

Craig Watch Wind Farm

Other Documents

Design Statement

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CRAIG WATCH WIND FARM

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1. INTRODUCTION

- 1.1.1 Craig Watch Wind Farm Ltd ('the Applicant') is proposing to construct and operate a wind farm comprising up to 11 wind turbines, with a generating capacity of greater than 50 MW, along with associated infrastructure and ancillary development (the 'Proposed Development') at a site located approximately 8 km south east of Dufftown, Moray in Scotland (the 'Site').
- 1.1.2 An application for consent is being made under Section 36 of the Electricity Act 1989¹ to the Scottish Ministers.

1.2 Legislative Framework

- 1.2.1 The Town and Country Planning (Development Management Procedure (Scotland) Regulations 2008/ 2013 require applications for 'major' development to be supported by a Design Statement. There is no statutory requirement for applications for consent under the Electricity Act 1989 to be supported by a Design Statement, however the Applicant has opted to provide one as a good practice measure.
- 1.2.2 The purpose of the Design Statement is to explain the design principles and concepts that have been applied. Consideration has been given to PAN 68² which outlines the key principles and concepts to be considered within a design statement. In line with the Scottish Government guidance³, the statement does not extend to the consideration of internal aspects of individual buildings.

¹ Electricity generation projects below 50 MW are authorised under the Town and Country Planning (Scotland) Act, 1997. Those over 50 MW are authorised under Section 36 of the Electricity Act, 1989.

² Scottish Government, 2003. Planning Advice Note 68: Design Statements. Online. Available at: <https://www.gov.scot/publications/planning-advice-note-68-design-statements/> [28/03/2022]

³ Scottish Planning Series Circular 3 2013: Development Management Procedures. Available at: <https://www.gov.scot/publications/planning-series-circular-3-2013-development-management-procedures/> [Last accessed: 09/02/2022]

2. POLICY CONSIDERATIONS

2.1 National Planning Framework

National Planning Framework for Scotland 3

- 2.1.1 National Planning Framework 3⁴ (2014) (NPF3) is a long-term strategy for Scotland. It is the spatial expression of the Scottish Government's Economic Strategy, and of plans for development and investment in infrastructure.
- 2.1.2 Part of the vision is of Scotland as a low carbon place, where the opportunities arising from the ambition to be a world leader in low carbon energy generation have been seized. NPF3 is informed by, and aims to help achieve, the Scottish Government's climate change and renewable energy targets.
- 2.1.3 NPF3 acknowledges that the energy sector accounts for a significant share of the country's greenhouse gas emissions, and that addressing this requires capitalising on Scotland's outstanding natural advantages, including its significant wind resource. NPF3 makes it clear that onshore wind will continue to play a significant role in de-carbonising the energy sector and diversifying energy supply.

Draft National Planning Framework 4

- 2.1.4 In November 2021, the Scottish Government published its Draft Fourth National Planning Framework (Draft NPF4)⁵. Only limited weight can be given to the policies in the Draft NPF4 at this stage, given it is at consultation and has not been formally adopted. When adopted, the NPF4 will replace both NPF3 and Scottish Planning Policy and will form part of the statutory Development Plan.
- 2.1.5 The opening paragraphs of Draft NPF4 (page 3) state *"We have set a target of net zero emissions by 2045, and must make significant progress towards this by 2030. This will require new development and infrastructure across Scotland."*
- 2.1.6 The Draft NPF4 continues to set a positive context for renewable energy developments embedded in NPF3 that will help achieve the legally binding net zero greenhouse gas emissions target by 2045 (with associated interim targets, including a 75% reduction by 2030 compared to 1990 levels).

2.2 Scottish Planning Policy

- 2.2.1 Scottish Planning Policy⁶ (2014) (SPP) is Scottish Government policy on how nationally important land use planning matters should be addressed.
- 2.2.2 SPP contains a number of principal policies, one of which expresses "a presumption in favour of sustainable development". Paragraph 28 states that:

"the planning system should support economically, environmentally and socially sustainable places by enabling development that balances the costs and benefits of a proposal over the longer term. The aim is to achieve the right development in the right place; it is not to allow development at any cost".

⁴ Scottish Government, 2014. National Planning Framework 3. Online. Available at: <https://www.gov.scot/publications/national-planning-framework-3/> [accessed: 09/02/22]

⁵ Scottish Government, 2021. Scotland 2045 - National Planning Framework 4. Online. Available at: <https://www.gov.scot/publications/scotland-2045-fourth-national-planning-framework-draft/> [accessed 09/02/2022]

⁶ Scottish Government, Scottish Planning Policy (2014) Available at: <https://www.gov.scot/publications/scottish-planning-policy/> [Last accessed: 09/02/22]

- 2.2.3 Paragraph 29 highlights a series of criteria which should guide decision-making in this regard and the following provisions are considered relevant to the Proposed Development:
- net economic benefit;
 - economic issues, challenges and opportunities;
 - good design and qualities of successful places;
 - delivery of infrastructure;
 - climate change mitigation and adaptation;
 - principles of sustainable land use as set out in the land use strategy;
 - protecting, enhancing and promoting cultural heritage;
 - protecting, enhancing and promoting natural heritage and landscape;
 - reducing waste; and
 - over-development, amenity and effects on water, soil and air.
- 2.2.4 To support in achieving the outcome of making Scotland a low carbon place, the planning system should support the change to a low carbon economy, including deriving the equivalent of 100% of electricity demand from renewable sources by 2020. It should support the development of electricity generation from a diverse range of renewable sources. It should guide development to appropriate locations and advise on the issues that should be taken into account when specific proposals are being assessed.
- 2.2.5 Onshore wind is referred to specifically in paragraphs 161 to 166 (development planning considerations) and paragraphs 169 to 174 (development management considerations) of SPP within the 'Low Carbon Place' outcome. Development planning guidance for onshore wind includes reference to the need for planning authorities to set out in their development plans a Spatial Framework identifying those areas that are likely to be most appropriate for onshore wind farms. Table 1 in SPP provides guidance on how spatial frameworks should be set out. They should identify three types of areas including:
- Group 1: Areas where wind farms will not be acceptable (National Parks and National Scenic Areas);
 - Group 2: Areas of significant protection (i.e., national and international designations, nationally important environmental interests, community separation for considering visual impact); and
 - Group 3: Areas with potential for wind farm development (where wind farms are likely to be acceptable subject to consideration of details).
- 2.2.6 Chapter 3: Design Evolution and Alternatives provides further description of how the Site is consistent with the Moray and Aberdeenshire spatial framework for onshore wind farms (as set out in the adopted Local Development Plans).
- 2.2.7 More generally, SPP advises that the siting and design of development should take account of local landscape character. Decisions should take account of potential effects on landscapes and the natural and water environment, including cumulative effects. Applicants should seek to minimise adverse impacts through careful planning and design. Planning permission should be refused where the nature or scale of a development would have an unacceptable impact on the natural environment.
- 2.2.8 Beyond the Spatial Framework for wind farms the following considerations, outlined in paragraph 169, should be taken into account (where applicable) when determining development proposals:
- net economic impact;
 - scale of contribution to renewable energy generation targets;
 - effect on greenhouse gas emissions;
 - cumulative impacts;
 - impact on communities and dwellings (including visual impact, residential amenity, noise and shadow flicker);
 - landscape and visual impacts (including wild land);

- effect on natural heritage (including birds);
- impacts on carbon rich soils (using carbon calculator);
- impact on public access (including long distance walking and cycling routes and scenic routes);
- impacts on the historic environment (including scheduled monuments, listed buildings and their setting);
- impacts on tourism and recreation;
- impacts on aviation and defence interests and seismological recording;
- impacts on telecommunications and broadcasting installations;
- impacts on transportation (road traffic and adjacent trunk roads);
- effects on hydrology (water environment and flood risk);
- opportunities for energy storage; and
- conditions relating to decommissioning of development, including ancillary infrastructure and Site restoration.

2.2.9 SPP is under review and is to be incorporated within the new draft NPF4 published in 2021. NPF4 will become the single national planning policy document, replacing both NPF3 and SPP and it is intended to have Development Plan status.

