



Craig Watch Wind Farm

Environmental Impact Assessment Report

Volume 1: Non-Technical Summary

June 2022



1 Introduction

- 1.1.1 Craig Watch Wind Farm Limited ('the Applicant') has applied for consent¹ to construct and operate a wind farm and associated infrastructure with generation capacity of greater than 50 megawatts (MW). The project is to be referred to as Craig Watch Wind Farm ('the Proposed Development'). The Proposed Development would comprise of up to 11 turbines with maximum blade tip height of 200 m above ground level (agl) on a site located approximately 8 km south east of Dufftown, Moray in Scotland within both Moray and Aberdeenshire ('the Site'). The Site location is shown in Figure 1.
- 1.1.2 An Environmental Impact Assessment Report (EIAR) has been prepared to accompany the application for consent, to assess and report on any predicted likely significant effects of the Proposed Development and, where it has been possible, sets out how these effects have been reduced or mitigated. This document provides a Non-Technical Summary (NTS) of the EIAR.

1.2 Purpose of the Non-Technical Summary

- 1.2.1 The aim of the NTS is to summarise the content and main findings of the EIAR in a clear and concise manner to assist the reader in the understanding of the design of the Proposed Development, what the predicted likely significant environmental effects of the Proposed Development are and, where it has been possible, how they have been reduced or mitigated. For full details of please refer to Volumes 2-4 of the EIAR
- 1.2.2 The EIAR comprises the following volumes:
- Volume 1: Non-Technical Summary (NTS);
 - Volume 2: Main Report;
 - Volume 3a: Figures;
 - Volume 3b: Visualisations;
 - Volume 4: Technical Appendices; and
 - Volume 5: Confidential Information.
- 1.2.3 The Application is accompanied by the following additional documents:
- Planning Statement;
 - Design Statement; and
 - Pre-Application Consultation Report.

1.3 EIA Process and Methodology

- 1.3.1 EIA is a process that identifies the potential environmental effects (both beneficial and adverse) of a proposed development and identifies mitigation to avoid, reduce and offset any potential significant adverse environmental effects. The EIA process adopted for the Proposed Development has followed best practice guidelines, as set out by the Institute of Environmental Management and Assessment's Quality Mark Scheme.

¹ An application for consent for the Proposed Development will be made to the Scottish Ministers under section 36 of the Electricity Act 1989, along with a request for a direction that planning permission be deemed to be granted under section 57(2) of the Town and Country Planning (Scotland) Act 1997 as amended

1.4 Copies of the EIAR

- 1.4.1 The Applicant intends to submit an application to the Energy Consents Unit (ECU), under Section 36 of the Electricity Act 1989, in June 2022. Although the ECU have confirmed that printing is not required due to the response to the COVID-19 pandemic, the Applicant has placed one hard copy of the application documents in Dufftown Library to ensure local access to a physical copy. The EIAR, including all figures, technical appendices and the accompanying application documents will be available to view on the project website (www.craigwatch.co.uk).
- 1.4.2 The application documents will also be available via the Scottish Government Energy Consents website (<https://www.energyconsents.scot/Default.aspx>).
- 1.4.3 For anyone who has difficulty accessing the documentation online, a USB copy can be made available for £20. Hard copies of the Non-Technical Summary can also be made available free of charge. A hard copy of all the application documents may be obtained for the cost of printing and postage. Requests for copies of the application submission can be made by:
- Email: ukprojects@statkraft.com
Phone: 0800 772 0668
Post: Freepost Statkraft.

1.5 Commenting on the Application

- 1.5.1 When the application for the Proposed Development is lodged with Scottish Government, the Applicant will advertise the application in accordance with legislation in local and national press. The advertisement will provide details of the date by when representations should be made. The Scottish Government will invite formal representations on the Proposed Development, which will be taken into account before any decision is reached on the application.
- 1.5.2 Any representations in relation to the application should be made to the Energy Consents Unit mail box, at representations@gov.scot, via the ECU website at www.energyconsents.scot or by post to The Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU, identifying the Proposed Development and specifying the grounds for representation. Written or emailed representations should be dated, clearly stating the name (in block capitals), full return email and postal address of those making representations.

2 Consultation on the Scope of the EIA

2.1 Scoping

- 2.1.1 A Scoping Opinion request accompanied by a Scoping Report was submitted to the Scottish Ministers regarding the Proposed Development on 20 November 2020, under the provisions of Regulation 12 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. A scoping opinion was received on 19 March 2021.
- 2.1.2 This scoping process allowed the EIAR to focus on the main areas of interest raised by the various consultees, with agreement with consultees that impacts which are not likely to be significant could be scoped out of further assessment.

2.2 Public Consultation

2.2.1 In addition to seeking a Scoping Opinion, the Applicant conducted virtual and in-person public exhibitions to seek the views of the local community in Moray and Aberdeenshire, as follows:

- 5 to 31 March 2021 (online only); and
- 4 to 26 November 2021, Dufftown and Glass (online and in-person).

2.3 Other Consultation

2.3.1 During the design evolution process consultation was ongoing with consultees such as the Energy Consents Unit, Aberdeenshire Council, Moray Council, NatureScot, Historic Environment Scotland (HES) and the Scottish Environment Protection Agency (SEPA). The design directly responded to feedback from consultees.

2.3.2 Additionally, through the Gatecheck process, draft design layouts were shared with consultees and feedback received.

3 Site Location

3.1.1 The Site covers an area of approximately 1,074 hectares (ha) and is located approximately 8 km south east of Dufftown, Moray in Scotland (approximate OS Grid Reference for Site centre: NJ 37509 34022), as illustrated in Figure 1: Site Location.

3.1.2 Operational wind farms are an existing feature of the surrounding landscape. As illustrated on Figure 2: Site Context, Dorenell wind farm is located to the south west, Clashindarroch is located to the south east and Hill of Towie, Edintore, and Ardoch Farm are located directly to the north. Additionally, the Site is surrounded by numerous wind farms that are consented, in planning or at scoping such as: Clashindarroch II located east of the Site in planning; and Glenfiddich, located west of the Site and Clashindarroch Extension located south east of the Site, which are both currently at scoping. Garbet is located north of the Site and an appeal has been brought forward against the planning decision.

