Development comprises up to 15 wind turbines, with a maximum height of 200m to blade tip and associated infrastructure. The turbines are configured in two groups, described as the Eastern group (ten turbines) and the Western group (five turbines).

5.7.3 The LVIA process has taken account of legislation and national and local planning policy in relation to wind farm development as well as the Dumfries and Galloway Council Local Development Plan 2, Part 1 Wind Energy Development: Development Management Considerations, Appendix ‘C’ Dumfries and Galloway Wind Farm Landscape Capacity Study Supplementary Guidance, February 2020 (DGWLCS) and the Dumfries and Galloway Council Local Development Plan 2 (LDP2), Dark Skies Friendly Lighting Supplementary Guidance, February 2020 (referred to hereafter as the ‘DSFL’). The LVIA has also taken account of the East Ayrshire Council (EAC) Local Development Plan, April 2017, the East Ayrshire Council Local Development Plan, Supplementary Guidance: Planning for Wind Energy December 2017 and the East Ayrshire Council Local Development Plan, Non-Statutory Planning Guidance: East Ayrshire Landscape Wind Capacity Study (EALWCS) (June 2018).

5.7.4 The Proposed Development has taken account of the relevant broad scale constraints and opportunities contained within the advice set out in DGWLCS and EALWCS.

5.7.5 The design of the Proposed Development has been reviewed against SNH’s guidance Siting and Designing Windfarms in the Landscape, Version 3a, 2017, the advice contained within the DGWLCS and EALWCS, the relevant policies of the DGC and EAC LDPs and Supplementary Guidance. As a result, the Proposed Development has been designed to reduce landscape, visual and cumulative effects and to reflect the landscape characteristics of the Development Site location and its wider area which includes Local Landscape Areas (LLAs) and Regional Scenic Areas (RSAs).

5.7.6 The Proposed Development has been designed to balance technical and project requirements with a need to safeguard the environment and satisfactorily accommodate the Proposed Development within its landscape setting.

5.7.7 All of the mitigation related to landscape, visual and cumulative effects is 'built-in' or embedded into the design of the Proposed Development with the exception of detailed reinstatement proposals for the borrow pits which would be provided as part of the construction phase of the Proposed Development to integrate these features into their landscape setting.

5.7.8 Turbines more than 150m in height must as a matter of law (unless the CAA approve an alternative) be fitted with visible aviation warning lighting on the turbine nacelle and at the mid-point of the turbine towers. A Lighting Strategy for the aviation warning lights has been provided (and approved by the CAA). The approved Lighting Strategy only requires lighting on 9 of the 15 turbine nacelles, with no tower lighting, thus reducing the lighting effects to the minimum permitted by law.

5.7.9 Landscape Effects are concerned with how the Proposed Development would affect the elements that make up the landscape, its distinctive character, and related landscape planning designations. The Eastern group (T1 to T10) and T14 of the Western group are located within an undesignated area of the Southern Uplands with Forest landscape character (Ken Unit) in Dumfries and Galloway (T13 is located within the Southern Uplands landscape character (Carsphairn Unit) in Dumfries and Galloway). The Western group (with the exception to T13 and T14) is located within the locally designated Uplands and Moorlands Local Landscape Area of the Southern Uplands landscape character in East Ayrshire.

5.7.10 There would be a localised significant effect on the host Landscape Character Types (LCT), and the addition of the Proposed Development would have a limited, although significant effect on part of the Southern Uplands with Forest: Ken unit, within up to approximately 2 – 3km of the proposed turbines, and Southern Uplands: Carsphairn unit within up to approximately 1-1.5km of the proposed turbines within Dumfries and Galloway. There would also be a localised significant effect on the host Southern Uplands: Blackcraig Hill unit, within up to approximately 2-3km of the proposed turbines within East Ayrshire. These effects would also be limited by existing / retained forestry cover and other wind farm development in this area and would not be significant in terms of the overall landscape character. A localised and significant cumulative effect is also predicted on all three host LCTs as a result of the combined effect of a number of existing, consented and other application wind farms.

5.7.11 With regards to other LCTs within the Study Area, there would be a localised and significant cumulative effect on a small part of the Narrow Wooded Valleys: Ken unit (between Lorg Bridge and south of Corlae) and Southern Uplands: Nithsdale unit (within approximately 2-3km). The majority of these LCTs would not be significantly affected by the Proposed Development.

5.7.12 All remaining LCTs within the Study Area would not be significantly affected by the Proposed Development.

5.7.13 Three turbines of the Western Group of the Proposed Development (T11, T12 and T15) would be located within the locally designated Uplands and Moorlands LLA. However, there would be no significant effects on the special landscape qualities or integrity of any landscape planning designations as a result of the Proposed Development.

5.7.14 Visual effects are concerned wholly with the effect of development on views, and the general visual amenity that would be experienced by people in the landscape.

5.7.15 Significant and localised visual effects are restricted to the views from seven residential properties (Polskeoch, Nether Holm of Dalquhairn, Craigythorn Croft, Corlae Byre 1 and 2, Dalgonar, Polcheskie Brae and Strahanna Farm), two minor roads (C35s road and Unclassified Road (U405N)), sections of ten recreational routes (DGC Core Paths 51/188/215/446, EAC Core Path C10, Heritage Path 1, Rights of Way DS12/DS13/DS15

and the Southern Upland Way) and three hill summits (Windy Standard, Blackcraig Hill and Cairnsmore of Carsphairn).. Significant night-time effects are restricted to a very small number of local receptors due to the proposed Lighting Strategy.