2.2.10 The design statement has also, amongst others, given regard to:

- The Electricity Act 1989⁷;
- The Town and Country Planning (Scotland) Act 1997⁸;
- Climate Change Act 2008⁹;
- Committee on Climate Change – The Sixth Carbon Budget, The UK's Path to Net Zero¹⁰;
- Progress in Reducing Emissions and Progress in Adapting to Climate Change – 2021 Progress Reports to Parliament¹¹;
- Energy White Paper – Powering our Net Zero Future¹²;
- The Scottish Government's 'Programme for Scotland 2021-2022 'A Fairer, Greener Scotland'¹³;
- The Scottish Climate Change Plan¹⁴;
- Update to the Climate Change Plan 2018–2032: Securing a Green Recovery on a Path to Net Zero¹⁵;
- The Scottish Energy Strategy¹⁶;
- Scotland's Energy Strategy Position Statement¹⁷;

⁷ Scottish Ministers. Electricity Act 1989. Online. Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents> [accessed 08/02/2022]

⁸ Scottish Ministers. Town and Country Planning (Scotland) Act 1997. Online. Available at: <https://www.legislation.gov.uk/ukpga/1997/8/contents> [accessed 08/02/2022]

⁹ UK Government. The Climate Change Act 2008 (2050 Target Amendment) Order 2019. Online. Available at: <https://www.legislation.gov.uk/ukdsi/2019/9780111187654> [accessed 08/02/2022]

¹⁰ Climate Change Committee, December 2020. Sixth Carbon Budget. Online. Available at: <https://www.theccc.org.uk/publication/sixth-carbon-budget/> [accessed 08/02/2022]

¹¹ Climate Change Committee, June 2021. Progress Report to Parliament. Online. Available at: <https://www.theccc.org.uk/publication/2021-progress-report-to-parliament/> [accessed 08/02/2022]

¹² UK Government, December 2020. Energy White Paper – Powering our Net Zero Future. Online. Available at: <https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future> [accessed 08/02/2022]

¹³ Scottish Ministers. The Scottish Government's 'Programme for Scotland 2021-2022 'A Fairer, Greener Scotland', 2021. Online. Available at: <https://www.gov.scot/publications/fairer-greener-scotland-programme-government-2021-22/> [accessed 08/02/2022]

¹⁴ Scottish Ministers, 2018. The Scottish Climate Change Plan. Online. Available at: <https://www.gov.scot/publications/scottish-governments-climate-change-plan-third-report-proposals-policies-2018/> [accessed 08/02/2022]

¹⁵ Scottish Ministers, 2020. Update to the Climate Change Plan 2018 – 2032: Securing a Green Recovery on a Path to Net Zero. Online. Available at: <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/> [accessed 08/02/2022]

¹⁶ Scottish Ministers, 2017. The Scottish Energy Strategy. Online. Available at: <https://www.gov.scot/publications/scottish-energy-strategy-future-energy-scotland-9781788515276/> [accessed 08/02/2022]

¹⁷ Scottish Ministers, 2019. Scotland's Energy Strategy Position Statement. Online. Available at: <https://www.gov.scot/publications/scotlands-energy-strategy-position-statement/> [accessed 08/02/2022]

- The Onshore Wind Policy Statement¹⁸; and
- The 'Onshore Wind Policy Statement Refresh 2021: Consultative Draft'¹⁹.

¹⁸ Scottish Ministers, 2017. Onshore Wind Policy Statement. Online. Available at: <https://www.gov.scot/publications/onshore-wind-policy-statement-9781788515283/> [accessed 08/02/2022]

¹⁹ Scottish Ministers, 2021. Onshore Wind Policy Statement Refresh 2021: Consultative Draft'. Online. Available at: <https://www.gov.scot/publications/onshore-wind-policy-statement-refresh-2021-consultative-draft/> [accessed 08/02/2022]

3. SITE CONTEXT

- 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 as shown in Figure 1. The Site straddles two local authority boundaries: Aberdeenshire Council (AC) and Moray Council (MC).
- 3.1.2 The Site is predominately comprised of semi-mature coniferous commercial plantation woodland, with some underlying marshy grassland and wet heath. Open areas of blanket bog and dry modified bog are located in the south western portion of the Site and around the slopes of Craig Watch. A mosaic of wet and dry heath, acid, improved and marshy grassland is located along the south western and south eastern corners of the Site. NatureScot's (previously referred to as Scottish Natural Heritage (SNH)) revised National Programme of Landscape Character Assessment (2019) identifies the Site as being primarily within the following Landscape Character Types (LCT):
- 32 Farmed and Wooded River Valleys;
 - 292 Open Upland; and
 - 294 Upland Valleys – Moray and Nairn.
- 3.1.3 The Ben Rinnes Special Landscape Area is adjacent to the western Site boundary, however the nearest turbine to this designation is located approximately 4 km to the east. Cairngorms National Park is located approximately 13 km south west of the Site.
- 3.1.4 There are five statutory designated Sites for nature conservation within 10 km of the Site:
- River Spey Special Area of Conservation (SAC), located 50 m north west;
 - Craigs of Succoth Site of Special Scientific Interest (SSSI), located 2.4 km east;
 - Hill of Towanreef SAC, located 5.7 km south east;
 - Hill of Towanreef SSSI, located 5.7 km south east; and
 - Den of Pitlurg SSSI, located 8.8 km north east.
- 3.1.5 The Proposed development is located within an area categorised as suitable for large typology wind turbines²⁰ within the Moray Wind Energy Landscape Capacity Study²¹.
- 3.1.6 Between the Site boundary and 1 km from the Site there are two notable cultural heritage assets: Scheduled hillfort on Craig Dorney north east of the Site; and the category C listed Blackwater Bridge to the south of the Site. Two Scheduled Monuments (Auchindoun Castle and fort and Battle Stone, Mortlach) lie within 5 km of the Site, while a further eleven Scheduled Monuments lie within 5 to 10 km of the Site.
- 3.1.7 The A941 runs along the Site's south western boundary. There is also a minor road stretching along and across the Site's eastern and south eastern boundary, in the River Deveron valley.
- 3.1.8 There are some residential properties within the Site's boundary to the south west and south east of the proposed turbine locations. Individual properties are located along the A941 and the minor road located to the south west to south east of the Site, respectively.
- 3.1.9 Operational wind farms are an existing feature of the surrounding landscape. Clashindarroch wind farm is located approximately 3 km to the south east, Dorenell is located approximately 3.5 km to the south west, and Hill of Towie, Edintore, and Ardoch Farm are located beyond 10 km directly to the north. Additionally, Garbet located adjacent to the north of the Site and Clashindarroch II located approximately 4 km east of the Site are both in planning; and Glenfiddich located west of the Site and Clashindarroch extension located south east of the Site are both at scoping.

²⁰ The large typology includes turbines measuring between 130 m and 150 m in height (to tip).

²¹ Moray Council, 2017. Moray Wind Energy Landscape Capacity Study 2017. Online. Available at: [Moray Wind Energy Landscape Capacity Study 2017 - Moray Council](#) [accessed 26/04/2022]

4. DESIGN APPROACH

4.1 Key Issues and Constraints

4.1.1 In addition to the policy considerations identified, key issues and constraints for consideration in the design process were established through a combination of desk based research, extensive field survey and consultation (through the (Environmental Impact Assessment) EIA scoping process). The design process considered the following issues:

- landscape character and visual, recreational and tourism amenity within a 20 km study area;
- cultural heritage, including mapping all known assets within the Site, all designated heritage assets within 5 km and nationally important designated assets within a 10 km study area of the Site to assess the potential for visibility and setting effects;
- sensitive fauna, with the mapping of the presence of European protected species;
- sensitive habitats, particularly peat forming habitats (supported by habitat and peat probing surveys) and habitats dependent on groundwater;
- ornithology, including surveys for bird flight activity and breeding bird activity on the Site;
- hydrology and hydrogeology, including identifying all sensitive surface water features;
- traffic and transport, including all trunk roads and local roads that are likely to experience increased traffic flows;
- cumulative operational noise levels and exposure at nearby properties;
- aviation and telecommunications assessments; and
- a forestry study area which included all woodlands within the Site.

4.1.2 Further detail on environmental considerations is provided in Appendix B.

4.2 Alternatives

Do-Nothing Alternative

4.2.1 The "do nothing" scenario is considered in the Environmental Impact Assessment Report (EIAR) as a basis for comparing the development proposal under consideration. This scenario is considered to represent the current baseline situation as described in the individual chapters of this EIAR.

4.2.2 In the absence of the Proposed Development, it is anticipated that the Site would continue to be managed primarily as a productive coniferous forestry plantation.

4.2.3 It is recognised that the baseline would not remain static for the lifetime of the Proposed Development. In particular, and apart from any changes arising from economic and agricultural policies and economic market considerations, it is predicted that biodiversity and landscape would undergo some level of change as a result of climate change. Two publications from the Landscape Institute²² and Scottish Natural Heritage²³ (now NatureScot) consider the potential climate change effects on the landscape character. Due to the complexities and uncertainties inherent in attempting to predict the nature and extent of such changes to landscape and biodiversity during the lifetime of the Proposed Development, it has been assumed that the current baseline would subsist. It is considered that this represents an appropriate approach for EIAR preparation purposes.

²² Landscape Institute (2008) Landscape architecture and the challenge of climate change, Position Statement, London, October 2008 – URL: <https://www.landscapeinstitute.org/wp-content/uploads/2016/03/LIClimateChangePositionStatement.pdf>

²³ Land Use Consultants (2012) An assessment of the impacts of climate change on Scottish landscapes and their contribution to quality of life: Phase 1 – Final Report. Scottish Natural Heritage Commissioned Report 488 – URL: http://www.snh.org.uk/pdfs/publications/commissioned_reports/488_1.pdf

Design Evolution, Alternative

4.2.4 Figure 2a and Figure 2b summarises the Proposed Development design evolution from pre-scoping stage to the design freeze layout. During the design evolution process numerous design iterations and revisions were produced. The following paragraphs explain the changes made through the seven main design iterations.

