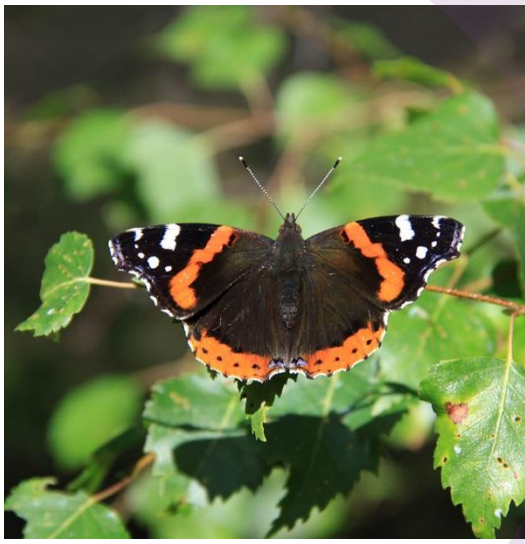
Appendix 4A
Scoping Report

RWE Renewables UK Developments Ltd

Enoch Hill 2 Wind Farm Planning Application

Scoping Report



Wood Environment & Infrastructure Solutions UK Limited – February 2020

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Document revisions

No.	Details	Date
1	Draft Report	31 January 2020
1	Final Report	20 February 2020

Executive summary

Purpose of this report

The proposed Enoch Hill 2 Wind Farm (The "Proposed Development") is anticipated to have an installed capacity of around 11.2MW, so would fall under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. This report sets out the proposed scope of the Environmental Impact Assessment (EIA) to support a planning application for the Proposed Development, the findings of which will be presented in an EIA Report. The purpose of this scoping report is to serve as a formal request to East Ayrshire Council to provide a scoping opinion under Regulation 17 of the EIA regulations. The Council and consultees are invited to make comments and suggestions on the proposed scope and to highlight any pertinent information that they hold and can make available for the assessment.

Contents

1. Introduction

1.1 Introduction

1.1.1 RWE Renewables UK Developments Ltd (hereafter referred to as the "Applicant") has identified a potential opportunity to develop a commercial scale wind farm in East Ayrshire, adjacent to the consented Enoch Hill Wind Farm and to the west of the consented Pencloe Wind Farm south west of New Cumnock.

1.1.2 The proposed site (the "Development Site") of Enoch Hill 2 Wind Farm (the "Proposed Development") is located approximately 6km[1] to the south west of New Cumnock and approximately 9km east of Dalmellington, just to the north of the border with Dumfries and Galloway. The Development Site comprises commercial forestry situated the northern part of Carsphairn Forest and the National Grid reference (NGR) for its centre is E258250, N606680. **Figure 1.1** in **Appendix A** shows a site location map in the wider landscape; and **Figure 2.1** in **Appendix A** shows the Development Site boundary.

1.1.3 The Applicant is proposing to submit a planning application under the Town and Country Planning (Scotland) Act 1997, as amended, seeking planning permission to construct and operate the Proposed Development, currently anticipated to comprise up to two turbines, with a potential generating capacity of around 11.2MW (based on up to two turbines of around 5.6MW capacity), together with access tracks, crane hard standings, an electricity sub-station, a permanent anemometer mast and a temporary construction compound. An initial site layout will be developed to inform the preliminary environmental assessments and for the purpose of identifying scope, a maximum tip height of 149.9m has been assumed.

1.1.4 The development falls under Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the "EIA Regulations") (a generating station, the construction of which (or the operation of which) will require a planning consent but which is not Schedule 1 development). A Schedule 2 development constitutes EIA development if the application is supported by an EIA Report or the development is likely to have significant effects on the environment by virtue of factors such as its nature, size or location as set out in Schedule 3 of the EIA Regulations.

1.1.5 In recognition of the scale and nature of the Proposed Development, the Applicant will undertake an EIA to assess potentially significant environmental effects.

1.2 Contents of this Report

1.2.1 This report sets out the proposed scope of the EIA, which is to be submitted to the planning authority as a formal request for a scoping opinion. A scoping opinion is defined under the EIA Regulations as *"the opinion of the planning authority as to the scope and level of detail of information to be provided in the EIA report"*. The purpose of this Scoping Report is therefore to:

- Define the Proposed Development being considered (**Chapter 2**);
- Describe the consenting and EIA requirements in relation to the Proposed Development (**Chapter 3, Chapter 4**); and

[1] The main part of the development site is located approximately 6km to the south west of New Cumnock. The access track which is covered by the site boundary starts approximately 2.5km to the south of New Cumnock.

- Outline the aspects of the Proposed Development that could potentially result in significant environmental effects (**Chapter 3**) and, where potentially significant effects may result, the methodologies that will be used to assess potential impacts (**Chapter 5 – 16**).

1.3 The Applicant

1.3.1 RWE Renewables produces electricity from renewable energy sources. RWE has become a "super player" in the field of renewables. RWE is the global number two in offshore wind. RWE have a goal: to become climate-neutral by 2040. In order to achieve this goal, it is reducing its CO2 emissions as quickly and drastically as possible, by phasing out or converting conventional power plants. RWE have already cut its greenhouse gas emissions by 60 million tonnes of CO_2 between 2012 and 2018. That is a 33 per cent reduction. No other company in Germany has achieved more in the last few years. RWE are determined to continue this.

1.3.2 Together, RWE's employees drive forward new, innovative technologies and implement exciting projects. RWE are planning to invest billions of pounds net annually in expanding renewables and developing storage technologies. RWE are focusing on the American continent, the European core markets such as the UK as well as new markets in Asia-Pacific. RWE have plenty of projects in the pipeline, spanning all technologies: offshore and onshore wind as well as photovoltaics. RWE are currently building the largest European onshore wind farm in Sweden and the largest solar power plant in Australia.

1.4 The Agent

1.4.1 Wood Environment & Infrastructure Solutions UK Limited, part of the international Wood brand supplying consultancy, engineering and project management services across the globe, has been commissioned to prepare this scoping report.

1.4.2 Wood includes one of the UK's largest multidisciplinary environmental and engineering consultancies within the Environment & Infrastructure Solutions UK business (previously Amec Foster Wheeler, Amec and Entec UK prior to acquisitions) and operates from 12 office locations. With skills ranging from development planning and design through an array of environmental and engineering disciplines, we have a comprehensive service portfolio and applied experience in a wide range of markets.

1.4.3 The EIA will be carried out by Wood to standards that comply with quality standards identified by the Institute of Environmental Management and Assessment (IEMA). The EIA Quality Mark scheme was introduced in 2011 and Wood (through its previous entities Amec Foster Wheeler, Amec and Entec UK) was a founder member and has held continuous membership since then. Each year, Wood is required to show that it meets seven commitments relating to EIA management, team capabilities, regulatory compliance, EIA context and influence, EIA content, and improving EIA practice. Wood's approach to these matters are examined by IEMA through several methods, including reviewing EIA reports we produce, interviewing staff, case studies provided for IEMA to publish and presentations made at conferences.

1.4.4 Wood requests a *'Scoping Opinion'* from the East Ayrshire Council in relation to a proposal to construct and operate a wind farm with two wind turbines and an anticipated capacity of around 11.2MW.

2. Project Description

2.1 The Development Site

2.1.1 The Development Site is located approximately 6km[1] south east of the settlement of New Cumnock and approximately 9km to the east of Dalmellington in East Ayrshire (see **Figure 1.1** in **Appendix A**). It is centred at NGR E258250, N606680. The Development Site area extends to approximately 127ha hectares (ha), although the wind farm infrastructure would occupy only a small part of the overall Development Site).

2.1.2 Access to the Development Site is via Afton Road to the east of the site and then an access track through Pencloe Forest.

2.1.3 The topography of the Development Site ranges between 190m-531m Above Ordnance Datum (AOD), with one summit, Strandlud Hill located in the main part of the Development Site and Meikle and Auchincally Hills being located close to the access track to the east of the main part of the Development Site.

2.1.4 The derelict Monquhill Farmhouse is located on the main part of the Development Site, with the nearest residential property being Pencloe Farmhouse, which is located adjacent to the access track near where it joins Afton Road. Pencloe Farmhouse is located approximately 3.5km to the east of the main part of the Development Site and approximately 4.6km away from the nearest turbine. The nearest property to a proposed turbine is Brochloch, which is located approximately 2.3km away to the north east.

2.1.5 Open moorland which is used for grazing and which is the site of the consented Enoch Hill Wind Farm, is located to the north of the Development Site with Carsphairn and Pencloe forests surrounding the west south and east of the Development Site. The consented Pencloe Wind Farm is located to the east of the Development Site, with the operational Windy Standard Extension Wind Farm being located close to the south.

2.2 Historic and Current Development Site Uses

2.2.1 The main part of the Development Site comprises commercial forestry.

2.3 Project Description

2.3.1 The Proposed Development would comprise the following main elements:

- Up to two wind turbines;
- Access tracks connecting infrastructure elements;
- An upgraded vehicular access point from the public highway;
- Hard standing areas e.g. crane pads;
- Potential borrow pit(s);
- An anemometer mast;
- Temporary working areas e.g. construction compound; and

- Control building (and substation if required) and electrical cabling between this and the turbines.

Timeframes

2.3.2 The Proposed Development would be designed with an operational life of 30 years. Following this, provided there has been no approval to extend the life, it is expected that the wind farm would then be decommissioned.

Wind Turbines

2.3.3 The candidate turbine model would be selected through a competitive tendering exercise and as such these details of the Proposed Development are yet to be finalised. However, a range of turbine height options is being considered to maximise the generating capacity of the Development Site. The turbines for the Proposed Development would not exceed the dimensions as outlined within in **Table 2.1**.

Table 2.1 Candidate Turbine Parameters

	Candidate Turbine Model
Blade Tip Height	Up to 149.9m
Rotor Diameter	Up to 136m
Hub Height	Up to 91m

2.3.4 The indicative turbine coordinates as illustrated on the layout in **Figure 2.1** in **Appendix A**, are presented in **Table 2.2**.

Table 2.2 Turbine Coordinates

Component	Maximum Height (m)	Location (NGR)
Turbine 1	149.9	E 258449, N 606402
Turbine 2	149.9	E 258032, N 605796

3. EIA Process and Consultation

3.1 EIA Overview

3.1.1 EIA is a systematic process that must be followed for certain categories of project before they can receive development consent. It aims to identify a project's likely significant effects through the scoping process, and then assess those effects; which will be reported in an EIA Report. This helps to ensure that the predicted effects, and the scope for mitigation measures to reduce them where necessary, are properly understood by the public and the determining authority, in this instance East Ayrshire Council, before it makes its decision.

3.1.2 The EIA process should be systematic, analytical, impartial, consultative and iterative allowing opportunities for environmental concerns to be addressed in the design of a project. Typically, a number of design iterations take place in response to environmental constraints identified during the EIA process prior to the final design being reached.

3.1.3 The EIA process should be based upon on recognised good practice and guidelines specific to each technical area and identify the likely significant environmental effects arising from a Proposed Development. Consultees are also encouraged to provide confirmation of agreement to the proposed scope in terms of what is included and excluded, the methodology and the receptors identified.

3.2 EIA Terminology

Impacts and Effects

3.2.1 EIA is concerned with the identification of likely significant effects on the environment. However, the terms *impact* and *effect* are often used synonymously and this can lead to confusion. For clarity, the convention used in this assessment is to use 'impacts' within the context of the term EIA, which describes the process from scoping through EIA Report preparation to subsequent monitoring and other work. Otherwise, this document uses the word 'effects' when describing the environmental consequences of the Proposed Development. For example, such effects may come about as a result of the following:

- Physical activities that would take place if the development were to proceed (e.g. vehicle movements during construction operations);
- Environmental changes that are predicted to occur as a result of these activities (e.g. loss of vegetation prior to the start of construction work or an increase in noise levels). In some cases one change causes another change, which in turn results in an environmental effect.

3.2.2 The predicted environmental effects are the consequences of the environmental changes for specific environmental receptors. For example, with respect to bats, the loss of roosting sites or foraging areas could affect the bats' population size; with regard to people, an increase in noise levels could affect amenity.

3.2.3 This assessment is concerned with assessing the significance of the environmental effects of the Proposed Development, rather than the activities or changes that cause them. However, this requires these activities to be understood and the resultant changes identified; often based on predictive assessment work.

Type of Effect

3.2.4 The 2017 EIA Regulations (Schedule 4, Part 5) require consideration of a variety of types of effect, namely direct / indirect, secondary, cumulative, positive / negative, short / medium / long-term, and permanent / temporary. In the EIA Report that will follow this scoping report, effects are considered in terms of how they arise, their nature (i.e. whether they are positive or negative) and duration. Each will have a source originating from the development, a pathway and a receptor and may fall into one of several categories:

- Direct effects are readily identified because of the physical connection between some element of the development and an affected receptor;
- Indirect effects require some additional pathway for the effect to arise. For example, a listed building may not be directly affected by any elements of a development, but its setting may be if the development is visible in views from it or when looking towards it; in which case there would be an indirect effect;
- Secondary effects would typically require further pathway connections, for example, an effect on a receptor population A could have a secondary effect on receptor population B, if B was itself dependent on A in some way, as, for example, a food source; and
- Cumulative effects arise when the receptors affected by one development are also affected by other developments resulting in the aggregation of environmental effects or the interaction of impacts.

3.2.5 Most predicted effects will be obviously positive or negative, and will be described as such. However, in some cases it is appropriate to identify that the interpretation of a change is a matter of personal opinion, and such effects will be described as 'subjective'.

Temporal and Spatial Scope

3.2.6 In its broadest sense, the spatial scope is the area over which changes to the environment would occur as a consequence of the development. In practice, an EIA should focus on those areas where these effects are likely to be significant.

3.2.7 The spatial scope varies between environmental topic areas. For example, the effect of a proposed development on the landscape resource and visual amenity is generally assessed within a zone of up to 35km from the wind turbines (and potentially up to 70km for cumulative effects), whilst noise effects are assessed within a much smaller area encompassing those representative properties close to a development site.

3.2.8 The temporal scope is stated where known and effects are typically described as:

- Temporary – likely to be related to a particular activity and will cease when the activity finishes. The terms 'short-term' and 'long-term' may also be used to provide a further indication of how long the effect will be experienced; and
- Permanent – this typically means an unrecoverable change.

3.2.9 Effects are generally considered in relation to the following key stages of a proposed development:

- Construction – the effects may arise from the construction activities themselves, or from the temporary occupation of land. Effects are often of limited duration although there is potential for permanent effects. Where construction activities create permanent change, the effects will continue into the operational period;

- Operation – effects may be permanent, or they may be temporary, intermittent, or limited to the life of a proposed development until decommissioning (as in the case of wind power developments which gain planning permission for a defined and finite number of years); and
- Decommissioning - effects may arise from the decommissioning activities themselves, or from the temporary occupation of land. The effects would generally be temporary and of limited duration. Additional permanent change would normally be unlikely unless associated with restoration.

3.3 EIA Scoping

3.3.1 The results of the EIA process are reported in an EIA Report and Schedule 4(4) of the EIA Regulations specifies that it should describe those:

"…factors…likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape."

3.3.2 Regulation 4(2) of the EIA Regulations requires the interaction between these factors to be considered. In addition, Regulation 4(4) requires EIA Reports to consider:

"…the expected effects deriving from the vulnerability of the development to risks, so far as relevant to the development, of major accidents and disasters."

3.3.3 Establishing which aspects of the environment are likely to be significantly affected by a particular project is captured in the EIA scoping process which aims to identify those aspects of the environment and associated issues that need to be considered when assessing the potential effects resulting from a proposed development. This recognises that there may be some environmental elements for which the project is unlikely to have a significant effect and hence where there is no need for further investigation to be undertaken as part of the EIA.

3.3.4 The proposed scope of the EIA for the Proposed Development with respect to the following environmental topics is set out in **Chapters 6** to **15** of this report and comprise:

- Landscape and Visual Assessment (Chapter 8);
- Historic Environment (Chapter 9);
- Ornithology (Chapter 11);
- Ecology(Chapter 10) ;
- Geology, Hydrology and Hydrogeology (Chapter 12);
- Traffic and Access (Chapter 13);
- Noise (Chapter 6);
- Socio-economics, Tourism and Recreation (Chapter 14);
- Shadow Flicker (Chapter 7); and
- Infrastructure and Other Issues (Chapter 15).

3.3.5 The scope and assessment methodologies proposed in this Scoping Report are based on recognised good practice and guidelines specific to each topic area. Baseline conditions have

been determined through desk-based studies and survey work undertaken to date. The environmental topic chapters identify where significant effects are anticipated as a result of the Proposed Development and take into account:

- The baseline data from surveys undertaken from 2011 to 2017;
- The description of the Proposed Development;
- Relevant guidance on assessment methodologies; and
- Any cumulative effects, which may arise.

3.4 Cumulative Effects

3.4.1 Cumulative effects can arise from the interaction between a proposed development and other developments already built or proposed. In line with standard practice, for the purpose of the EIA, other wind farm developments which are operational, subject to planning approval or subject to a full and validated planning application will be included in the consideration of potential cumulative effects (subject to a cut-off point to allow assessments to be undertaken). It should be noted that not all of the cumulative developments would necessarily have a cumulative effect in respect of any particular environmental topic.

3.5 Mitigation

3.5.1 Some mitigation measures to avoid, reduce or offset the consequences of the Proposed Development would be embedded within its design whilst others may require adherence to particular constraints on construction methodology or mode of operation. The final assessment of significance will take into account the mitigation measures and constraints that have been incorporated into the Proposed Development (i.e. it will be the assessment of residual effects).

3.5.2 It is likely that the following management plans will be submitted as part of the EIA or as a post-consent condition:

- Construction Environmental Management Plan (CEMP);
- Habitat Management Plan (HMP) and Species Protection Plan;
- Peat Management Plan (PMP); and
- Traffic Management Plan (TMP).

3.6 EIA Methodology

3.6.1 The EIA Report will identify the assessment methodologies based on recognised good practice and guidelines specific to each of the relevant environmental topic areas where the Proposed Development could result in significant effects. In general terms, the technical studies undertaken for each topic area and chapter included in the EIA Report to accompany the planning application would include:

- Collection and collation of existing baseline information about the receiving environment and surveys to fill any gaps in knowledge or to update any historic information, together with identification or any relevant trends in, or evolution of, the baseline;
- Consultation with experts and relevant consultees as necessary;

- Consideration of the potential effects of the Proposed Development on the baseline, followed by identification of any additional mitigation measures to seek to avoid or reduce any predicted adverse effects;
- Assessment and evaluation of any residual significant effects after mitigation measures have been implemented; and
- Compilation of the EIA Report chapter.

3.7 Consultation

3.7.1 Consultation is an essential element of the EIA process and will be reported within the EIA Report and supporting documentation as necessary.

3.7.2 The Applicant is committed to promoting dialogue with statutory and non-statutory consultees and the local community, seeking to engage with all those with an interest in the Proposed Development to provide transparency during the process.

4. Planning Policy Context

4.1 Introduction

4.1.1 The EIA will be progressed taking account of applicable legislation, policy and guidance. This chapter of the EIA Report will outline the regulatory framework and energy and planning context applicable to the Proposed Development from a UK and Scottish perspective. A review of the framework of relevant national and local planning policy that relates to the Proposed Development would be undertaken and emerging policy would also be considered in the context of the proposed Local Development Plan. Finally, supplementary guidance would be given consideration.

4.1.2 Policies related to individual disciplines would be examined within the relevant technical chapters of the EIA Report. A separate Planning Statement would be prepared in addition to the EIA Report, which would consider the compatibility of the Proposed Development with planning policy.

4.2 Regulatory Context

4.2.1 The Proposed Development is anticipated to have an installed capacity of around 11.2MW (subject to turbine model selection). As the capacity is less than 50MW, it would be determined under the Town and Country Planning (Scotland) Act 1997. The Planning (Scotland) Act 2019 has received Royal Assent but has yet to be fully implemented.

4.3 Scottish Planning Policy & Guidance

4.3.1 There are legal, policy and advice documents which would be material considerations in the determination of the planning application for the Proposed Development, including those noted in the following sections:

National Planning Framework 3 (NPF3)

4.3.2 NPF3 (June 2014) provides the statutory framework for Scotland's long term spatial development. It sets out the Scottish Government's spatial development priorities over a 20 to 30 year period and what is expected of the planning system and the outcomes it must deliver. NPF3 reaffirmed the Scottish Government's commitment, at the time of publication, to renewable energy targets (30%) of overall energy demand from renewable sources by 2020 and recognises the important role of onshore wind in achieving these targets. The Framework supports the deployment of appropriately located onshore wind energy development. It should be noted that preparation for NPF4 is underway.

Scottish Planning Policy (SPP)

4.3.3 SPP (June 2014) sets out national planning policies that reflect the priorities of the Scottish Ministers for the operation of the planning system and the development and use of land through sustainable economic growth. The SPP recognises that renewable energy generation including onshore wind will contribute to more secure and diverse energy supplies and support sustainable economic growth. The commitment to increase the amount of electricity generated from renewable sources including onshore wind is a vital part of the response to climate change. It should be noted that the Scottish Government is currently undertaking a process to reform the

planning policy and the next version of SPP will be incorporated into the NFP and thus be a statutory requirement.

National Planning Advice, Circulars and Advice Sheets

4.3.4 National planning policy is supported by Planning Circulars, Planning Advice Notes (PANs) and Specific Advice Sheets and Ministerial / Chief Planning Letters to Planning Authorities, which set out detailed advice from the Scottish Government in relation to a number of planning issues. The PANS and Specific Advice Sheets considered relevant to the Proposed Development include:

- Planning and Noise (PAN 1/2011), March 2011;
- Planning and Archaeology (PAN 2/2011), July 2011;
- Community Engagement (PAN 3/2010), August 2010;
- Planning, Environmental Protection and Regulation (PAN 51), October 2006;
- Natural Heritage (PAN 60), January 2000;
- Sustainable Urban Drainage Systems (PAN 61), July 2011;
- Planning for Transport (PAN 75), August 2005;
- Water and Drainage (PAN 79), September 2006;
- Wind Farm Developments on Peat Land, May 2013;
- Specific Advice Sheet: Peatland Survey 2017: Guidance on Developments on Peat Land;
- Specific Advice Sheet (updated 28 May 2014): Onshore Wind Turbines;
- Spatial Planning for Onshore Wind Turbines – Natural Heritage Consideration, June 2015; and
- Chief Planner Letter regarding Energy Targets and Scottish Planning Policy, 2015.

4.4 Local Development Planning Policy

4.4.1 In considering the overall legal framework within which the Proposed Development would be assessed, the terms of the Development Plan is a consideration which should be taken into account in the round with all other relevant considerations and section 25 of the Town and Country Planning (Scotland) Act 1997 is engaged..

The Statutory Development Plan

4.4.2 The applicable Development Plan comprises the East Ayrshire Local Development Plan (adopted February 2017) together with statutory Supplementary Planning Guidance (SPG), including Planning for Wind Energy (adopted December 2017) and Financial Guarantees (adopted April 2017).

4.4.3 Policies against which the Proposed Development will be considered are set out in **Table 4.1** below.

Table 4.1 Development Plan Policies of Potential Relevance

Policy Reference	Policy Title
RE3	Wind Energy proposals over 50 meters in height
OP1	Overarching Policy
RE5	Financial Guarantees
T1	Transportation requirements for new development
T4	Development and Protections of Core Paths and Natural Routes
WM1	Sustainable Waste Management
ENV1	Listed Buildings
ENV2	Scheduled Monuments and Archaeological Resources
ENV4	Gardens and Designed Landscapes
ENV6	Nature Conservation
ENV7	Wild Land and Sensitive Landscape Areas
ENV8	Protection and Enhancing the Landscape
ENV9	Trees, Woodland and Forestry
ENV10	Carbon rich soils
ENV11	Flood Prevention
ENV12	Water, air and light and noise pollution
ENV14	Low and Zero Carbon Buildings

5. Renewable Energy Policy, Carbon Balance and Peat Management

5.1 Introduction

5.1.1 The EIA will be progressed taking account of applicable legislation, policy and guidance in relation to renewable energy. This section of the EIA Report will set out the policy and energy target context for renewable energy projects from a European, UK and Scottish perspective as well as providing the carbon balance assessment.

5.2 Renewable Energy & Climate Change Policy Framework

5.2.1 The following legislation and policy are relevant to the Proposed Development and would be considered in the EIA Report:

- Climate Change (Emissions Reduction Targets) (Scotland) Act 2019;
- The Renewable Energy Directive (2009/28/EC);
- The EU 2030 Climate & Energy Policy Framework;
- Climate Change (Scotland) Act 2009;
- Low Carbon Economic Strategy for Scotland 2010;
- Low Carbon Scotland – Meeting the Emissions Reductions Targets 2013-2027;
- The Scottish Government Renewables Action Plan June 2009 and 2011;
- Electricity Generation Policy Statement 2013;
- 2020 Renewables Routemap June 2011, updated October 2012 and December 2013;
- The Scottish Energy Strategy 2017;
- Onshore Wind Policy Statement 2017; and
- The Climate Change Plan 2018.

5.3 Potential Contribution of the Proposed Development to Government Objectives

5.3.1 The Scottish and UK legislative and policy framework on climate change is shaped by international climate change legislation. These incorporate binding targets in the reduction of greenhouse gas emissions and in the generation of energy from renewable sources.

5.3.2 In 2019, the Scottish Government amended the Climate Change (Scotland) Act 2009 through the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. The 2019 Act seeks to ensure Scotland achieves its ambition to reduce greenhouse gas emissions to a net-zero state by 2045. In order to achieve this ambition, Scotland will need considerably more renewable energy projects. The Proposed Development would make an important contribution to achieving multiple existing

targets regarding the deployment of renewable energy technologies and greenhouse gas emissions reduction in pursuit climate change mitigation.

5.4 Carbon Balance Assessment

5.4.1 A carbon balance assessment would be undertaken using the most up to date version of the Scottish Government Windfarm Carbon Assessment Tool, currently v1.6.0 (November 2019)[2].

5.5 Peat Management

5.5.1 Comprehensive phase 1 and phase 2 peat probing surveys have been carried out which show that, while peat is present on the site, deep peat is located only in isolated pockets which have been largely avoided by the proposed infrastructure. The proposed turbine locations are not in areas of deep peat. Nevertheless a peat management plan and peat slide risk assessment will be carried out to inform the EIA.