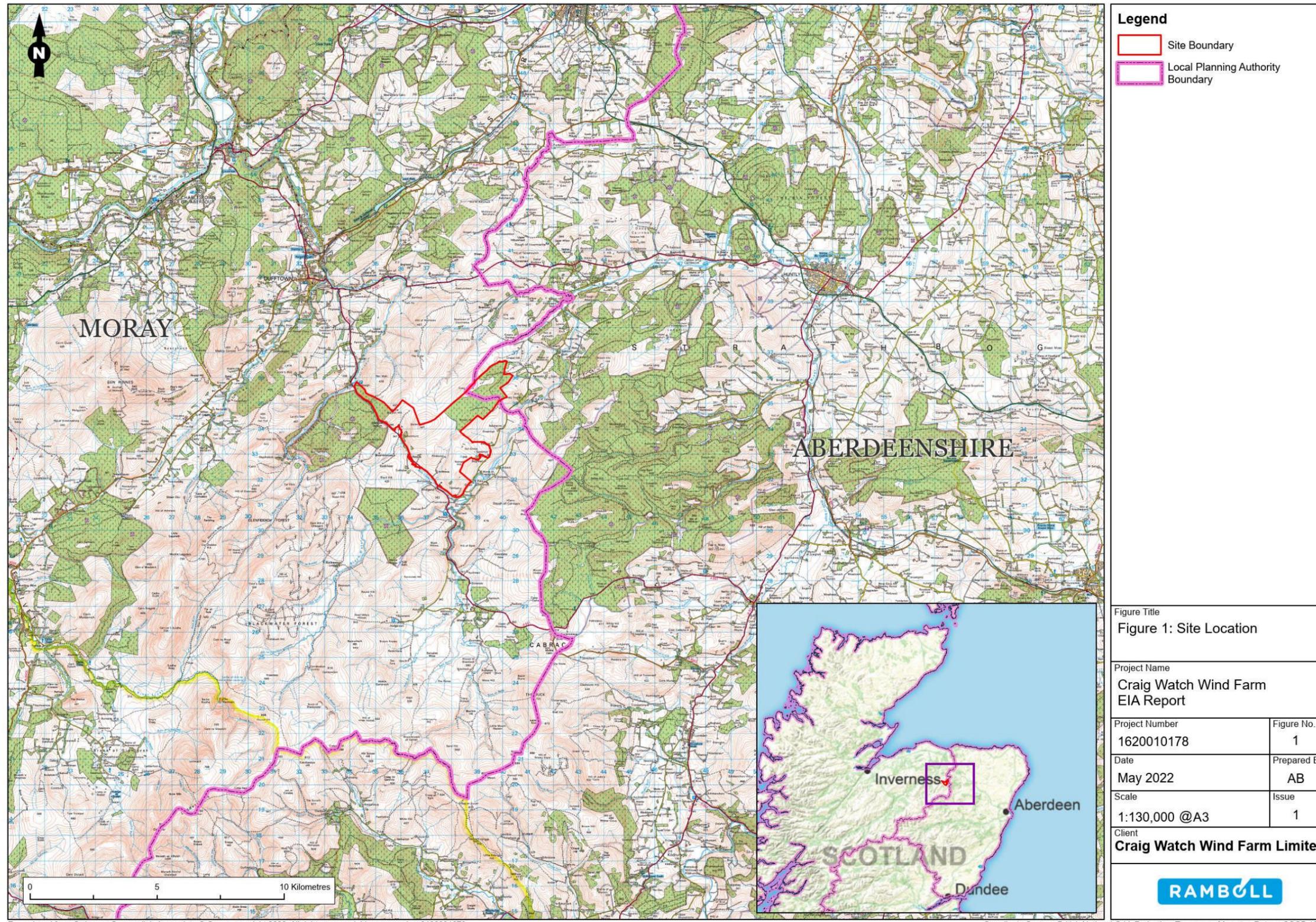


Figure 1: Site Location

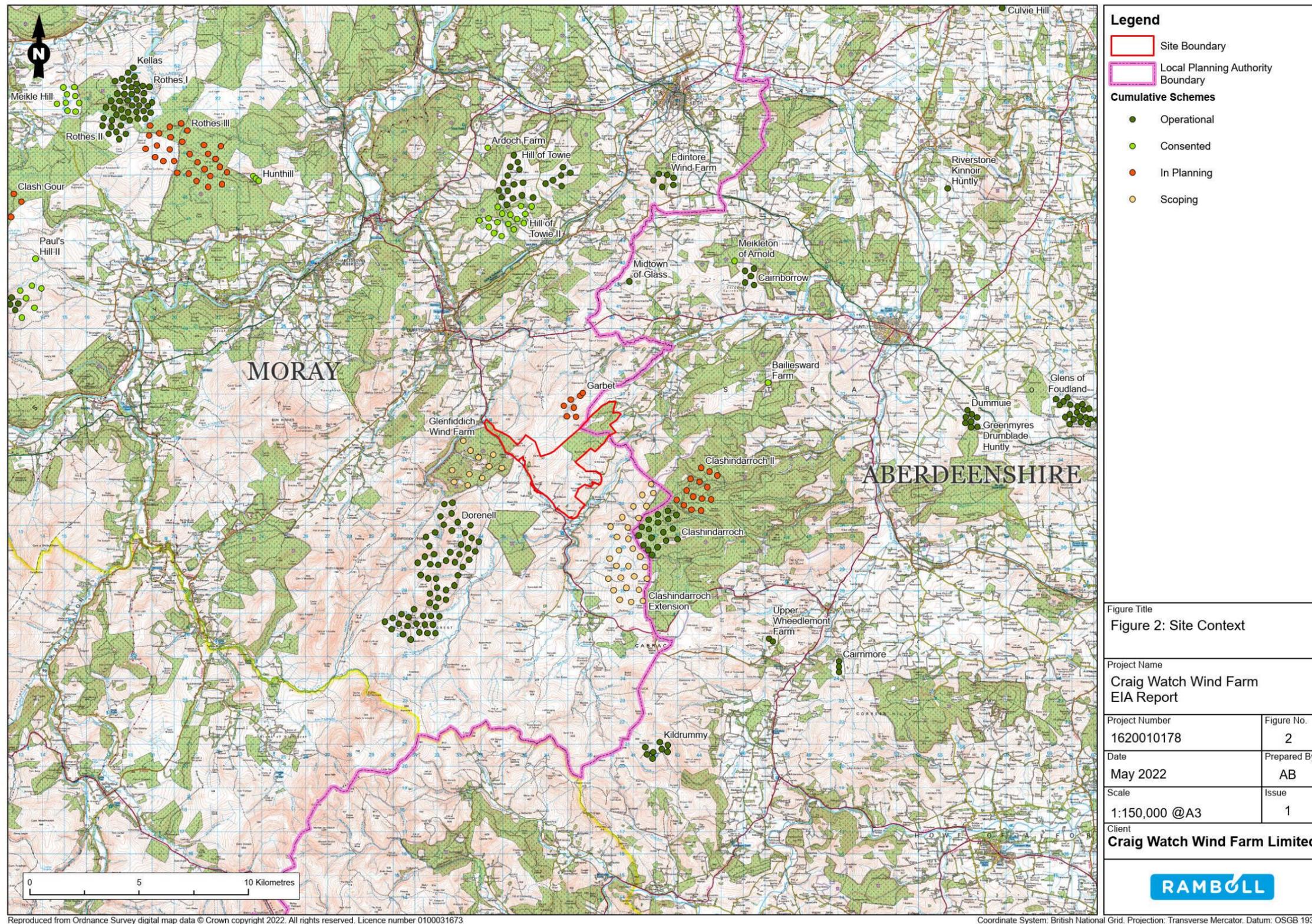


Figure 2: Site Context

4 Proposed Development Description

4.1.1 The Proposed Development layout is shown in Figure 3 and includes the following key components:

- Up to 11 three-bladed horizontal axis wind turbines with a maximum tip height of 200 m;
- Permanent turbine foundations and associated crane hardstanding at each turbine location;
- A permanent free-standing meteorological mast;
- A network of approximately 9.4 kilometres (km) of on-site access tracks (2.18 km of which would be formed through upgrading existing track), with associated watercourse crossings, passing places and turning heads. Additionally, a total of approximately 760 m of on-site emergency access track;
- A main Site entrance with any necessary road improvements works from the public road network;
- A substation compound, including a battery energy storage system (if required) and control building (if required);
- Two temporary Site construction compounds;
- A borrow pit search area;
- A network of on-site buried electrical cables;
- Associated ancillary works:
 - Habitat management plan areas, forest felling and replanting;
 - Extraction of rock from borrow pits (if suitable); and
 - Concrete batching plant (to be located within one of the temporary construction compounds or borrow pit search areas).

4.1.2 The locations of the proposed turbines and other infrastructure would be subject to 'micrositing'. This process allows for minor changes in turbine or infrastructure locations to respond to possible variations in ground conditions across the Site, which would only be confirmed following detailed Site investigation work carried out immediately prior to construction. This process also provides scope for further mitigation of localised potential environmental effects through avoidance of sensitive features. It is anticipated that the micrositing distance of 100 m would form a condition accompanying any consent. Any repositioning would not encroach into environmentally constrained areas and would be carried out under the supervision of an Ecological Clerk of Works (ECoW) and an appropriately experienced and qualified engineer.

4.1.3 The Proposed Development would be fitted with lighting to comply with relevant aviation regulations. A reduced lighting scheme proposal was submitted to the Civil Aviation Authority and approved. As part of the reduced turbine lighting scheme, Turbines 1, 2, 4, 5, 8, 9 and 11 would be illuminated, by a 2000 candela light on the nacelle.

4.1.4 A substation compound with an area of approximately 8,500 m² (170 m x 50 m) would be developed on-site. The compound would comprise a substation, a battery energy storage system (if required) and a control room (if required), basic welfare facilities and potentially some external electric equipment. The building would accommodate all the equipment necessary for automatic remote control and monitoring of the Proposed Development in addition to the electrical switchgear, fault protection and metering equipment required to connect the Proposed Development to the electricity network.

- 4.1.5 The grid connection would be the responsibility of the Transmission System Operator (TSO) (Scottish and Southern Electricity Networks (SSEN)) and would be subject to a separate consenting process. Discussions with the TSO regarding the grid connection are currently on-going. As such the details of the grid connection route are unknown at this stage and have not been included within the assessment in this EIAR.