5.8 Historic Environment

5.8.1 Direct effects on heritage assets, as well as indirect effects on the setting of off-site heritage assets and the wider historic landscape, have been considered in the Historic Environment assessment.

5.8.2 There are a number of non-designated archaeological features across the Development Site, comprised of previously known heritage assets recorded within the Dumfries and Galloway and West of Scotland Archaeology Service Historic Environment Records. Additional potential heritage assets were also identified during a previous historic environment assessment in 2015 and peat deposits, which may have value for the study of past environments, are also present on the Development Site.

5.8.3 Previously recorded assets which would be affected by the Proposed Development, comprise the surviving improvement-period stone-dyked field system around the existing farmstead at Lorg (historically referred to as Lorgfoot) and a presumed field system of which little discernible trace survives around the ruined farmstead at Altry.

5.8.4 The main spine road linking the eastern and western turbine clusters also passes along the line of a presumed drove road of medieval or post-medieval date for approximately 100m, and passes through a scatter of stones, which while appearing to be natural, may be suggestive of the presence of further buried archaeological features. This presumed drove road has clearly been used as it is the only route up the valley which is readily passable to livestock or vehicles and it is not possible for the Proposed Development to avoid this area. It is not clear that these features are necessarily connected with any archaeological remains, but if this is the case, there is a potential for disturbance of heritage assets at these locations as a result of the construction of the Proposed Development, as the Proposed Development cannot entirely avoid it.

5.8.5 The potential for previously unrecorded heritage assets to be present on the Development Site remains, but is not sufficient for a significant adverse effect to arise given the likely dispersed nature of such features and the limited footprint of the Proposed Development.

5.8.6 Indirect (visual) effects on the settings of designated heritage assets within the wider area, including listed buildings, scheduled monuments and inventory gardens and designed landscapes, were assessed, including two scheduled monuments at Stroanfreggan and the Dumfries House and Craigengillan designed landscapes. Non-designated heritage assets with the potential to be of national importance were also considered in this regard. The assessment concludes that indirect effects on designated heritage assets and potentially nationally important assets within the wider area would not be significant.

5.9 Ecology

5.9.1 The potential effects of the Proposed Development on habitats and non-avian animal species during construction, operation and decommissioning have been assessed.

5.9.2 Information relating to protected and notable species and habitats in the vicinity of the Development Site, and designated nature conservation sites is provided. A radius of 10 km was applied for Statutory Designated Sites, 5 km for bats, and 2 km for non-statutory sites and for records of legally protected or otherwise notable species.

5.9.3 The assessment has been based both on the results of the desk study and field surveys, and on professional knowledge of ecological processes and functions, and relevant published information. This includes, for example, information on the status, distribution, sensitivity to environmental changes and ecology of the ecological features scoped into the assessment (where this information is available).

5.9.4 Baseline field surveys were conducted during the period Spring 2020 through to Autumn 2021. Surveys included Phase 1 habitat and National Vegetation Classification (NVC) surveys, terrestrial and aquatic mammal surveys (for badger, otter and water vole), bat surveys and aquatic fisheries surveys. Extensive historical baseline data from within the Development Site which was used to inform the previous planning applications (and the associated environmental information submitted in 2015, 2017 and 2019) were also used to support the baseline assessment.

5.9.5 There are no Statutory designated sites designated for their ecological interest within 10 km of the Development Site. Non-Statutory sites within 2 km of the Development Site include Afton Uplands provisional Local Wildlife Site (pLWS), which the Development Site overlaps and a single stand of ancient woodland approximately 1.9 km to the south east of the Development Site which was scoped out due to the distance and lack of impact pathways.

5.9.6 The Development Site is predominantly characterised by open areas characterised by acid grassland, marshy grassland, blanket bog, with smaller areas of acid flush, wet heath, bracken and broadleaved woodland. Extensive conifer plantations are located close to much of the periphery of the central and eastern sections of the Development Site. Some habitats including those that may be partially lost or modified due to construction were identified as being potentially groundwater dependent. A detailed assessment presented in **Chapter 13 – Geology, Hydrology and Hydrogeology** - confirmed that most of these habitats were sustained by incidental rainfall and surface water.

5.9.7 The survey for aquatic mammals carried out in May 2021 identified evidence of otter activity along most watercourses within the Study Area, including the Water of Ken, Coranbae Burn, Altry Burn, Small Burn, Lorg Burn and Afton Water. No water voles were recorded.

5.9.8 Badger activity was also confirmed within the 2km Study Area by the presence of active setts.

5.9.9 Roosting *Pipistrellus* bats were confirmed at Lorg Farmhouse during presence / absence surveys. The farmhouse was assessed to offer only limited opportunity for small numbers of bats and was not considered suitable for larger maternity colonies. Automated detectors deployed at / near each proposed turbine location recorded a total of 2,907 contacts from at least five species [common pipistrelle, soprano pipistrelle, brown long-eared bats, and bats of the genera *Nyctalus* and *Myotis*] over 427 monitoring nights.

5.9.10 Only trout fry and parr were recorded within the 2km Study Area. The presence and age classes of fish found through the Development Site is shaped by the altitude and location, upstream of the Afton Reservoir and associated dam which poses as a barrier to upstream migration of fish. The results show that healthy populations of aquatic invertebrates are present on the Afton Water and Alwhat Burn. No freshwater pearl mussel were recorded during the surveys.