[2] https://informatics.sepa.org.uk/CarbonCalculator/index.jsp

6. Noise

6.1 Introduction

6.1.1 The proposed scope of the noise assessment would consist of the operational noise for the Proposed Development, including cumulative noise impacts from proposed, consented and operational wind developments in the area.

6.1.2 This section seeks agreement from the environmental health representative at East Ayrshire Council on the proposed approach to the assessment.

6.2 Baseline Conditions

Data Sources

6.2.1 The data sources most relevant to the assessment of noise from the Proposed Development are those detailed within the 2015 Enoch Hill 1 Wind Farm Environmental Statement (ES), namely the comprehensive background noise monitoring undertaken in 2014.

6.2.2 Review of the Development Site using current Ordnance Survey mapping and Aerial Photography has not identified any new sensitive receptors that would be considered in addition to those considered within the 2015 ES (Brockloch is the closest property to a proposed turbine location (~2.3km away), this being a 2014 monitoring location). Therefore, given that there has been no discernible change to the Development Site or the surrounding area within which the 2014 noise monitoring took place, the noise impact assessment for the Proposed Development will be based on this data and no additional noise monitoring is proposed.

Summary of Baseline Conditions

6.2.3 The site is located in a semi-rural area with the most notable noise source being occasional traffic on the B741.

6.2.4 The closest operational wind farm to the Proposed Development is the 22MW Windy Standard approximately 6km east of the site. This wind farm was not audible during the site visits and computer noise modelling does not indicate that this would currently have a significant contributory effect on the noise environment at assessed sensitive receptors.

6.2.5 As such it has been assumed that the prevailing baseline noise conditions have not changed significantly from those presented within the 2014 ES. The baseline identification used within the 2014 ES followed the latest accepted approach detailed in 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' (IOA, 2013). The baseline data analysis within the 2015 Enoch Hill 1 Wind Farm ES was undertaken in conjunction with wind speeds at 80 metres height, the hub height of the 2015 candidate turbine for Enoch Hill 1. As presented in **Table 2.1**, as the proposed candidate hub heights is up to 91 m; the original baseline wind shear analysis for the site is still considered appropriate. The results of background noise monitoring, and the associated noise limits derived using methodology advocated within the ETSU-R-97 Guidance, would therefore remain applicable for the Proposed Development EIA Report.

6.3 Assessment Methodology / Approach

Construction Noise

6.3.1 In order to undertake construction noise calculations, details of the construction programme, phasing of the works and types and numbers of plant are required. Such data would only become available once the contract(s) to construct the Proposed Development have been finalised. Notwithstanding the above, a worst-case scenario for construction noise assessment, based upon experience of similar projects, will be presented in the EIA Report.

6.3.2 Depending upon the outcome of the Traffic and Transport Assessment, the impact of traffic along the site access route and the interim access track will be assessed on the basis of either the methodology within BS5228:2009 or the Department of Transport publication, Calculation of Road Traffic Noise (1988), where appropriate.

6.3.3 In most cases, construction noise (including construction traffic) is controlled through the implementation of mitigation measures (such as limiting hours during which construction can be undertaken) and undertaking construction works in accordance with good practices as described in BS5228 (such as using well maintained and serviced plant, and the appointment of a Site contact to whom complaints/queries can be directed).

Operational Noise

6.3.4 The traffic for the maintenance and operation of the wind farm would be minimal and it is proposed that this would be scoped out of the assessment.

6.3.5 The proposed operational noise assessment would be undertaken in accordance with 'ETSU-R-97: The Assessment and Rating of Noise from Wind Farms', (ETSU-R-97 Guidance) (1996), and the assessment methodology advocated within the Institute of Acoustics 'A Good Practice Guide to Applications of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' (IoA GPG) (2013).

6.3.6 The ETSU Guidance advises that any noise restrictions placed on a wind farm must balance its environmental impact against the national and global benefits that would arise through the development of renewable energy sources:

6.3.7 "The planning system must therefore seek to control the environmental impacts from a wind farm whilst at the same time recognising the national and global benefits that would arise through the development of renewable energy sources and not be so severe that wind farm development is unduly stifled".

6.3.8 A full ETSU-R-97 assessment to identify suitable noise limits for the Proposed Development would be undertaken. In order to achieve this, an understanding of the change in background noise levels with wind speed at receptors is required. From these data, regression analysis is performed to determine typical background noise levels for each receptor across a range of wind speeds (1m/s-12m/s).

6.3.9 Noise limits are defined separately for day time and night time. During quiet day time periods (18:00 - 23:00 weekdays, 13:00 - 23:00 Saturdays and 07:00 - 23:00 Sundays), noise limits are as follows:

- 5dB above the background noise curve for wind speeds up to 12m/s;
- where background noise levels are below 30-35dB LA90,10min, the lower limit should be fixed at 35-40dB; and
- For properties with a financial interest in the scheme, the lower limit is fixed at 45dB.

- For night-time periods (23:00 - 07:00 every day), noise limits are as follows:
- 5dB above the background noise curve for wind speeds up to 12m/s;
- the lower limit is fixed at 43dB; and
- For properties with a financial interest in the scheme, the lower limit is fixed at 45dB.

6.3.10 It is assumed that same receptors as used for the noise assessment presented in Enoch Hill Wind Farm ES 2015 will be suitable to inform a baseline for the noise assessment. These properties are the closest properties to the proposed Development Site and give a good reflection of the local area and therefore the background noise levels for the local area. The properties are located at:

- LagLaff - north of the site;
- Knockburnie – north west of the site;
- Dalleagles Terrace – north west of the site; and
- Brockloch – north of the site.

6.3.11 Additionally, due to the routing of traffic, an additional receptor, Pencloe Farmhouse will be assessed for construction noise, but not operational noise. Pencloe Farmhouse `is located to the northeast of the site

6.3.12 The majority of noise related guidance and standards (including the ETSU Guidance) are not directly related to the concepts of 'significant' and 'not significant' effects that underpin EIA. However, for the purposes of the assessment, the determination of effect significance for the operational phase of the Proposed Development is based upon compliance with the applicable noise limit i.e. a breach of the noise limits indicates a significant effect, whereas compliance with noise limits indicates an effect which is not significant. As noise levels exceeding the ETSU Guidance noise limits are deemed to be significant, they would require further consideration were this the case; with a view to identifying appropriate mitigation to ensure compliance with the specified limits.

6.3.13 The Institute of Acoustics (IoA) bulletin article (Acoustics Bulletin, volume 34, number 2, March/April 2009) suggests two methods by which to address wind shear within the full assessment, by effectively correlating the measured background noise levels with hub height wind speeds. This means that the noise limits are derived with reference to the wind speeds which determine the noise emissions of the turbines. It is also proposed to adopt the recommendations of the article in respect of wind shear within the assessment.

6.3.14 The noise chapter of the EIA Report will present the assessment of the impact of the operation of the Proposed Development on the four properties noted using the existing baseline noise data; and will take into account shear and issues regarding low frequency noise, tonality and Amplitude modulation. It is intended to carry out noise predictions in accordance with the modelling parameters specified in the article 'Acoustics Bulletin, volume 34, number 2, March/April 2009'.

6.3.15 A cumulative noise assessment will be included within the EIA. This assessment will identify other wind turbine development (operational, consented or subject to an application) in the area that may impact on sensitive receptors together with the Proposed Development. A cut-off date for the assessment will be identified in the EIA Report and a list of wind turbine developments identified for the cumulative assessment.

Decommissioning Noise

6.3.16 It is proposed that decommissioning works would be scoped out of the assessment as these would be largely similar, though anticipated to be quieter, than during the construction phase of the Proposed Development.

6.4 Potential Impacts

Operational Impacts

6.4.1 When operational, wind turbines emit two types of noise – mechanical noise and aerodynamic noise. The main sources of mechanical noise are from internal components housed within the nacelle, such as the gearbox and generator. Mechanical noise from a modern wind turbine is negligible, as the nacelles are insulated to reduce noise emissions and the various mechanical components housed within the nacelle are acoustically isolated to prevent structure-borne noise.

6.4.2 Aerodynamic noise occurs from the movement of the blades passing through the air. At higher wind speeds, aerodynamic noise is usually masked by the increasing sound of wind blowing through trees and around buildings. The level of masking determines the perceived audibility of the wind farm. The proposed impact assessment establishes the relationship between wind turbine noise and the natural masking of noise resulting from features of the surrounding environment and assesses noise levels against established standards.

6.4.3 For the impact assessment, a range of turbine models appropriate for the Proposed Development would be considered. The final selection of turbine would follow a competitive tendering process and thus the actual model of turbine may differ from those upon which the assessment has been based.

6.4.4 Noise modelling would be undertaken using software adopting the IoA GPG advocated methodologies and in the event that exceedances of the associated noise limits are determined for a specified turbine model, mitigation options would be investigated. These may include: adoption of quieter turbines; reducing the power rating, and thus the noise emission of particular turbines in particular wind environments; or design of a noise management plan which varies the operation of the wind turbines dependent on the existing wind direction. As such, it is anticipated that ETSU-R-97 derived noise limits would not be breached, which would be considered to be a 'not significant' effect.

7. Shadow Flicker

7.1.1 Shadow Flicker is a phenomenon that can occur in sunny weather when turbines are operating and the rotating blades cause a flickering effect inside a building where sunlight passes through an opening such as a door or window.

7.1.2 For shadow flicker to occur, the receptor must be directly in line with the wind turbines when the sun is low in the sky and within 10 rotor diameters of a turbine where they are located within 130 degrees either side of north of any turbine. In these circumstances, the moving turbine blade briefly blocks/reduces the intensity of light entering an opening to a room on each rotation, causing a flickering to be perceived. In the open, shadow flicker is generally not perceived as light outdoors is reflected from all directions.

7.1.3 It is stated within the Scottish Government's Onshore Wind Turbines planning advice note (May 2014) that where separation is provided between wind turbines and nearby dwellings (as a general rule, 10 rotor diameters), 'shadow flicker should not be a problem'.

7.1.4 The nearest residential property is located approximately 2.5km to the east of the main part of the Development Site, well beyond the area potentially affected by this phenomenon of 1.41km (10 x 136m rotor diameter plus 50m micrositing allowance). As such shadow flicker is not predicted and an assessment has been scoped out of the EIA.

8. Landscape and Visual

8.1 Introduction

8.1.1 The Landscape and Visual Impact Assessment (LVIA) is one of the key components of the EIA for wind farm development and would include consideration of the following elements:

- Landscape Effects - assessment of effects on areas of landscape character, including key characteristics, elements, landscape qualities and landscape designations;
- Visual Effects - assessment of effects on the views and visual amenity experienced by residents, tourists/visitors, recreational users and road / rail users; and
- Cumulative Effects - assessment of effects in combination with and in addition to other existing, consented and proposed wind farms, referred to as Cumulative Landscape and Visual Impact Assessment (CLVIA).

8.1.2 The LVIA would consider the landscape and visual effects likely to arise from the construction, operation and decommissioning of the Proposed Development.

8.2 Guidance and Reference Material

8.2.1 The LVIA would be undertaken in accordance with best practice guidance including the following:

- *Guidelines for Landscape and Visual Impact Assessment*, Third Edition, Landscape Institute and IEMA (2013);
- *Visual Representation of Windfarms*, Version 2.2, SNH (February 2017);
- *Siting and Designing Windfarms in the Landscape*, Version 3a, SNH (August 2017);
- *Guidance: Assessing the Cumulative Impact of Onshore Wind Energy Developments*, SNH (2012);
- *Visual Assessment of Windfarms: Best Practice*, University of Newcastle for SNH (2002): Commissioned Report F01AA303A;
- *Residential Visual Amenity Assessment: Technical Information Note, Landscape Institute, 15 March 2019; and,*
- *Visual Representation of Development Proposals Technical Guidance Note 06/19, Landscape Institute, September 2019.*

8.3 Baseline Conditions

The Study Area

8.3.1 A 35km 'study area' is considered for the LVIA of the Proposed Development and is illustrated in **Figure 8.1**. The assessment will focus on locations within the study area with theoretical visibility of the Proposed Development and where significant landscape and visual effects are likely to occur. A 'detailed study area' out to 10km would be considered in the assessment due to the limited visibility of the Proposed Development beyond this distance as illustrated in **Figure 8.2** (and hence significant effects are unlikely to occur beyond this).

8.3.2 Landscape Receptors will be assessed as follows:

- Landscape Character within 10km; and
- Landscape Designations within 10km.

8.3.3 At a further distance and within the 35km study area, only those areas of landscape receptors which are designated at a national or international level, and are overlapped by the blade tip Zone of Theoretical Visibility (ZTV) for the Proposed Development, will be included in the assessment.

8.3.4 Visual Receptors will be assessed as follows:

- Settlements within 10km;
- Residential Properties within 2km (a separate Residential Visual Amenity Assessment will be undertaken);
- Transport Routes within 10km;
- Core Paths, Scottish Hill Tracks and Heritage Paths within 10km;
- Scotland's Great Trails and the National Cycle Network within 35km; and
- Recreational and Tourist Destinations within 10km.

8.3.5 A review of the broad wind farm context within a 60km radius has been undertaken, based on the latest SNH mapping of large-scale wind farm development. It is considered that any cumulative effects that would occur would arise as a result of the pattern of development within the 35km study area radius rather than as a result of changes beyond this. A 35km study area is therefore proposed for the cumulative assessment. A plan showing the locations of wind farms within 35km that are operational, under construction, consented or at application stage and where the turbines are greater than 50m to blade tip is shown in **Figure 8.3**. Micro-generation turbines between 25-50m to blade tip have been included only where these are within 10km of the Proposed Development.

Landscape Character

8.3.6 The landscape character of the Development Site is described in the SNH National Landscape Character Assessment (NLCA), 2019 which covers the whole of Scotland and supersedes the 1990s landscape character descriptions and mapping. The SNH website[3] advises that this data "*should be used for new development proposals, plans and strategies, and so on. Where current proposals or projects have analysis based on the 1990s LCT* (Landscape Character Type) *dataset that should still be used. It should be noted which dataset has been used. Where there are topic-specific landscape capacity or sensitivity studies, they would take precedence for informing that development type, e.g. wind farms*." It may be noted that the landscape character of the Development Site and surroundings within 10km are described in the East Ayrshire, and Dumfries and Galloway Wind Farm Landscape Capacity Studies and will therefore take precedence over the SNH NLCA 2019, as follows:

- Anderson, Carol Landscape Associates; East Ayrshire Landscape Wind Capacity Study, Main Study Report (2018); and
- Anderson, Carol Landscape Associates; Dumfries and Galloway Wind Farm Landscape Capacity Studies (2017).

[3] https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/landscape-character-assessment-scotland

8.3.7 In particular, the assessment would consider the likely effects on the host landscape within which the Proposed Development is located (Southern Uplands with Forestry LCT) and other LCTs within 10km. LCTs beyond 10km will be excluded from the assessment.

Landscape Designations

8.3.8 There are no national or international landscape designations within the study area as illustrated in **Figure 8.4**. The Galloway Forest Dark Sky Park, and Gardens and Designed Landscapes (GDL) will be assessed as Recreational and Tourist Receptors.

8.3.9 The following local landscape designations are located within 10km of the Site:

- Sensitive Landscape Character Areas (SLCA) (East Ayrshire), namely:
  - Afton SLCA; and
  - Doon Valley SLCA.
- Galloway Hills Regional Scenic Area (Dumfries and Galloway).

8.3.10 Effects on the above local designations would be considered in the assessment.

Wild Land

8.3.11 No part of the Development Site is located within a Wild Land Area (WLA), the nearest being Merrick WLA approximately 20km to the south-west.

8.3.12 The ZTV (**Figure 8.2**) illustrates that there would be very limited visibility of the Proposed Development from the WLA due to intervening screening (see wireline from the Merrick in **Figure 8.5h**), and it is therefore considered unlikely that any special qualities of these would be affected. The Proposed Development is also visible, at a distance of over 20km, beyond other intervening existing and consented wind farm development, including Benbrack, South Kyle, Windy Standard and Extension and Pencloe. It is therefore proposed that a Wild Land Assessment is scoped out.

Visual Receptors

8.3.13 The baseline of visual receptors (people) would draw upon the ZTV, site visits and viewpoint analysis and would include the following visual receptors:

- Views from settlements within 10km including Burnside, Bankglen, Connel Park, Leggate, New Cumnock, Dalmellington and Burnton;
- Views experienced whilst travelling through the landscape (road users, walkers, horse riders and cyclists, for example); and
- Views from tourist and recreational destinations.

8.3.14 The assessment would consider the visual effects on transport routes including the A713, A76, B741, Afton Road, B7046 and the Glasgow to Carlisle railway line within 10km.

8.3.15 National level recreational routes would include the Sustrans Route 7, Southern Upland Way, Ayrshire Coastal Path, Robert the Bruce Trail, Burns Heritage Trail, Galloway Red Kite Trail, River Ayr Way and Kirkpatrick Macmillan Cycle Trail Long Distance Footpaths within 35km.

8.3.16 Local recreational routes within 10km included within the assessment would be based on the Core Path Network sourced from the EAC and DGC Core Path Plan and known Rights of Way, and other local promoted walks.

8.3.17 Recreational and tourist destinations within 10km of the Development Site would include those features that appear as prominent landmarks or landscape features and locations associated with passive recreation such as walking and where there is a clear relationship between the feature / destination and the landscape. The key attractions within 10km include Knockshinnoch Lagoons local nature reserve, Burn's Memorial, Craigengillan GDL, Galloway Forest Dark Sky Park and Loch Doon. The hill summits of Cairnsmore of Carsphain, Blackcraig Hill and Windy Standard would also be included in the assessment.

8.3.18 A residential visual amenity assessment would be undertaken for individual or groups of residential properties within 2km from the proposed turbines.

Visualisations

8.3.19 Visualisations and figures would be produced to SNH's standards as set out in *'Visual Representation of Wind Farms Guidance: Version 2.2'* (February 2017). These would include 90-degree baseline photographs from each representative viewpoint and accompanying wirelines showing the Proposed Development and all other operational, under construction, consented and application stage cumulative wind farm developments. Wirelines and photomontages at 53.5° would also be included to show the Proposed Development at a larger scale.

Viewpoint Selection

8.3.20 The proposed viewpoints, shown in **Table 8.1** and on **Figure 8.2**, are drawn from the LVIA reported in the consented Enoch Hill Wind Farm 2015 ES and 2017 FEI. The agreement of East Ayrshire Council and SNH is sought on the suggested viewpoints.

8.3.21 Considering the current cumulative baseline illustrated in **Figures 8.2 and 8.3**, nine viewpoints to the north, north-east and immediate south-west of the Proposed Development are proposed, with locations from other directions proposed to be scoped out, as set out in **Table 8.1**. Wirelines have been provided in **Figures 8.5a-h** for the 16 viewpoints requested to be scoped out (indicated in red).

Table 8.1 Proposed Assessment Viewpoints

Viewpoint	Enoch Hill Wind Farm LVIA VP Number (for reference)	Distance	Comments	Included / Scoped Out	Wireline / Photomontage
1. Core Path 667 Water of Deugh	3	4.8km	Included	Included	Photomontage
2. B741 South West of New Cumnock (NEW – B741 Bankglen)	2	5.8km	Included	Included	Photomontage
3. New Cumnock Cemetery	4	6.8km	Included	Included	Photomontage
4. Highpoint north of site (near Auchinross)	5	8.2km	Included	Included	Photomontage
5. Pathhead, New Cumnock	N/A	8.6km	Included	Included	Photomontage
6. Lochside Hotel	7	8.6km	Included	Included	Photomontage

Viewpoint	Enoch Hill Wind Farm LVIA VP Number (for reference)	Distance	Comments	Included / Scoped Out	Wireline / Photomontage
7. Little Garclaugh, Upper Nith Valley	B	10.7km	Included	Included	Photomontage
8. Corsencon Hill	12	12.1km	Included	Included	Baseline Photo and Wireline
9. Drumbrochan Road, Cumnock	A	13.9km	Included	Included	Baseline Photo and Wireline
Viewpoints proposed to be Scoped Out					
A. B741 North East of Dalmellington (Figure 8.5a)	1	5.3km	Outwith the ZTV. There would be No View of the Proposed Development.	Scoped out	N/A
B. Blackcraig Hill (Figure 8.5a)	6	6.2km	Limited visibility of Proposed Development in the same field of view as other wind farm development and being viewed beyond the consented Pencloe wind farm. The effect of the Proposed Development would be Not Significant.	Scoped out	N/A
C. Cairnsmore of Carsphairn (Figure 8.5b)	8	7.9km	Limited visibility of Proposed Development in the same field of view as other wind farm development and being viewed beyond the existing Windy Standard Extension Wind Farm. The effect of the Proposed Development would be Not Significant.	Scoped out	N/A
D. Bogton Loch (Figure 8.5b)	9	11.8km	Outwith the ZTV. There would be No View of the Proposed Development.	Scoped out	N/A
E. Fort Carrick (Figure 8.5c)	10	11.1km	Outwith the ZTV. There would be No View of the Proposed Development.	Scoped out	N/A
F. Auchenroy Hill (Figure 8.5c)	11	13.1km	Limited visibility of Proposed Development in the same field of view as other wind farm development and being viewed beyond the consented South Kyle Wind Farm. The effect of the Proposed Development would be Not Significant.	Scoped out	N/A
G. Loch Doon Shore (Figure 8.5d)	13	13.1km	Outwith the ZTV. There would be No View of the Proposed Development.	Scoped out	N/A
H. A70 Between Cumnock and Prestwick (Figure 8.5d)	14	17.6km	Limited visibility of Proposed Development in the same field of view as other wind farm development and being viewed the application North Kyle Wind Farm. The effect of the Proposed Development would be Not Significant.	Scoped out	N/A

Viewpoint	Enoch Hill Wind Farm LVIA VP Number (for reference)	Distance	Comments	Included / Scoped Out	Wireline / Photomontage
I. A76 North of Auchinleck (Figure 8.5e)	15	18.1km	Limited visibility of Proposed Development in the same field of view as other wind farm development. The effect of the Proposed Development would be Not Significant.	Scoped out	N/A
J. A70 NE of Cumnock (Figure 8.5e)	16	18.9km	There would be No View of the Proposed Development. Whilst the wireline indicates theoretical visibility of the turbines, the quarry mounds in the middle distance (not on the wireline) would completely screen the Proposed Development.	Scoped out	N/A
K. A76 Mauchline (Figure 8.5f)	17	22.1km	Limited visibility of Proposed Development in the same field of view as other wind farm development and being viewed beyond the consented Enoch Hill Wind Farm. The effect of the Proposed Development would be Not Significant.	Scoped out	N/A
L. Shalloch on Minnoch (Figure 8.5f)	18	23.1km	Limited visibility of Proposed Development in the same field of view as other wind farm development and being viewed beyond the consented South Kyle and Benbrack Wind Farms. The effect of the Proposed Development would be Not Significant.	Scoped out	N/A
M. Meikle Millyea (Figure 8.5g)	19	23.7km	Limited visibility of Proposed Development in the same field of view as other wind farm development and being viewed beyond the existing Windy Standard Extension and consented South Kyle and Benbrack Wind Farms. The effect of the Proposed Development would be Not Significant.	Scoped out	N/A
N. Kirriereoch Hill (Figure 8.5g)	20	24.6km	Limited visibility of Proposed Development in the same field of view as other wind farm development and being viewed beyond the consented South Kyle and Benbrack Wind Farms. The effect of the Proposed Development would be Not Significant.	Scoped out	N/A
O. Merrick (Figure 8.5h)	21	25.4km	Limited visibility of Proposed Development in the same field of view as other wind farm development and being viewed beyond the consented South Kyle and Benbrack Wind Farms. The effect of the Proposed Development would be Not Significant.	Scoped out	N/A
P. East Mount Lowther (Figure 8.5h)	22	29.6km	Outwith the ZTV. There would be No View of the Proposed Development.	Scoped out	N/A

8.4 Potential Landscape and Visual Effects

8.4.1 The landscape and visual assessment would assess the potential effects of the Proposed Development on landscape character and visual receptors around the study area. This includes the effects of the access tracks, substation, operations and maintenance building, and other associated infrastructure, as well as the turbines.

8.4.2 The assessment would be carried out using a methodology that accords with '*GLVIA3*' and has been specifically devised by Wood for the landscape and visual assessment of wind farms. The potential effects of the Proposed Development on the landscape and visual resource are grouped into four categories: direct (physical) effects, effects on landscape character, effects on views, and cumulative effects.

Landscape Effects

8.4.3 The Landscape Institute note that "An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern ... is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. ... The area of landscape that should be covered in assessing landscape effects should include the site itself and the full extent of the wider landscape around it which the proposed Development may influence in a significant manner." The landscape effects occurring during the construction, decommissioning and operational phases of the Proposed Development may potentially include the following:

- Changes to landscape elements: the addition of new elements (wind turbines) or the removal of existing elements such as trees, vegetation and buildings and other characteristic elements of the landscape character type;
- Changes to landscape qualities: degradation or erosion of landscape elements and patterns and perceptual characteristics, particularly those that form key characteristic elements of landscape character types or contribute to the landscape value;
- Changes to landscape character: landscape character may be affected through the incremental effect on characteristic elements, landscape patterns and qualities (including perceptual characteristics) and the cumulative addition of new features, the magnitude of which is sufficient to alter the overall landscape character type of a particular area; and
- Cumulative landscape effects: where more than one wind farm may lead to a potential landscape effect.

8.4.4 Development may have a direct (physical) effect on the landscape as well as an indirect effect which would be perceived from the wider landscape, outside the immediate Development Site area and associated landscape character.

Visual Effects

8.4.5 Visual effects are identified for different receptors (people) who will experience the view at their place of residence, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:

- A change to an existing static view, sequential views, or wider visual amenity as a result of development or the loss of particular landscape elements or features already present in the view; and

- The cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.

Cumulative Landscape and Visual Effects

8.4.6 The CLVIA would be conducted in accordance with SNH Guidance and would take account of the cumulative landscape and visual effects likely to result from other existing, consented and proposed (planning application submitted) wind energy developments in addition to the Proposed Development. It will focus on wind energy developments considered to have potential to give rise to significant cumulative effects. This is likely to be those wind farms within 35km of the Proposed Development but will be subject to more detailed consideration. Turbines under 50m to tip beyond 10km from the Proposed Development will not be included.