4.2.5 In addition, Appendix C presents a selected set of wirelines from three of the Landscape and Visual Impact Assessment (LVIA)/ Cultural Heritage viewpoints which illustrate the layout evolution of the Proposed Development turbines.

Scoping Layout (18 Turbines)

4.2.6 The scoping layout represented the original turbine layout proposed by the Applicant based on an initial desk-based constraints review and with consideration of findings of the ornithology and ecology surveys.

4.2.7 At this stage in the Site's design, it was considered that the Site could theoretically accommodate up to 18 turbines up to a 200 m maximum tip height. The Scoping Layout formed the basis for which initial environmental considerations would be reviewed against.

Layout A: Wind Optimised Layout (16 Turbines)

4.2.8 Layout A represents the wind optimised layout produced by the Applicant using available wind data for the Site. This involved a review of a number of design layouts, for a variety of turbine models and at different tip heights, to identify turbine locations which would provide optimised energy yield.

4.2.9 Layout A took consideration of the initial environmental constraints which were then categorised as red (development only in exceptional circumstances), amber (constraints to be avoided or which would require mitigation) and green (negligible or no constraints) and were presented on 'heat mapping'. The constraints considered included nationally designated sites, water buffers, areas of peat, aviation, proximity of residential properties and local topography. An initial area recommended by the landscape architects as having potential for turbine development (the 'landscape and visual developable area') was also taken into consideration.

4.2.10 In order to reduce the potential landscape and visual effects and indirect cultural heritage (setting) effects of the Proposed Development, turbine 3 and 14 were removed from the Scoping layout and therefore Layout A consisted of 16 turbines up to a 200 m maximum tip height. Following the removal of turbines 3 and 14 from the Scoping Layout, the turbines in Layout A were re-numbered from 1 to 16.

Layout B: Landscape and Visual Analysis Layout (11 Turbines)

4.2.11 Layout B was developed prior to design workshop 1 and represents a revised layout based on a further landscape and visual analysis. Wirelines and visualisations were produced for key viewpoints, summarised below, resulting in significant layout alterations.

TURBINE 1 (T1)

4.2.12 T1 was removed to reduce impacts on the A941 corridor, A920, and residential properties and amenity areas within 3 km. T1 could be seen prominently from the A920 by Dufftown and Hill of Talnmouth. Due to its removal the visual impact was significantly reduced. Whilst turbines can still be seen from A920 by Hill of Talnmouth, the removal of T1 would result in less turbine stacking and clustering and therefore provides a clear visual improvement. Additionally, views from the southern section of the A941 travelling north towards Dufftown were improved. The remaining turbine towers were then screened by Kelman Hill.

4.2.13 The removal of T1 reduced the width of the view from Glen Deveron reducing the prominence, clustering, and stacking of turbines whilst increasing the appearance of turbine spacing. The result

was an improvement in the perceived proximity of the scheme. The view from Auchindoun Castle was also improved.

TURBINE 2 (T2)

4.2.14 T2 was removed to improve views from A920 by Hill of Talnmouth. The removal of T2 resulted in less stacking and clustering of turbines from that view. Whilst turbines are still visible from the A920 by Hill of Talnmouth, the removal of T2 provided a clear improvement.

4.2.15 The width of turbine views from Glen Deveron was also reduced and as a result, the visual impact was improved due to the reduction in prominence, clustering, stacking and increasing perceived turbine spacing.

4.2.16 Additionally, views from the southern section of the A941 travelling north towards Dufftown were improved. The remaining turbine towers were then screened by Kelman Hill.

TURBINE 5 (T5)

4.2.17 Views from Tomnaven, Glen Deveron and Auchindoun Castle were improved by the removal of T5 due to the reduction in prominence, clustering, stacking and increasing perceived turbine spacing.

4.2.18 In addition, T5 was moved out of as much deeper peat as possible and to avoid areas of deep peat (peat >2 m) altogether.

TURBINE 12 (T12)

4.2.19 The removal of T12 improved clustering and stacking of turbines at views from A920 by Hill of Talnmouth.

4.2.20 T12 could be viewed from the base to tip from Glen Deveron. Therefore, removing T12 increased the distance from and reduced the prominence of the Proposed Development within the Glen Deveron valley, such that the turbines are observed as being located on top of the hill, rather than within the valley itself.

TURBINE 15 (T15)

4.2.21 The removal of T15 improved clustering and stacking of turbines at views from A920 by Hill of Talnmouth and at Glen Markie, resulting in a reduction of prominence and penetration of the view between turbines.

4.2.22 Previously, T15 could be seen from base to tip from Glen Deveron. Therefore, the removal of T15 created greater perceived turbine separation, reducing prominence, clustering and stacking. Additionally, the removal of T15 represented improvement in views from Craig Dorney.

4.2.23 Layout B reduced the number of turbines from 16 to 11, with a 200 m tip height still remaining.

Layout C: Post Design Workshop 1 Layout (11 Turbines)

4.2.24 Layout B was amended following design workshop 1 in response to environmental constraints, presented by technical specialists, the resulting configuration formed Layout C. Layout C considered the following environmental constraints and mitigation by design:

- Ecology: Bat feeding corridors; potential bat roosts; Annex 1 Habitats; groundwater dependent terrestrial ecosystems (GWDTE); water vole buffers; the River Spey SAC, and watercourse buffers;
- Ornithology: Tips of Corsemal and Tom Mor Special Protection Area (SPA) and SSSI for breeding common gull; designated sites; common gull flight corridor and high activity area (Kelman Hill); black grouse leks sites, hen harrier nests, and breeding waders;
- Forestry: Woodland removal and associated compensatory planting and ancient woodland inventory;

- Hydrology, Hydrogeology and Geology: Surface water resources; private water supplies; and GWDTE;
- Peat: Class 1 and 2 areas of peat; phase 1 peat probing data (peat depth); peat restoration areas; and peat instability features;
- Noise: Site-specific noise limits; and
- Aviation: RAF Lossiemouth radar visibility and RAF Buchan radar visibility.

4.2.25 As such, turbines were microsituated within 50 m of their positions in Layout B.

Layout D: Design Chill Layout (11 Turbines)

4.2.26 Layout D represents an updated layout to account for engineering microsituation of turbines. All movements are within 50 m of the of the locations in Layout C. The following considerations and subsequent amendments were made by the civil engineering team which resulted in the infrastructure arrangement in Layout D:

- locations within the Site for construction compounds, substation and battery energy storage system locations were identified as an alternative to the forested area which was initially considered;
- the addition of two energy storage options was included;
- consideration was given to five potential access options. The preferred option taken forward resulted in the least environmental impact by utilising existing tracks as much as possible; and
- the Site entrance along the A941 was considered and updated to allow a bell curve layout to accommodate for turbine deliveries.

Layout E: Gatecheck Layout (11 Turbines)

4.2.27 Layout E amended Layout D following design workshop 2, in which relevant technical specialists presented environmental constraints and following a consultation response from SEPA. Layout E considered the results of the phase 2 peat probing as well as a number of infrastructure considerations. As a result, infrastructure was adjusted as follows:

- T9 was moved slightly south east further out of an area of forestry;
- T10 was moved south east and rotated to avoid as much deeper peat as possible following consultation responses from SEPA, whilst also minimising encroachment into the watercourse buffer. The access track was also shortened;
- T11 and T13 were raised slightly to reduce the volume of cut and fill required and hence to reduce the volume of material to be excavated;
- T13 was also rotated to avoid the need for an extensive bridge over watercourse for the access track;
- The borrow pit search area was identified in liaison with environmental specialists;
- T13 and T16 were moved slightly east to increase turbine separation distances;
- Refinement of the separation distance between turbines; and
- The substation compound was extended along the proposed new road, allowing more opportunities for power management infrastructure.

Layout F: Design Freeze Layout (11 Turbines)

4.2.28 Layout F represents the finalised design freeze layout of the Proposed Development. Principally, for purposes of the assessment turbines were renumbered from 1 to 11.

4.2.29 The infrastructure was adjusted as follows:

- T8 and T9 hardstands and adjoining roads re-aligned to match contours, reducing the amount of cut and fill required and volume of material to be excavated;
- turning head revisions/ additions near T6, T7 and T1 to reduce turbine delivery risks; and
- revision of the proposed new road alignment near to the substation to straighten this section and reduce the land take of this section of track.

5. CONSULTATION ACTIVITIES

5.1 Scoping

- 5.1.1 The Applicant submitted a request for a Scoping Opinion to Scottish Ministers on 20 November 2020. This request was accompanied by an EIA Scoping Report, prepared by the Applicant, which set out a summary of the Proposed Development, identified the likely significant environmental effects, and summarised the proposed scope of the EIA.
- 5.1.2 A Scoping Opinion was received from the Energy Consents Unit (ECU) on 19 March 2021. The contents of this and other consultation responses received are summarised in the EIAR Volume 4: Technical Appendix 1.1: Consultation Register, along with a list of all bodies consulted during the scoping exercise.
- 5.1.3 Further detail on the key issues identified through the scoping and consultation process are described in the EIAR Volume 2: Chapter 3: Design Evolution and Alternatives.
- 5.1.4 Following scoping and baseline characterisation the EIAR provides an impact assessment chapter for each of the following disciplines/ factors/ issues:
- Landscape and Visual Impacts;
 - Cultural Heritage;
 - Ecology;
 - Ornithology;
 - Hydrology, Hydrogeology and Geology;
 - Traffic, Transport and Access;
 - Noise and Vibration;
 - Aviation and Telecommunications;
 - Socio-economics;
 - Shadow Flicker; and
 - Climate.
- 5.1.5 During the scoping process several effects were identified as not being likely to cause significant effects on the environment as a result of the Proposed Development and therefore scoped out of the EIAR, including:
- Air Quality;
 - Ice Throw;
 - Population and Human Health; and
 - Risk of Major Accidents and/ or Disasters.