5.9.11 Ecological features have been considered at all stages of the design, from early feasibility to final layout, which has helped to avoid or greatly reduce adverse effects. Ecological features scoped in for detailed assessment were: Afton Uplands Potential Local Wildlife Site (pLWS), blanket bog, otter, badger and bats. For each ecological feature scoped in, effects were assessed against the current baseline conditions for that feature during construction, operation and decommissioning.

5.9.12 The layout within the Afton Uplands pLWS has avoided important vegetation communities for which the site is notified wherever possible, including upland mire, montane heath and species-rich grassland communities. Similarly, the scheme layout across the rest of the Development Site has also wherever possible, avoided peatland habitat, and where avoidance has not been possible, has been designed to avoid habitats of highest ecological importance and highest sensitivity to effects. The proposals would result in the direct loss (5.75 ha), indirect modification (19.31 ha) and temporary disturbance (0.4 ha) of locally important blanket bog (typically degraded, see **Technical Appendix 11B**). Suitable areas for peatland restoration have been identified within three candidate management areas within the Development Site (See **Technical Appendix 11H**), which comprise historically drained peatland or actively eroding deep peat with only limited vegetation cover. The extent of these areas would be subject to refinement prior to completion of the final Habitat Management Plan (HMP), but restoration would aim to restore peatland/blanket bog habitat within the identified candidate management units.

5.9.13 Good practice environmental measures would be adopted to minimise the risk of bats colliding with turbines during operation, in accordance with current guidance (NatureScot, 2021). Turbines will have a minimum 50 m stand-off distance between blade tips and high-value bat habitats, such as woodland and riparian features. Based on location-specific results of bat activity monitoring and assessment, in order to reduce the potential for bat casualties to occur at targeted turbines, mitigation in the form of 'feathering' would be implemented. This process involves pitching turbine blades out of the wind to reduce rotation speeds while idling, in turn reducing the risk of bat injury/ mortality. Feathering is considered 'best practice' and is recommended where there is uncertainty over collision risk posed to bats.

5.9.14 A Species Protection Plan (SPP) for protected species including otter and badger would be prepared to ensure compliance with legislation. It would include details of pre-construction surveys to check on the presence of otters and the following suite of embedded measures that would be implemented across the Development Site to avoid causing harm to or disturbing this species. This will form part of an overarching Construction Environmental Management Plan, to be implemented under the supervision of an Environmental Clerk of Works (ECOW), who would also be responsible for ensuring the successful implementation of embedded measures, including pollution prevention, monitoring of buffers around construction areas and reference to areas of high ecological sensitivity, and adherence to current construction best practice.

5.9.15 Taking these mitigation measures into account, no significant effects are predicted for any ecological features and no potential significant cumulative impacts were identified.

5.10 Ornithology

5.10.1 The ornithological baseline consisted of a desk study and field surveys from April 2018 to March 2020. Additional preliminary surveys were undertaken between 2010 and 2014.

5.10.2 There is one site of International / European importance for its bird populations within 20 km of the Development Site: Muirkirk and North Lowther Uplands Special Protection Area (SPA). It is unlikely that any of the qualifying species recorded during surveys of the Development Site relate to birds from the SPA. Surveys recorded 15 species listed as either:

- a qualifying feature of the Muirkirk and North Lowther Uplands SPA;
- a species on Annex 1 of the Birds Directive;
- a Schedule 1 species of the Wildlife and Countryside Act (as amended) (WCA); or

- a species of principal importance on the Scottish Biodiversity list (SBL).

5.10.3 Five of these species were scoped in for further assessment. These comprise barn owl, black grouse, goshawk, peregrine and red kite.

5.10.4 The assessment has been based both on the results of the desk study and field surveys, and on professional knowledge of ecological processes and functions, and relevant published information. This includes, for example, information on the status, distribution, sensitivity to environmental changes and ecology of the ornithological features scoped into the assessment (where this information is available).

5.10.5 For each ornithological feature scoped in, effects were assessed against the current baseline conditions for that feature during construction, operation and decommissioning.

5.10.6 The initial results of the assessment regarding potentially significant effects were used to identify additional detailed assessment or environmental measures that should be embedded into the Proposed Development to avoid or reduce adverse effects or to deliver enhancements. This was an iterative process, with the results of desk study and surveys informing the requirement for additional assessment and embedded mitigation. The results of the assessment therefore reflect the final scheme design (i.e. incorporating the environmental measures).

5.10.7 A full assessment, including collision risk modelling where appropriate, of the ornithological features scoped in was undertaken following CIEEM (2022) guidance. No significant effects were concluded. A further cumulative assessment was undertaken for black grouse, goshawk, peregrine and red kite. No significant cumulative effects were identified for any of these species.

5.10.8 A range of environmental measures have been embedded into the Proposed Development to minimise any potential impacts on breeding birds. Working practices to minimise effects on ornithological features during construction will be set out in a Breeding Bird Protection Plan. This will form part of an overarching Construction Environmental Management Plan, to be implemented under the supervision of an Environmental Clerk of Works.

5.10.9 Taking these mitigation measures into account, it is concluded that the Proposed Development will not have a significant adverse effect on birds.

5.11 Geology, Hydrology and Hydrogeology(including flood risk)

5.11.1 A thorough appraisal of the current baseline environmental characteristics of the Development Site and a surrounding 2 km buffer area has been undertaken, with reference to geology, hydrology (including flood risk) and hydrogeology.