8.4.7 The current cumulative situation is indicated in **Table 8.2** and illustrated in **Figures 8.2 and 8.3**. We request that East Ayrshire Council will advise on any further developments that they are aware of in the planning system, or otherwise agree this list in its Scoping Opinion.

8.4.8 Wind energy developments which may be at the scoping stages are likely to be excluded from further assessment on the basis that sufficient detail (on location and size of turbines) is seldom available to allow meaningful assessment. GLVIA3 (paragraph 7.14) states that developments at the scoping stage are generally not assessed unless there is a specific reason to include them. It should also be noted that the details of development proposals often change between scoping and the submission of an application.

Table 8.2 Wind Farms within 35km of the Radius of the Site

Reference	Name of wind farm	Number of turbines	Distance from Proposed Development (m)	Height to blade tip (m)	Status* (as of 25 November 2019)
E01	Windy Standard Extension	30	1,430	120	Existing
E02	Afton	27	3,169	100/120	Existing
E03	Windy Standard	36	3,875	52	Existing
E04	High Park Farm	1	6,763	75	Existing
E05	Hare Hill	20	7,046	63.5	Existing
E06	Hare Hill Extension	35	7,570	70/75/81/86/91	Existing
E07	Mansfield Mains *	1	9,637	44.85	Existing
E08	Sanquhar	9	10,332	130	Existing
E09	Whiteside Hill	10	12,506	121.2	Existing
E10	Dersalloch	23	14,895	125	Existing
E11	Wether Hill	14	16,077	91	Existing
E12	Sunnyside	2	19,235	62	Existing
E13	Blackcraig	23	25,181	110	Existing
E14	Bankend Rig	11	27,595	76	Existing

Reference	Name of wind farm	Number of turbines	Distance from Proposed Development (m)	Height to blade tip (m)	Status* (as of 25 November 2019)
E15	Hadyard Hill	52	29,078	100	Existing
E16	Galawhistle	22	29,334	110.2	Existing
E17	Dungavel	14	30,720	100/120	Existing
E18	Hagshaw Hill Extension	20	31,037	80	Existing
E19	Andershaw	14	31,523	125	Existing
E20	Hagshaw Hill	26	31,533	55	Existing
E21	Middle Muir	15	31,840	136/152	Existing
E22	Nutberry	6	32,176	125	Existing
E23	West Dykes	1	33,433	77	Existing
E24	Hazelside Farm (T1)	1	33,451	74	Existing
E25	Low Bowhill	1	33,698	67	Existing
E26	Kype Muir	26	33,968	132	Existing
E27	North Threave Farm	1	34,365	53.7	Existing
E28	Calder Water	13	34,373	144.5	Existing
E29	Whitelee Extension 2	39	34,542	140	Existing
E30	Auchrobert	12	34,713	132	Existing
C01	Pencloe	19	732	149.9	Consented
C02	South Kyle	50	912	149.5	Consented
C03	Enoch Hill	16	1,062	130	Consented
C04	Benbrack	18	5,754	132/135/149.9	Consented
C05	Windy Rig	12	6,546	125	Consented
C06	Over Hill	10	8,188	149.9	Consented
C07	Sandy Knowe	24	10,734	125	Consented
C08	Lorg	9	11,173	130/150	Consented
C09	Lethans	22	13,078	136/152/176	Consented
C10	Polquhairn	9	13,328	100	Consented
C11	Glenmuckloch	8	14,225	133.5	Consented
C12	Knockshinnoch	2	16,408	126.5	Consented
C13	Torrs Hill	2	17,592	100	Consented

Reference	Name of wind farm	Number of turbines	Distance from Proposed Development (m)	Height to blade tip (m)	Status* (as of 25 November 2019)
C14	Glenshimmeroch	10	18,966	149.9	Consented
C15	Twentyshilling Hill	9	19,739	125	Consented
C16	Penbreck	9	20,316	125	Consented
C17	Knockman Hill	5	23,672	81	Consented
C18	Kennoxhead	19	23,971	145	Consented
C19	Linburn Farm	2	25,576	67	Consented
C20	NHS Ailsa Hospital	1	25,727	78	Consented
C21	Bankend Rig Extension	3	27,587	126.5	Consented
C22	Cumberhead	11	30,160	126.5	Consented
C23	Kirk Hill	8	31,402	110	Consented
C24	Stoneyhill Farm	1	31,478	100	Consented
C25	Kype Muir Extension	15	31,734	156/176/200/220	Consented
C26	Mochrum Fell	8	32,859	116.5/126.5	Consented
C27	Dalquhandy	15	33,456	131	Consented
C28	Hazelside Farm (T2)	1	33,506	74	Consented
C29	Chapelton Farm	3	33,587	67	Consented
C30	Penwhapple Reservoir	1	33,839	67	Consented
C31	Douglas West	13	34,115	149.9	Consented
C32	Mount Farm	1	34,148	129.8	Consented
A01	Windy Standard Phase III	20	2,617	125/177.5	Application
A02	Sanquhar II	50	5,029	200 / 149	Application
A03	North Kyle	54	6,572	149.9	Application
A04	Shepherd's Rig	19	10,941	149.9/125	Application
A05	Troston Loch	14	18,888	149.9	Application
A06	North Lowther	35	24,105	150	Application
A07	Glentaggart	5	31,813	132	Application
A08	Douglas West Extension	13	32,485	200	Application
A09	Feoch	1	33,656	67	Application

8.5 Night-time Lighting

8.5.1 As all turbines would be below 150m to blade tip, no aviation lighting will be required, and therefore a night time lighting assessment is scoped out.

8.6 Significance of Effects

8.6.1 The broad objective in assessing the effects of the Proposed Development is to determine what effects on the landscape and visual resource will be significant. The significance of effects will be assessed through a combination of two considerations; (i) the sensitivity of the landscape element, landscape character receptor, view or visual receptor, and (ii) the magnitude of change that would result from the introduction of the Proposed Development:

- **Sensitivity** is an expression of the ability of a landscape element, landscape character receptor, view or visual receptor to accommodate the Proposed Development, and is dependent on baseline characteristics including susceptibility to change, value, quality, importance, the nature of the viewer, and existing character;
- **Magnitude of change** is an expression of the scale of the change on landscape elements, landscape character receptors and visual receptors that would result from the Proposed Development.

8.6.2 The factors that are considered in the sensitivity and magnitude of change considerations are assimilated to assess whether the Proposed Development would have an effect that is significant or not significant. In accordance with GLVIA3 (paragraph 3.23), experienced professional judgement is applied to the assessment of all effects and the rationale supporting each conclusion is presented.

8.6.3 A significant effect occurs where the Proposed Development would provide a defining influence on a landscape element, landscape character receptor or view. A significant cumulative effect occurs where the combined effect of the Proposed Development with other existing and proposed wind farms would result in a landscape character or view being characterised primarily by wind farms.

Nature of Effects

8.6.4 The EIA Regulations state that the EIA Report should include a description of the likely significant effects of the Proposed Development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short and long-term, permanent and reversible, positive and negative effects of the Proposed Development. Guidance provided by the Landscape Institute on the 'Nature of Effect', in the GLVIA3, is limited to a single entry which states that *"One of the more challenging issues is deciding whether the landscape (or visual) effects should be categorised as positive or negative. It is also possible for effects to be neutral in their consequences for the landscape. An informed professional judgement should be made about this and the criteria used in reaching the judgement should be clearly stated."*

8.6.5 In relation to many forms of development, the LVIA would identify 'positive', 'neutral' and 'negative' effects by assessing these under the term 'Nature of Effect'. In respect of landscape and visual effects of wind farms however, there are no definitive criteria by which these can be measured as being categorically 'positive' or 'negative'. In some disciplines, such as noise or ecology, it is possible to quantify the effect of a wind farm in numeric terms, by objectively identifying or quantifying the proportion of a receptor that is affected by a proposed development and assessing the nature of that effect in justifiable terms. However, this is not the case in relation to landscape and visual effects where the approach combines quantitative and qualitative assessment.

9. Historic Environment

9.1 Introduction

9.1.1 The Historic Environment is represented by features, or assets, resulting from past use of the landscape, including buildings, archaeological remains and artefact scatters. Some heritage assets have been designated as Scheduled Monuments, Listed Buildings or Conservation Areas, Historic Gardens and Designed Landscapes and Historic Battlefields. These and non-designated assets are managed in the planning process in accordance with national and local planning policy and guidance.

9.1.2 Baseline data for the Development Site and immediate vicinity was obtained from the PastMap online spatial database; and from HLAMap and Historic Scotland spatial datasets of designated heritage assets for a study area up to 10km from the Development Site. A site walkover has also been undertaken.

Baseline Overview

9.1.3 The Development Site is located within an area of primarily commercial plantation forestry, with a smaller area of upland moorland. The historic landscape can be characterised as having been subject to extensive and far-reaching change in the 20th century with the establishment of Carsphairn Forest and related forestry plantation during the 1970s, and with the more settled rural valley floor landscape around the town of New Cumnock to the north and east of the Development Site, which also includes active surface mines.

9.1.4 There are no Historic Battlefields or World Heritage Sites within 10km of the Development Site. There are 16 listed buildings, three scheduled monuments, one Conservation Area and one designated Garden and Designed Landscape between 5km and 10km of the Development Site. These designated heritage assets reflect occupation of the area from the prehistoric period onwards and represent a wide variety of heritage assets which generally do not have settings which would be considered spatially extensive or from which views to the Development Site are effectively screened by the underlying topography, planting and/or built environment.

Assessment Methodology / Approach

9.1.5 The EIA would include a description of the research undertaken and results obtained, as well as an assessment of the nature and potential significance of the effects of the Proposed Development. Consideration would be given to any necessary mitigation, following consultation with the Applicant and consultees. All work will be completed in accordance with the Institute for Archaeologists Code of Conduct and Standard and Guidance for Archaeological Desk-Based Assessments.

Direct Effects

9.1.6 Direct effects primarily occur during the construction phase and are permanent and irreversible, but restricted to the footprint of the Proposed Development.

9.1.7 Direct effects will arise only from physical disturbance caused by the construction of the Proposed Development. Therefore effects on known heritage assets will be considered only where these are

located within the footprint of the Proposed Development. Direct effects on heritage assets outside the footprint of the Proposed Development will not occur and are scoped out.

9.1.8 Archaeological features, primarily related to agricultural use in the post-medieval and modern period, are present within Development Site boundary, particularly at Peat Hill; some are known only from historic mapping, and may no longer be present in a recognisable form. A site walkover also identified farmstead/enclosure walls at Monquhill which also appear on OS mapping from the 1860s.

9.1.9 There is a potential for previously unrecorded heritage assets to be directly affected by the Proposed Development. Such effects will be considered with reference to a characterisation of the potential presence of such heritage assets developed from historic landscape context, and reference to appropriate cartographic and documentary sources. Measures to avoid known assets, including any identified during the assessment, and to identify and record any assets where disturbance cannot be avoided, will be set out to ensure that adverse direct effects can be effectively mitigated.

9.1.10 Information on known non-designated heritage assets within a study area extending up to 500m from the Development Site will be used to identify the archaeological potential of the Development Site, although relevant contextual information will be taken into account.

9.1.11 All work will be completed in accordance with existing best practice. The following sources of information will be consulted during the assessment:

- Sites and monuments records and other relevant sources held by the West of Scotland Archaeology Service (WoSAS) SMR and Historic Environment Scotland (HES);
- Historic Landuse Assessment (HLA) data;
- Relevant cartographic and documentary sources held by the National Archives of Scotland and National Library of Scotland where this is available for study;
- Relevant published sources and internet sources; and
- Aerial photography held at National Collection of Aerial Photography (NCAP).

9.1.12 Consultation will also be undertaken with Historic Scotland and East Ayrshire Council as appropriate.

Indirect Effects

9.1.13 Indirect effects primarily arise from change to the setting of heritage assets as a result of the Proposed Development (though there is no direct disturbance). These effects principally relate to the operational phase of the Proposed Development and in this case can be considered entirely reversible on the decommissioning of the Proposed Development.

9.1.14 The closest designated heritage assets to the Development Site are located within New Cumnock and these have settings which are defined by their immediate surroundings and to which longer views make a minimal contribution. Other designated heritage assets are located over 5km from the Development Site boundary. At that distance it is generally only the most sensitive and significant heritage assets that have the potential to be significantly affected. Significant effects in these cases are only likely to occur where the proposed turbines intervene in specific views that make a substantial contribution to the significance of an asset.

9.1.15 Craigengillan House (LB A 18793), Craigengillan Stable Block (LB A 18794) and the associated Craigengillan Garden and Designed Landscape (GDL00111) are sensitive heritage assets and will be

considered within the assessment of effects. Two non-designated assets - Beoch Cairn (HER7989) and Fardenreoch Cairn (HER 8018) – have been identified as having sensitive settings and therefore the potential to be affected by the Proposed Development. It is therefore proposed to include these within the assessment of effects.

9.1.16 No further designated or non-designated heritage assets have been identified which have the potential to be affected to the degree that a discernible indirect effect might arise.

10. Ecology

10.1 Introduction

10.1.1 The Ecology chapter of the EIA Report will identify the baseline ecology of the Development Site and the surrounding area and will assess the potential effects on any ecological features that are considered to be important. National and local planning policies, best practice guidance, the outcome of consultation and any mitigation identified will be taken into account in the ecological impact assessment.

10.2 Baseline Conditions

Consultation

10.2.1 A desk study which was undertaken in 2016 will be updated and consultation would be undertaken with Scottish Natural Heritage (SNH) in order to outline the results of the surveys undertaken to inform the EIA.

Statutory and Non-Statutory Designated Sites

10.2.2 The 2016 Desk Study identified the following:

- there are no statutory or non-statutory designated biodiversity sites within 2km of the proposed Development Site boundary;
- The Development Site is situated within the transition zone area of the Galloway and Southern Ayrshire Biosphere Reserve. This UNESCO Biosphere reserve was designated because of the combination of the area's "*unique landscapes and wildlife area and rich cultural heritage*"[4]; and
- The Development Site is not within an area identified as priority woodland for red squirrel.

10.3 Field Studies and Assessment

10.3.1 As summary of the ecological surveys undertaken to date on the main Development Site and the access track are as follows:

Main Development Site

- A National Vegetation Classification (NVC) survey of the main Development Site (not including the access track – see further below on surveys of the access track) was undertaken in September and October 2016. This confirmed that the study area is dominated by coniferous plantation woodland, with small stands of young broadleaved plantation occurring along the coniferous forestry plantation edge in the east. The forestry rides within the woodland are dominated by M20 dry modified bog (*Eriophorum vaginatum* blanket mire), which grades in and out of a number of different habitats including U4 semi-improved acid grassland (*Festuca ovina – Agrostis capillaris – Galium saxatile* grassland), M6 acid flushes (*Carex echinata – Sphagnum recurvum/ auriculatum* mire) and M23 rush-pasture (*Juncus effuses/ acutiflorus-Galium palustre* rush pasture);

[4] http://www.gsabiosphere.org.uk/. Accessed November 2016.

Agricultural land to the north of the coniferous woodland plantation is dominated by M20 dry modified bog (*Eriophorum vaginatum* blanket mire), in mosaic with U2 semi-improved acid grassland (*Deschampsia flexuosa* grassland) and U4 semi-improved acid grassland (*Festuca ovina – Agrostis capillaris – Galium saxatile* grassland), and mosaics supporting M23 rush-pasture (*Juncus effusus/ acutiflorus – Galium palustre* rush-pasture), M6 acid flush (*Carex echinata – Sphagnum recurvum/ auriculatum* mire) and acid grassland.

Small stands of standing water, M15 wet heath (*Trichophorum cespitosum – Erica tetralix* wet heath) and H12 dry heath (*Calluna vulgaris – Vaccinium myrtillus* heath), MG9 semi-improved neutral grassland (*Holcus lanatus - Deschampsia cespitosa* grassland), bare peat and scattered trees and scrub also occur within the study area;

- An Otter and water vole survey was undertaken in September 2016: Otter activity was confirmed on site by the presence of spraints and a potential holt was also recorded. No signs of water vole such as feeding remains, latrine sites, tunnel entrances or runs were recorded during surveys and the suitability for this species was generally very low. Whilst a number of suitable food plants are present adjacent to the narrow watercourses, banks are typically low and unsuitable for burrowing, with little, if any, in-channel vegetation;
- A badger survey undertaken in September 2016: A single badger print was recorded within the survey area, confirming that the Development Site is within the home range of at least one individual or group of badgers; although no setts or activity typically attributed to an actively defended territory were recorded;
- Bat surveys were undertaken in 2016/2017: A small occasional/day roost for three widespread bat species (soprano pipistrelle, common pipistrelle and *Myotis* species [thought to be Daubenton's bat]), was recorded at Monquhill Farmhouse (note there is no requirement to demolish this building under the Proposed Development). Bats were recorded in very low numbers during manual transect surveys and static detector surveys, with activity dominated by common and soprano pipistrelle bat, with *Nyctalus* species (Leisler's bat was the only *Nyctalus* species confirmed to be present) and *Myotis* species (including Daubenton's bat) recorded in very low numbers;
- Great Crested Newt (GCN) surveys were undertaken in 2016: The two ponds located within the protected species survey area were assessed for their suitability to support breeding GCN using Habitat Suitability Index (HSI) assessment[5] and their potential presence was assessed using eDNA analysis[6]. One of the ponds returned a positive result for GCN following eDNA analysis and it was subject to surveys in accordance with recommendations in the great crested newt mitigation guidelines[7] and the Herpetofauna Workers manual[8]. Following the completion of six survey visits using four different methods for searching for GCN it was concluded that no GCN were present within the pond. The positive results from the eDNA analysis were attributed to the high sensitivity of the test and it is known that these tests can detect GCN DNA brought in from wildfowl or from historic GCN presence. Due to the negative results of the GCN surveys, GCN were considered to be absent from the study area and were discounted from further assessment.

[5] Based on Oldham RS, Keeble J., Swan M.J.S. and Jeffcote, M. (2000). Evaluating the suitability of habitat for the great crested newt *(Triturus cristatus).* Herpetological Journal. 10: 143-155.
[6] eDNA analysis is a method for species monitoring in water bodies, approved by SNH for the determination of GCN presence/absence. eDNA analysis provides a GCN presence/absence result from a water sample which is collected following a species protocol. Full details of the eDNA sampling methodology followed during these surveys can be found on the ADAS website http://www.adas.uk/Service/edna-analysis-for-great-crested-newt.
[7] English Nature (2001) Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.
[8] Gent, T. & Gibson, S. (2003). Herpetofauna Workers' Manual, JNCC, Peterborough.

Access Track

- A Phase 1 habitat survey of access track was undertaken in August 2017: The habitats present within the study area are dominated by open grassland with broad-leaved and scattered trees at lower elevations around Pencloe Farm; and coniferous plantation woodland managed commercially, with small areas of flush, bog and heathland located mainly within forestry rides;
- Protected species surveys were also undertaken in August 2017: Signs of otter were found on the Afton Water which flows through the study area to the east of the proposed access track; and red squirrel was sighted within the forestry. No other protected species or signs of protected species were found, although trees and farm buildings around Afton Glen and Pencloe Farm were considered to be suitable for roosting bats, and some dry-stone walls which could potentially act as refugia for reptiles such as common lizard or adder were recorded.

10.3.2 The NVC survey results remain valid and are fit for purpose to inform the EIA Report as on-site habitats and land management remain unchanged in the intervening period since 2016. In addition, the Development Site has been assessed to be of low value for bats given the very low levels of activity recorded and given that habitats remain unchanged, the results from the 2016 surveys are likely to be an accurate reflection of current bat usage of the Development Site. As such, no further bat or NVC surveys are proposed.

Additional Surveys

10.3.3 Given the time elapsed since the collection of baseline data within the main Development Site and access road, it is proposed that the following surveys will be undertaken to update the ecological baseline:

- A 'verification' walkover survey of the access track will be carried out to assess the validity of the previous baseline survey from 2017. Similarly, an Extended Phase 1 Habitat Survey of the main Development Site will be carried out and this would include a search for badger activity and habitat suitability appraisal for other terrestrial mammals, including pine marten and red squirrel;
- An otter survey will be undertaken along all streams/watercourses based on a survey radius of 250m around all proposed wind turbines and associated infrastructure (including site compounds, laydown areas, borrow pit search areas and substations) where accessible. While the suitability of the Development Site for water vole was concluded to be generally very low, evidence of the presence of this survey will also be searched for during this survey.

10.4 Impact Assessment and Reporting

10.4.1 The ecological impact assessment will take into account the recognised Chartered Institute of Ecology and Environmental Management guidelines (CIEEM, 2018)[9]. It will focus on assessing the potential impact of the Proposed Development on any relevant designated sites and any species/habitats of high nature conservation value. Where necessary, mitigation and enhancement measures will be considered, without which potentially significant ecological effects could include:

- Loss or damage of valued habitats associated with on-site access tracks, borrow pits, wind turbine foundations, the construction compound and other associated infrastructure;

[9] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

- Habitat damage in areas surrounding construction locations through changes in the hydrological regime and pollution with airborne particulates, silt or chemical contaminants (including potential effects on Groundwater Dependent Terrestrial Ecosystems [GWDTEs]);
- Effects on areas of deep peat resulting in potential peat slide risk; and
- The disturbance and/or damage to watercourses and potential injury, death or disturbance of their associated fauna (e.g. otter) through the construction of infrastructure within close proximity to the bank sides or at watercourse crossings.

10.4.1 An Ecology chapter would be produced that will summarise the findings of the desk study and surveys. This would form the baseline against which the potential impact of the Proposed Development, alone and cumulatively with other wind farm developments, would be assessed, based on both the importance of ecological receptors and the nature and magnitude of the impact from the Proposed Development. Any mitigation considered necessary will be identified and residual effects with this in place will be determined.

11. Ornithology

11.1 Introduction

11.1.1 The Ornithology chapter of the EIA Report will set out the desk study and survey work undertaken to define the baseline of the Development Site and the surrounding area. The results of this work will be summarised (with details presented in baseline reports appended to the EIA Report) and will provide the basis for the determination of potential effects on any ornithological features that are considered to be important. National and local planning policies, best practice guidance, the outcome of consultation and any mitigation identified will be taken into account in the ornithological impact assessment.

11.2 Baseline Conditions

Consultation

11.2.1 Consultation would be undertaken with Scottish Natural Heritage (SNH) in order to outline the scope and results of the surveys undertaken to inform the ornithological impact assessment, and Data searches have been undertaken with the RSPB and local Raptor Study Group (RSG).

Desk Study

11.2.2 A desk study was undertaken in 2016, to identify statutory ornithological sites within 20km of the Development Site, as well as to undertake data searches for notable or protected species such as Schedule 1 species nest site locations and black grouse lek sites. The desk-based exercise identified the following:

- The Muirkirk and North Lowther Special Protection Area (SPA) (and Site of Special Scientific Interest (SSSI)) lies within 10km of the Site. The SPA is designated for breeding and overwintering hen harrier, as well as breeding golden plover short-eared owl, merlin and peregrine;
- The SSSI is notified for breeding and overwintering hen harrier, breeding short-eared owl and its breeding bird assemblage;
- Although not designated for its bird interest, Loch Doon SSSI is located c.9.5 km southwest of the Site, and is known to be used by whooper swans in winter;
- Data searches undertaken with the RSPB and local RSG confirmed that black grouse were present in the surrounding area and that there were no known nests of any Schedule 1 raptor/owl species within the search area.

11.2.3 An updated data search with the RSPB was undertaken in winter 2017 and available bird data from Environmental Statements for those wind farm developments located in proximity to the Development Site was also reviewed. The key findings were as follows:

- There was a single record of a Schedule 1 species breeding within 2km of the Development Site within the previous five years (merlin). There were no black grouse records within the 2km search area during the same time period, although a lek of between one and three males was noted within 5km of the Development Site.

11.2.4 The desk study will be updated so that it accurately reflects local baseline information pertaining to ornithological receptors making it suitable to support a 2020 planning application submission.

Field Studies and Assessment

11.2.5 Ornithological surveys undertaken to date on the main part of the Development Site and the wider access track are provided herein along with a brief summary of the results.

Main Site

11.2.6 Bird surveys during both the breeding and non-breeding season were undertaken by MacArthur Green Ltd at the Site between 2010 and 2012; with further survey work undertaken by Wood in the 2016, 2017 and 2018 breeding seasons and in the 2016/17 and 2017/18 non-breeding seasons:

- Vantage point watches were undertaken , with low levels of flight activity by 'target species' consisting of greylag goose, black grouse, hen harrier, goshawk, golden plover, merlin and peregrine;
- Breeding raptor surveys were undertaken in 2011, 2012, 2016 and 2018; and there was evidence of a single target species nesting within the survey area (two pairs of goshawk in 2018);
- Breeding wader surveys were carried out in 2011, 2017 and 2018; with 1-2 territories of oystercatcher, a single curlew territory and one snipe territory recorded in 2011. No waders were recorded breeding within 500m of the Development Site in 2017 or 2018;
- No lekking black grouse were recorded during species-specific surveys carried out in 2011, 2012, 2016, 2017 and 2018, although there were three males recorded within the survey area in 2016 and two incidental records from 2011;
- Woodland point counts were undertaken in 2011, with Schedule 1 listed crossbill the only notable species recorded;
- There was no nightjar recorded during species-specific surveys in 2017;
- Winter transect surveys, carried out in 2010/11 and 2011/12 recorded no target species, with crossbill the only notable species recorded.

Access Track

11.2.7 An initial access track appraisal was undertaken by MacArthur Green Ltd in August 2015; with further survey work undertaken by Wood during the 2017 and 2018 breeding seasons.

- No target species were recorded during the initial appraisal visit in 2015;
- No black grouse were recorded during the surveys of the access track in 2017 or 2018 and no leks were identified within 500m;
- No nests of any Annex I / Schedule 1 listed raptors / owls were recorded within 500m of the access track in either 2017 or 2018;
- Moorland bird surveys (MBS) identified two curlew and two snipe territories in 2017 and a single curlew territory in 2018 within 500m of the access track.