5.2 Public Exhibitions

- 5.2.1 In addition to seeking a Scoping Opinion, the Applicant conducted a virtual public exhibition to seek the views of the local community. Virtual online consultation was held on a dedicated website on 15 and 24 March 2021. Easing of COVID restrictions allowed a further online and in-person consultation to take place between 4 and 24 November 2021 following design revisions, with events in Dufftown, Moray and Glass, Aberdeenshire.
- 5.2.2 A dedicated project website (www.craigwatch.co.uk) was set up to allow access to information on the Proposed Development, including the virtual information/ consultation event boards, the newsletter and the proposed turbine layout. The website also provided contact details to enable residents to contact the Applicant easily and directly with queries with answers shared publicly in a Frequently Asked Questions area.
- 5.2.3 A summary of the representations received during the public exhibitions is provided in the Pre-Application Consultation Report (PACR) which accompanies the planning application submission.

5.2.4 The events were advertised in advance in seven newspapers including the Northern Scot, Huntly Express, the Press and Journal, Banffshire Advertiser, Banffshire Journal and Banffshire Herald newspapers. Ongoing adverts were placed in the volunteer-run Dufftown Speirin's.

5.3 Consultation with Local Community Councils

5.3.1 Throughout the consultation period the Applicant engaged with local community councils. The Applicant wrote on more than one occasion to Dufftown and District Community Council (no longer established), Strathisla Community Council, Speyside Community Council, Strathbogie Community Council, Tap o' Noth Community Council, Huntly Community Council, Auchterless, Inverkeithny and Fisherford Community Council and Bennachie Community Council but no formal meetings have taken place. The Applicant also wrote and met with stakeholders from The Cabrach Trust, Dufftown and District Community Association, and Dufftown and Mortlach Development Trust.

5.3.2 A summary of the representations received during the public consultation events is provided in the PACR.

5.3.3 Further detail on the key issues identified through the scoping and consultation process are described in EIAR Volume 2: Chapter 3: Design Evolution and Alternatives.

6. DESIGN SOLUTION

6.1 Design Freeze Layout

6.1.1 Layout F, the finalised design freeze layout is the accumulated final design as a result of numerous design iterations as outlined in Section 4 of this Design Statement. Layout F includes the following key components:

- Up to 11 wind turbines, each up to a maximum tip height of 200 m
- Associated permanent turbine foundations and crane hardstanding
- A permanent free-standing meteorological mast including associated foundation and hardstanding
- A total of approximately 9.4 km of on-Site tracks with associated water crossings, passing place and turning heads of which approximately 2.18 km will be formed through upgrading existing tracks. Additionally, a total of approximately 760 m of on-Site emergency access track.
- A main Site entrance for use during construction and operation, designed to accommodate abnormal indivisible loads required for turbine component delivery as well as to provide parking for component deliveries.
- A substation compound, including a battery energy storage system (if required) and control building (if required). In terms of appearance the energy storage unit would be comparable to the on-Site substation. Any storage would fall within the substation area.
- Two temporary Site construction compounds;
- A network of on-site buried electrical cables connecting the turbines to the on-site substation compound;
- A borrow pit search area;
- Engineering operations which include turbine foundations, access tracks, and peat excavation and restoration work.
- Associated ancillary works, including:
 - habitat management plan areas, forest felling and replanting;
 - extraction of rock from borrow pits (if suitable); and
 - concrete batching plant. This would be located within the temporary construction areas and/ or borrow pit search areas.

7. ACCESS

7.1 Access from Public Roads

- 7.1.1 Access to Site would be taken from an improved bellmouth entrance off the A941 at Rhinturk. The Site access junction bellmouth would be surfaced and constructed to adoptable standards. The remaining access tracks throughout the Site would be private. The first 15 m of the access junction would be surfaced in bituminous macadam.

For more information on the delivery route to the Site, see EIAR Volume 2, Chapter 9: Traffic, Transport and Access.

7.2 Internal Site Access

- 7.2.1 Approximately 9.4 km of new on-Site access tracks which comprises 2.18 km of upgraded track and 7.22 km of new track would be required to provide access to the wind turbines, substation compound, borrow pit search areas, met mast and construction compounds (Figure 3: Site Layout). Typical access track designs are shown in Figure 4: Typical Access Track Detail. This figure shows the use of typical cut and fill access tracks.
- 7.2.2 The majority of tracks would have a 6 m running width with appropriate shoulders and widening on bends, at junctions and passing places. Tracks which are to be only accessed by light vehicles will be 4 m wide (including shoulders) (Figure 3). The access track would be provided with intervisible passing places, where required.
- 7.2.3 In areas where the peat and topsoil are consistently less than 1 m deep, the vegetation and soil would typically be stripped to a suitable subsoil layer and the track (approximately 500 mm thick) would be constructed on the subsoil. The upper topsoil layer, together with turf, would be used in landscaping and revegetating the track shoulders and track side drainage, where possible.
- 7.2.4 Once the soil has been removed, as described above, to a suitable founding layer, the road and running surface would be constructed by tipping and compacting aggregate to the required shape and thickness. Cross-sections of the final road shape following reinstatement of the roadside slopes by replacing the layers of excavated material in the correct order are presented in Figure 4: Typical Access Track Detail.
- 7.2.5 Where peat depths of 1 m or greater are identified and suitable engineering criteria are met, for example shallow topography (below 5%), the Proposed Development would use floating road construction. The specific requirements for floating track would be confirmed once further detailed peat sampling has been undertaken. The use of 'floating roads' in areas of deep peat eliminates the need for excavation.
- 7.2.6 The on-Site track layout has been designed to minimise environmental disturbance and land take by wherever possible using existing tracks, avoiding areas of deeper peat and steep slopes in excess of 12 degrees as well as, wherever possible, avoiding or minimising areas of identified environmental constraints.
- 7.2.7 The track layout has been carefully designed to minimise the number of watercourse crossings where possible.

8. PROGRAMME

8.1.1 The estimated construction period of the Proposed Development is approximately 18 months. This period is indicative only and may be subject to variation as a result of factors which include, but are not limited to, weather restrictions, ground conditions encountered through detailed investigation, turbine component and material delivery, timing of grid connection works and public highway constraints.

8.1.2 An indicative construction programme is illustrated in Table 8.1 below.

Table 8.1: Indicative 18-Month Construction Programme																		
	Month																	
Task*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	█	█	█	█	█	█	█	█										
2	█	█	█	█	█	█	█											
3		█	█	█	█	█	█	█	█	█								
4								█	█	█	█							
5								█	█	█	█							
6										█	█	█	█					
7											█	█	█	█	█	█		
8													█	█	█	█	█	█