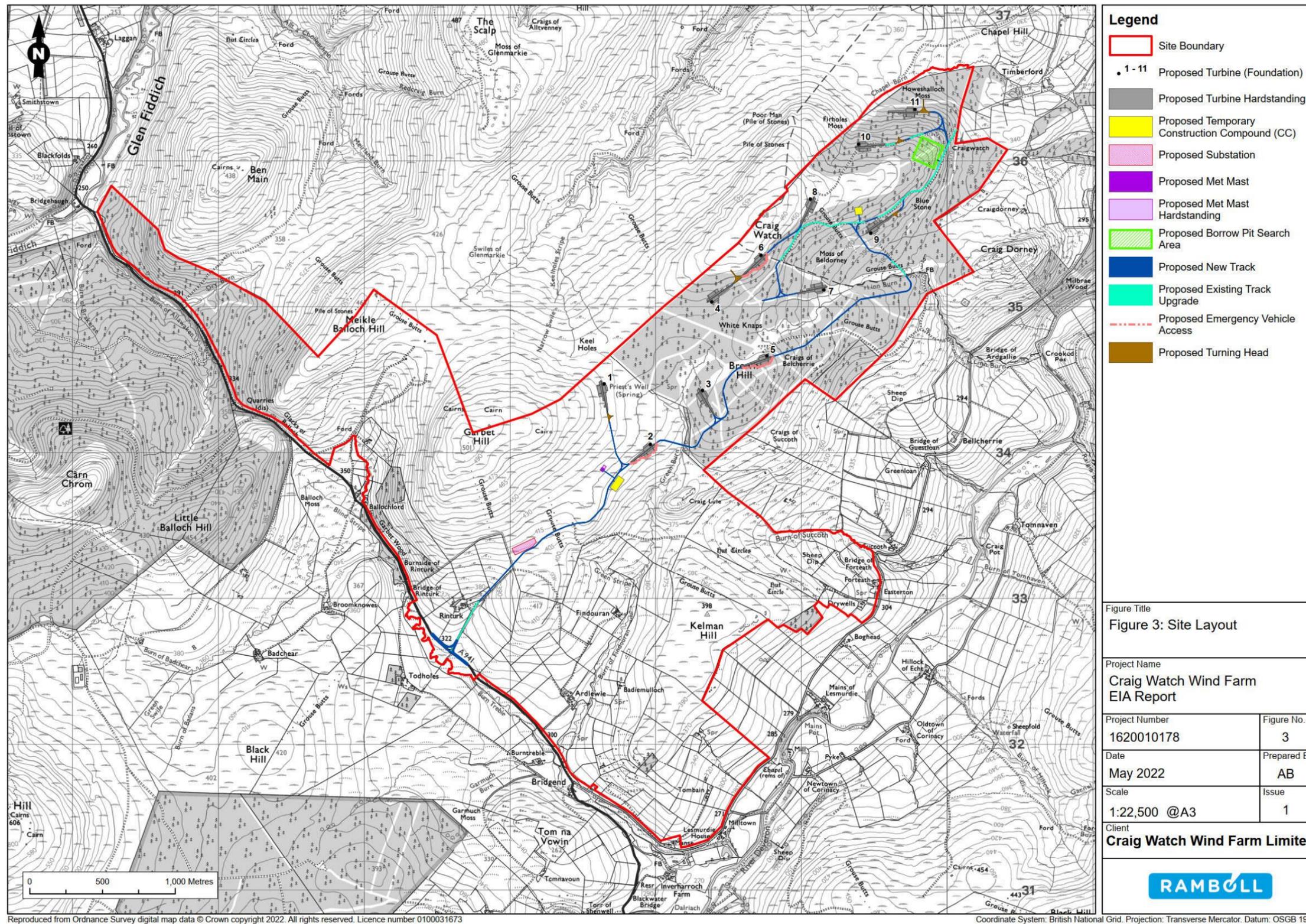


Figure 3: Site Layout

4.2 Construction Activities

- 4.2.1 The construction of the Proposed Development would take approximately 18 months.
- 4.2.2 The typical construction hours of work would be Monday to Friday 0700 to 1900 and Saturday 0700 to 1300. No audible works, with the exception of turbine delivery, the completion of turbine erection or emergency work, will take place outside these hours, and any such out-of-hours works will be subject to prior written agreement with Moray Council (MC) and Aberdeenshire Council (AC).
- 4.2.3 A Traffic Management Plan would be agreed in consultation with AC and MC and Transport Scotland prior to construction commencing to avoid and reduce potential effects associated with construction traffic during working hours.
- 4.2.4 A Construction Environmental Management Plan (CEMP) would be implemented during construction to avoid, reduce or control associated adverse environmental effects. An Outline Construction Management Plan (OCEMP) has been produced and will be submitted as part of the application submission. The CEMP would, as a minimum, include details of:
- construction methodologies;
 - pollution prevention measures;
 - public liaison provision;
 - peat slide, erosion and compaction management;
 - control of contamination/ pollution prevention;
 - drainage management and sustainable drainage systems (SuDS);
 - water quality monitoring;
 - Species and Habitat Protection measures;
 - Archaeology protection measures;
 - management of construction traffic;
 - control of noise and vibration; and
 - control of dust and other emissions to air.

4.3 Operation Management and Maintenance

- 4.3.1 The expected operational life of the turbines would be 33 years from the date of final commissioning.
- 4.3.2 Wind turbines and wind energy projects are designed to operate largely unattended. Each turbine at the Proposed Development would be fitted with an automatic system designed to supervise and control a number of parameters to ensure proper performance (e.g. start-up, shut-down, rotor direction, blade angles etc.) and to monitor condition (e.g. generator temperature).