11.3 Impact Assessment and Reporting

11.3.1 The ornithological impact assessment will take into account the recognised Chartered Institute of Ecology and Environmental Management guidelines (CIEEM, 2018)[10]. It will focus on assessing the potential impact of the Proposed Development on any relevant designated sites and any birds of high nature conservation value. Where necessary, mitigation and enhancement measures will be considered without which potentially significant effects could include:

- Direct habitat loss due to land take by wind turbine bases, tracks and ancillary structures;
- Disturbance and displacement of birds from the proximity of the wind turbines. Such disturbance may occur as a consequence of construction work, or due to the presence of the operational turbines close to nest sites or feeding areas or on habitual flight routes; and
- The effects of collision with rotating turbine blades (i.e. killing or injury of birds), which is of particular relevance for sites located in areas with high raptor activity or which support large concentrations of waterfowl.

11.3.2 With regards to the first issue, total land take by wind farm infrastructure generally represents a small proportion of a site. Therefore, the permanent loss of nesting and foraging habitat for birds tends to be small and will generally have little effect on bird populations. At most wind farm sites, it is the latter two issues, collision risk and displacement, which may potentially be more significant and these will be the focus of the assessment.

11.3.3 An Ornithology Chapter of the EIA Report would be produced that would summarise the findings of the desk study and the surveys which have been undertaken. These would form the baseline against which the potential impact of the Proposed Development, alone and cumulatively with other wind farm developments, would be assessed, based on both species importance and the nature and magnitude of the impact as a result of the Proposed Development. Any mitigation considered necessary will be identified and residual effects with this in place will be determined.

[10] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

12. Geology, Hydrology and Hydrogeology

12.1 Introduction

12.1.1 Impacts on hydrology and hydrogeology can occur during wind farm construction, operation and decommissioning. However, on initial inspection, the limited number of turbines proposed, the proposed use of existing access tracks and the distance of the wind farm infrastructure to the water receptors suggest that effects on the water environment from the Proposed Development would be minimal. However a full assessment will be undertaken, and suitable mitigation will be needed to protect any sensitive hydrological receptors.

12.1.2 Applicable policy, guidance and strategies will be taken into account in the assessment. The Geology, Hydrology and Hydrogeology chapter of the EIA Report will then summarise the baseline water environment in the study area, and assess the impact on identified water features, primarily during construction and, to a lesser degree, decommissioning (since impacts during this phase tend to be of a lesser magnitude where below ground infrastructure typically remains in situ).

12.1.3 A preliminary assessment indicates that the main potential receptors of construction related impacts are the on-site watercourses that drain the Development Site to the north and north east and flow into the Afton Water. There are also a number of groundwater-dependent terrestrial ecosystems (GWDTEs) at the head of these tributaries.

12.2 Baseline Overview

12.2.1 The Development Site is located within an area of upland commercial forestry plantation. The ground elevation rises from 190m at the main site access within the Glen Afton valley up to Strandlud Hill (531m) in the south west of the Development Site.

12.2.2 The bedrock geology of the Development Site mainly comprises sandstone/siltstone turbidite rocks of the Kirkcolm Formation of the Leadhills Supergroup. These rocks are of Ordovician age and underlie most of the Development Site. To the north of the Development Site are wacke sandstones, siltstones and sporadic conglomerates of the Marchburn Formation. The boundary between the two formations is thrusted towards the south east and coincidental with the Carcow Burn. In addition, the rocks of the Development Site are truncated by north west to south east trending structural faults.

12.2.3 The lower slopes of the hills within the Development Site comprise Devensian diamicton till superficial deposits, whilst the base of the steep valley bottoms of tributaries are overlain by alluvium (silt, sand and gravel). In areas of higher ground the superficial deposits are thin / absent or covered in peat, such as on the peaks of Strandlud Hill, Auchincally Hill and Meikle Hill. Soils in these areas are dominated by peat, peaty and mineral gleys, and are associated with a high to moderate soil runoff risk.

12.2.4 The Ordovician bedrock beneath the Development Site is classed as a Class C, low productive aquifer where flow is virtually all through fractures and other discontinuities. As a result, the bedrock can locally yield only small amounts of groundwater with short and localised flow paths. Borehole yields are typically low, with an overall mean of 0.6 l/s. Therefore, these rocks have limited groundwater in a near-surface weathered zone and secondary fractures. Superficial deposits also comprise a low productivity aquifer. The East Ayrshire and Upper Nithsdale Water Framework Directive (WFD) groundwater bodies are classified as having a Poor overall status due to legacy mining and quarrying.

12.2.5 The Development Site is drained by numerous watercourses that flow into the River Nith approximately 6 km to the north, albeit via an extensively modified drainage, or north east into the Afton Water. The tributaries comprise the following (from west to east of the Development Site): the Small Burn flowing into the Connel Burn; Glenhassel Burn flowing into the Carcow Burn; Auchincally Burn and the Glenshalloch Burn. The Afton Water (ID10614) is in the River Nith catchment of the Solway Tweed river basin district and is classified by SEPA as of Good overall status (Good long term ecological potential). This watercourse flows from the Afton Reservoir approximately 3 km to the south east of the Development Site.

12.2.6 Tributaries on the upper reaches of the watercourses within the Development Site could feed habitats that are otherwise regarded as GWDTEs. The NVC survey undertaken on the Development Site in 2017 indicated the presence of species that have some groundwater dependency. However, assessment of the GWDTEs based on their topography, geology and hydrogeology has indicated that there are no truly groundwater-dependent habitats present. In the most part, the presence of peat and / or till and low permeability bedrock ensures that any groundwater levels are local and perched. Therefore, wider-scale groundwater supply to the habitats identified is limited, with the majority of the supply coming instead from surface or very near-surface infiltration and surface runoff.

12.2.7 Within the Development Site there is a high to moderate risk from surface water (pluvial) flooding, along the areas of the tributaries in the area and no permanent infrastructure is proposed to be located in these areas.

12.2.8 No registered private water supplies (PWSs) lie within 1 km of the Development Site boundary except for a type B supply at Lochbrowan. This supply is located approximately 300 m to the east of the Development Site's access area on the Glen Afton public road. The supply is on the eastern side of the Afton Water and is likely to take its water from a tributary flowing from the higher ground to the east and has therefore been scoped out of assessment.

12.3 Scope of Assessment

12.3.1 The scope of assessment will involve assessing existing data to determine the value of the surface water and groundwater environment. The potential significant impacts on the identified hydrological and hydrogeological receptors from the Proposed Development will then be considered and assessed. Impacts on the underlying geology are not considered to be a key issue but will be covered and further informed by future site investigation work prior to construction.

12.3.2 The main potential hydrological/hydrogeological impacts associated with the Proposed Development relate to the construction phase, in particular from tracks and watercourse crossings. The assessment will identify the location and the nature of the impact from these construction and upgrading activities, in particular the potential for the generation of silt-laden runoff. It will then prescribe measures to be adopted during construction to mitigate against negative impacts on the water environment.

12.3.3 Other activities of relevance include the construction of wind turbine foundations and crane pads, the control building and potential substation. The impacts from these activities, such as the leaching of concrete residues to the water environment and changes in the runoff/recharge characteristics, will also be addressed in the assessment. Again, mitigation measures will be outlined that would reduce negative impacts.

12.3.4 The possibility for borrow pits will be explored and should the Development Site be suitable, the impacts these would have on the water environment will also be assessed. Appropriate mitigation measures would be prescribed to reduce any negative impacts on the water environment from borrow pits.

12.3.5 Once the Proposed Development is operational, impacts on hydrology/hydrogeology would be limited and addressed through appropriate site design. Occasional maintenance works may be undertaken and a potential impact from this could be from chemical spillages during maintenance operations or from on-site storage. However, similar potential impacts would already have been assessed and mitigated during the construction phase, and it is therefore proposed that consideration of operational effects is 'scoped out' of the EIA.

12.3.6 Impacts during decommissioning are likely to be similar to those during the construction phase, but would depend on the exact nature of the decommissioning activities that take place. However, it is likely that the ground disturbance would be less. The most likely impacts would be from spillages and leaks associated with plant and machinery. Mitigation similar to that implemented during the construction phase (updated to reflect changes in legislation/guidance) would help ensure that the significance of such impacts is minimised and it is therefore proposed that consideration of decommissioning effects is 'scoped out' of the EIA.

12.4 Assessment Methodology / Approach and Reporting

12.4.1 The geology, hydrology and hydrogeology of the Proposed Development will be assessed through a desk-based study to understand the baseline environment and to subsequently determine, in detail, the presence of important receptors. Consultations with SEPA, the Local Planning Authority, and water supply undertakers will be undertaken to obtain more local detailed information.

12.4.2 Guidance on the protection of the water environment will be used to assist with the development of mitigation e.g. SEPA, CIRIA. The assessment will be based on the implementation of mitigation measures identified, which will be fed into the construction environmental management plan (CEMP), method statements and procedures for the Proposed Development. In particular, these will cover the control of drainage runoff from excavations and access tracks, the placement of watercourse crossings, and the formation of turbine footings. These measures will reflect current best practice in the industry and will serve to prevent increases in sediment-loading, pollution and flood risk.

12.4.3 The EIA Report chapter would summarise the findings of the desk study and consultation, this forming the baseline against which the potential impact of the Proposed Development, alone and cumulatively with other wind farm developments, would be assessed. The assessment would be based on both receptor importance and the nature and magnitude of the impact as a result of the Proposed Development and all mitigation considered necessary will be identified and residual effects with this in place will be determined. It is intended that no residual significant effects will remain following adoption of the proposed mitigation; and whether this is achievable will be investigated within the EIA Report.

13. Traffic and Transport

13.1 Introduction

13.1.1 With reference to applicable policies, guidance and strategies, the Traffic and Transport chapter of the EIA Report will assess the impact of the various different stages of the Proposed Development on the existing road network in the area.

13.1.2 The baseline study area for the EIA will include all transport routes associated with the Proposed Development and will consider the impact of, construction works, site operations and decommissioning of the Proposed Development on the transport routes.

13.2 Baseline Overview

13.2.1 It is anticipated that the Abnormal Indivisible Loads (AIL) [transporting turbine equipment] will travel by road from the Port of Ayr, which is the closest port in the region capable of handling wind turbine equipment. The Port of Ayr has been frequently used for the delivery of wind turbine components in this region, for example being the selected port of entry for Afton Wind Farm and the recently consented Enoch Hill and Pencloe Wind Farms, both of which are situated near to the Proposed Development.

13.2.2 The proposed access from the Port of Ayr to the Proposed Development access is as follows:

- Exit Griffen Dock in Port of Ayr;
- East on Waggon Road;
- South on A79 Allison Street;
- East on A719;
- Northeast on the A77;
- Southeast on A76;
- Southwest on B741 Mossmark;
- South on Afton Road; and
- Proposed site access off Afton Road, approximately 3.5 km south of the B741 Mossmark / Afton Road priority junction.

13.2.3 The access route has already been audited for the delivery of 65.5m blades as part of the consented Lorg Wind Farm and this is achievable.

13.2.4 The sections of the road network included within the assessment will be determined on the basis of the potential effect of increased traffic associated with the Proposed Development on identified sensitive receptors.

13.3 Proposed Scope of the Assessment

13.3.1 The majority of traffic will be generated during the construction stage, with relatively little traffic generation anticipated during operation. On the assumption that below ground infrastructure and access tracks will remain in situ, less traffic will be generated during decommissioning than during

construction Even if tracks were to be removed, less traffic would be generated during this phase than during operation.

13.3.2 Once the Proposed Development is operational, it is envisaged that the amount of traffic associated with the scheme would be minimal. Occasional visits may be made to the site for maintenance checks. The vehicles used for these visits are likely to be a Land Rover or similar and there may an occasional need for an HGV to access the site for maintenance and repairs. It is considered that the effects of operational traffic would be negligible and therefore it is proposed that the assessment of the operational phase of the development is 'scoped out' of the EIA.

13.3.3 The traffic baseline may be different to the current baseline traffic conditions when decommissioning is undertaken after the 30 year operational phase. However, the effects on the road network are likely to be similar in nature though of lower magnitude than that relating to the construction phase as less vehicle movements would be required. As a result, it is not proposed to assess the decommissioning phase of the Proposed Development in relation to traffic and transport.

13.3.4 On this basis, it is proposed that the assessment considers the construction phase only, with operation and decommissioning phase effects being 'scoped out'.

13.3.5 The main transportation impacts will be associated with the movements of commercial heavy goods vehicles (HGVs) travelling to and from the site during the construction phase of the Proposed Development and this will be considered in the EIA Report.

13.3.6 The traffic impact study area is likely to be defined as comprising the following sections of the road network:

- A76;
- A77;
- A719;
- B741; and
- Afton Road.

13.3.7 These highways provide comprehensive coverage of the routes surrounding the Development Site. Beyond these roads, traffic from the Proposed Development would access the wider road network where its effect would be diluted by existing traffic on these routes or would distribute to a point where the effects from traffic would be minimal.

13.3.8 Receptors along the highways identified above have been identified as forming the scope of the assessment in relation to potentially traffic-related effects. Receptors are the users or beneficiaries of highway network assets and facilities such as pedestrians, cyclists, equestrians and drivers who travel within the vicinity of the Proposed Development.

13.3.9 The assessment will be based on *Guidelines for the Environmental Assessment of Road Traffic* (GEART) (IEA, 1993) which identifies the following groups and special interest groups that may be affected:

- People at home;
- People at work;
- Sensitive groups including children, elderly and disabled;
- Sensitive locations such as hospitals, churches, schools and historical buildings;

- Pedestrians;
- Cyclists;
- Open spaces, recreational areas and shopping areas;
- Sites of ecological and nature conservation value; and
- Sites of tourist/visitor attractions.

13.3.10 The effects of the Proposed Development that have the potential to be significant with regards to traffic and transport, and those which will be subject to further assessment are set out below.

- Severance: the separation of people from places and other people and places or impede pedestrian access to essential facilities;
- Driver delay: traffic delays to non-development traffic;
- Pedestrian amenity: the effect on the relative pleasantness of a pedestrian journey as a result of changes in traffic flow, traffic composition and pavement width / separation from traffic;
- Pedestrian delay: the ability of people to cross roads as a result of changes in traffic volume, composition and speed, the level of pedestrian activity, visibility and general physical conditions of the Proposed Development;
- Fear and intimidation: these may be experienced by people as a result of an increase in traffic volume and its proximity or the lack of protection caused by such factors as narrow pavement widths; and
- Accidents and safety: the risk of accidents occurring where the Proposed Development is expected to produce a change in the character of traffic.

13.4 Assessment Methodology / Approach

13.4.1 The guidance that is followed when assessing the potential significance of road traffic effects is summarised in GEART, which states that:

"*The detailed assessment of impacts is…likely to concentrate on the period during which the absolute level of an impact is at its peak, as well as the hour at which the greatest level of change is likely to occur.*" (Paragraph 3.10).

13.4.2 To assess the impact at its peak, the likely percentage increase in traffic is determined by comparing estimates of traffic generated by the Proposed Development with future predicted baseline traffic flows on the road links in the vicinity of the Development Site.

13.4.3 The EIA Regulations do not define significance and it will be necessary to state how this will be defined for the EIA. The significance of an effect resulting from a development during construction or operation is most commonly assessed by reference to the sensitivity (or value) of a receptor and the magnitude of the effect. This approach provides a mechanism for identifying areas where mitigation measures may be required and to identify the most appropriate measures to alleviate the risk presented by the development.

13.4.4 GEART provides two rules that are used to establish whether an environmental assessment of traffic effects should be carried out on receptors:

- Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and

- Rule 2: Include sensitive areas where traffic flows are predicted to increase by 10% or more.

13.4.5 The assessment will identify the number of HGV movements required for the construction of the Proposed Development. It should be noted that, according to GEART, predicted traffic flow increases below 10% are generally not considered to be significant as daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flows below this level are, therefore, assumed not to result in significant environmental effects and would not be assessed in the EIA.

13.4.6 Other construction impacts relate to the delivery of the turbine components. These components, by their nature are large and require abnormal load delivery. The assessment will identify the number of abnormal loads required for the Proposed Development.

13.4.7 The assessment will include the identification of the baseline data through relevant survey information for all the roads associated with the different elements of the Proposed Development. The assessment will identify the:

- Existing traffic flows;
- Potential impacts (of changes in traffic flows) on local roads;
- Potential impacts (of changes in traffic flows) on users of those roads; and
- Potential impacts (of changes in traffic flows) on land uses and environmental resources and sensitive receptors fronting those roads, including the relevant occupiers and users.

13.4.8 The sensitivity of each highway link included in the assessment will be assigned a sensitivity in accordance with GEART. This is based on the proximity of sensitive receptors to the highway link and the highway environment. Sensitivity judged as High or Medium results in Rule 2 (sensitive areas where traffic flows are predicted to increase by 10% or more) being considered. Sensitivity judged as Low or Negligible results in Rule 1 being considered (where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%)).

13.4.9 The classification of a likely traffic and transport effect will then be derived by considering the sensitivity of the receptor against the magnitude of change, with the details of the assessment presented in the EIA Report.

13.4.10 Consideration would be given as to whether any of the receptors which would be taken forward for assessment are likely to be subject to cumulative effects because of the Traffic and Transport effects generated by other proposed developments, and if this is likely to be the case a cumulative assessment would be undertaken.

14. Socio-economics

14.1 Introduction

14.1.1 Wind farms have the potential to have both beneficial and negative effects on socio-economics, tourism and recreation. Scottish Planning Policy in regards to wind farm development sets out a number of assessment criteria. These include consideration of effects on the local and national economy and tourism and recreation interests, in addition to benefits and disbenefits for communities. Relevant development plan policies will be taken into account.

14.2 Proposed Scope of Assessment

14.2.1 In order to assess the potential socio-economic effects of development, it is necessary to gain a view as to the current position of the local economy. The character of the local economy will therefore be examined as part of the EIA to provide an overview of potential linkages with the Proposed Development. Tourist and recreational attractions along with any core paths or public rights of way (PRoW) within or surrounding the Development Site identified within the LVIA will form part of the assessment (while direct effects on existing public access will be considered within the assessment, amenity effects for those using access routes will be considered within the LVIA). Ways in which benefits such as improved public and recreational access to the Development Site could be delivered will be examined.

14.2.2 The assessment will also examine the level of construction activity and job creation and the potential linkages with the wider local economy. This will include an assessment of potential multiplier effects within the local economy and the degree to which local businesses could benefit from the construction, operation and decommissioning of the Proposed Development. Potential community effects will also be examined and, whilst it is considered unlikely to be significant, the assessment will also qualitatively consider the potential for the Proposed Development to have an effect on other existing business activity.

14.2.3 Public Safety will be considered with respect to potential accidents or injuries from a wind turbine, through proximity to the proposed installation.

14.3 Assessment Methodology/Approach

14.3.1 There is no standard approach to this element within an EIA, however the general approach will be to outline the areas of the development where there will be the potential for some economic/social effect within the wider area (including tourism, etc.). This will be undertaken with a view to examining the significance of these effects. Where possible (i.e. with quantifiable effects), the significance will be assessed by way of comparison of the factor (e.g. construction jobs) with the variance of related factors within the local economy. Where effects cannot be quantified, the assessment of significance will be undertaken using professional judgement and experience.

15. Infrastructure and Other Issues

15.1 Introduction

15.1.1 Specific Advice Sheet Onshore Wind Turbines (Scottish Government, May 2014) identifies that wind turbines might impact on infrastructure, telecommunications, utilities and air safeguarding issues. Effects may, for example, include disruption of microwave rebroadcast links or local radio communication systems. The quality of television reception may also be affected, though to a lesser extent than prior to the switchover to digital transmissions, and viewers may suffer reduction of picture quality and acoustic interference.

15.2 Existing Infrastructure, Telecommunications and Broadcast Services

15.2.1 A range of investigations would be undertaken to establish the presence of existing infrastructure associated with utilities such as water, gas, electricity and telecommunications links to establish either the absence of effects or to identify appropriate mitigation to overcome any effects. These matters would be addressed through consultation with the relevant system operators.

15.3 Aviation

15.3.1 Consultations will be undertaken with aviation stakeholders to identify if the Proposed Development is likely to cause any problems in relation to their operations. If any problems are identified, negotiations would be undertaken to seek and agree appropriate mitigation.

15.4 Population and Human Health

15.4.1 The potential effects on population and human health arising from the Proposed Development would be considered in the context of the other factors identified in Schedule 4(4) of the 2017 EIA Regulations given that any environmentally related health issues (both beneficial and adverse) are likely to result from, for example, exposure to traffic, changes in living conditions resulting from noise, and increased employment opportunities. It is therefore proposed that population and human health effects of the Proposed Development are incorporated within the relevant technical chapters such as Socio-economics, Traffic, Noise and Landscape & Visual (in respect of residential amenity in particular).

15.4.2 However, to clearly demonstrate that population and human health effects are included in the EIA Report, and to assist with ease of reference, it is proposed that a summary table that identifies the potential effects and the EIA Report chapter that considers the matter in more detail would be included (either as an appendix or within a succinct 'Other Issues' chapter).

15.5 Climate

15.5.1 The vulnerability of the Proposed Development to climate change and extreme climate events will be considered within the engineering design and it is not proposed that a separate EIA Report chapter on 'Climate' is prepared. A Peat Slide Risk Assessment and Peat Management Plan will be produced as part of the EIA.

15.5.2 A carbon balance calculator would be completed using the most recent version of the spreadsheet available on the Scottish Government website and this would be reported in the Renewable Energy Policy, Carbon Balance and Peat Management EIA Report chapter.

15.5.3 Given the non-emitting nature of a wind farm and the fact that it is a renewable technology, it is not proposed undertake an additional greenhouse gas (GHG) assessment, but any effects on climate would be considered in relevant technical assessments.

15.6 Sustainable Resource Use

15.6.1 Although wind turbine development can encompass large areas of land, the actual built development covers a relatively small area and, in most circumstances, farming and other land based activities would continue in and around turbine development. As a result of this, the Proposed Development would only result in a small land take, which is unlikely to result in significant environmental effects in terms of land use.

15.6.2 In terms of soil and peat, the design of tracks, turbine foundations, hardstanding, borrow pits etc. would minimise the amount of soil disturbance. Where soils and peat would be excavated, they would be stored on the Development Site in accordance with the Peat Management Plan and the Construction and Environmental Management Plan (CEMP) which would be produced prior to construction and then used in the restoration of the site post construction to minimise the loss of soil and peat resource.

15.6.3 With regards water, the key environmental effects of this natural resource would be its use during the construction, operational and decommissioning phases, the potential increase in flood risk and the disturbance of surface and groundwater as a result of construction activities. With regards to construction works, the water resource would be managed in accordance with the CEMP.

15.6.4 The potential effects of the Proposed Development on biodiversity would be addressed within the Ecology and Ornithology' chapters of the EIA Report, within which appropriate mitigation would be set out in order to minimise the potential damage to habitats and species during the construction, operation and decommissioning. Mitigation measures would also be detailed in a Habitat Management Plan, which it is expected would be required by planning condition, and also within the CEMP.

15.6.5 As a result, it is not proposed that Sustainable Resource Use is considered as a discrete section of the EIA Report for the Proposed Development.

15.7 Major Accidents and Disasters

15.7.1 The scope for the EIA to consider major accidents and disasters has been initially considered in **Table 15.1** below. Major accidents or disasters have been scoped in where they represent a risk to the Proposed Development, either from the proposed location or from the project itself. A high risk is considered to be where there is reasonable likelihood of the accident or disaster occurring, or where the effect of the accident or disaster would lead to the requirement for mitigation which is beyond the usual scope of construction or operational activities. Where an accident or disaster has been scoped in, the EIA Report chapter(s) identified would consider the matter in more detail. This further detail may show that no further assessment is needed, or it may lead onto an appropriate level of assessment and/or identification of appropriate mitigation.

Table 15.1 Major Accidents and Disasters

Major Accident or Disaster	Risk due to location	Risk due to project	Scoped in/out due to risk	Rationale	EIA Report Chapter
Biological hazards: epidemics	Very low	Very low	Out	The probability of epidemics which would affect the construction or operation of the Proposed Development is considered to be very low.	N/A
Biological hazards: animal and insect infestation	Very low	Very low	Out	The probability of animal and insect infestations which would affect the construction or operation of the Proposed Development is considered to be very low.	N/A
Earthquakes	No	No	Out	Any earthquakes in the vicinity of the Proposed Development would be of a very small magnitude and the design of turbine foundations etc. is adequate to withstand such low magnitude events.	N/A
Tsunamis / tidal waves / storm surges	No	No	Out	The general location of the Proposed Development and its distance from the coast means there is no risk of these phenomena affecting the Proposed Development.	N/A
Volcanic eruptions	No	No	Out	There are no active volcanos in the vicinity of the Proposed Development.	N/A
Famine / food insecurity	Negligible	Very low	Out	The probability of famine / food insecurity which would affect the construction or operation of the Proposed Development is considered to be Negligible.	N/A
Displaced populations	Negligible	Very low	Out	The probability of displaced populations affecting the construction or operation of the Proposed Development is considered to be Negligible.	N/A

Major Accident or Disaster	Risk due to location	Risk due to project	Scoped in/out due to risk	Rationale	EIA Report Chapter
Landslide / subsidence	Low	Low	In	A peatslide risk assessment would be undertaken.	Renewable Energy Policy, Carbon Balance and Peat Management
Severe weather: storms	Medium	No	Out	Turbines are equipped with lightning conductors and automatically shut down when wind speeds are at a level which could damage internal components.	N/A
Severe weather: droughts	Very Low	No	Out	The probability of severe drought occurring in the vicinity of the Proposed Development is considered to be very low. Furthermore, turbines would be unaffected by drought conditions.	N/A
Severe weather: extreme temperatures	Low	Very Low	In – severe cold weather could lead to ice build-up on blades.	Ice build-up could lead to ice throw, or to blade damage and throw.	Project Description and other issues chapter.
Floods	Low	Very Low	In – a high level flood risk assessment would be undertaken as part of the EIA.	Damage to turbines or infrastructure from flooding, or increase in flood risk elsewhere from development in flood zones.	Site Selection and Design Evolution and Hydrology, Hydrogeology & Geology.
Terrorist incidents	No	No	Out	N/A	N/A
Cyber attacks	No	No	Out	N/A	N/A
Disruptive industrial action	No	No	Out	N/A	N/A
Public disorder	No	No	Out	N/A	N/A
Wildfires	No	No	Out	N/A	N/A
Severe space weather	No	No	Out	N/A	N/A
Poor air quality events	No	No	Out	N/A	N/A
Transport accidents	No	Yes	In – abnormal loads and increase in traffic from construction.	Abnormal loads or an increase in traffic could lead to an increased risk of accidents. Highway network may be unsuitable for such traffic, further increasing accident risk.	Design Evolution and Traffic and Transport.