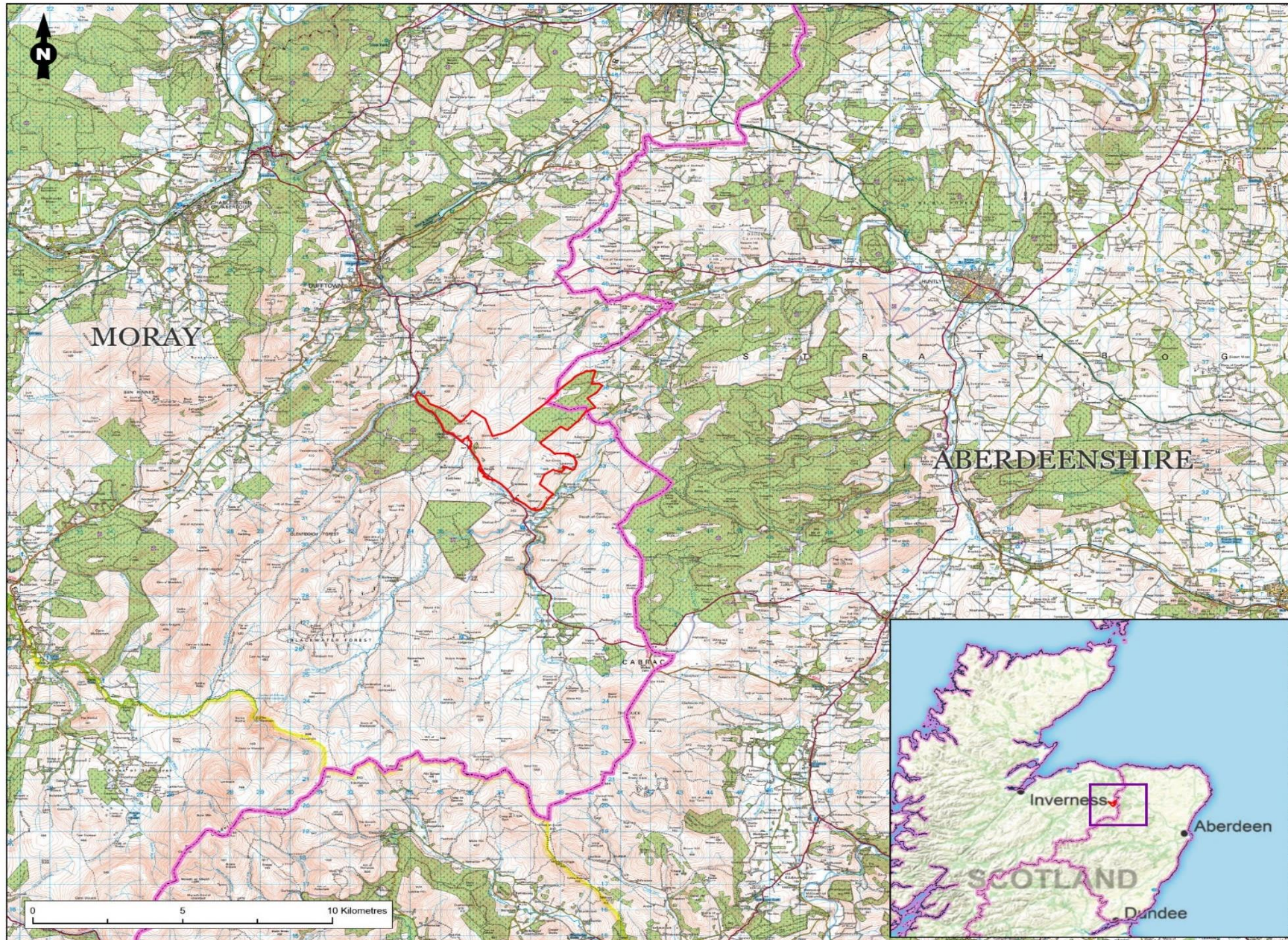
*Task:

1. Site investigation/ forestry felling
2. Site establishment/ plant deliveries
3. Borrow pit working, access track construction and hardstanding areas
4. Foundations
5. Substation construction
6. Cabling
7. Erection of turbines
8. Site reinstatement and restoration

9. SUMMARY

- 9.1.1 This document provides an overview of the design process undertaken by the Applicant while preparing the planning application for the Proposed Development. This document summarises the relevant local development plan policy considerations, the Site context, the design approach, consultation activities and the final design solution.
- 9.1.2 The careful placement of the proposed turbines within the Site boundary has facilitated effective mitigation of the majority of potentially significant effects through the design process. Further information on the residual environmental effects is presented in the EIAR Volume 2: Chapter 16 Summary and Schedule of Mitigation. This document has described the principles that have shaped and influenced the design of the Proposed Development and how issues of access have been dealt with.

APPENDIX A
FIGURES



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Legend

- Site Boundary
- Local Planning Authority Boundary

Figure Title
Figure 1: Site Location

Project Name
Craig Watch Wind Farm EIA Report

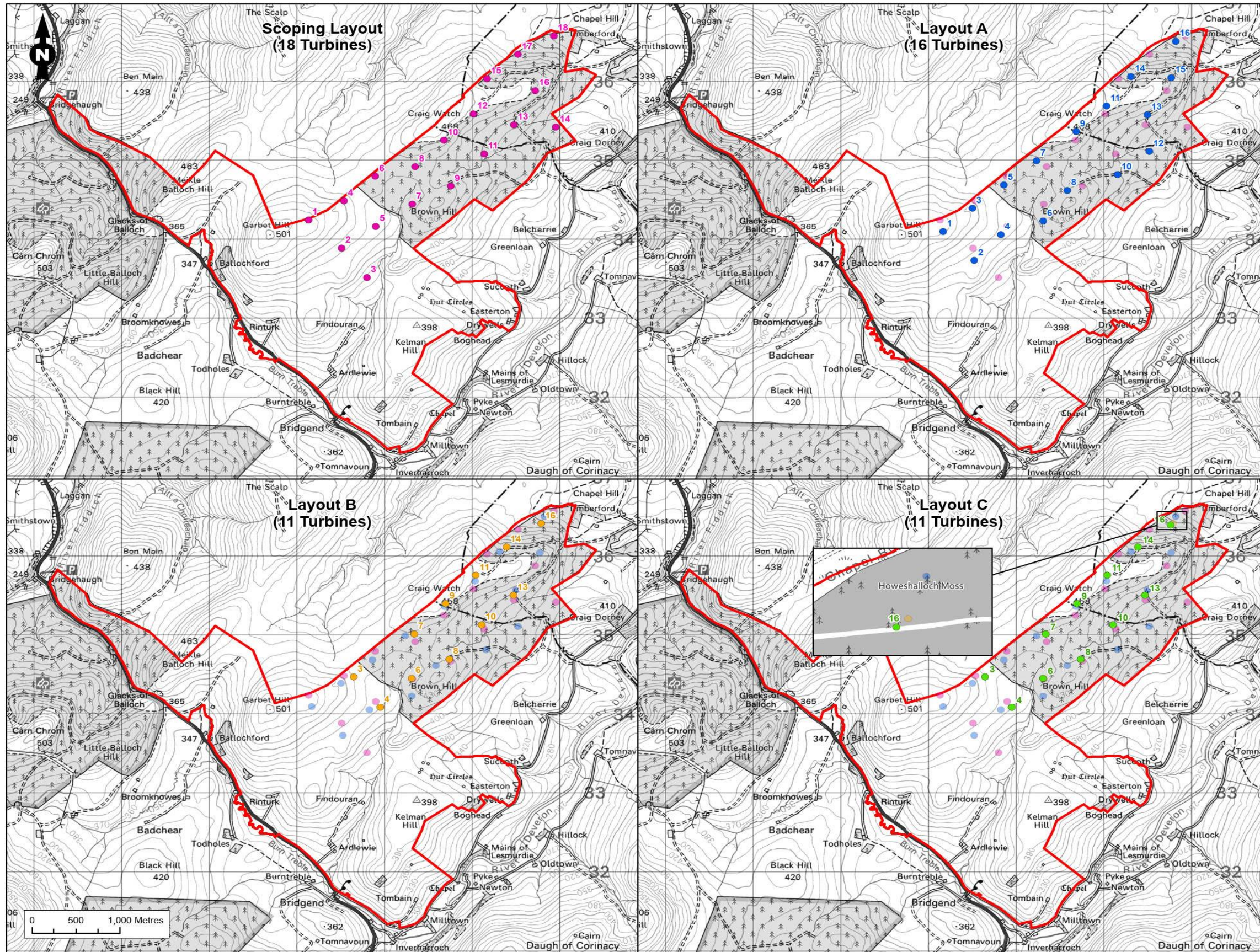
Project Number 1620010178	Figure No. 1
Date May 2022	Prepared By AB
Scale 1:130,000 @A3	Issue 1