5.11.2 The assessment identified a number of water environment receptors at potential risk from the Proposed Development. These included groundwater (bedrock aquifer and associated WFD groundwater body), surface water (four watercourses, lochs and associated WFD surface water bodies), two licenced abstractions and six Groundwater Dependant Terrestrial Ecosystems (GWDTEs).

5.11.3 Consideration has been given to the types of potential effects that could arise during the construction, operation and decommissioning phases of the Proposed Development. The main potential effects associated with the Proposed Development relate to the construction phase, which would involve excavation and dewatering of borrow pits; formation of access tracks; excavation, dewatering and placement of turbine foundations, and formation of watercourse crossings. Such activities could result in, for instance, the

interception of surface water and groundwater and the generation of additional, silt-laden runoff, and fuel, oil and chemical spillages, with resulting detrimental water quantity (including flooding) and quality effects on the above-named receptors.

5.11.4 Potential effects from the Proposed Development would be more limited in the operational phase. Nevertheless, the constructed site and operational traffic and maintenance activities could still result in the generation of additional, silt-laden runoff and fuel, oil and chemical spillages, with resulting detrimental water quantity and quality effects on the previously named receptors.

5.11.5 The potential effects associated with the Proposed Development during the decommissioning phase would be similar to those incurred during the construction phase, albeit to a slightly lesser degree.

5.11.6 An assessment has been undertaken of the significance of the potential effects of the Proposed Development on a receptor group and individual receptor basis. With 'embedded' mitigation, it was assessed that there would be no likely significant adverse effects related to the Proposed Development to all but the Afton Reservoir receptor. For this receptor some probably significant effects were identified during the construction and operational phases from soil compaction, ground disturbance and site activities potentially increasing sediment loading and releasing pollutants to groundwater and surface water.

5.11.7 Therefore, implementation of some additional precautionary mitigation measures to further protect the surface water environment, are warranted. These would include the optimisation of the borrow pit location within the borrow pit search area to minimise risk, the consideration of the horizontal directional drilling technique to form the watercourse crossing WC01, the implementation of an early warning water quality monitoring system and the formulation of a water quality monitoring plan (WQMP). This would be in addition to the micro-siting of infrastructure and the development of a site wide WQMP.

5.11.8 In addition, the cumulative impacts assessment indicated that there would be no cumulative effects with relevant developments within the Proposed Development or wider Study Area or in the same surface catchments. An extension of the WQMP would therefore assess if effects are arising as a result of other wind farm developments located within the same catchments as the Proposed Development.

5.11.9 On this basis, with both embedded and additional mitigation in place, standalone and cumulative effects of the Proposed Development on all water receptors are not significant.

5.12 Traffic and Transport

5.12.1 This assessment takes account of the traffic levels that would be generated during the construction, operation and decommissioning phases of the Proposed Development, with the construction phase being the main focus as this is when most traffic will be generated. Consideration has been primarily given to Heavy Goods Vehicle (HGV) and abnormal load movements.

5.12.2 Estimates of traffic generation associated with the construction phase of the Proposed Development have been derived from a first principles approach based on calculations of vehicle loads of imported materials. While it is expected that sufficient materials may be won on site from on-site borrow pit(s), it is assumed, for the purposes of an absolute worst-case transport assessment, that the bulk of the construction materials (stone aggregate and the materials required for the mixing of concrete) will be sourced from two off-site quarries.

5.12.3 It has been assumed that ~25% of the construction materials will be sourced from Tincornhill Quarry and the remaining ~75% sourced from Tongland Quarry, located

approximately 27km to the north and approximately 48km south of the Development Site respectively. These proportions are considered to be the likely traffic volume which would travel along each route based on the current assumptions, but are for illustrative purposes only as the final source of materials will depend on the outcome of commercial negotiations or other changes to circumstances in the future.

5.12.4 Tincornhill Quarry is accessed via the B743; from which the route continues westbound towards the village of Sorn and onto the B713, negotiating a short section of the B705 before re-joining the B713 after the village of Catrine. The route then continues west along the B713, for a short distance, until joining the A76 heading south towards New Cumnock and onto the Development Site access track via Afton Road and the existing tracks of the Afton Wind Farm.

5.12.5 The proposed route from Tongland Quarry to the Development Site will use the A711, travelling eastwards towards the A75 and along the A75 before routing onto the A713 where the route then continues north towards Carsphairn. The route then heads south on the B729, via the A713/B729 junction to the south of Carsphairn, after which vehicles will access the Development Site from an access road served from the B729 to the west of the Water of Ken.

5.12.6 It is anticipated that all turbine components will be imported into Scotland via the Port of Ayr and delivered to the Development Site by road, as shown on EIAR **Figure 14.2.** The route used to deliver turbine components from the port will be expected to leave Ayr via Waggon Road, turning right onto Allison Street A79 then onto the A719 and the A77 heading north towards the roundabout with the A78. The route then heads further north along the A77, joining the A76 at the roundabout at Kilmarnock, before heading south and joining the B741, at New Cumnock, which continues west towards the Development Site entrance via Afton Road and the consented Afton Wind Farm. The route has been assessed by Pell Frischmann.

5.12.7 The impact of construction-related traffic on the proposed access routes for road stone deliveries and concrete deliveries has been calculated, in percentage terms, relative to the background traffic. The movement of abnormal loads is closely managed and all vehicles will be escorted by Police Scotland at set times.