- 4.3.3 The control system would automatically shut the turbine down should the need arise. Sometimes the turbines would re-start automatically (if the shut-down had been for high winds, or if the grid voltage had fluctuated out of range), but other shut-downs (e.g. generator over temperature) would require investigation and manual restart. There would be approximately two vehicle movements per week to the Site for maintenance purposes.

4.4 Residue and Emissions

4.4.1 The EIAR has considered the potential for residues and emission associated with the construction, operation and decommissioning of the Proposed Development. As required by the EIA Regulations, this includes consideration of: water; air; soil and subsoil; noise and vibration; light; heat and radiation; and waste. With the implementation of the CEMP, no significant residues or emissions have been identified during the construction phase. With the implementation of appropriate mitigation no significant residues or emissions would result from the operation of the Proposed Development.

5 Design Evolution and Alternatives

5.1 Site Selection Considerations

5.1.1 The Site was identified for wind farm development for a number of reasons:

- The Site is situated amidst a cluster of wind farm developments, and as such there is the precedent for this type of development already in the area.
- The Site does not have the potential for significant direct effects on geographic areas protected under national or international statutory designations for nature conservation.
- The Site is not located in an area subject to landscape designation.
- The Site has suitable access for both construction traffic and abnormal indivisible loads.
- The Site has high anticipated wind speeds based on desktop analysis.
- The Site would make a significant contribution to meeting national energy policy and climate emergency policy related goals of achieving net-zero emissions by 2045.
- The Site is located within an area categorised as suitable for large typology wind turbines within the Moray Wind Energy Landscape Capacity Study².

5.2 Alternatives

Design Evolution and Alternative Layouts

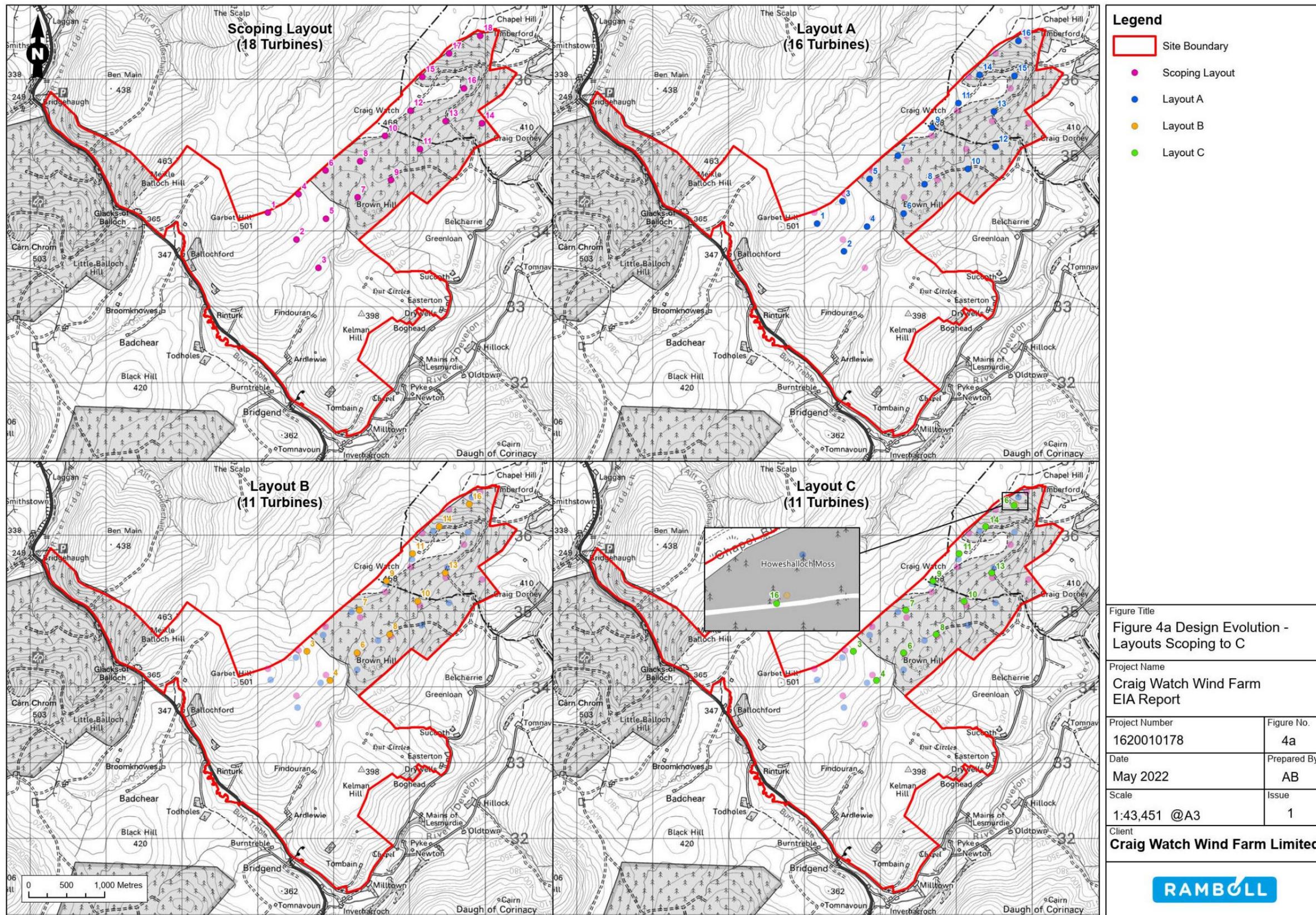
5.2.1 Figure 4a and Figure 4b summarise the Proposed Development's design evolution from scoping stage to the design freeze layout. The ECU, AC, MC, HES, NatureScot and the SEPA, amongst others, were consulted throughout the design evolution process.