Client
Craig Watch Wind Farm Limited

RAMBOLL



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



Legend

- Site Boundary
- Scoping Layout
- Layout A
- Layout B
- Layout C

Figure Title
Figure 2a Design Evolution - Layouts Scoping to C

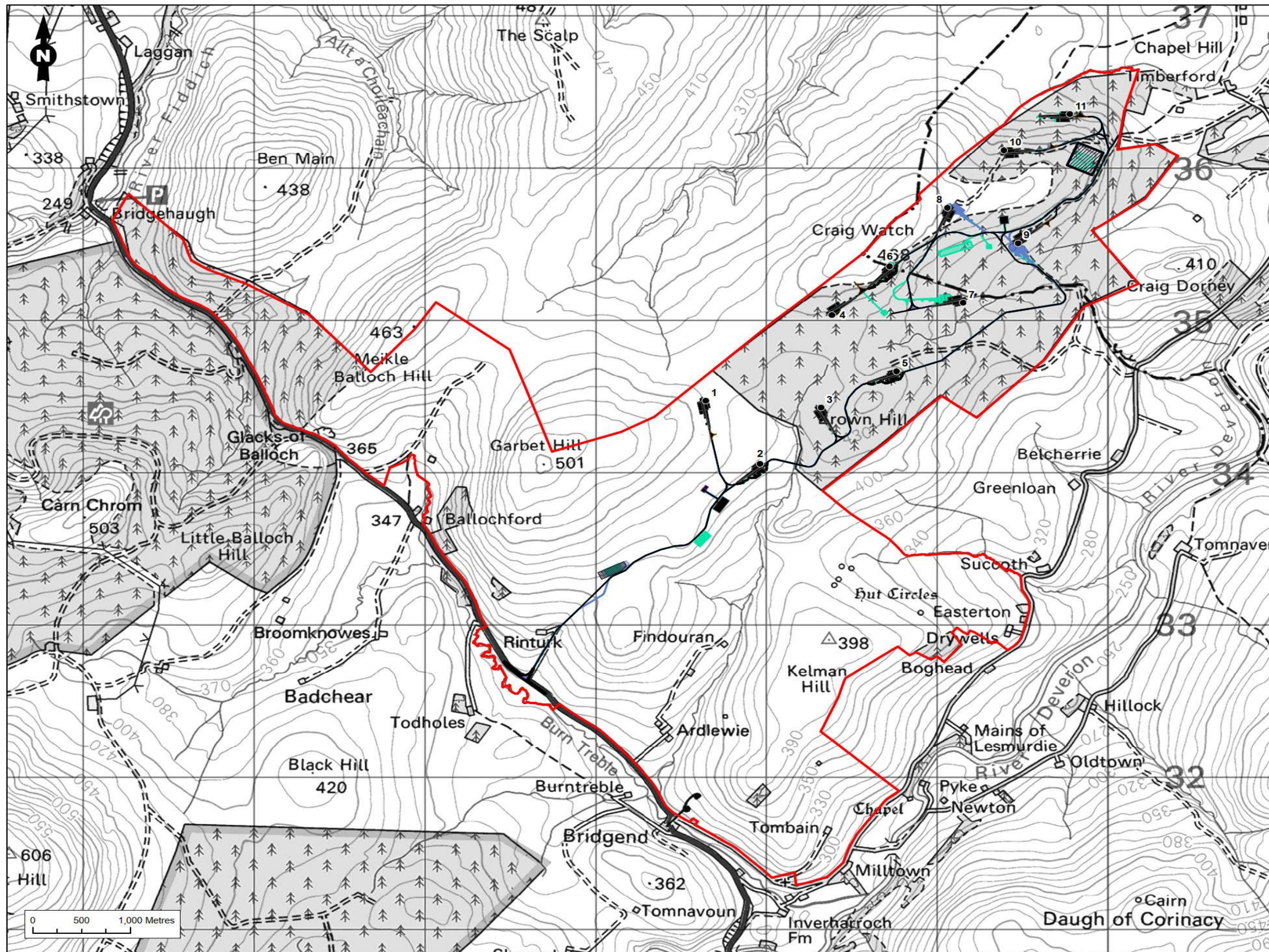
Project Name
Craig Watch Wind Farm EIA Report

Project Number 1620010178	Figure No. 2a
Date May 2022	Prepared By AB
Scale 1:43,451 @A3	Issue 1

Client
Craig Watch Wind Farm Limited

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



Legend

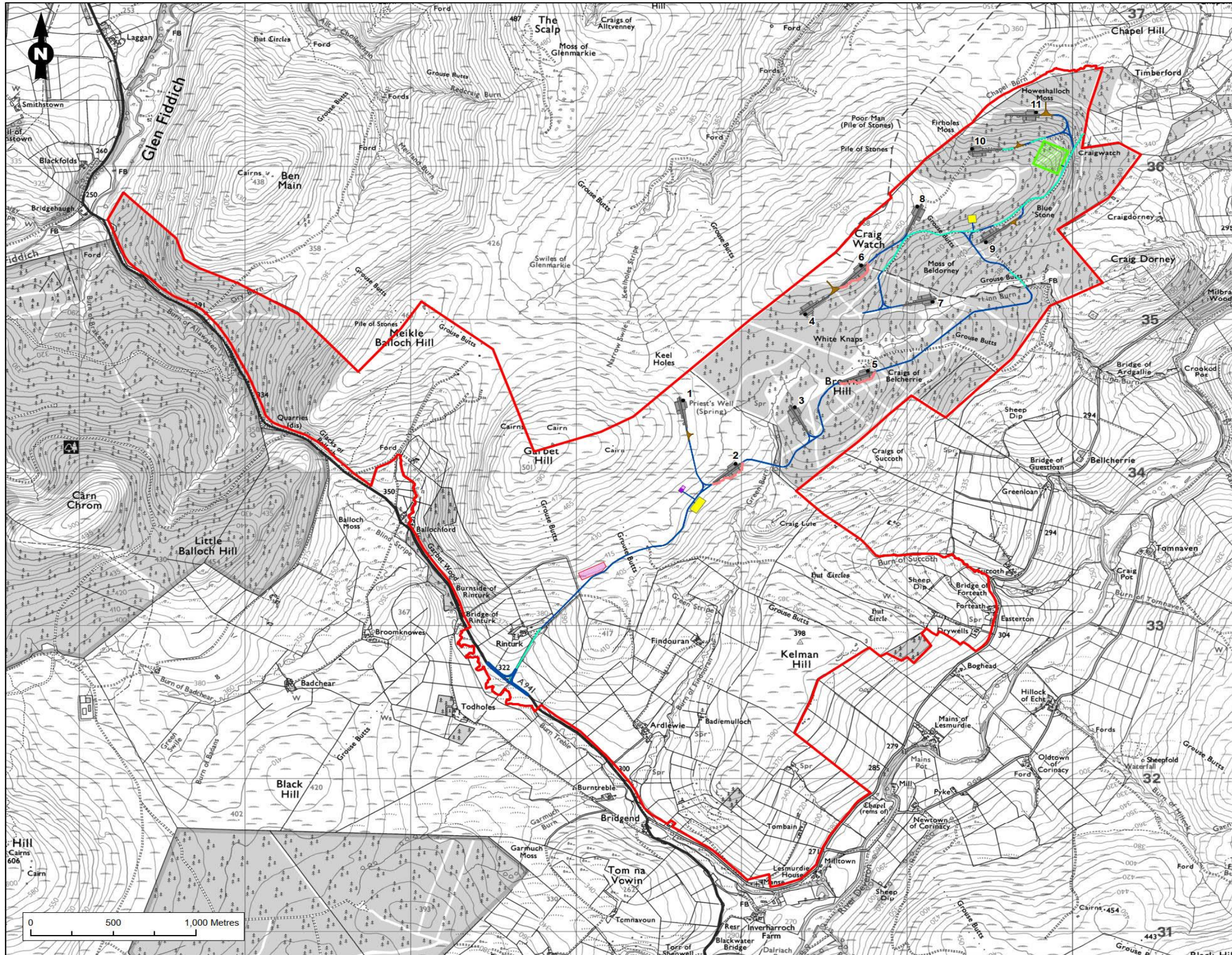
- Site Boundary
- Layout F (Design Freeze)
- Layout E (Draft Design Freeze)
- Layout D

Figure Title
Figure 2b Design Evolution - Layouts D to Design Freeze

Project Name
Craig Watch Wind Farm EIA Report

Project Number 1620010178	Figure No. 2b
Date May 2022	Prepared By AB
Scale 1:22,500 @A3	Issue 1

Client
Craig Watch Wind Farm Limited

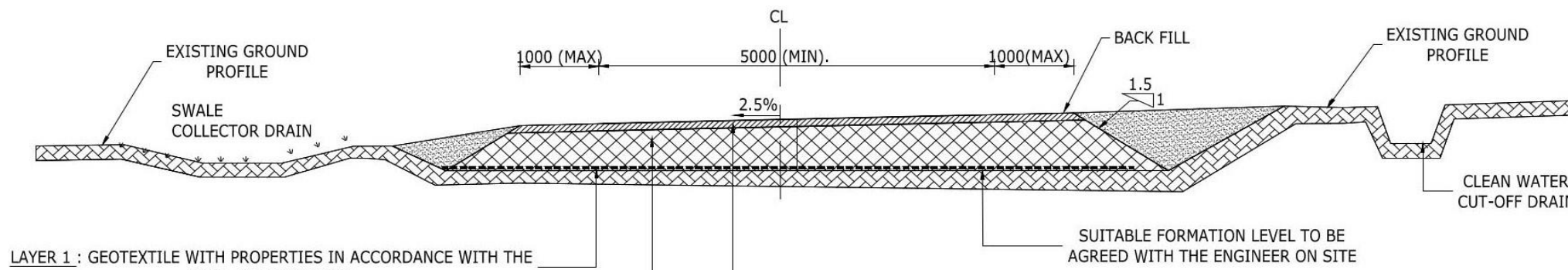


Legend

- Site Boundary
- 1 - 11 Proposed Turbine (Foundation)
- Proposed Turbine Hardstanding
- Proposed Temporary Construction Compound (CC)
- Proposed Substation
- Proposed Met Mast
- Proposed Met Mast Hardstanding
- Proposed Borrow Pit Search Area
- Proposed New Track
- Proposed Existing Track Upgrade
- Proposed Emergency Vehicle Access
- Proposed Turning Head

Figure Title	
Figure 3: Site Layout	
Project Name	
Craig Watch Wind Farm EIA Report	
Project Number	Figure No.
1620010178	3
Date	Prepared By
May 2022	AB
Scale	Issue
1:22,500 @A3	1
Client	
Craig Watch Wind Farm Limited	





LAYER 1 : GEOTEXTILE WITH PROPERTIES IN ACCORDANCE WITH THE CIVIL SPECIFICATION

LAYER 2 : 500mm MIN. CLASS 6F2 FILL MATERIAL IN ACCORDANCE WITH CLAUSE 613 OF VOLUME 1 OF THE SPECIFICATION FOR HIGHWAY WORKS

LAYER 3 : 100mm MIN. IMPORTED TYPE 1 CLAUSE 803 MATERIAL IN ACCORDANCE WITH VOLUME 1 SPECIFICATION FOR HIGHWAY WORKS SERIES 800