5.12.8 As noted above, the assessment considers a scenario where 100% of all road stone required for the construction of on-site access tracks will be imported (in practice it is considered highly likely that a significant proportion can be recovered onsite using on-site borrow pit(s)). As such, the assessment presented is considered to be an absolute worst-case. In this worst-case scenario, months five to nine in the construction programme generate the highest number of trips with a total of 84 trips per day across a 12-hour working day (Mon-Fri 0700-1900 and Saturday 07:00-13:00).

5.12.9 The effect on the local highway network has been assessed using The Institute of Environmental Management and Assessment (IEMA) guidelines, which specify general thresholds for traffic flow increases that trigger the need for the assessment of effects. The aforementioned thresholds are expressed in the form of two rules: Rule 1: Include roads where traffic flows are predicted to increase by more than 30% (or where the number of HGVs are predicted to increase by more than 30%); and Rule 2: Include any specifically sensitive areas (schools, shops, community facilities etc.) where traffic flows are predicted to increase by 10% or more.

5.12.10 The following environmental effects which are listed in the IEMA guidelines have been considered in this assessment: severance; driver delay; pedestrian delay; pedestrian delay and amenity; fear and intimidation; and accident and safety. In respect of these, and with the incorporation of appropriate mitigation measures within a draft Construction Traffic Management Plan (CTMP), no significant effects are predicted.

5.13 Socio-economics

5.13.1 The assessments provided in Chapters 15 - Socio-economics, Tourism and Recreation of the 2015 ES and 2017 FEI concluded that residual economic effects during construction, operation and decommissioning of the Consented Development would be beneficial, but 'not significant' in EIA terms.

5.13.2 In terms of direct effects on recreation and tourism the chapter concludes that with the mitigation measures in place there are no significant effects, however the following are highlighted:

- Indirect effects include significant effects on views from nine recreational routes, including Core Paths, a Heritage Path and Rights of Way.
- Significant visual effects would also be experienced by users of the Southern Upland Way in three areas. None of the remaining recreational routes would be significantly affected by the Proposed Development.
- There are four sculptures located on hill summits above, or within the Dalwhat Water valley to the southeast of the Proposed Development, where certain views would be significantly affected, however the wider 360° views, sculpture setting and visitor experience would not be significantly affected.
- The remaining recreational and tourist destinations would also not be significantly affected by the Proposed Development. Significant visual and cumulative visual effects would be experienced by walkers from three hill summits within 10km including Windy Standard, Blackcraig Hill and Cairnsmore of Carsphairn.

5.13.3 The chapter concludes however taking into account various studies, the visitor attractiveness and tourism potential of the identified recreation and tourism receptors would not be substantially reduced by these significant effects and it is therefore considered that there would be no significant effects in relation to socio economics.

5.13.4 In terms of beneficial effects, the chapter concludes (adjusted for inflation) that the construction phase of the Proposed Development could result in construction expenditure of up to £159.92m. This compares to £53.98m for the Consented Development. In terms of wider economic benefits, it is estimated that between £13.48m and £20.69m being spent locally (between £4.55m and £7m for the Consented Development) and a range of between £51.01m and £78.37m spent within Scotland (between £17.23m and £26.50m for the Consented Development).

5.13.5 The manufacturing of the turbines could result in capital expenditure of up to approximately £103m (£34.76 m for the Consented Development), the balance of plant construction phase could result in capital expenditure of up to approximately £159.92m (£15.43m for the Consented Development) and grid connection work could result in capital expenditure of up to approximately £11.38m (£3.04m for the Consented Development). During the construction of the Proposed Development, local employment across East Ayrshire and Dumfries and Galloway is estimated as ranging from up to 97.71 up to 149.10 Full time Equivalent (FTE) jobs, (between 32.99 FTE to up to 50.75 FTE for the Consented Development) and Scottish level employment ranging between 293.02 FTE up to 450.19 FTE throughout the construction period (between 98.96 FTE to up to 152.24 FTE for the Consented Development).

5.13.6 Over the 35 year period of operation, the Proposed Development is predicted to generate total operations and maintenance expenditure of up to between £97.65m and £551.25m

(and £253.85m based on the weighted average cost of £75,551 per MW). This was between £18.63m and £105.25m and £45.8m based on the weighted average cost for the Consented Development.

5.13.7 It is also predicted that the Proposed Development may deliver between £1.17m and £6.61m of local annual operations and maintenance expenditure (between £313,200 and £1.77m for the Consented Development) and up to between £1.62m and £9.13m of annual operations and maintenance expenditure within Scotland (between £432,200 and £2.44m for the Consented Development).

5.14 Infrastructure and Other Issues

5.14.1 The Proposed Development has been considered in relation to existing infrastructure (e.g. telecommunications, overhead lines, cables) and other issues (health and safety, population and human health and major accidents and disaster). Consultation was undertaken with relevant service providers.

5.14.2 In the 2015 ES BT responded to consultation showing that they had an overhead telephone line to the unoccupied Lorg Farmhouse. This runs alongside the minor road which runs up the valley of the Water of Ken and enters the centre of the Development Site from the south and in places it moves away from the road by 100m or so; If this apparatus is found to be still in situ, if required, it would be undergrounded where necessary. No significant effects are anticipated.

5.14.3 As part of the scoping process and subsequent consultation, consultees (i.e. asset operators/service providers) have confirmed that the Proposed Development should not cause any interference to their equipment. No significant adverse effects on telecommunication links are therefore anticipated.

5.14.4 The Proposed Development will be constructed and operated in accordance with all appropriate health and safety guidance and standards to ensure the risk to public safety is minimised and kept within acceptable levels. With the implementation of mitigation measures, such as adequate signage, no significant effects in relation to health and safety are anticipated.