Major Accident or Disaster	Risk due to location	Risk due to project	Scoped in/out due to risk	Rationale	EIA Report Chapter
Industrial accidents	No	Yes	In – from construction and maintenance activities.	Manual labour, working at height and use of specialist plant all bring risk of industrial accidents. Relevant UK health and safety legislation will be adhered to; site construction management practices will include, but are not limited to, temporary diversions of public rights of way, relevant signage and fencing as potential hazardous construction areas where appropriate.	Construction activities are covered by separate H&S legislation and guidelines. Site Selection and Design Evolution, Geology, Hydrology, and Hydrogeology and Ecology (pollution).
Electricity, gas, water supply or sewerage system failures	No	Yes	In – site contains electricity transmission cables.	Construction activities or turbine collapse could damage electricity infrastructure. All relevant health and safety legislation will be followed, and industry best practice guidance adhered to. HSE GS6 *Avoiding danger from overhead power lines* will be followed	Site Selection and Design Evolution; and Existing Infrastructure, Telecommunications and Broadcast Services.
Urban fires	No	No	Out	The Proposed Development is not in close proximity to any urban areas.	

15.8 Forestry

15.8.1 It is understood that the forestry on the main Development Site was planted in 1991 and 1994 and that due to the size of the Development Site it would be clearfelled to allow construction of the Proposed Development and a detailed forestry assessment is therefore scoped out. Compensatory planting would be undertaken elsewhere in line with the Scottish Government's Control of Woodland Removal Policy.

Appendix A
Figures

Key

🟥 Monquhill site boundary

0 500 1,000 1,500 m

Scale at A3: 1:30,000

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

Figure 1.1
Site Location

February 2020

wood.

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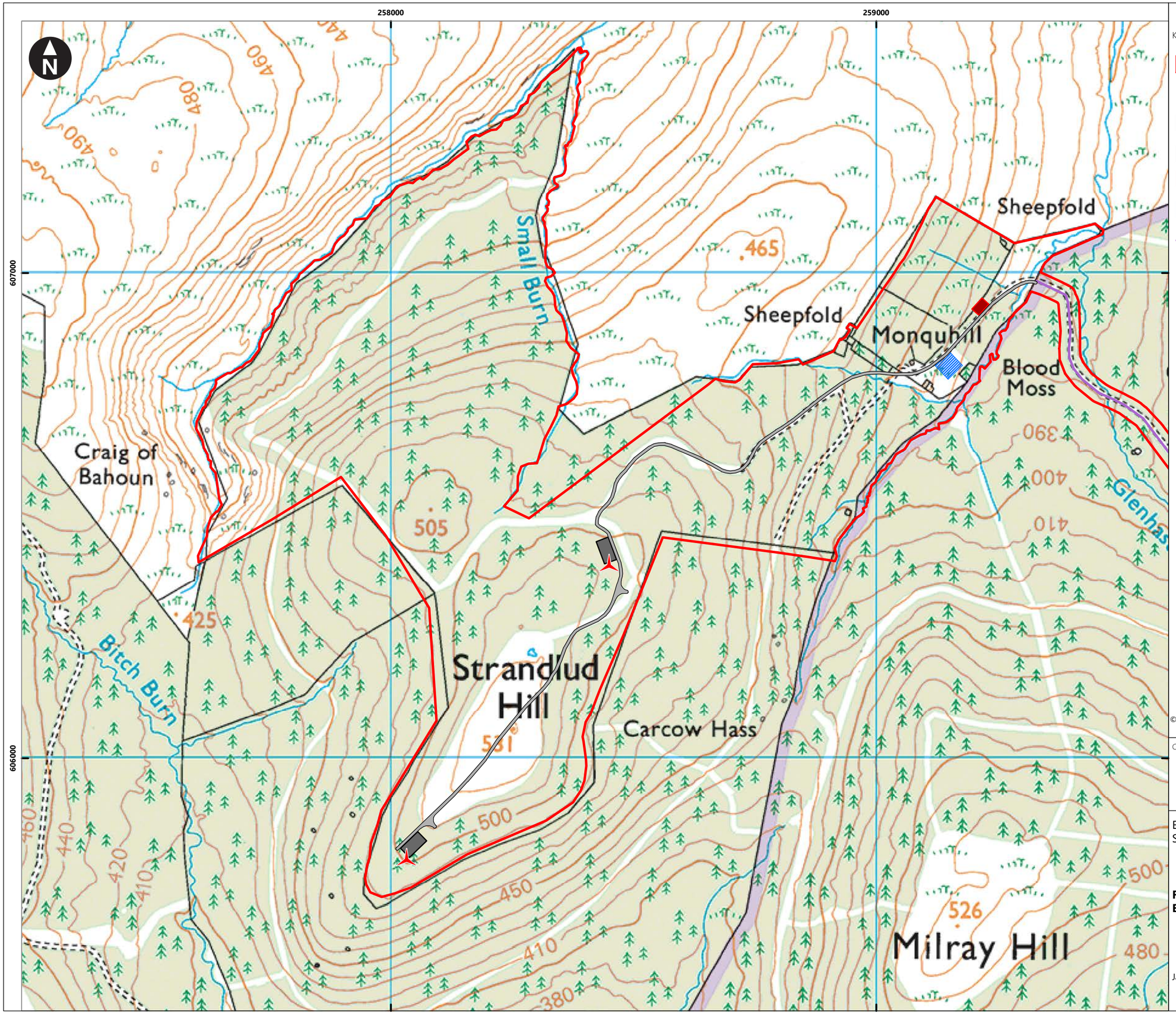
38388-Gos155a



Key

- Monquhill site boundary
- Design freeze turbine location
- Design freeze access tracks (6m wide)
- Cranepad hardstanding
- Substation
- Temporary construction compound
- Pencloe forest access route

0 100 200 300 400 m

Scale at A3: 1:7,500

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

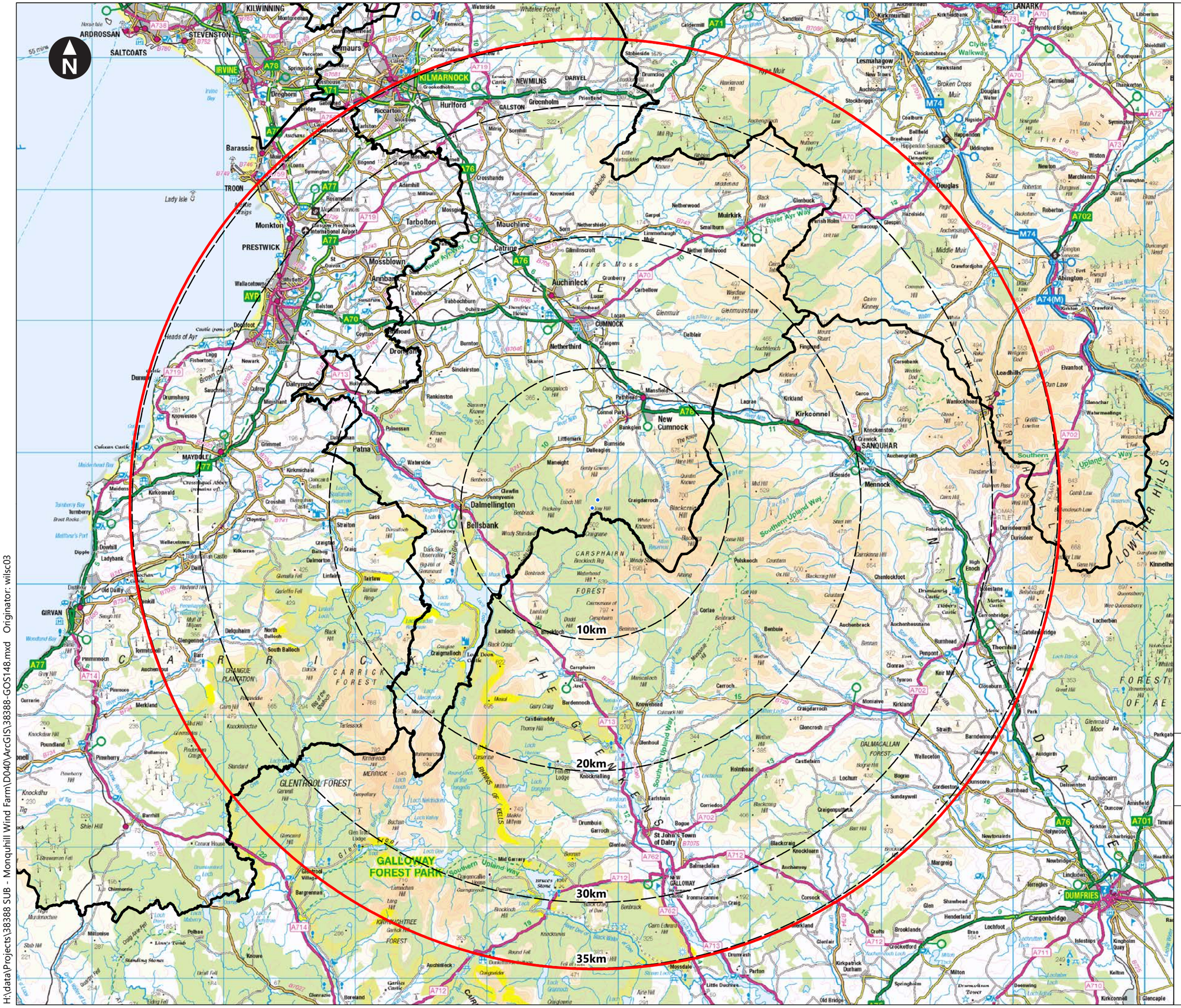
Figure 2.1
Enoch Hill 2 Wind Farm Scoping Report

January 2020

wood.

38388-Gos115c

\\gos-fs14.global.amec.com\shared\GWM\DATA\PROJECT\38388 Enoch Hill Extension Wind Farm Surveys\D040 Design\GIS\Updates Jan20\38388-Gos115c.mxd Originator: laura.morales



Key

- • Proposed Turbine Locations
- Landscape and Visual Study Area

  Note: The study area is based on a 35,368m radius circle that allows a minimum of 35km distance from each of the proposed turbine locations
- Local authority boundaries
- Lines indicating the distance from proposed turbines

0 2 4 6 8 10 12 14 16 km

Scale at A3: 1:275,000

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.1
Landscape and Visual Study Area

January 2020

wood.

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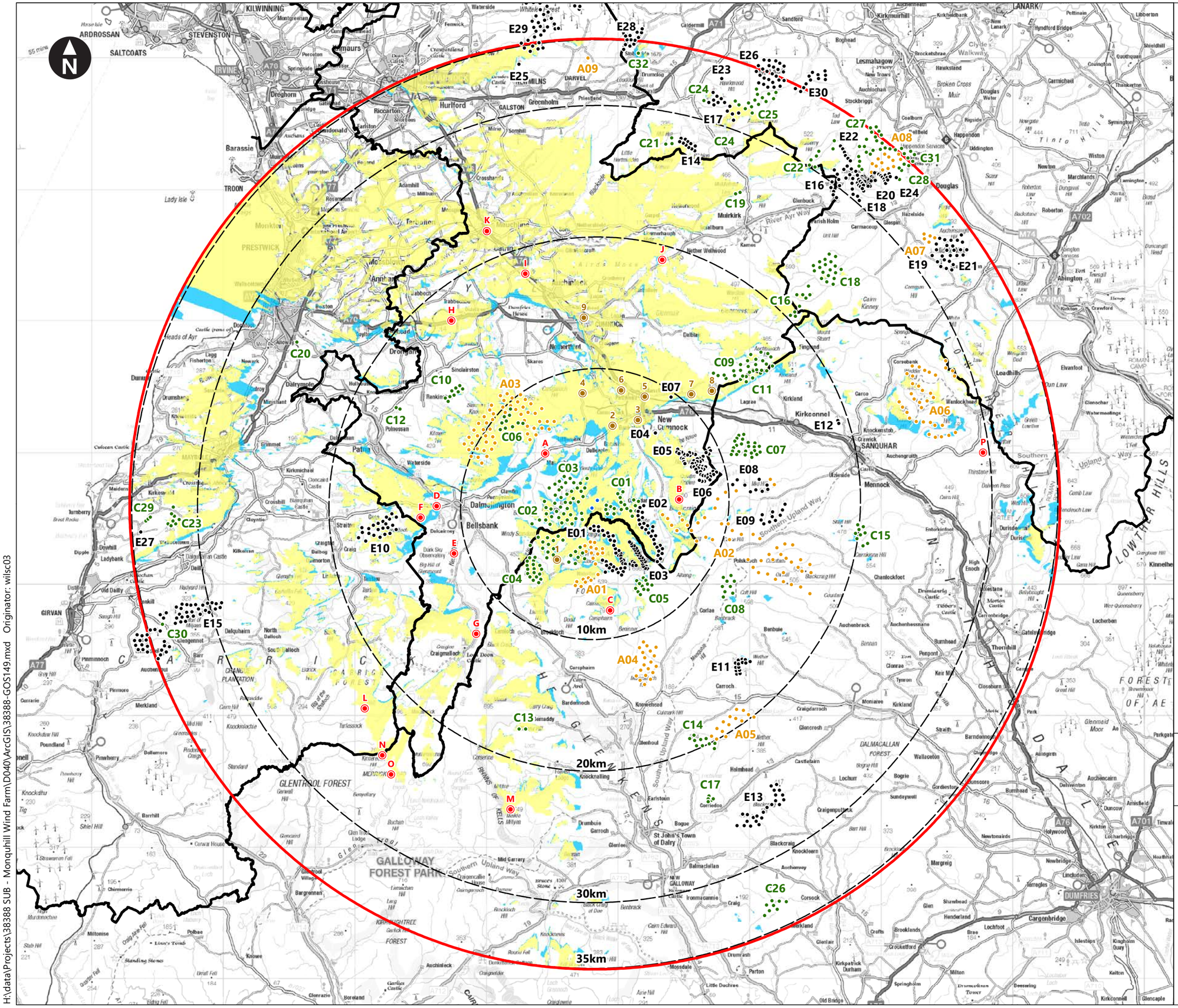

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Key

•	Proposed Turbine Locations
🟥	Landscape and Visual Study Area
▬	Local authority boundaries
╌	Lines indicating the distance from the proposed turbines
🟦	One turbine may be theoretically visible
🟨	Two turbines may be theoretically visible
◉	Proposed Viewpoints

1) Core Path 667 Water of Deugh
2) B741 Bankglen
3) New Cumnock Cemetery
4) North of Site (near Auchinross)
5) Pathhead, New Cumnock
6) Lochside Hotel
7) Little Garclaugh
8) Corsencon Hill
9) Cumnock (Drumbrochan Road)

◉	Proposed Viewpoints to be Scoped Out

A) B741 North East of Dalmellington
B) Blackcraig Hill
C) Cairnsmore of Carsphairn
D) Bogton Loch
E) Fort Carrick
F) Auchenroy Hill
G) Loch Doon Shore
H) A70 between Cumnock and Prestwick
I) A76 North of Auchinleck
J) A70 North East of Cumnock
K) A76 Mauchline
L) Shalloch on Minnoch
M) Meikle Millyea
N) Kirriereoch Hill
O) Merrick
P) East Mount Lowther

Note: For cumulative wind farm codes refer to Figure 8.3.

This drawing is based on a computer generated Zone of Theoretical Visibility (ZTV). The areas shown indicate the maximum theoretical visibility of the proposed turbines using OS Terrain 50 data only and do not take account of any screening from vegetation or built-form. The ZTV also includes an adjustment that allows for the Curvature and Light Refraction of the Earth.

This figure has been based on the following parameters:

Turbine layout file:	LMONQUHILL007.WFL
Hub height:	81.9m
Rotor diameter	136m
Height to blade tip:	149.9m

0 2 4 6 8 10 12 14 16 km

Scale at A3: 1:275,000

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.2
Zone of Theoretical Visibility (ZTV) and Viewpoints

January 2020

wood.

Key

- Proposed Turbine Locations
- Landscape and Visual Study Area
- Local authority boundaries
- Lines indicating the distance from the proposed turbines
- Existing / Under Construction Wind Farms

E01) Windy Standard Extension
E02) Afton
E03) Windy Standard
E04) High Park Farm
E05) Hare Hill
E06) Hare Hill Extension
E07) Mansfield Mains *
E08) Sanquhar
E09) Whiteside Hill
E10) Dersalloch
E11) Wether Hill
E12) Sunnyside
E13) Blackcraig
E14) Bankend Rig
E15) Hadyard Hill
E16) Galawhistle
E17) Dungavel
E18) Hagshaw Hill Extension
E19) Andershaw
E20) Hagshaw Hill
E21) Middle Muir
E22) Nutberry
E23) West Dykes
E24) Hazelside Farm (T1)
E25) Low Bowhill
E26) Kype Muir
E27) North Threave Farm
E28) Calder Water
E29) Whitelee Extension 2
E30) Auchrobert

- Consented Wind Farms

C01) Pencloe
C02) South Kyle
C03) Enoch Hill
C04) Benbrack
C05) Windy Rig
C06) Over Hill
C07) Sandy Knowe
C08) Lorg
C09) Lethans
C10) Polquhairn
C11) Glenmuckloch
C12) Knockshinnoch
C13) Torrs Hill
C14) Glenshimmeroch
C15) Twentyshilling Hill
C16) Penbreck
C17) Knockman Hill
C18) Kennoxhead
C19) Linburn Farm
C20) NHS Ailsa Hospital
C21) Bankend Rig Extension
C22) Cumberhead
C23) Kirk Hill
C24) Stoneyhill Farm
C25) Kype Muir Extension
C26) Mochrum Fell
C27) Dalquhandy
C28) Hazelside Farm (T2)
C29) Chapelton Farm
C30) Penwhapple Reservoir
C31) Douglas West
C32) Mount Farm

- Application Wind Farms

A01) Windy Standard Phase III
A02) Sanquhar II
A03) North Kyle
A04) Shepherd's Rig
A05) Troston Loch
A06) North Lowther
A07) Glentaggart
A08) Douglas West Extension
A09) Feoch

* Micro generation scheme less than 50m to blade tip

0 2 4 6 8 10 12 14 16 km

Scale at A3: 1:275,000

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.3
Cumulative Wind Farms within 35km

January 2020

wood.

H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\ArcGIS\38388-GOS150.mxd Originator: wilsc03

Key

- Proposed Turbine Locations
- Landscape and Visual Study Area
- Local authority boundaries
- Lines indicating the distance from the proposed turbines

Landscape Planning Designations

East Ayrshire Sensitive Landscape Character Areas (SLCA)

A) Afton SLCA
B) Doon Valley SLCA
C) The Ayr Valley SLCA

Note: Sourced from http://maps.ayrshire.gov.uk/mapsAJP/mapWindfarmSearch.htm

South Ayrshire Scenic Areas

Note: Sourced from www.south-ayrshire.gov.uk

South Lanarkshire Special Landscape Area

SLA1) Leadhills and Lowther Hills
SLA2) Douglas Valley

Note: Sourced from South Lanarkshire Local Development Plan 2015

Dumfries and Galloway Regional Scenic Areas

RSA1) Galloway Hills
RSA2) Thornhill Uplands

Note: Sourced from Dumfries and Galloway Council LDP 2, Regional Scenic Areas, Technical Paper, January 2018

Gardens and Designed Landscapes

1) Craigengillan
2) Dumfries House
3) Blairquhan
4) Skeldon House
5) Auchincruive
6) Drumlanrig Castle
7) Kilkerran
8) Rozelle (La Rochelle)
9) Carnell
10) Maxwelton (Glencairn Castle)
11) Lanfine
12) Scot's Mining Company House
13) Bargany
14) Loudon Castle
15) Culzean Castle
16) Caprington Castle

Wild Land Area: Merrick

Galloway Forest Dark Sky Park

Core Area
Buffer Area

Note: Sourced from Dumfries and Galloway Council Local Development Plan - Supplementary Guidance, August 2015

0 2 4 6 8 10 12 14 16 km

Scale at A3: 1:275,000

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

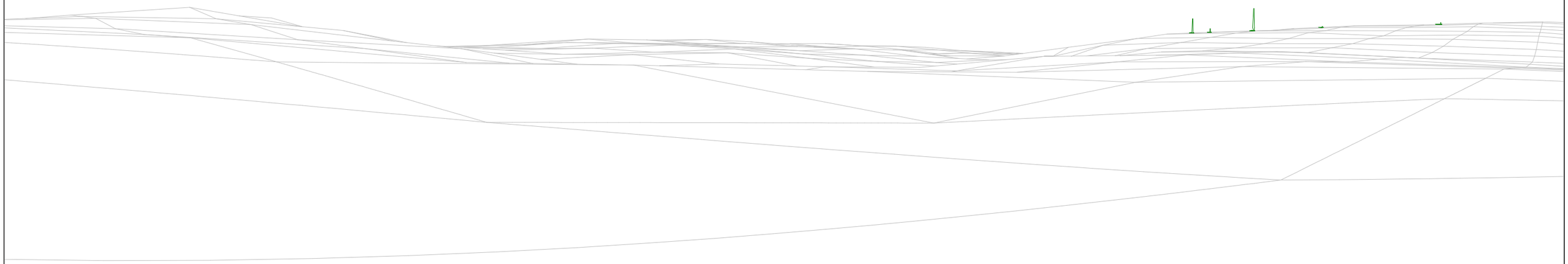
Figure 8.4
Landscape Planning Designations

January 2020

wood.

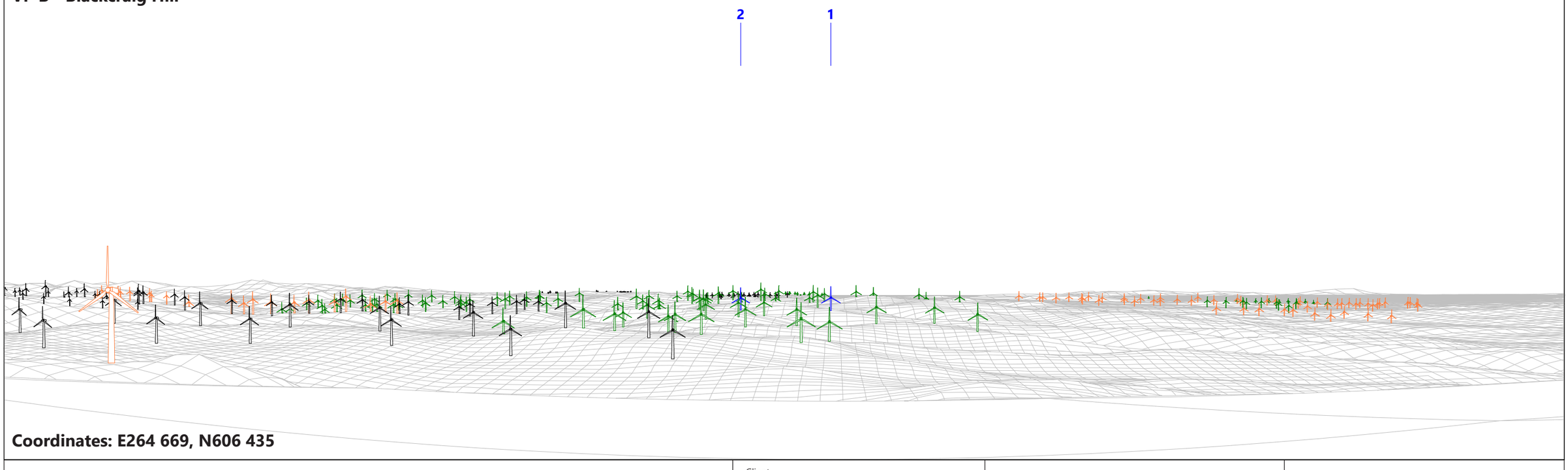
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\ArcGIS\38388-GOS151.mxd Originator: wilsc03

VP A - B741 North East of Dalmellington



Coordinates: E254 491, N609 932

VP B - Blackcraig Hill



Coordinates: E264 669, N606 435

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

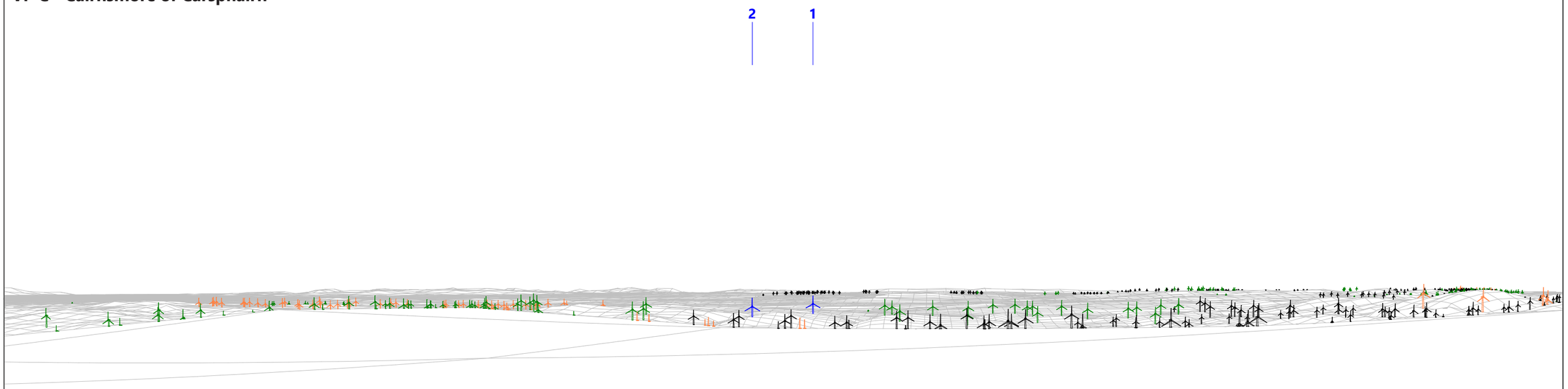
Figure 8.5a
Proposed Scoped Out Viewpoint Wirelines
Viewpoints A & B

January 2020

wood.