Figure Title

Figure 4: Typical Access Track Detail

Project Name

Craig Watch Wind Farm EIA Report

Project Number
1620010178

Figure No.
4

Date
APRIL 2022

Prepared By
BH

Scale
NOT TO SCALE

Issue
1

Client

Craig Watch Wind Farm Ltd



APPENDIX B

**PRELIMINARY SITE AND DESIGN
GUIDANCE FOR CRAIG WATCH
WIND FARM**

Table 1: Preliminary Site and Design Guidance for Craig Watch Wind Farm		
Topic	Analysis	Design Guidance
Landscape and Visual: LDP and Capacity Study	The Proposed Development turbines are located within landscape character type (LCT) 12b – Open Uplands with settled Glens.	<p>LCT 12b is considered to be of high sensitivity to very large typology (>130 m).</p> <p>There may be some very limited opportunities for larger typologies (turbines >50 m) to be accommodated in this landscape character type. These are more likely to comprise very small extensions to some existing wind farm developments or single/ small groups of turbines rather than new wind farms due principally to the cumulative effects that would occur with the Dorenell and Clashindarroch wind farms. The setting of surrounding smaller scale and more settled landscapes (including the scenic Deveron valley and the setting of Auchindoun Castle) is an additional constraint and any further turbines should be sited so as not to significantly intrude on immediate skylines above these areas. Single/ small groups of turbines would be likely to be more acceptable if their height was towards the lower height band of the large typology (80 m to 130 m) or within the medium typology (50 m to 80 m) range in order to minimise effects on more sensitive valleys. Turbines should also be set well away from the landmark hill of The Buck and not be located on prominent hill tops close to the A941. Potential search areas for development are indicated on the map at the front of this assessment.</p> <p>There is some limited opportunity to site smaller typologies (turbines <50 m) on lower hill slopes at the transition between the upland ridges and the farmed land, along gentle slopes. There are likely to be greater opportunities to accommodate the small typology (20 m to 35 m) as they could be sited closer to the farmed lowlands of the glens and Cabrach basin but also because they would limit cumulative effects with nearby operational and consented wind farms in the upland areas.</p>
Landscape and Visual: Landscape Fabric	The Site is located on gently undulating hills within an area typified by forestry and areas of open moorland. Surrounding the hills are low lying glen landscapes characterised by more intensive farming activity. Wind farms are an existing element within the landscape surrounding the Site. The Proposed Development is situated amidst a cluster of wind farm developments, including Clashindarroch Wind Farm south east of the Site and Dorenell Wind Farm to the south west of the Site. The emergent pattern of development (existing and consented wind farms) would be examined in the baseline appraisal of the Landscape and Visual Impact Assessment (LVIA), along with other proposed developments (i.e., developments subject to a formal planning application, appeal or further planning procedure) within the cumulative assessment.	<p>Key design guidance at the Site relating to minimising effects on landscape fabric includes:</p> <ul style="list-style-type: none"> Using the simple landform, expansive scale and uniform land cover of coniferous forestry within the Site and more widely within the area to help accommodate larger typologies of turbines and, ancillary elements without significant effects on characteristic landforms and landcover at the Site. Preferential use of existing forest as a partial basis for Site infrastructure for the Proposed Development, thereby reducing the extent of disturbance and loss of characteristic topography and landcover at the Site. Use of a smaller number of larger turbines, in part, to reduce the footprint and land take of the Proposed Development whilst achieving the commercial and energy outputs anticipated/ required.
Landscape and Visual: Character and Designations	<p>From the production of initial Zone of Theoretical Visibility (ZTV), the following designations/ landscape classifications would be assessed within the LVIA:</p> <ul style="list-style-type: none"> National Parks: Cairngorms National Park, 13 km south west. National Scenic Areas: Cairngorm Mountains, 32.7 km south west. Special Landscape Areas, Moray: <ul style="list-style-type: none"> Ben Rinnes, adjacent to western Site boundary, the nearest turbine to this designation is located approximately 4 km to the east; Spey valley; 11.6 km north west; Pluscarden Valley, 30.5 km north west; Findhorn Valley and the Wooded Estates, 38 km north west; and Deveron Valley, 16 km north east. Special Landscape Areas, Aberdeenshire Council: <ul style="list-style-type: none"> Deveron Valley, 3.7 km north east; Benachie, 18 km south east; and Upper Don Valley, 18 km south east. Special Landscape Areas, Highland Council: Drynachen, Lochindorb and Dava Moors, 25.7 km west. Wild Land Areas: <ul style="list-style-type: none"> Cairngorms, 30 km south; and Lochnager – Mount Keen, 39 km south. Landscape Character Types (LCT) within the Site: <ul style="list-style-type: none"> 32 Farmed and Wooded River Valleys; 292 Open Upland; and 294 Upland Valleys – Moray and Nairn. 	<p>The critical design issue in relation to landscape character would be its position within a landscape characterised by wind farm development, and the emergent pattern of development that provides opportunities for the development to be located as 'infill' development and to avoid the geographical expansion of effects associated with existing and consented developments.</p> <p>The potential for the Proposed Development to increase the level of cumulative effects on landscape character would be considered, focussed on the three character types on the Site.</p> <p>Consideration would be given to the potential for cumulative effects and would be assessed within the EIAR.</p>
Landscape and Visual: Visual Amenity	<p>The LVIA would consider the visual impacts on settlements. Significant impacts to visual amenity are unlikely to occur beyond 20 km, therefore settlement beyond this has been scoped out. Dufftown is the only key settlement within theoretical visibility of the Proposed Development.</p> <p>There are several key transport routes within the study area that would be subject to potential views of the Proposed Development including the A941, the A920, the A96, the A95 and a small number of local roads in the vicinity of the Site. In addition to roads, the rail links within the study area would also be considered.</p>	<p>The key issues in respect of visual amenity will relate to:</p> <ul style="list-style-type: none"> impacts on residential visual amenity of properties within 3 km of the Proposed Development's turbines; effects on the amenity and character of key routes such as the A941; and effects on the amenity of recreational routes, including the Speyside Way, the Dava Way and the Moray Coast Trail, cycleways and core paths; as well as key summits used by hill walkers.