5.2.2 The Proposed Development design process was iterative, with the design evolving as environmental constraints were identified and as a result of feedback from consultees. There were seven principle design stages with the final layout, Layout F, providing:

- Reduced visibility and prominence of the Proposed Development from key sensitive receptor locations, including main settlements, glens and key transportation and tourist/scenic routes and recreational routes in the study area.
- The layout avoids or, where this is not possible, minimises impacts on all known cultural heritage assets within the Site.
- The Site layout avoids disturbance of archaeological remains. The cultural heritage (setting effects) have been minimised as far as reasonably possible, including through the removal of turbines.

² Moray Council, 2017. Moray Wind Energy Landscape Capacity Study 2017. Online. Available at: http://www.moray.gov.uk/moray_standard/page_107096.html [accessed 12/05/2022]

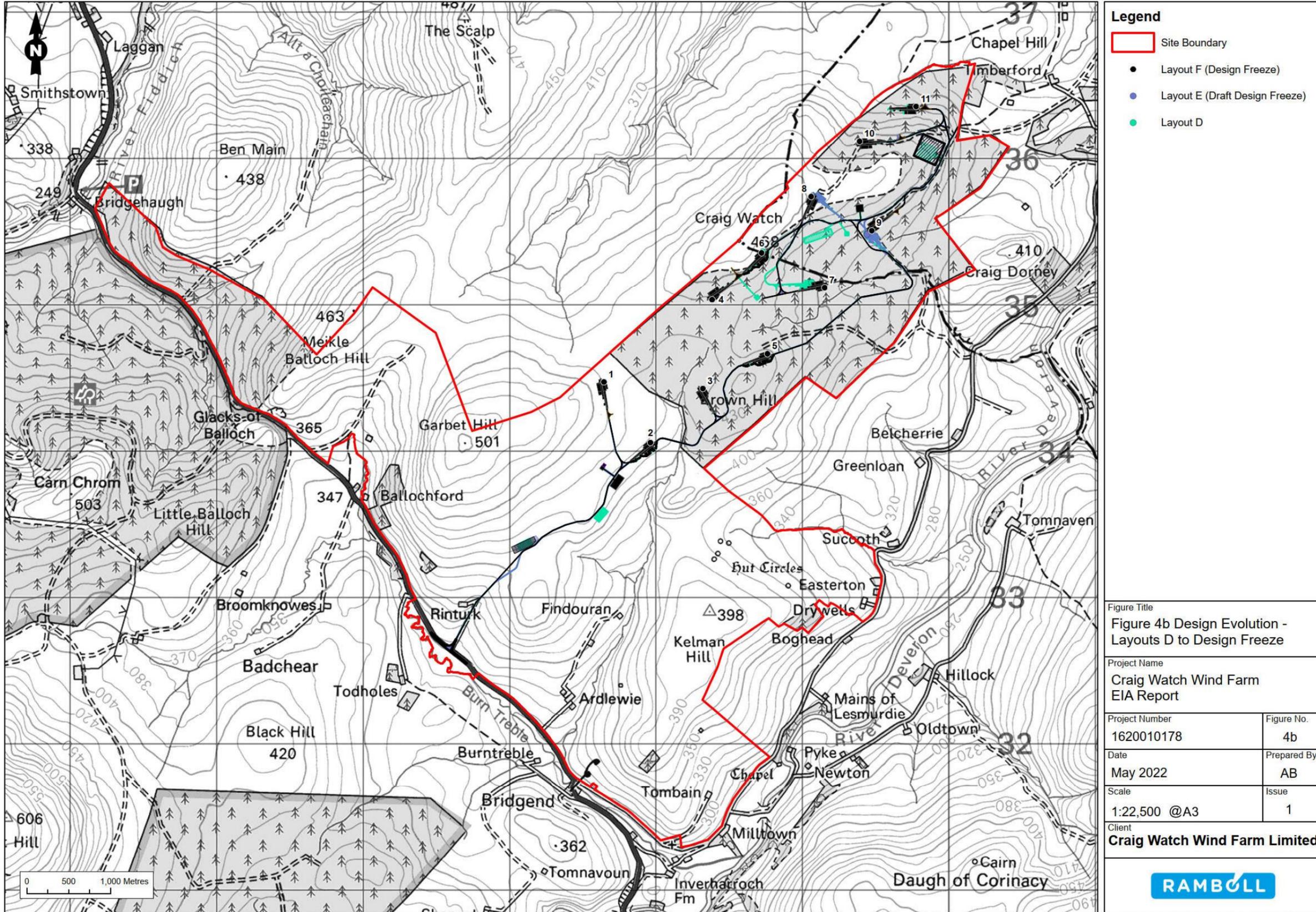
- The proposed infrastructure layout minimises the number of watercourse crossings required, avoiding likely significant effects on the water environment as far as possible.
- The Site layout incorporates suitable buffers to watercourses sufficient to protect the River Spey special area of conservation (SAC) and relevant protected species including bats, water vole and otter.
- The Site layout minimises effects on ecological and ornithological features and incorporates suitable buffers to protect these assets.
- The design minimises effects on telecommunications links and radar.
- The proposed infrastructure layout maximises the use of existing access tracks, reducing the 'new' infrastructure footprint and optimising, limiting habitat removal.
- The layout design has given careful consideration to avoid development on areas of deeper peat where possible and limit impacts to groundwater dependent terrestrial ecosystems (GWDTE).



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Coordinate System: British National Grid. Projection: Transverse Mercator. Datum: OSGB 1936.

Figure 4a : Design Evolution – Layouts Scoping to C



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Coordinate System: British National Grid. Projection: Transverse Mercator. Datum: OSGB 1936.

Figure 4b: Design Evolution – Layouts D to Design Freeze

6 Potential Environmental Effects

6.1.1 The EIA process is designed to identify the likely significant effects, both adverse and beneficial, that the Proposed Development could have on the environment and where it has been possible, set out how they have been reduced or mitigated. The technical assessments have considered the likely effects of the Proposed Development during construction, operation and decommissioning. Section 8 of this NTS addresses decommissioning. The EIA considered the environmental impacts across a range of factors, in accordance with the EIA Scoping Opinion issued by Scottish Ministers³. The conclusions of the EIA are that potential likely significant effects have been identified for a number of the topics listed below however that these would be reduced to a non-significant level through the application of mitigation. The only exception to this is for landscape and visual and cultural heritage and archaeology impacts where some significant residual effects would remain. The following environmental topics have been considered within the EIA:

- Landscape and Visual;
- Cultural Heritage and Archaeology;
- Ecology;
- Ornithology;
- Hydrology, Hydrogeology and Geology;
- Traffic and Transport;
- Noise;
- Aviation;
- Socioeconomics;
- Shadow Flicker;
- Climate Change;
- Peat; and
- Forestry.