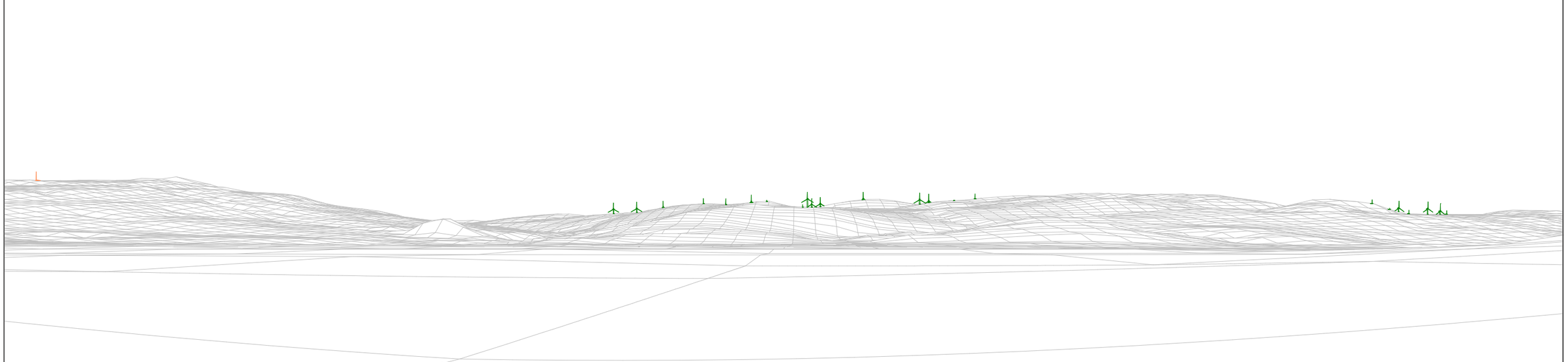
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP C - Cairnsmore of Carsphairn



Coordinates: E259 419, N598 010

VP D - Bogton Loch



Coordinates: E246 233, N605 944

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

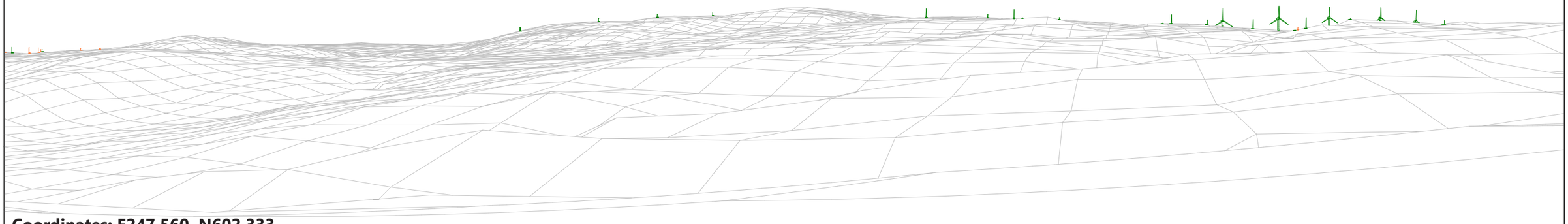
Figure 8.5b
Proposed Scoped Out Viewpoint Wirelines
Viewpoints C & D

January 2020

wood.

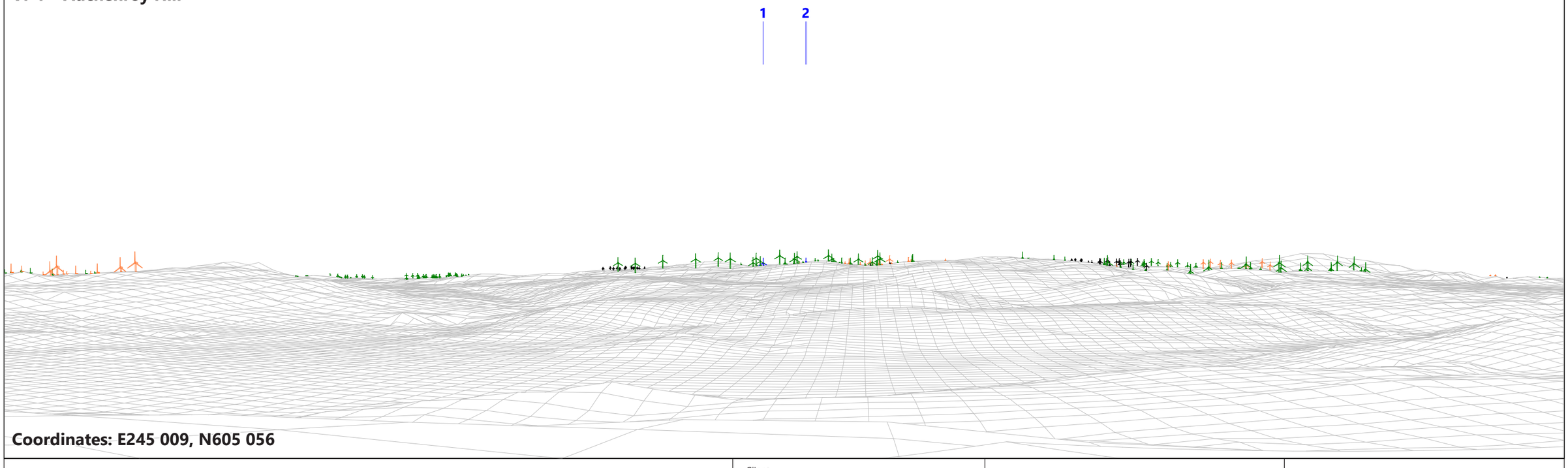
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP E - Fort Carrick



Coordinates: E247 560, N602 333

VP F - Auchenroy Hill



Coordinates: E245 009, N605 056

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

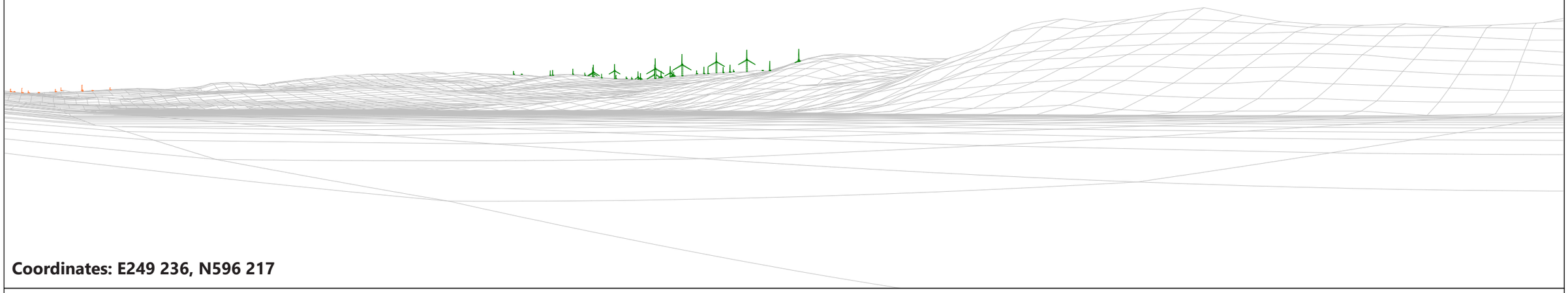
Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.5c
Proposed Scoped Out Viewpoint Wirelines
Viewpoints E & F

January 2020

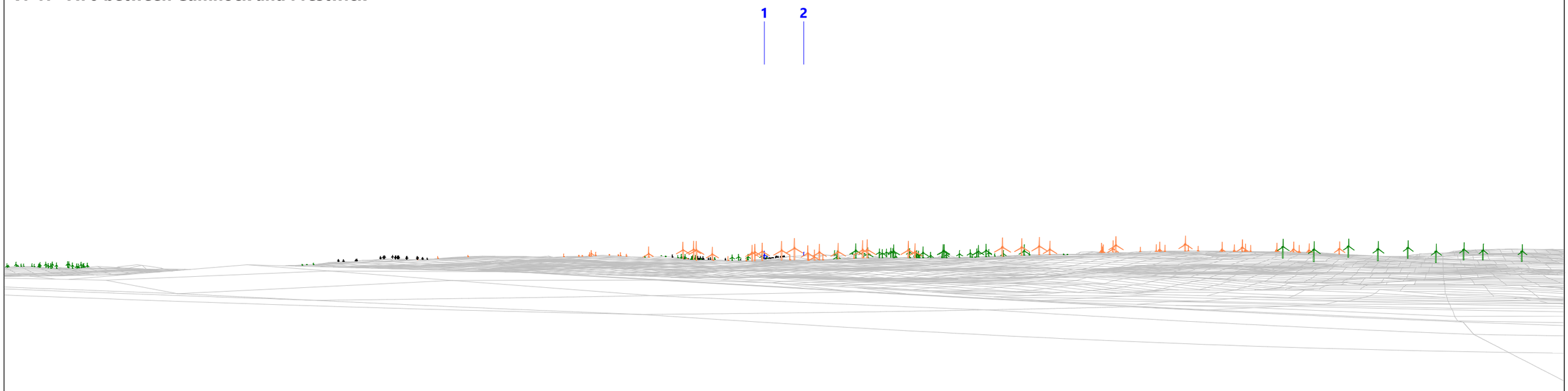
wood.

VP G - Loch Doon Shore



Coordinates: E249 236, N596 217

VP H - A70 between Cumnock and Prestwick



Coordinates: E247 353, N620 045

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

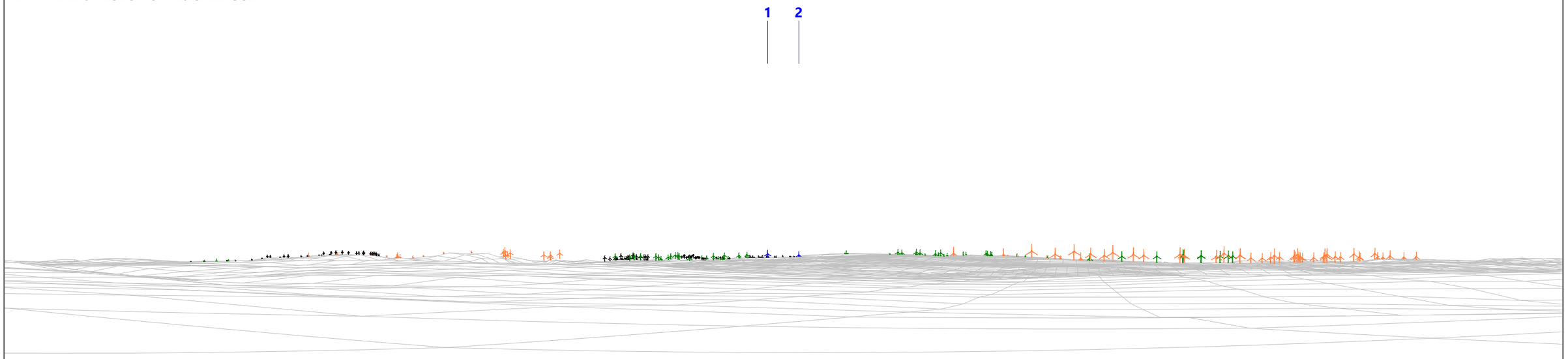
Figure 8.5d
Proposed Scoped Out Viewpoint Wirelines
Viewpoints G & H

January 2020

wood.

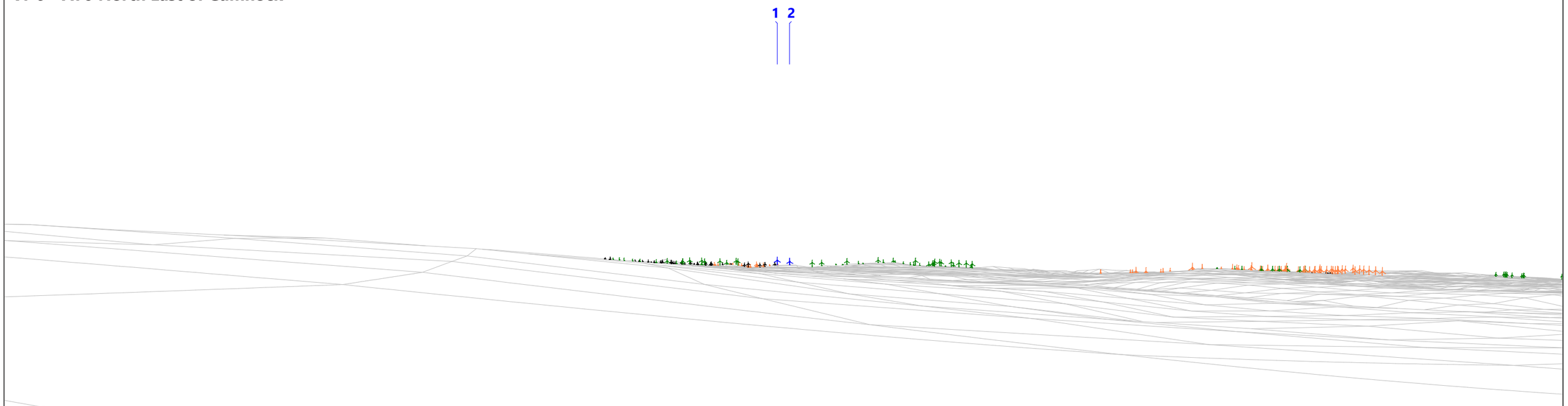
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP I - A76 North of Auchinleck



Coordinates: E252 967, N623 595

VP J - A70 North East of Cumnock



Coordinates: E263 390, N624 657

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

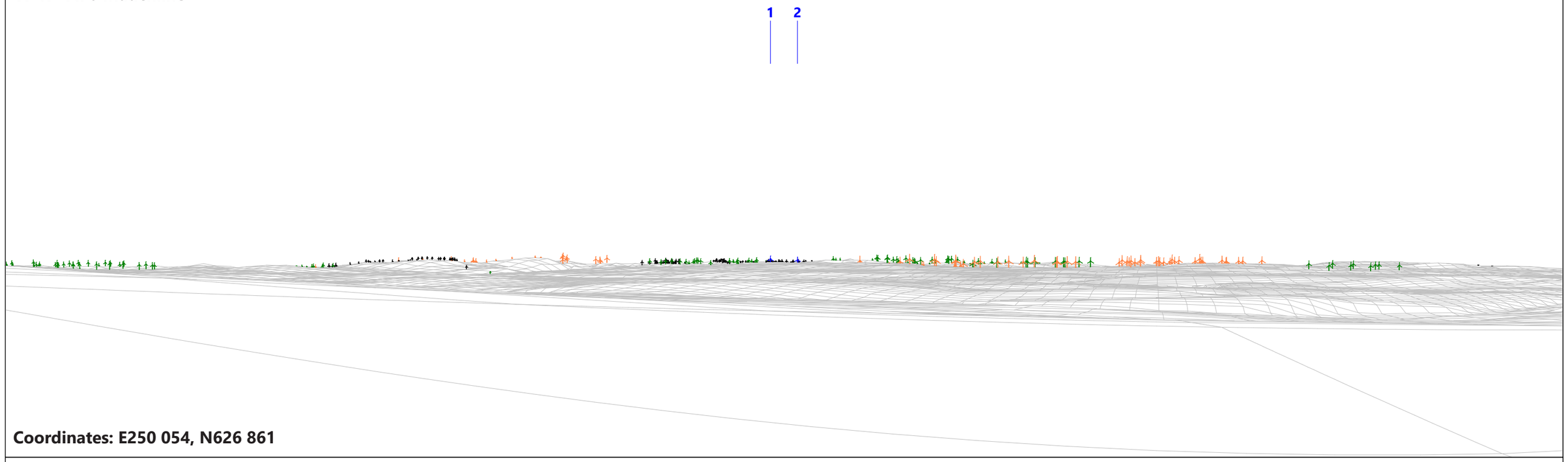
Figure 8.5e
Proposed Scoped Out Viewpoint Wirelines
Viewpoints I & J

January 2020

wood.

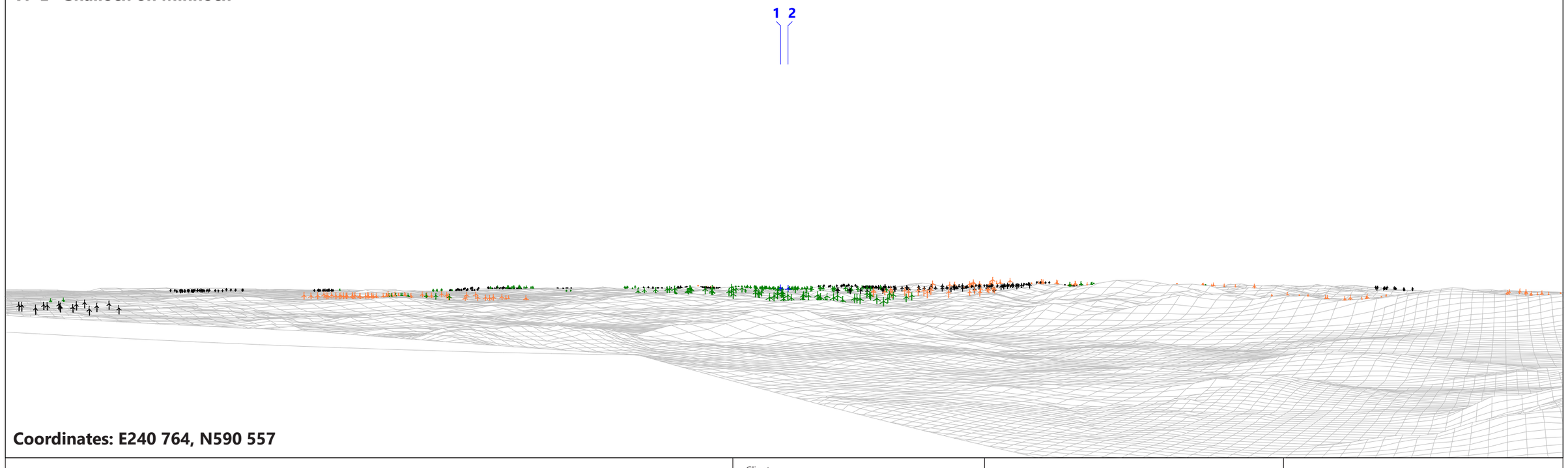
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP K - A76 Mauchline



Coordinates: E250 054, N626 861

VP L - Shalloch on Minnoch



Coordinates: E240 764, N590 557

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

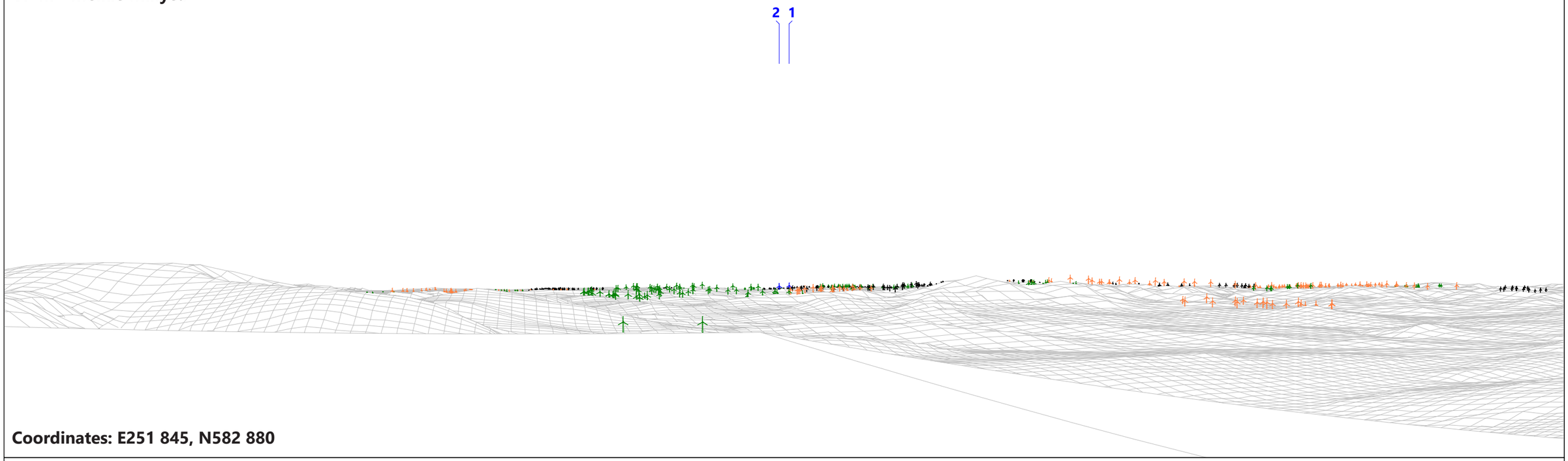
Figure 8.5f
Proposed Scoped Out Viewpoint Wirelines
Viewpoints K & L

January 2020

wood.

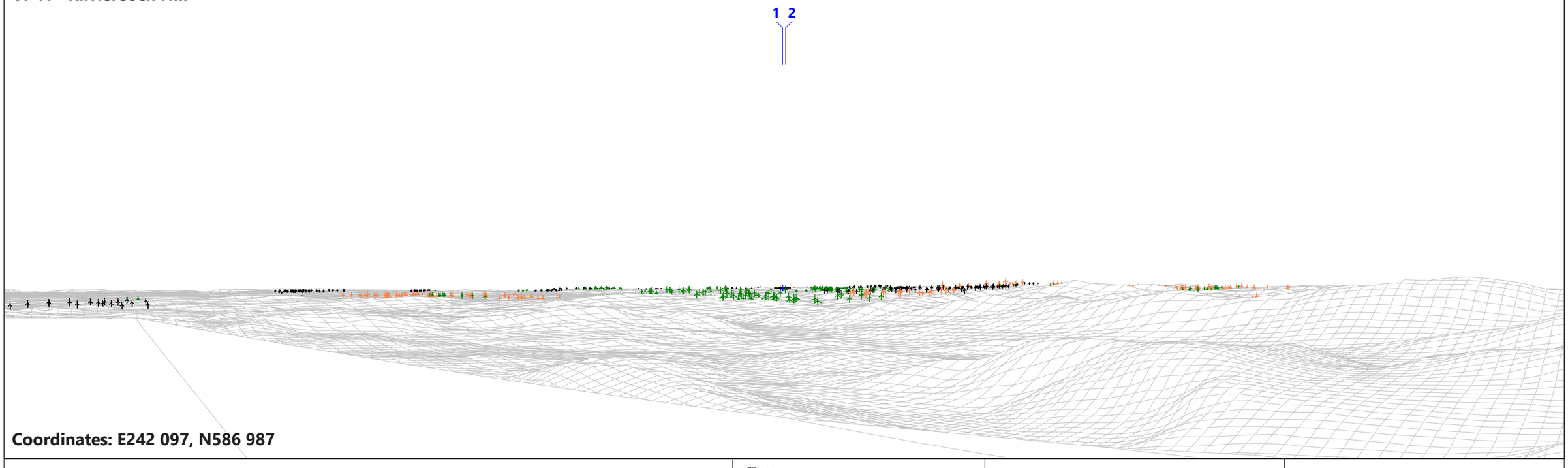
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP M - Meikle Millyea



Coordinates: E251 845, N582 880

VP N - Kirriereoch Hill



Coordinates: E242 097, N586 987

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

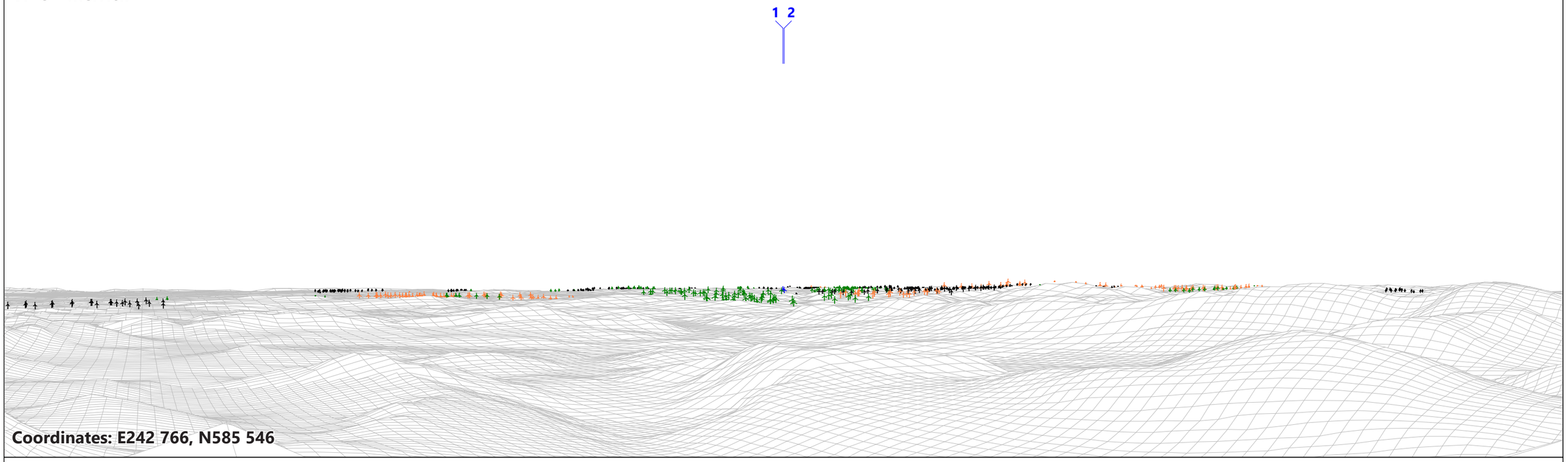
Figure 8.5g
Proposed Scoped Out Viewpoint Wirelines
Viewpoints M & N

January 2020

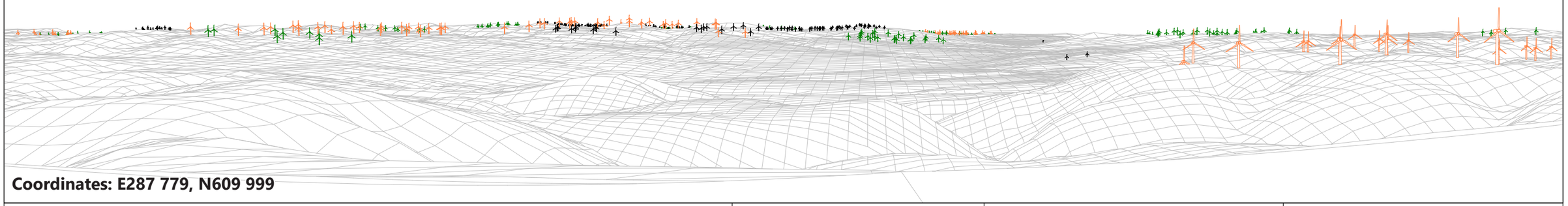
wood.