5.14.5 Population and human health are considered in technical chapters where changes may affect people (Chapter 7 - Noise, Chapter 8 – Shadow Flicker and Chapter 9 - Landscape and Visual (which includes consideration of residential amenity)). The conclusions relating to these technical chapters of the EIA Report are summarised and no significant effects in relation to population and human health are predicted.

5.14.6 The potential for significant effects as a result of the vulnerability of the Proposed Development to major accidents and disasters has been considered for a range of topics. The Proposed Development would not be susceptible to major accidents and disasters and there would be no significant effects.

5.15 Aviation

5.15.1 There is the potential for effects from the operation of the Proposed Development on MOD Low Flying activities (a physical obstruction and effect on operations of Military Low Flying aircraft), NATS Great Dun Fell Primary Surveillance Radar (PSR), Lowther Hill PSR; and Glasgow Prestwick Airport (GPA) PSR.

5.15.2 The Applicant has proposed infrared lighting. With the mitigation measures described in the chapter 17 of the EIA Report in place, it is predicted that the effects on MOD Low Flying Activities would not be significant.

5.15.3 Line of Sight Analysis has demonstrated that the Proposed Development will be theoretically detectable by the NATS Lowther Hill and Great Dun Fell PSR systems. A Primary Radar Mitigation Scheme (PRMS) was agreed for the Consented Development, through ongoing discussion it is anticipated this would also be agreed for the Proposed Development. The post-mitigation effects are therefore not predicted to be significant.

5.15.4 Analysis has shown that six turbines may be visible to the radar at Glasgow Prestwick Airport (GPA), and will require mitigation. Discussions are ongoing with GPA to agree a mitigation strategy to enable a planning condition to be agreed.

5.15.5 With the mitigation measures outlined in the EIA Report, there would be no significant effects in respect of Aviation as a result of the Proposed Development.

6. Conclusion

6.1.1 The role of onshore wind remains central to achieving Scottish renewable energy targets which have increased in recent years. In June 2022, the Scottish Government stated that in 2020, 25.4 % of total Scottish energy consumption came from renewable sources, against a target of 50% by 2030. Therefore, there is a recognised need to dramatically increase renewable electricity generation, with onshore wind identified by the Scottish Government as being of critical importance. A significant increase in wind energy capacity will be required if current climate change mitigation and renewable energy targets are to be met; and the Proposed Development would contribute substantially in achieving these targets, to an even greater relative extent than the Consented Development, providing a large potential increase in renewable energy generation capacity from up to 32.4MW (Consented Development) to an estimated 96MW capacity (for the Proposed Development).

6.1.2 The Proposed Development has been informed by and builds upon the comprehensive iterative design process undertaken throughout the EIA process. This has resulted in the elimination or mitigation of all potentially significant environmental effects in respect of all environmental topic areas except for LVIA.

6.1.3 While some significant landscape and visual effects are likely, it is notable that visual effects are concerned wholly with the effect of development on views, and the general visual amenity that would be experienced by people in the landscape.

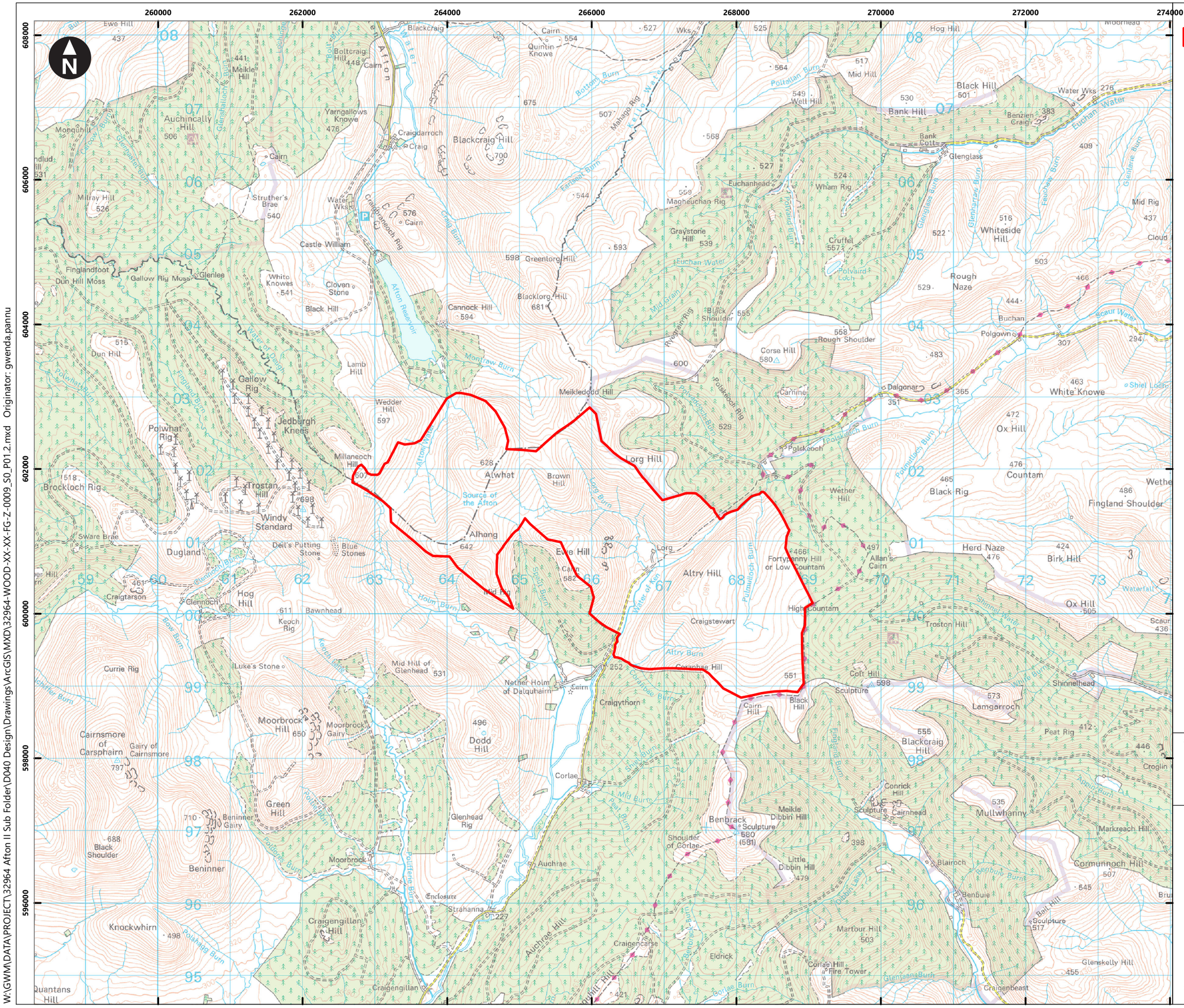
6.1.4 Significant and localised visual effects are restricted to the views from seven residential properties, two minor roads, ten recreational routes and three hill summits. Significant night-time effects are restricted to a very small number of local receptors due to the proposed Lighting Strategy.