6.2 Landscape and Visual

6.2.1 A detailed landscape and visual impact assessment (LVIA) has been undertaken which describes the current landscape and visual baseline context of the Proposed Development and identifies key sensitive receptors.

6.2.2 The LVIA identifies key impact generators associated with the construction and operation of the Proposed Development and prioritises them for mitigation in order to ameliorate potential for significant effects on the landscape and visual resource of a 45 km radius study area.

6.2.3 The Proposed Development is located on an area of upland landscape, situated 30 km south of the Moray and northern Aberdeenshire coastline. It is located within an area of transitional upland landscape set between the sea and the Cairngorm massif, which rises approximately 30-40 km to the south west of the Site.

6.2.4 The Site itself lies across two landscape character types (LCT); the Open Upland LCT and the Farmed and Wooded River Valleys LCT considered to be of high sensitivity to development.

³ A Scoping Opinion was received from Scottish Ministers on 20 August 2020. Contents of the Scoping Opinion are summarised in ES Volume 4: Technical Appendix 1.1: Consultation Register

- 6.2.5 Taking account of proposed mitigation measures, the LVIA identified significant adverse effects to the following receptors:
- In parts of eight LCTs (LCT27, LCT28, LCT289, LCT294, LCT123, LCT291);
 - On the Ben Rinnes Special Landscape Area (SLA) (in Moray) and the Deveron Valley SLA (in Aberdeenshire). Such effects would, however, be limited in extent and confined to a limited number of elevated areas within the Ben Rinnes SLA, and to areas of the Deveron Valley SLA. None of the identified effects are considered to undermine the integrity of either designation;
 - The south/ south eastern edge of Dufftown. The change would, however, be localised, and the majority of the town would not be significantly affected;
 - On special qualities of the Cairngorms National Park (CNP). This is not considered to undermine the integrity of the designation;
 - On short sections of the A920, the A941, the B9009 and the local road to the east of the Site. There would be no visibility of the Proposed Development from sections of the A920 and A941 which are identified as 'Scenic Approaches' in the Moray Council Local Development Plan; and
 - On three core paths (SP03, SP04, SP30) which are considered to be of local importance.
- 6.2.6 The Proposed Development would add to the emerging pattern of development across the upland landscapes established by adjacent operational development at Dorenell and Clashindarroch and by proposed development at Garbet and Clashindarroch II. There would be significant in-addition and in-combination effects across areas of eight LCTs, the Ben Rinnes SLA, the Deveron Valley SLA, the Cairngorms National Park (in-combination effects only), as well as the southern edge of Dufftown, and on road and local path networks.
- 6.2.7 The Proposed Development would achieve a degree of consistency with regards to the size and scale of other proposed turbines in the immediate area and would consolidate the pattern of development by in-filling an area of landscape between Garbet and Clashindarroch II wind farms. It affords an opportunity for the establishment of a cohesive and well-designed array that takes account of key landscape and visual sensitivities and avoids a more piecemeal and discordant development pattern that could be more deleterious in landscape and visual terms.

6.3 Cultural Heritage and Archaeology

- 6.3.1 A desk-based assessment and walk-over field survey have been carried out to establish the archaeology and cultural heritage baseline within the Site.
- 6.3.2 The assessment has been informed by consultation responses provided by HES.
- 6.3.3 Fourteen of the 53 identified non-designated assets within the Site Boundary could potentially be directly impacted by the construction of the Proposed Development or by enhancement works within the Habitat Management Plan (HMP) areas. Through the proposed mitigation measures, impacts upon assets within the HMP areas would be avoided. This would be achieved through fencing of the assets prior to commencement of enhancement works and prohibiting any works within the fenced areas. Adverse effects upon these assets are considered to be not significant.
- 6.3.4 There are no designated heritage assets within the Site. There are three Scheduled Monuments within 5 km of the Site boundary (Craig Dorney hillfort, Auchindoun Castle and fort and Battle Stone, Mortlachlie). A further 11 Scheduled Monuments are situated between 5 km and 10 km of the Site boundary.

- 6.3.5 Potential operational effects on settings of designated heritage assets within the 5 km and 10 km Study Areas have been considered in detail as part of this assessment. Significant adverse effects have been predicted upon the settings of the Scheduled Monuments Craig Dorney hillfort and Auchindoun Castle. There would not be an adverse effect upon the integrity of these assets' settings. Non-significant effects have been predicted for the remaining Scheduled Monuments and Listed Buildings within the study areas, including for that of the setting of Balvenie Castle, Tap o'Noth, Gauldwell Castle, Beldorney Castle, and Glen Rinnes Lodge.
- 6.3.6 There is the potential for adverse significant effects upon hitherto unknown archaeological remains. The effects have been considered and mitigation measures have been suggested to ensure identification, assessment and recording of any such assets as required.
- 6.3.7 The possibility of cumulative effects has been assessed and significant adverse cumulative effects have been identified on Craig Dorney hillfort and Auchindoun Castle. All other cumulative effects are not considered significant.

6.4 Ecology

- 6.4.1 A desk-based assessment and surveys of habitats along with notable and protected species surveys ((non-avian) terrestrial and freshwater) were undertaken to identify the ecological baseline.
- 6.4.2 The assessment included consideration of best practice mitigation proposed, which includes measures to be implemented through the CEMP, species and habitat protection measures, presence of an ECoW and 50 m buffers to watercourses where possible. The Applicant is committed to ecological enhancement through the implementation of a habitat management plan (HMP) further details of which are outlined in Section 7.
- 6.4.3 During the construction phase of the Proposed Development the assessment concluded no significant effects on the River Spey SAC, blanket bog habitat, dry modified bog, acid dry swarf shrub heath, otter and water vole, all other receptors were scoped out of the assessment.
- 6.4.4 During the operation phase of the Proposed Development the assessment concluded that the Proposed Development would have non-significant beneficial effects on blanket bog habitat, dry modified bog, acid dry swarf shrub heath and species such as otter and wild cat. There is the potential for non-significant adverse effects on bat species. All other receptors were scoped out of the assessment.
- 6.4.5 There is the potential for non-significant adverse cumulative effects to otters during construction and during operation on bats.
- 6.4.6 Overall, with the implementation of mitigation measures there are not considered to be any significant adverse effects as a result of the Proposed Development.
- 6.4.7 Enhancement measures provided through the HMP post-consent, are expected to provide net beneficial effects associated with the Proposed Development longer term.