H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP O - Merrick



VP P - East Mount Lowther



Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.5h
Proposed Scoped Out Viewpoint Wirelines
Viewpoints O & P

January 2020

wood.

Appendix A
Figures

Key

🟥 Monquhill site boundary

0 500 1,000 1,500 m

Scale at A3: 1:30,000

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

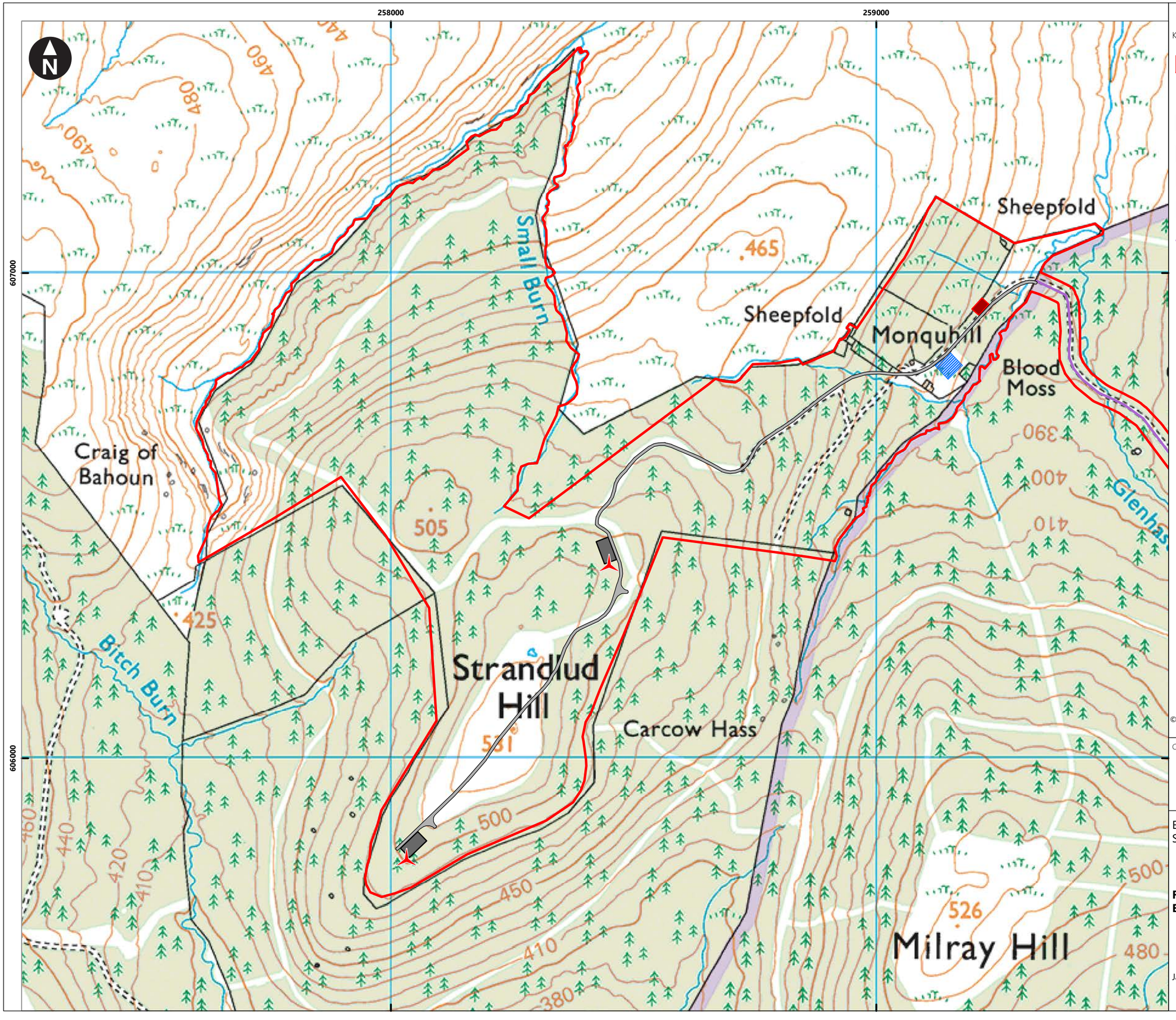
Figure 1.1
Site Location

February 2020

wood.

C:\Users\laura.morales\Desktop\ArcGIS\38388\Updates20\38388-Gos155a.mxd Originator: laura.morales

38388-Gos155a



Key

- Monquhill site boundary
- Design freeze turbine location
- Design freeze access tracks (6m wide)
- Cranepad hardstanding
- Substation
- Temporary construction compound
- Pencloe forest access route

0 100 200 300 400 m

Scale at A3: 1:7,500

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

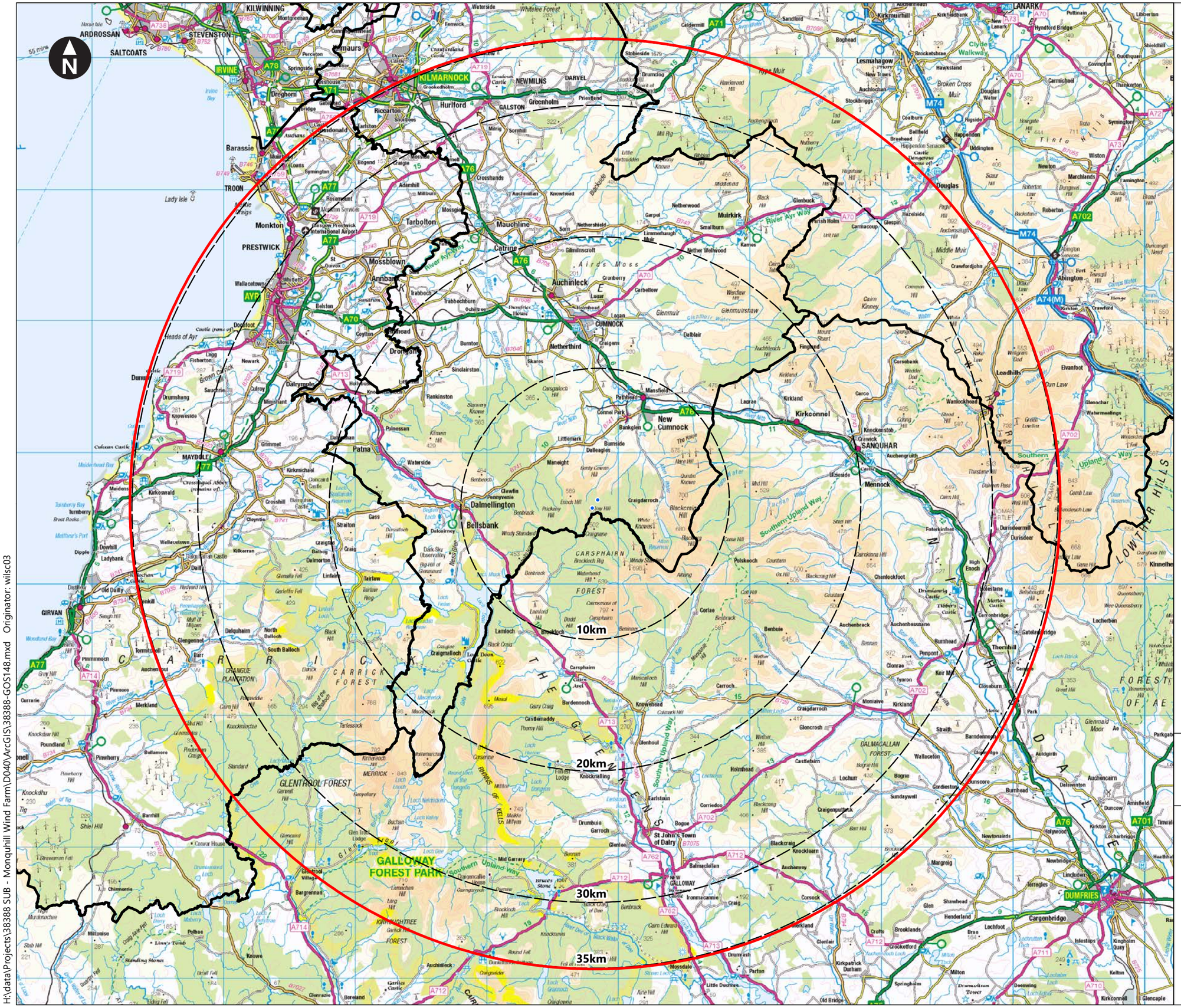
Figure 2.1
Enoch Hill 2 Wind Farm Scoping Report

January 2020

wood.

38388-Gos115c

\\gos-fs14.global.amec.com\shared\GWM\DATA\PROJECT\38388 Enoch Hill Extension Wind Farm Surveys\D040 Design\GIS\Updates Jan20\38388-Gos115c.mxd Originator: laura.morales



Key

- • Proposed Turbine Locations
- 🟥 Landscape and Visual Study Area

  Note: The study area is based on a 35,368m radius circle that allows a minimum of 35km distance from each of the proposed turbine locations
- ━ Local authority boundaries
- ─ ─ Lines indicating the distance from proposed turbines

0 2 4 6 8 10 12 14 16 km

Scale at A3: 1:275,000

Client

RWE

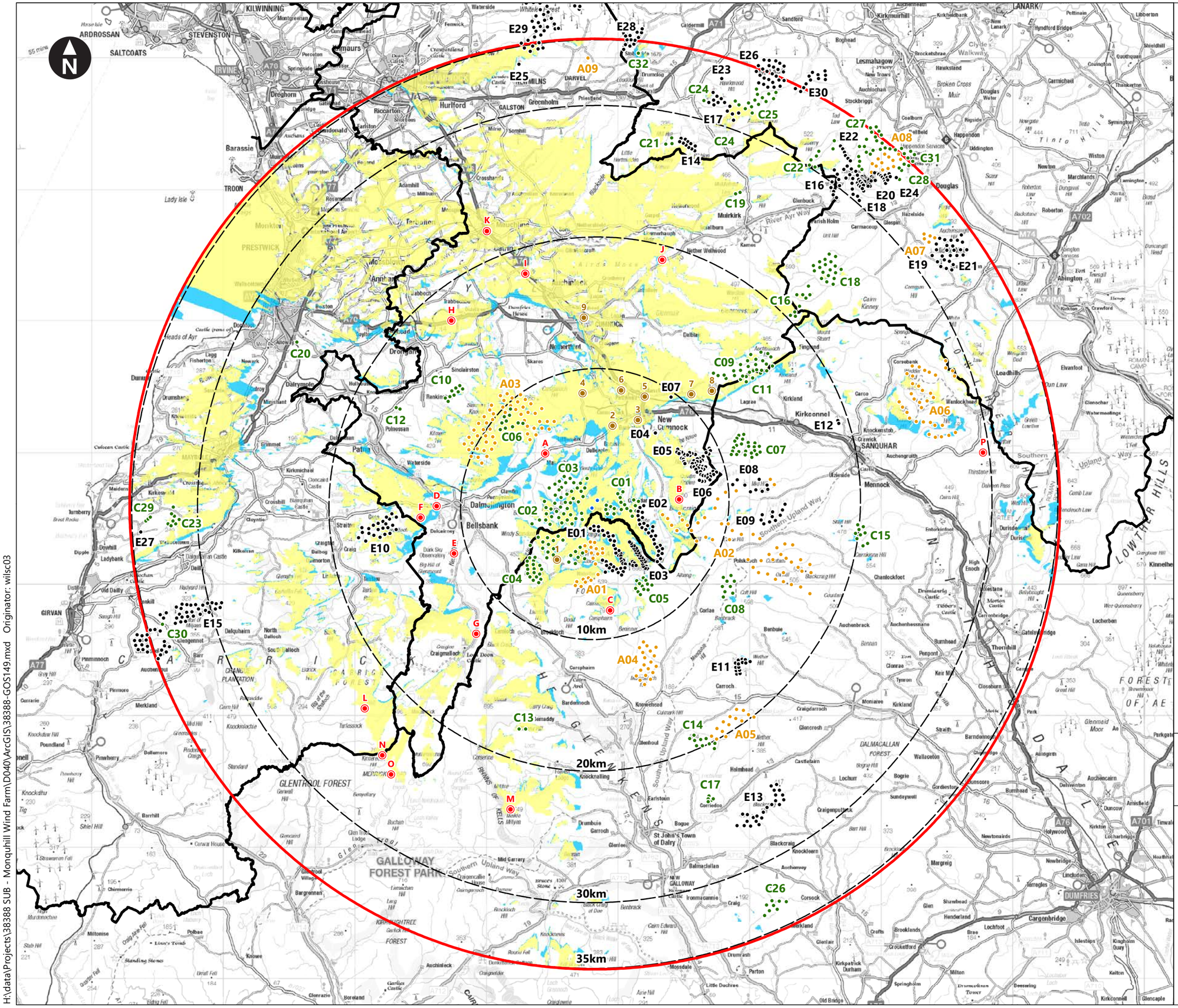
Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.1
Landscape and Visual Study Area

January 2020

wood.

H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\ArcGIS\38388-GOS148.mxd Originator: wilsc03



H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\ArcGIS\38388-GOS149.mxd Originator: wilsc03

Key

- • Proposed Turbine Locations
- ▬ Landscape and Visual Study Area
- ▬ Local authority boundaries
- ╌ Lines indicating the distance from the proposed turbines
- 🟦 One turbine may be theoretically visible
- 🟨 Two turbines may be theoretically visible
- ◉ Proposed Viewpoints

1) Core Path 667 Water of Deugh
2) B741 Bankglen
3) New Cumnock Cemetery
4) North of Site (near Auchinross)
5) Pathhead, New Cumnock
6) Lochside Hotel
7) Little Garclaugh
8) Corsencon Hill
9) Cumnock (Drumbrochan Road)

- ◉ Proposed Viewpoints to be Scoped Out

A) B741 North East of Dalmellington
B) Blackcraig Hill
C) Cairnsmore of Carsphairn
D) Bogton Loch
E) Fort Carrick
F) Auchenroy Hill
G) Loch Doon Shore
H) A70 between Cumnock and Prestwick
I) A76 North of Auchinleck
J) A70 North East of Cumnock
K) A76 Mauchline
L) Shalloch on Minnoch
M) Meikle Millyea
N) Kirriereoch Hill
O) Merrick
P) East Mount Lowther

Note: For cumulative wind farm codes refer to Figure 8.3.

This drawing is based on a computer generated Zone of Theoretical Visibility (ZTV). The areas shown indicate the maximum theoretical visibility of the proposed turbines using OS Terrain 50 data only and do not take account of any screening from vegetation or built-form. The ZTV also includes an adjustment that allows for the Curvature and Light Refraction of the Earth.

This figure has been based on the following parameters:

Turbine layout file:	LMONQUHILL007.WFL
Hub height:	81.9m
Rotor diameter	136m
Height to blade tip:	149.9m

0 2 4 6 8 10 12 14 16 km

Scale at A3: 1:275,000

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.2
Zone of Theoretical Visibility (ZTV) and Viewpoints

January 2020

wood.

Key

- Proposed Turbine Locations
- Landscape and Visual Study Area
- Local authority boundaries
- Lines indicating the distance from the proposed turbines
- Existing / Under Construction Wind Farms

E01) Windy Standard Extension
E02) Afton
E03) Windy Standard
E04) High Park Farm
E05) Hare Hill
E06) Hare Hill Extension
E07) Mansfield Mains *
E08) Sanquhar
E09) Whiteside Hill
E10) Dersalloch
E11) Wether Hill
E12) Sunnyside
E13) Blackcraig
E14) Bankend Rig
E15) Hadyard Hill
E16) Galawhistle
E17) Dungavel
E18) Hagshaw Hill Extension
E19) Andershaw
E20) Hagshaw Hill
E21) Middle Muir
E22) Nutberry
E23) West Dykes
E24) Hazelside Farm (T1)
E25) Low Bowhill
E26) Kype Muir
E27) North Threave Farm
E28) Calder Water
E29) Whitelee Extension 2
E30) Auchrobert

- Consented Wind Farms

C01) Pencloe
C02) South Kyle
C03) Enoch Hill
C04) Benbrack
C05) Windy Rig
C06) Over Hill
C07) Sandy Knowe
C08) Lorg
C09) Lethans
C10) Polquhairn
C11) Glenmuckloch
C12) Knockshinnoch
C13) Torrs Hill
C14) Glenshimmeroch
C15) Twentyshilling Hill
C16) Penbreck
C17) Knockman Hill
C18) Kennoxhead
C19) Linburn Farm
C20) NHS Ailsa Hospital
C21) Bankend Rig Extension
C22) Cumberhead
C23) Kirk Hill
C24) Stoneyhill Farm
C25) Kype Muir Extension
C26) Mochrum Fell
C27) Dalquhandy
C28) Hazelside Farm (T2)
C29) Chapelton Farm
C30) Penwhapple Reservoir
C31) Douglas West
C32) Mount Farm

- Application Wind Farms

A01) Windy Standard Phase III
A02) Sanquhar II
A03) North Kyle
A04) Shepherd's Rig
A05) Troston Loch
A06) North Lowther
A07) Glentaggart
A08) Douglas West Extension
A09) Feoch

* Micro generation scheme less than 50m to blade tip

0 2 4 6 8 10 12 14 16 km

Scale at A3: 1:275,000

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.3
Cumulative Wind Farms within 35km

January 2020

wood.

H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\ArcGIS\38388-GOS150.mxd Originator: wilsc03

Key

- Proposed Turbine Locations
- Landscape and Visual Study Area
- Local authority boundaries
- Lines indicating the distance from the proposed turbines

Landscape Planning Designations

East Ayrshire Sensitive Landscape Character Areas (SLCA)

A) Afton SLCA
B) Doon Valley SLCA
C) The Ayr Valley SLCA

Note: Sourced from http://maps.ayrshire.gov.uk/mapsAJP/mapWindfarmSearch.htm

South Ayrshire Scenic Areas

Note: Sourced from www.south-ayrshire.gov.uk

South Lanarkshire Special Landscape Area

SLA1) Leadhills and Lowther Hills
SLA2) Douglas Valley

Note: Sourced from South Lanarkshire Local Development Plan 2015

Dumfries and Galloway Regional Scenic Areas

RSA1) Galloway Hills
RSA2) Thornhill Uplands

Note: Sourced from Dumfries and Galloway Council LDP 2, Regional Scenic Areas, Technical Paper, January 2018

Gardens and Designed Landscapes

1) Craigengillan
2) Dumfries House
3) Blairquhan
4) Skeldon House
5) Auchincruive
6) Drumlanrig Castle
7) Kilkerran
8) Rozelle (La Rochelle)
9) Carnell
10) Maxwelton (Glencairn Castle)
11) Lanfine
12) Scot's Mining Company House
13) Bargany
14) Loudon Castle
15) Culzean Castle
16) Caprington Castle

Wild Land Area: Merrick

Galloway Forest Dark Sky Park

Core Area
Buffer Area

Note: Sourced from Dumfries and Galloway Council Local Development Plan - Supplementary Guidance, August 2015

0 2 4 6 8 10 12 14 16 km

Scale at A3: 1:275,000

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

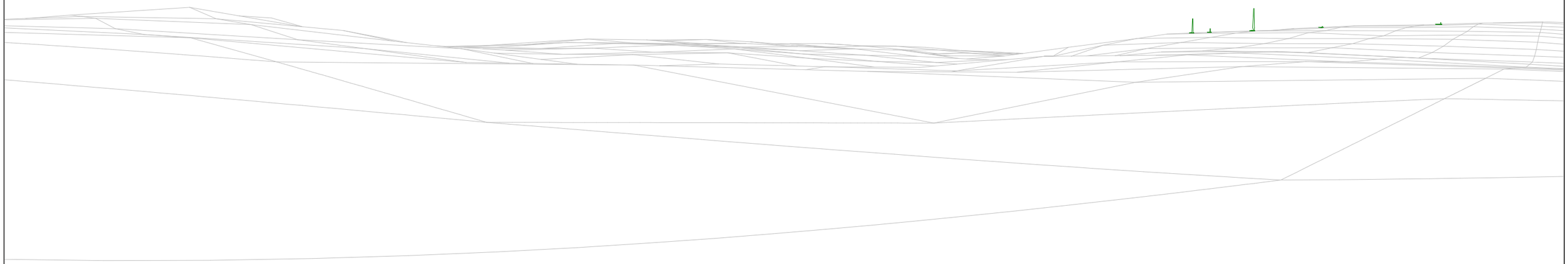
Figure 8.4
Landscape Planning Designations

January 2020

wood.

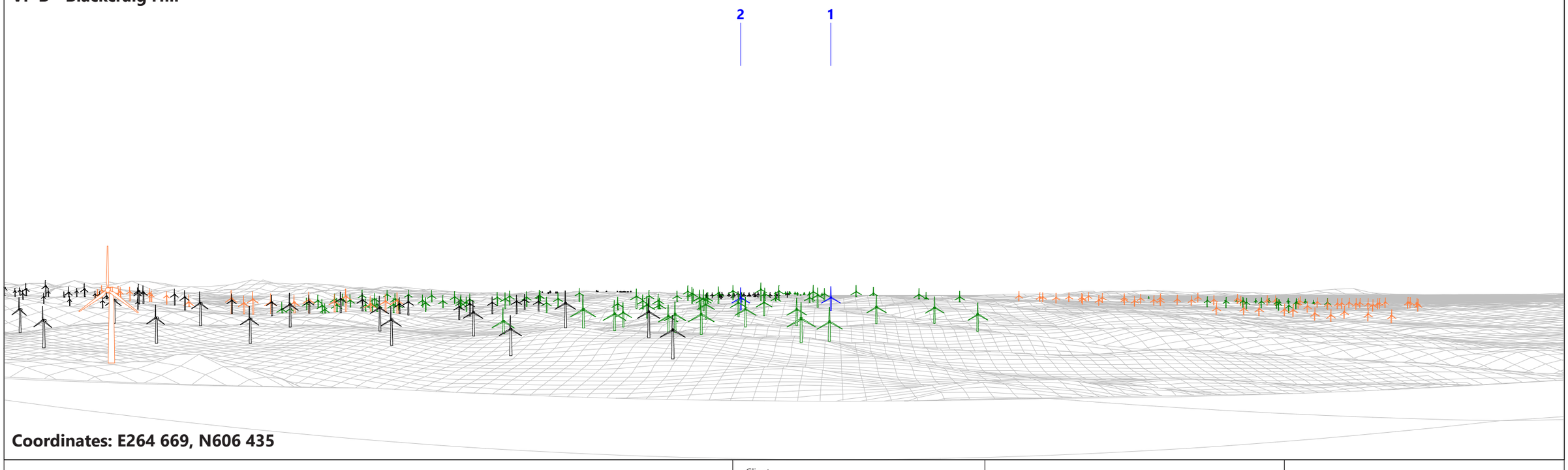
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\ArcGIS\38388-GOS151.mxd Originator: wilsc03

VP A - B741 North East of Dalmellington



Coordinates: E254 491, N609 932

VP B - Blackcraig Hill



Coordinates: E264 669, N606 435

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

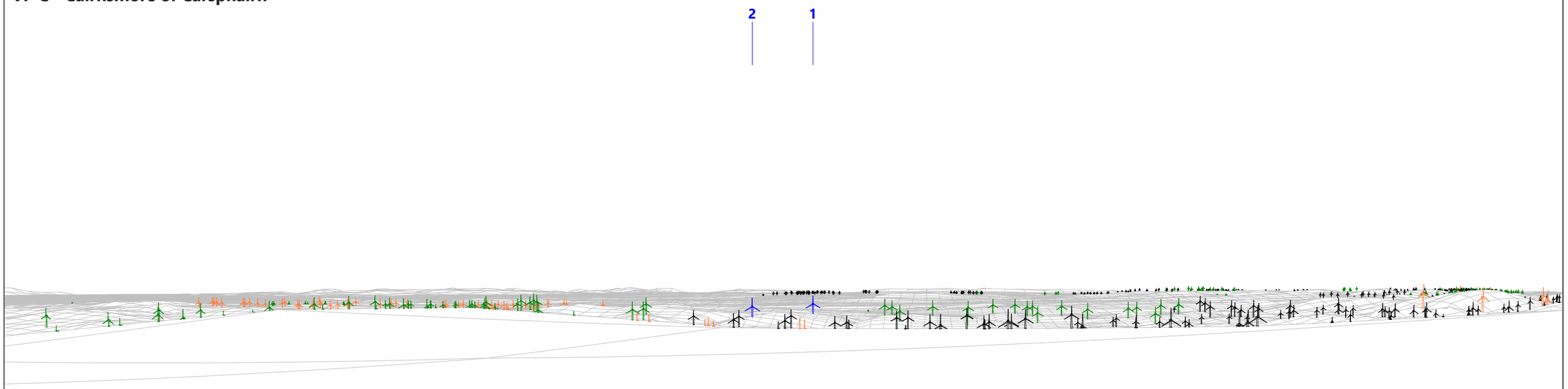
Figure 8.5a
Proposed Scoped Out Viewpoint Wirelines
Viewpoints A & B

January 2020

wood.