6.1.5 The Proposed Development would provide a number of economic benefits which result from investment into the local and national economy, job creation and benefits in respect of national energy security, as well as the environmental benefits which would arise from the provision of low carbon renewable energy.

Appendix A
Figures

Figure 1.1 Site Location

Figure 3.1a-c Site Layout



Client

RWE

Lorg Wind Farm
Environmental Impact Assessment Report

Figure 1.1
Site location plan

October 2022

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N

Key

- Site boundary
- Turbine location
- Met mast location
- Access tracks
- Crane pads
- Borrow pit search area
- Substation A
- Substation B (West)
- Temporary compound

0 0.5 1 km

Scale at A3: 1:22,500

Client

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Lorg Wind Farm
Environmental Impact Assessment Report

Figure 3.1a
Site layout

November 2022

wsp

32964-WOOD-XX-XX-FG-Z-0007_S0_P01.3

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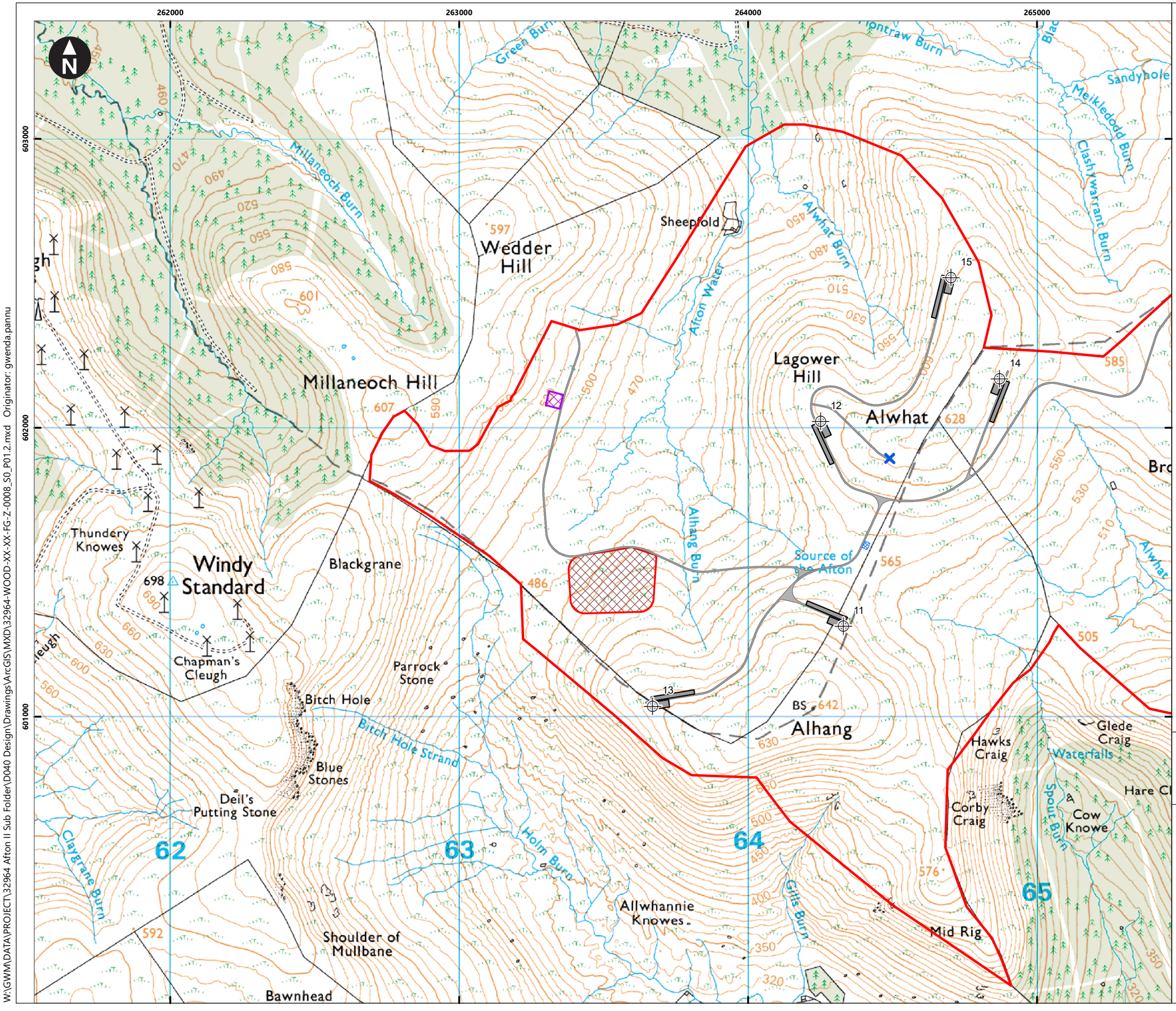