6.5 Ornithology

- 6.5.1 A desk-based assessment and ornithological surveys were undertaken to establish the bird species and populations present in the vicinity of the Site. The assessment considered ways in which birds could be affected (directly or indirectly) by the construction and operation of the Proposed Development and an assessment is made with regards to the significance of these effects. The assessment considered direct impacts through collision risk analysis and

indirect effects through habitat disturbance. The assessment included consideration of best practice measures implemented through the CEMP, including the implementation of a Construction Breeding Bird Protection Plan.

- 6.5.2 The assessment considered the effects of the Proposed Development on Tips of Corsemaul and Tom Mor Special Protection Area (SPA), Common gull (breeding), Tips of Corsemaul and Tom Mor Site of Special Scientific Interest (SSSI), hen harrier (breeding), goshawk, black grouse (breeding), curlew (breeding), golden plover (breeding) and lapwing (breeding). The construction, operation and cumulative effects of the Proposed Development are considered to have non-significant adverse effects. Overall, there are not anticipated to be any adverse significant effects on avian species as a result of the Proposed Development with the implementation of best practice mitigation measures.

6.6 Hydrology, Hydrogeology and Geology

- 6.6.1 The assessment considered likely significant effects on hydrology, hydrogeology and geology associated with the construction and operation of the Proposed Development. The assessment considered effects on water quality, flood risk, water resources, private water supplies (PWS), carbon rich soil and deep peat and ground water dependent ecosystems (GWTDE).
- 6.6.2 Throughout the design of the Proposed Development, design considerations have been incorporated to avoid or minimise adverse effects upon hydrological, geological and hydrogeological receptors, such as minimising the number of watercourse crossings, maintaining a minimum 250 m buffer from groundwater abstraction locations and avoiding areas of deep peatland habitats, where possible.
- 6.6.3 The assessment concluded that during construction no significant adverse effects are likely to occur. Construction would be carried out in accordance with a site-specific CEMP which would include: pollution prevention control measures; adoption of 50 m buffer from surface water features where possible; use of sustainable drainage systems; applications for the relevant licences/ authorisations for abstractions, discharges and watercourse crossings; and management and reinstatement of peat in line with the Peat Management Plan.
- 6.6.4 During the operation phase of the Proposed Development, no significant adverse effects are likely to occur. During operation, there would be ongoing maintenance of all on-site drains and culverts to ensure the effective operation of drainage measures, preventing flow disruptions and associated increased flood risk, sediment transport etc. This would ensure that silt management measures remain effective for the lifetime of the Proposed Development.
- 6.6.5 There is the potential for non-significant adverse cumulative effects during construction and operation on soils and peat, surface water flows and runoff, sedimentation and erosion, chemical pollution, GWTDE and PWS.

6.7 Traffic, Transport and Access

- 6.7.1 The assessment considered likely significant effects on traffic, transport and access associated with the Proposed Development.
- 6.7.2 During the construction phase of the Proposed Development there would be a temporary increase in traffic flows. General construction traffic movements would be managed through the provision of a Construction Traffic Management Plan (CTMP) to reduce the traffic impacts. Where applicable, the CTMP would outline the approach to construction vehicle routing and management, delivery control, usage of warning and information signs. The CTMP would also

include a Transport Management Plan for Abnormal Indivisible Load traffic. With these measures in place, effects during the construction stage are considered to be not significant.

6.7.3 Once the Proposed Development is operational, the volume of traffic associated with the operations would be minimal, relating to maintenance of wind turbines only, approximately two vehicles per week. There would be no significant residual effects from the operational phase of the Proposed Development.

6.7.4 No significant cumulative effects are predicted.

6.8 Noise

6.8.1 The assessment considered the effects of potential noise impacts at the nearby dwellings during the construction and operational phases.

6.8.2 The noise modelling demonstrates that the Proposed Development would operate within the construction stage noise limits, and therefore no likely significant effects are identified.

6.8.3 Best practice guidance was used to derive appropriate noise limits for operational phase of the Proposed Development, taking account of the Proposed Development alone and in combination with other relevant wind farm cumulative developments.

6.8.4 The assessment of operational noise is based on the loudest wind turbine candidate considered for the Proposed Development, for which minor exceedances were identified for a few, limited wind speeds and directions. Based on the current candidate turbine, the Applicant proposes mitigation options, which include noise mode management at the relevant turbines during those conditions in which exceedances are predicted, as well as consideration of a different turbine and blade type. There are a range of wind turbine models that may be appropriate for the Proposed Development, which if consent is granted, further data would be obtained from the supplier for the final choice of wind turbine model to demonstrate compliance with the operational noise limits derived in this report. With the mitigation in place, all effects to nearby dwellings are considered to be not significant.

6.8.5 No significant cumulative effects are predicted.

6.9 Aviation and Telecommunications

6.9.1 An aviation and telecommunications assessment considered the potential for conflict with:

- air traffic control and air defence primary surveillance radars;
- Meteorological Office rainfall radars;
- secondary surveillance radars and aeronautical radio navigation aids;
- licensed, certificated and Government aerodromes;
- unlicensed aerodromes, airstrips and gliding sites; and
- fixed telecommunications links within 5 km.

6.9.2 The assessment has identified no significant effects on aviation or telecommunications as a result of the Proposed Development during construction, operation or cumulatively. All effects are considered to be non-significant adverse.

6.9.3 A reduced lighting scheme proposal was submitted to the Civil Aviation Authority and approved. As part of the reduced turbine lighting scheme turbines 1, 2, 4, 5, 8, 9 and 11 would be illuminated.

6.10 Socio-Economics

- 6.10.1 A desk-based assessment considered the potential direct and indirect effects on socio-economic indicators associated with the construction and operation of the Proposed Development.
- 6.10.2 During construction, the Proposed Development is considered to have non-significant beneficial effects on employment and expenditure at the local (Aberdeenshire and Moray) and national (Scotland) scales.
- 6.10.3 It is estimated that the construction phase would generate between approximately £10.5 and £12.2 million Gross Value Added (GVA) to the UK economy and would support between 164 and 191 jobs, which is considered to be not significant at the local and national levels.
- 6.10.4 The operational stage of the Proposed Development would generate approximately £1.48 and £1.72 million GVA to the UK economy and would support between 28 and 33 jobs, which is considered to be not significant at the local and national levels.
- 6.10.5 The Applicant would provide a total of £10.89 to £12.71 million community benefit funding during the 33 year lifetime of the Proposed Development. This is considered to generate a significant beneficial effect at the neighbourhood level (Speyside Glenlivet and Huntly, Strathbogie and Howe of Alford Electoral Wards).
- 6.10.6 Non-domestic rates is a tax which is paid on non-domestic property. The Proposed Development would be liable for domestic rates, contributing approximately £0.80 – £0.93 million annually to the Local Authorities, resulting in a non-significant beneficial effect.
- 6.10.7 Overall, the socioeconomic effects of the capital investment, employment and gross value added (GVA) to the economy are considered to be beneficial (short term during construction, long term during operation) and not significant.
- 6.10.8 In combination with other relevant wind farm developments identified within the study area, the economic benefits are considered to contribute to significant cumulative beneficial effect for the Scottish economy.
- 6.10.9 No adverse effects as a result of the construction or operation of the Proposed Development have been identified.