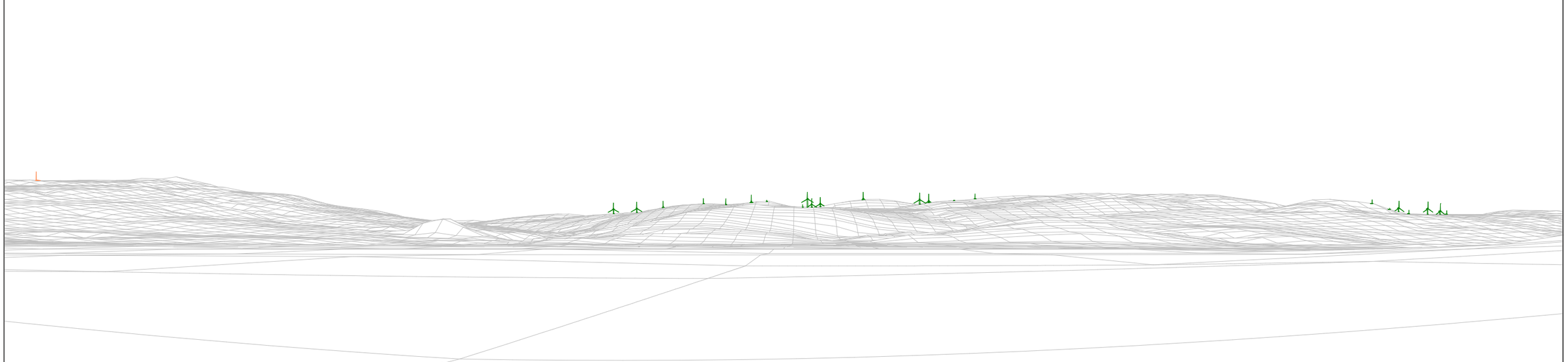
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP C - Cairnsmore of Carsphairn



Coordinates: E259 419, N598 010

VP D - Bogton Loch



Coordinates: E246 233, N605 944

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

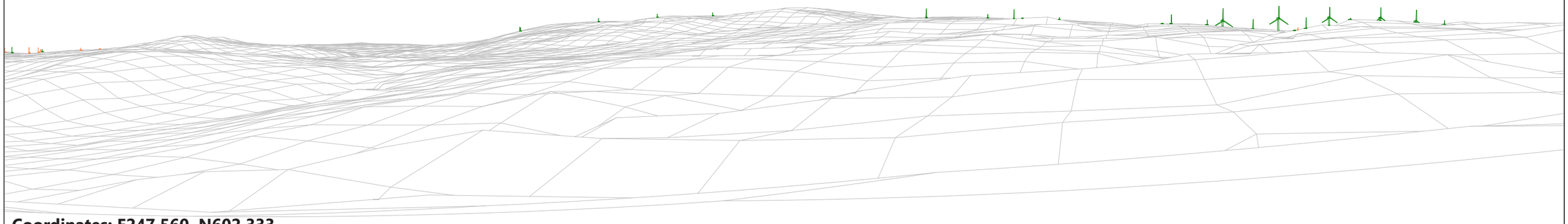
Figure 8.5b
Proposed Scoped Out Viewpoint Wirelines
Viewpoints C & D

January 2020

wood.

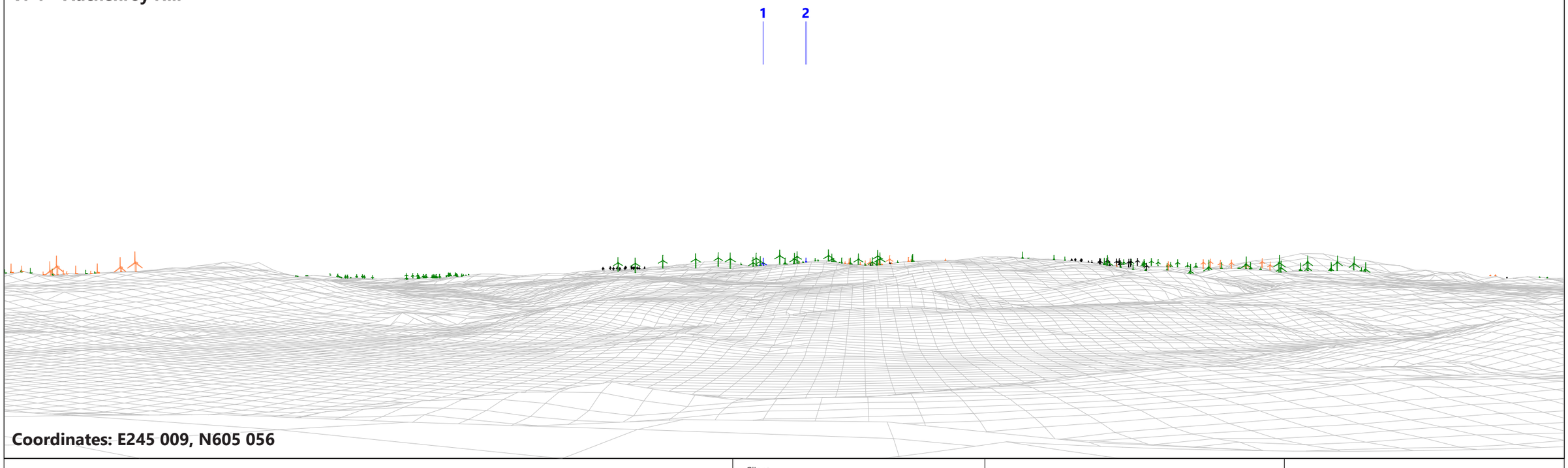
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP E - Fort Carrick



Coordinates: E247 560, N602 333

VP F - Auchenroy Hill



Coordinates: E245 009, N605 056

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

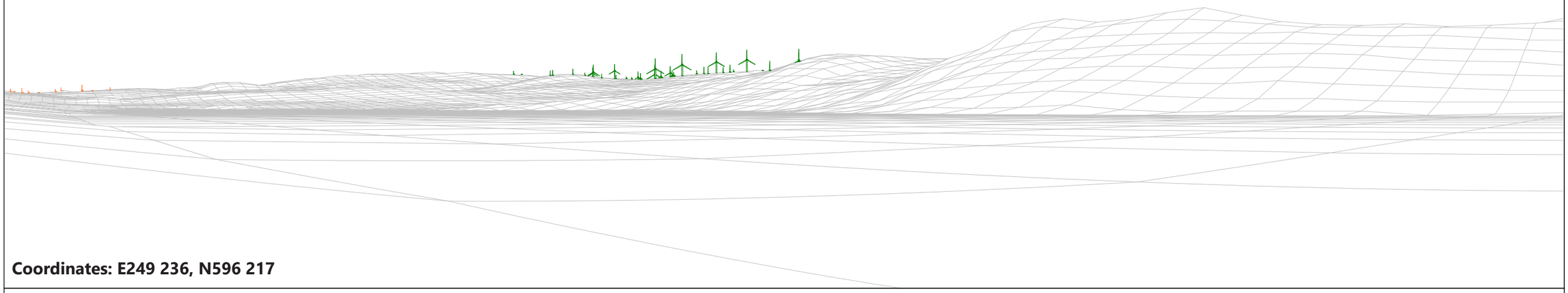
Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.5c
Proposed Scoped Out Viewpoint Wirelines
Viewpoints E & F

January 2020

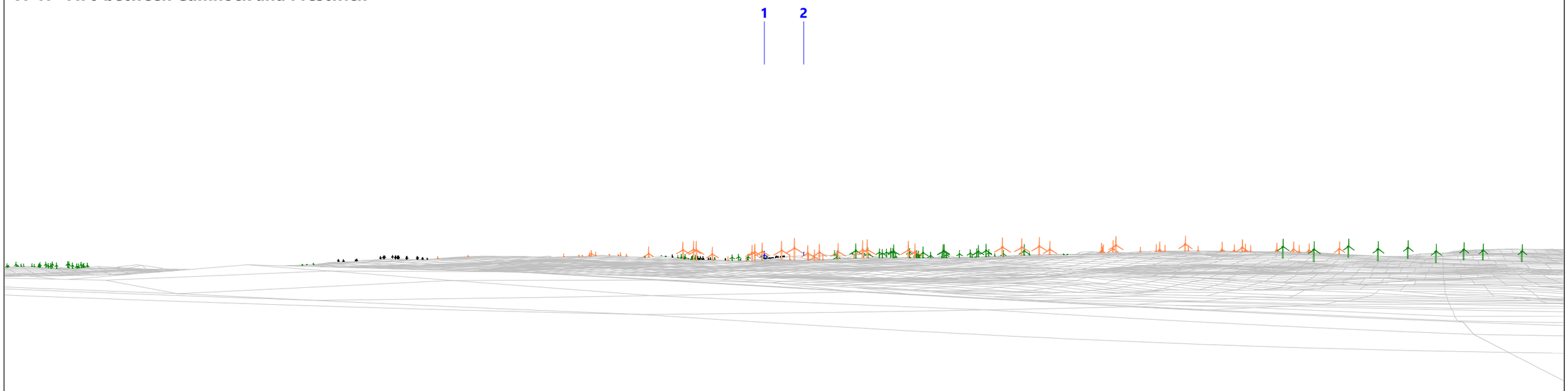
wood.

VP G - Loch Doon Shore



Coordinates: E249 236, N596 217

VP H - A70 between Cumnock and Prestwick



Coordinates: E247 353, N620 045

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

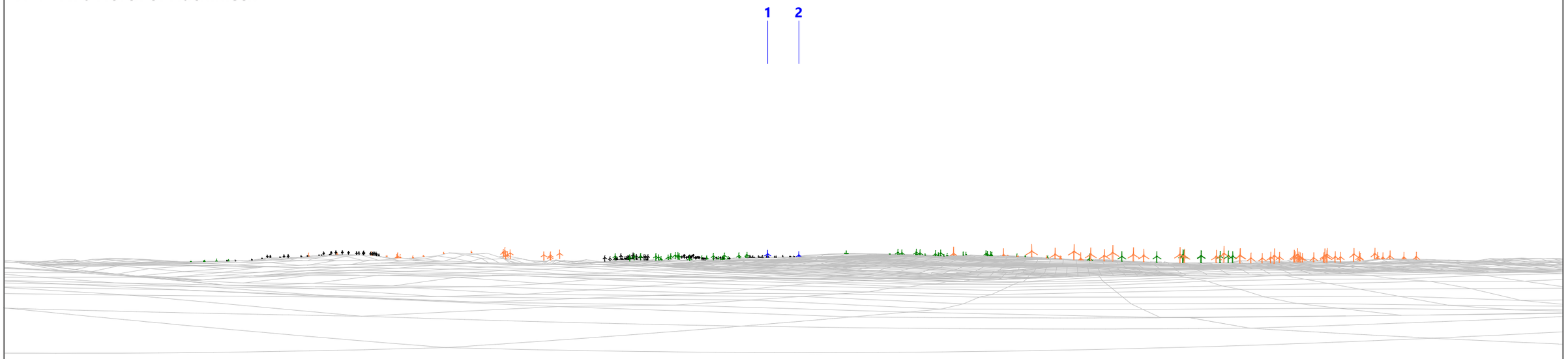
Figure 8.5d
Proposed Scoped Out Viewpoint Wirelines
Viewpoints G & H

January 2020

wood.

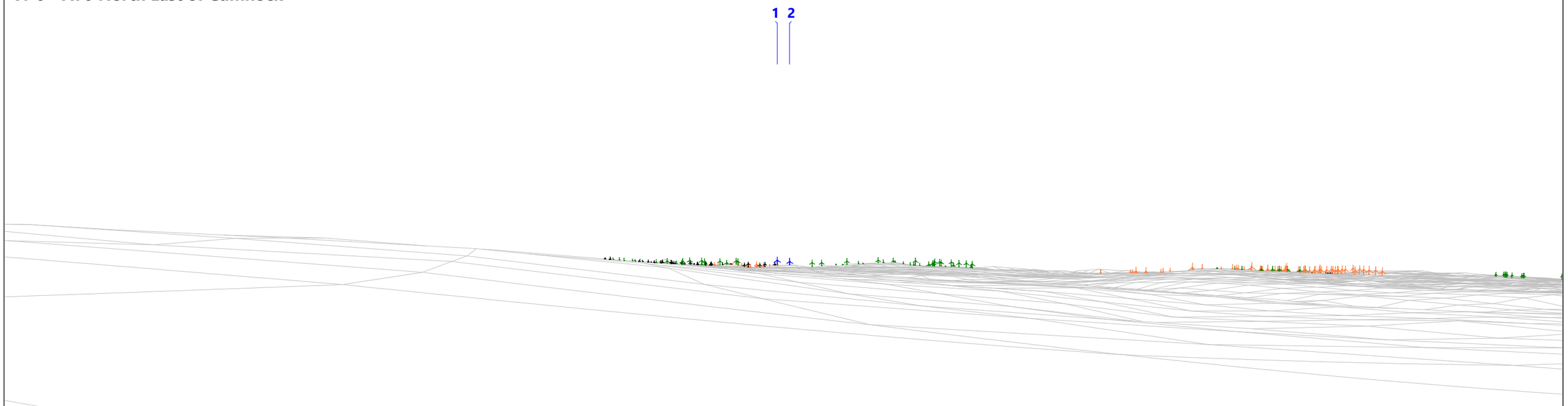
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP I - A76 North of Auchinleck



Coordinates: E252 967, N623 595

VP J - A70 North East of Cumnock



Coordinates: E263 390, N624 657

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

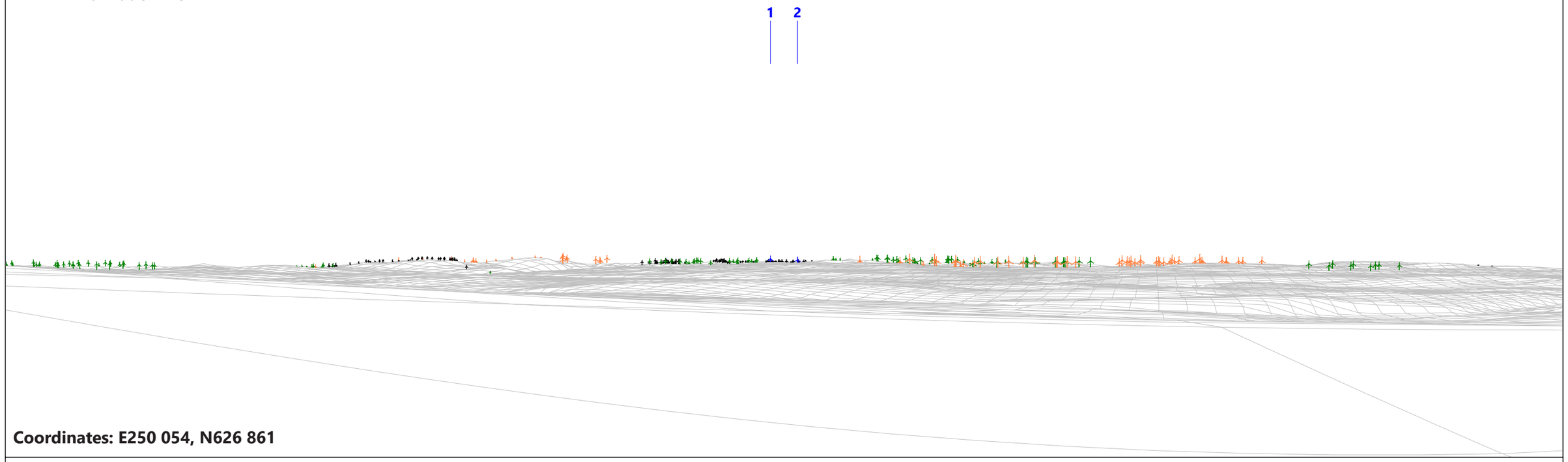
Figure 8.5e
Proposed Scoped Out Viewpoint Wirelines
Viewpoints I & J

January 2020

wood.

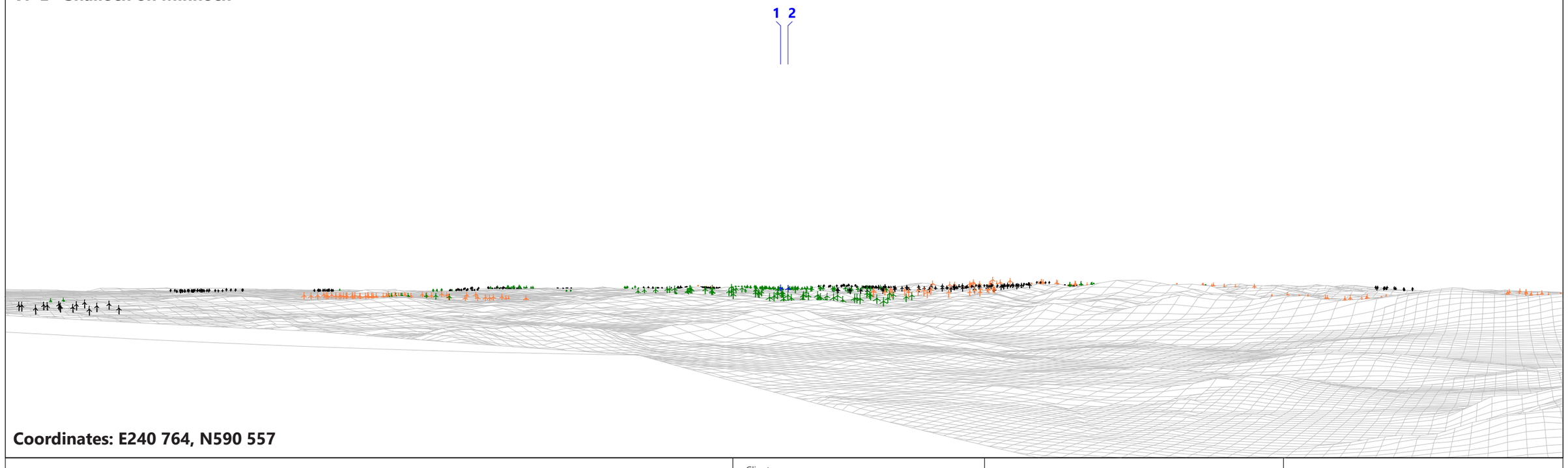
H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP K - A76 Mauchline



Coordinates: E250 054, N626 861

VP L - Shalloch on Minnoch



Coordinates: E240 764, N590 557

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.5f
Proposed Scoped Out Viewpoint Wirelines
Viewpoints K & L

January 2020

wood.

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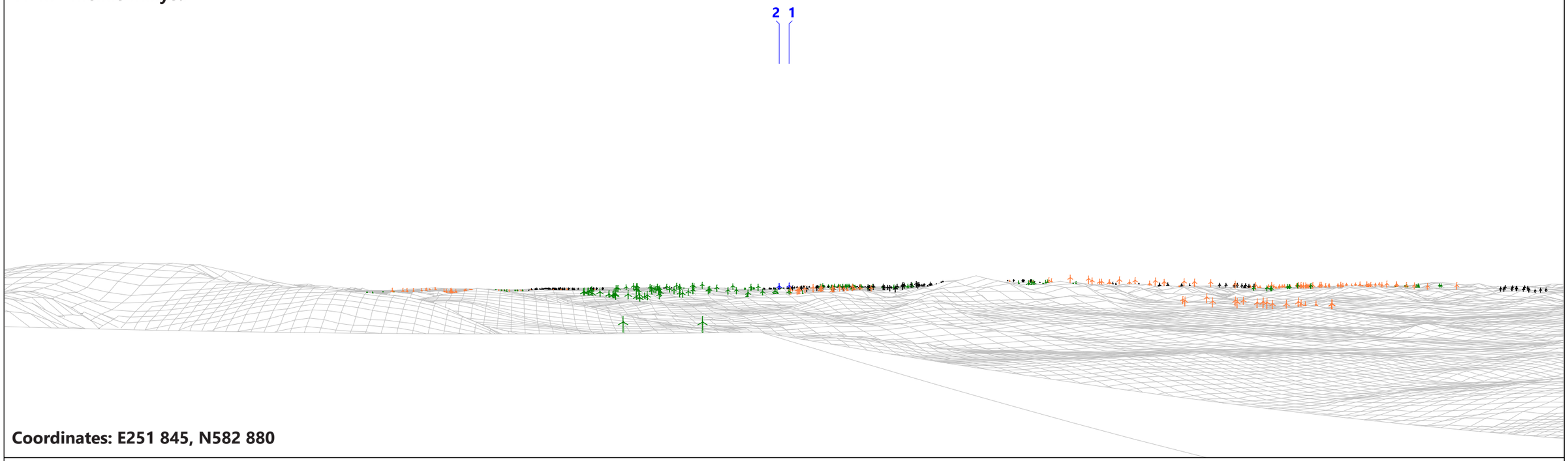
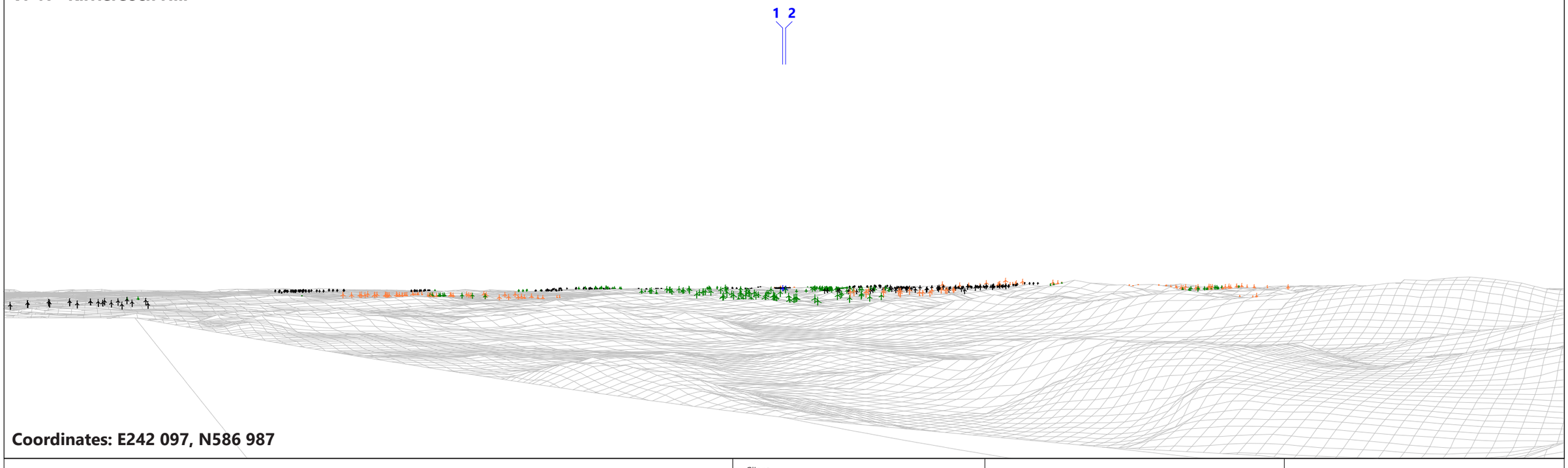
VP M - Meikle Millyea



Coordinates: E251 845, N582 880

VP N - Kirriereoch Hill



Coordinates: E242 097, N586 987

Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

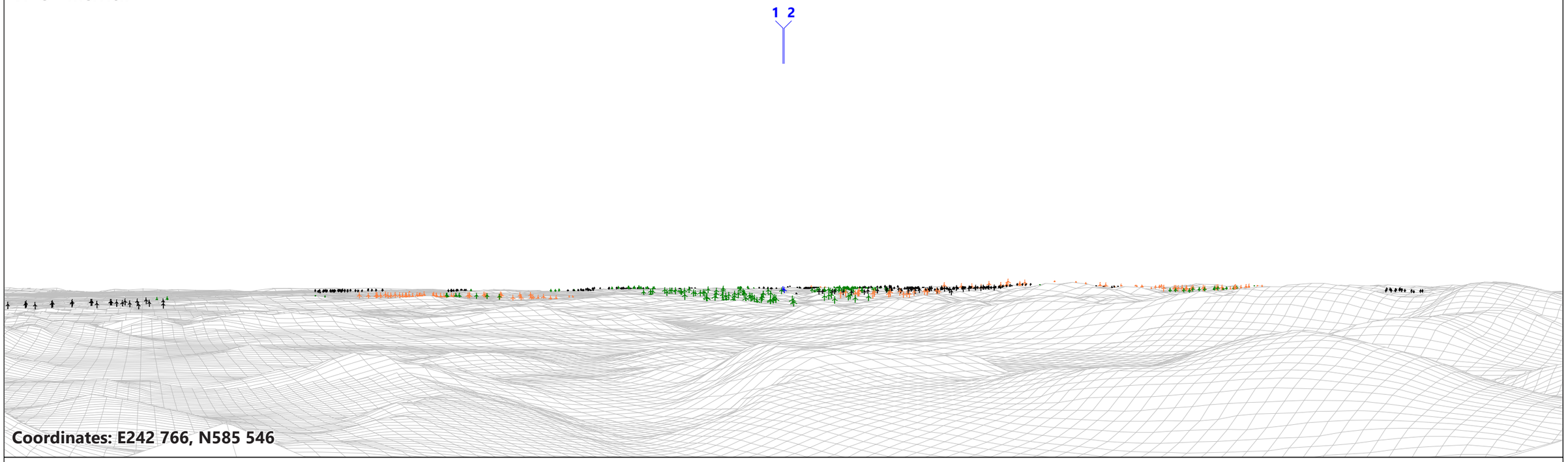
Figure 8.5g
Proposed Scoped Out Viewpoint Wirelines
Viewpoints M & N

January 2020

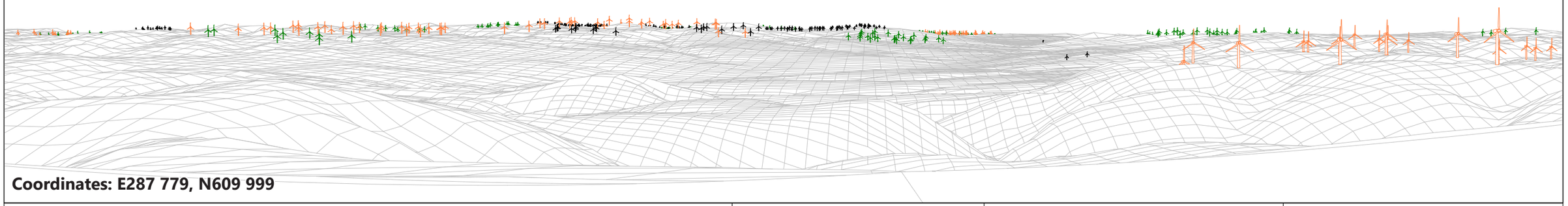
wood.

H:\data\Projects\38388 SUB - Monquhill Wind Farm\D040\Drawings\38388-GOS152.indd Originator: wilsc03

VP O - Merrick



VP P - East Mount Lowther



Wind Farm Key: Enoch Hill 2 Wind Farm | Existing | Consented | Application

Notes:
(1) Horizontal field of view: 90°
(2) View flat at a comfortable arm's length

Client

RWE

Enoch Hill 2 Wind Farm
Scoping Report

Figure 8.5h
Proposed Scoped Out Viewpoint Wirelines
Viewpoints O & P

January 2020

wood.