Key

- Site boundary
- Turbine location
- Met mast location
- Access tracks
- Crane pads
- Borrow pit search area
- Substation A (East)
- Substation B (West)
- Temporary compound

0 0.5 km

Scale at A3: 1:12,500

Client

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Figure 3.1b
Site layout - West

November 2022

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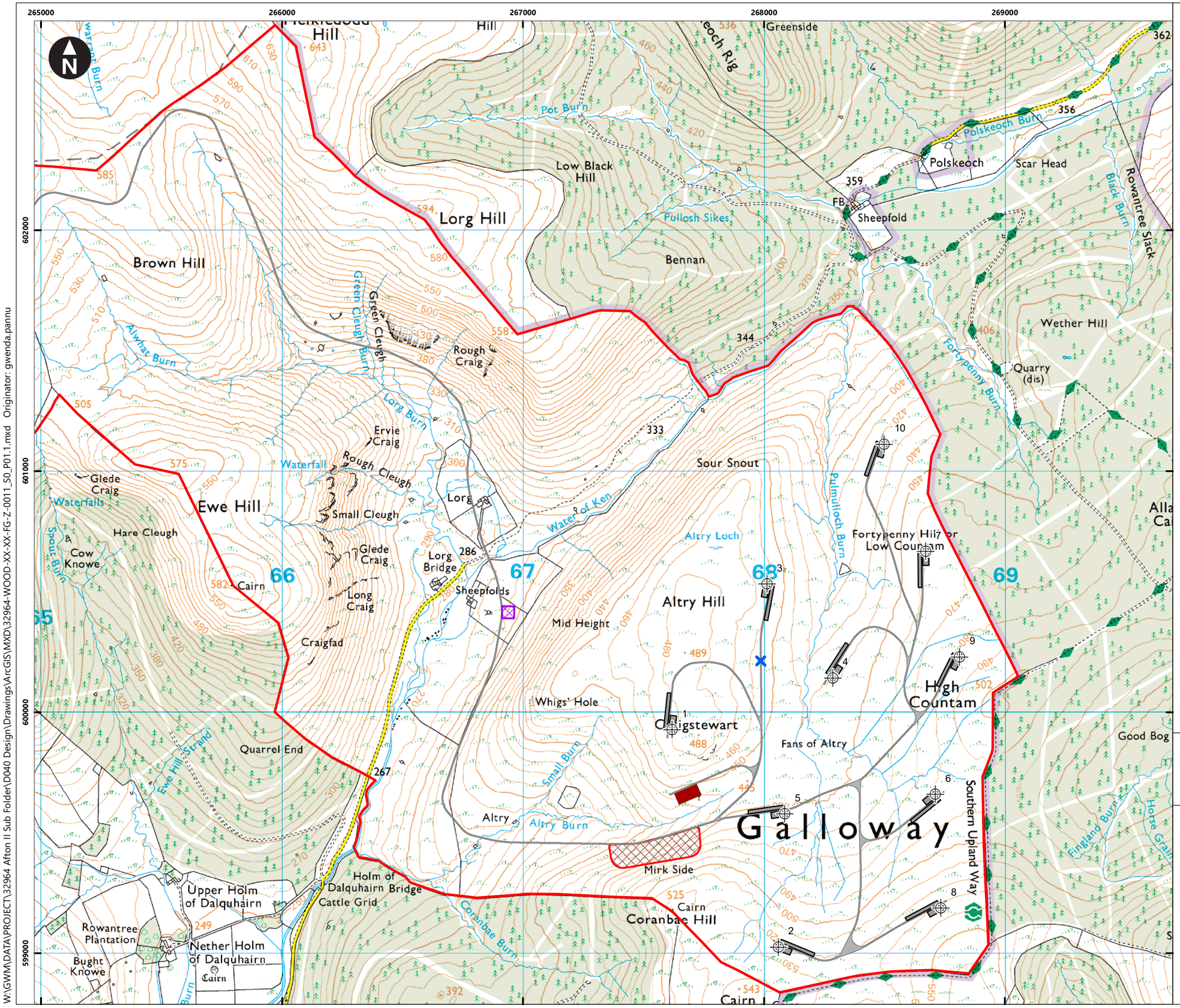

Key

- Site boundary
- Turbine location
- Met mast location
- Access tracks
- Crane pads
- Borrow pit search area
- Substation A (East)
- Substation B (West)
- Temporary compound

0 250 500 750 m

Scale at A3: 1:15,000

Client

RWE

Lorg Wind Farm
Environmental Impact Assessment Report

Figure 3.1c
Site layout - East

November 2022