6.11 Shadow Flicker

- 6.11.1 Shadow flicker is caused by the moving shadow of the turbine rotor being cast over a narrow opening, such as a window or open door. The assessment considered the potential impacts on residential amenity resulting from shadow flicker from the Proposed Development.
- 6.11.2 The assessment indicates that there are four properties within the shadow flicker study area. Of these four, only one would likely experience an exceedance of the shadow flicker levels resulting in a significant adverse effect.
- 6.11.3 A mitigation protocol would be developed and agreed with Moray and Aberdeenshire Council prior to construction of the Proposed Development in order to avoid significant shadow flicker effects. Once implemented, the impact from shadow flicker would reduce and it would be considered to be non-significant.
- 6.11.4 No cumulative effects are predicted.

6.12 Climate

- 6.12.1 The assessment considered how the Proposed Development contributes to global atmospheric greenhouse gases emissions and included consideration of the likely significant effects on climate associated with construction and operation of the Proposed Development.
- 6.12.2 As part of this study, a carbon balance assessment has been undertaken using the Scottish Government's online calculation tool⁴ which has been developed to assess the carbon impact of wind farm development. The carbon assessment tool calculates the CO₂ emissions from the Proposed Development and compares them against the CO₂ emissions estimated from other electricity generation sources.
- 6.12.3 The results of the carbon calculator show the estimated carbon payback period of the Proposed Development would be between 1.1 and 3.4 years, with an expected value of 1.9 years when considered against a fossil fuel mix of electricity generation⁵. This would provide an expected saving of 128,785 tCO₂/yr when compared electricity generated from a fossil fuel-mix. The carbon payback period therefore confirms a net beneficial environmental effect from the Proposed Development.

6.13 Summary of Other Environmental Effects

- 6.13.1 Through the EIA process other relevant environmental disciplines were assessed and determined as unlikely to give rise to significant effects. These are summarised below.

Forestry

- 6.13.2 The total area of established woodland cover on the Site amounts to approximately 336.94 ha. On-site woodland includes two large commercial plantations, several smaller woodland blocks, small areas of approved woodland creations and an area of woodland classified in the Ancient Woodland Inventory⁶.
- 6.13.3 Woodland areas which would be impacted by the Proposed Development are contained within the two commercial plantations. In total, 93.46 ha of forestry would be required to be felled for the construction of the Proposed Development; 61.10 ha would be required to be felled for construction alone and would be replanted in situ. The balance of 32.36 ha would likely be re-planted elsewhere within the Site boundary, or in an appropriate location within Scotland.

Peat

- 6.13.4 The majority of the developable area of the Site has either no peat present or has a shallow depth of peat soil present (88%, <0.5 m in depth). The maximum depth of peat recorded was 5.2 m. The design of the Proposed Development has taken into consideration peat depths, along with other technical and environmental constraints, and infrastructure has been sited away from these areas, where possible.
- 6.13.5 A Peat Management Plan (PMP) would be produced to provide a framework to effectively reuse peat excavated during construction in order to maintain and improve peatland habitats. The

⁴ <https://informatics.sepa.org.uk/CarbonCalculator/index.jsp>

⁵ When considered in comparison to the equivalent CO₂ emissions that would be generated from the same electricity generation using fossil fuels.

⁶ The Ancient Woodland Inventory was derived from the Roy maps (c1750) and the OS 1st edition (c1860). Long-established woodlands of plantation origin (LEPO) 1860 and continuously wooded since 1860.

PMP would detail principles and methods to be used when excavating, moving and reinstating peat.

7 Enhancement Measures

- 7.1.1 The Applicant is committed to enhancement through the implementation of a Habitat Management Plan (HMP). An Outline HMP has been submitted as part of the planning application and a detailed HMP would be produced post-consent. The HMP would include measures to restore degraded peatland habitats on-site, to mitigate loss and to provide a net gain of good quality bog habitat within the Site, and to provide habitat creation and enhancement to benefit a range of species, including otter and wildcat.
- 7.1.2 Ornithological enhancement would outline plans to provide habitat creation and enhancement to benefit a range of species, including black grouse, common gulls and ground-nesting waders, like curlew.

8 Decommissioning

- 8.1.1 At the end of the Proposed Development's operational life, the Proposed Development would be decommissioned. This would entail the removal of all the turbine components, transformers, the substation and associated buildings. A Decommissioning Plan would set out environmental protection measures and restoration principles which would be implemented. This plan would be agreed with Aberdeenshire Council and Moray Council and currently these plans do not form part of this proposal. If the Proposed Development was to be refurbished or replaced, the relevant consent applications would be made.
- 8.1.2 An assessment of the decommissioning of the Proposed Development has been undertaken where relevant within each of the technical chapters. The decommissioning effects of the Proposed Development are likely to be less than the construction effects identified through the technical assessment. Therefore, please refer to the potential construction effects set out in section 6 as a worst case scenario for decommissioning. Additionally, the future baseline conditions (environmental and other developments) cannot be accurately predicted at this stage.
- 8.1.3 An outline decommissioning strategy is included in the outline CEMP which forms part of the planning application submission.

9 Summary

- 9.1.1 The EIAR concludes that a likely significant beneficial effect associated with the construction of the Proposed Development, alone and in addition to other relevant wind farm developments, is predicted for socioeconomics. No significant adverse effects are predicted during construction.
- 9.1.2 During operation of the Proposed Development, taking account of additional mitigation measures proposed, significant adverse effects are considered to arise in relation to:
- Cultural heritage upon the settings of two Scheduled Monuments, Craig Dorney hillfort and Auchindoun Castle; and
 - Landscape and visual amenity in parts of eight LCTs, within the Ben Rinnes Special Landscape Area (SLA) (in Moray) and the Deveron Valley SLA (in Aberdeenshire), the south/ south eastern edge of Dufftown, across parts of the Cairngorms National Park (CNP), on short sections of the A920, the A941, the B9009 and the local road to the east of the Site and three core paths.

- 9.1.3 During operation of the Proposed Development, taking account of additional mitigation measures proposed, significant beneficial effects are considered to arise in relation to socioeconomics at the neighbourhood level as a result of community benefits and employment and expenditure.
- 9.1.4 No residual significant adverse effects either during construction or operation have been identified for sensitive receptors in regard to the following technical assessments:
- Ecology;
 - Ornithology;
 - Hydrology, hydrogeology and geology (including peat);
 - Traffic and transport;
 - Noise;
 - Aviation;
 - Telecommunications;
 - Socio-economics;
 - Shadow flicker; and
 - Climate.
- 9.1.5 The Applicant will provide ecological and ornithological enhancement measures onsite through the implementation of an HMP which will restore degraded habitats and provide habitat enhancements.
- 9.1.6 Non-significant beneficial effects have also been identified for socioeconomics during construction and to socioeconomics and ecology during operation.