Table 1: Preliminary Site and Design Guidance for Craig Watch Wind Farm		
Topic	Analysis	Design Guidance
	Any paths within 10 km of the proposed turbines, which have theoretical visibility of the Proposed Development, would be included within the LVIA, of which there are a number of core paths. A detailed survey of residential properties would be undertaken for dwellings within 2 km of the Proposed Development.	The landscape preferred development area ensures sufficient separation distance from the closest properties of at least 1 km.
Cultural Heritage and Archaeology: Non-designated heritage assets on-site	There are over 80 designated and non-designated heritage assets within the Site and up to 1 km from the Site including a number of prehistoric and post-medieval settlement and boundary features, as recorded from the Aberdeenshire and Moray Historic Environment Record, map regressions, ariel photographs and walkover surveys. These have the potential to be subject to direct physical impacts as a result of the Proposed Development. Impacts would relate to the removal (partial or whole) of these heritage assets through ground breaking works and construction activities on-site.	Turbines and Site infrastructure should be sited to avoid impacts upon known remains. Where infrastructure will be located in close proximity to known assets but will not directly impact upon it mitigation measures such as the fencing of assets to prevent inadvertent damage by plant movement during the construction phase may be required. Where assets cannot be avoided this is likely to require mitigation through preservation by record undertaken through archaeological watching brief or trial trench evaluation.
Cultural Heritage and Archaeology: Designated heritage assets and non-designated heritage assets of national importance beyond the Site boundary	The key consideration centres around impacts upon the scheduled Craig Dorney Fort (SM13746) located approximately 1 km north, north east, Auchindoun Castle (SM 90024) located approximately 2.3 km to the north and the scheduled Battle Stone, Mortlach (SM 350), located approximately 4 km to the north, north west of the Site boundary. The Scheduled hillfort, Tap o'Noth (List No. SM63), which represents an asset type that tends to be of high sensitivity to changes to their setting, is located approximately 8.8 km to the south east of the Site. Most of the Scheduled Monuments within 10 km of the Site relate to remains of cup marked boulders, hut circles, cairns, henges, townships and field systems dating from the prehistoric to the post-medieval periods. However, two Scheduled castles, Balvenie Castle (SM 90028) and Caddwell Castle (SM 2505) are also located within the Study Area. There are three Listed Buildings within 5 km of the Site boundary: <ul style="list-style-type: none"> Blackwater Bridge (Category C) (LB 2252) (578 m SW); Beldorney Castle (Category A) (LB 9164) (2 km E-NE); and Mortlach Parish Church (Category A) (LB 15864) (3.9 km NW). 	Where possible turbines should be sited to minimise impacts upon the setting of designated heritage assets and non-designated heritage assets of national importance, both creating separation through turbine siting for views from the assets.
Ecology	The Site is dominated by semi-mature coniferous plantation woodland, which is considered to be of negligible nature conservation value. Key considerations include: <ul style="list-style-type: none"> The River Spey SAC and the fish within the river – afforded protection in legislation under Conservation (Natural Habitats, &c.) Regulations 1994 (as amended); Bats – A European protected species – Bats identified on-site include the common pipistrelle; soprano pipistrelle; brown long-eared bat; Myotis spp; and Nyctalus spp - afforded protection in legislation under Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Using the criteria set out in Table 3a of NatureScot guidance (2019)²⁴, the project area is considered to most closely fit the description of a 'low/ moderate' site risk for bats; Localised areas of priority habitats present (specified in UK Biodiversity Action Plan, Annex I of the Habitats Directive, or the Scottish Biodiversity List, including European dry heath H10 H12 H18; Alpine heath H13; Active raised bogs and blanket bog M17 M19 M20; North Atlantic wet heaths with Erica tetralix M15; Valley mire M23; Mesotrophic grassland MG6 MG9; Swamp S4; Tall-herb OV25 U16; and Acid grassland U4 U5 U6. Other constraints from protected species include water voles, red squirrel, otter and badger (although badger are unlikely to be present). 	A 100 m buffer between works and infrastructure and the River Spey SAC tributaries should be incorporated into the design to avoid impacts on the SAC and the fish within the river. Crossings over the SAC should be minimised or avoided where possible. A 50 m buffer from blade tip to woodland edge should be incorporated into the design to avoid impacts on bats – this equates to a 96 m buffer around each turbine (for 200 m tip) to woodland edge and a 68 m buffer from watercourses. Buffers on watercourses for bats and for pollution prevention (a minimum of 50 m) would avoid any significant effects for other protected species, including otter, water vole and fish. Infrastructure, turbines, and works should avoid Annex 1 habitats and potential Groundwater Dependent Terrestrial Ecosystems (GWDEs) (where possible) in order to minimise impacts.
Ornithology	The key consideration in relation to ornithology is the Tips of Corsemaul and Tom Mor Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI) which is located approximately 1.28 km north of the Site and supports Breeding Common Gull. Kelman Hill, located within the south east of the Site has been identified as a common gull flight corridor. Several black grouse leks have been identified within and surrounding the Site. A hen harrier nest site was located within 1 km of the Proposed Development.	The design should incorporate the following buffers from turbines: <ul style="list-style-type: none"> A 1 km buffer from turbines and a 500 m buffer from infrastructure to common gull habitat (Kelman Hill) to protect breeding common gull. A 500 m buffer surrounding the SPA and SSSI from works during the breeding season. A 500 m buffer either side of flight corridor down the east side of the Site to Kelman Hill (and an offset of turbines from Kelman Hill given the high gull activity identified). A 500 m buffer around lek sites from works and turbines. A 500 m buffer around hen harrier nests (to be identified during a pre-construction survey). Appropriate buffers to be applied surrounding active breeding wader nests, which would be identified during pre-construction surveys.
Hydrology and Hydrogeology	In respect of hydrology and hydrogeology, the following has been identified on-site: <ul style="list-style-type: none"> The potential for three high and moderate Groundwater Dependent Terrestrial Ecosystems (GWDE) areas within the Priest's Well area in the eastern part of the Site; Seven Moray Council Private Water Supply (PWS) sources on; and 	The design should avoid placing turbines, and crane hardstanding within 50 m of natural watercourses. The design should aim to minimise the number of direct interactions with the water environment by designing out watercourse crossings where possible and minimising interactions with the SAC in particular.

²⁴ NatureScot (2019) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation, URL: <https://www.nature.scot/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation> [accessed 27/3/2020]

Topic	Analysis	Design Guidance
	<ul style="list-style-type: none"> Seven Moray Council PWS users. <p>The following hydrology and hydrogeology assets are present within 1 km of the Site:</p> <ul style="list-style-type: none"> Aberdeenshire Council PWS; Aberdeenshire Council PWS users; Moray Council PWS; and Moray Council PWS users. 	<p>In line with SEPA consultation, the hardstanding area of T7 has been located to avoid areas of deep peat and is situated within the 50 m watercourse buffer of two small tributaries of the Linn Burn. A minimum buffer of approximately 14 m is maintained to the north of the hardstand and a small stream/ forest drain and a minimum buffer of 24 m is maintained to the stream south of the hardstand location.</p> <p>It is noted that turbines located within 50 m of identified artificial drainage channels may require additional runoff mitigation and pollution control measures in recognition of the potential pathway-receptor connectivity.</p> <p>Detailed risk assessment would be required for any PWS abstractions identified within 250 m of the proposed infrastructure (as would be classified under SEPA LUPG31²⁵).</p> <p>SEPA guidance is that 250 m/ 100 m buffers are needed for high and moderate GWDTEs respectively. Potential high GWDTEs should be considered, however where the habitats are clearly linked to either rain-fed systems or surface watercourses/ features, they should not be treated as a design constraint.</p>
Peat	<p>A review of the SNH Carbon Rich Soil, Deep Peat and Peatlands Habitat Map (2016) and peat probing confirms that areas of peat and organic material are present across the Site. Most of the Site contains peat depths between 0 m and 0.5 m (0 m to 0.1 m = no peat). Pockets of peat between 0.5 m and 1.0 m have been identified with one area of peatland habitat located to the west of the Site contains peat at depths greater than 1 m with areas of peat instability.</p> <p>A large proportion of the Site is covered with coniferous plantation woodland, some of which is over what would have been 'priority peatland habitat' prior to afforestation; however due to ploughing for forestry and extensive artificial drainage the peat present is likely to be highly modified.</p>	<p>One significant area of priority peatland habitat has been identified. This area should be avoided.</p> <p>The design should avoid siting turbines and infrastructure in areas of peat, particularly deep peat (>1 m depth); however, it is noted that peat under forestry is likely to be highly modified. Highly modified peat is considered to be of lower ecological value in its present state (relative to unmodified peat forming habitat), but opportunities may exist to limit forest replanting on areas of deeper peat where there is the opportunity to seek to restore peat forming habitat.</p>
Forestry	<p>The north east section of the Site contains approximately 250 ha of upland productive conifer plantations. The north west of the Site contains the Ben Main woodland. Within Ben Main, 1.43 ha of forestry is classified under the Ancient Woodland Inventory (Scotland)²⁶ as pole-stage native pinewood.</p>	<p>The design should seek to minimise woodland loss, ensure any "stand-off" distance is justified and minimised (e.g. for ecology (bat) mitigation). Compensatory planting would be required for permanent loss of all infrastructure including tracks (where not required as a forest road).</p> <p>The design should consider possible opportunity for "forest to bog restoration".</p>
Traffic and Transport	<p>The main transport impacts would be associated with the movement of general HGV traffic travelling to and from the Site during the construction phase of the Proposed Development.</p> <p>Each turbine is likely to require between 11 and 13 abnormal loads to deliver the components to Site. The components would be delivered on extendable trailers which would then be retracted to the size of a standard HGV for the return journey.</p>	<p>In terms of Site design, it is proposed that access is taken from the A941 at Rhinturk to the south west of the Site.</p>
Noise	<p>The Site is located within a rural location where background noise levels are relatively low. The predominant noise sources in the area are wind induced noise (wind passing through vegetation and around buildings), local watercourses, agricultural noise and birdsong. At some receptors the soundscape is affected by local road traffic noise. There are a number of scattered residential properties around the Site.</p> <p>ETSU-R-97²⁷ and the Institute of Acoustics (IOA) Good Practice Guidance²⁸ (GPG) make it clear that background noise levels should be established in the absence of noise from wind turbines.</p>	<p>IOA GPG guidance state 'If the proposed wind farm produces noise levels within 10 dB of any existing wind farm/s at the same receptor location, then a cumulative noise impact assessment is necessary'. Due to the proximity of neighbouring schemes a cumulative assessment would be undertaken.</p> <p>The key design criteria for the Site should ensure that the 'Total ETSU-R-97 Noise Limits' are not exceeded by the cumulative operation of all turbines in the area. To enable wind farm noise for individual developments to be controlled 'Site Specific Noise Limits' must be set which take account of the proportion of the Total ETSU-R-97 Noise Limit which has been given to, or could realistically be used by other schemes.</p>
Aviation	<p>The Site is located in uncontrolled airspace from ground level to Flight Level 195 (approximately 19,500 feet above sea level). Above that level is the Class C controlled airspace of the Scottish Upper Airspace Control Area, within which air traffic services are provided by the NATS En Route (NERL) Prestwick Centre. Radars used to provide these services in the vicinity of the Site include those at Perwinnes Hill, 57 km east, south east of the Site, and Allanshill, 56 km north east of the Site. These radars are also used to provide air traffic services to aircraft inbound to and outbound from Aberdeen Airport.</p> <p>RAF Lossiemouth is located 38 km north west of the Site. It operates a primary surveillance radar located on the airfield. RAF Lossiemouth provides a Lower Airspace Radar Service to aircraft operating below controlled airspace in the vicinity of the Site.</p> <p>The Remote Radar Head (RRH) at Buchan, 71 km east of the Site, is an air defence primary surveillance radar.</p> <p>A primary surveillance radar is operated at Inverness Airport, 62 km north west of the Site.</p> <p>There are no airports, airfields or landing sites within 25 km of the Site, and no secondary surveillance radars or aeronautical radio navigation aids within 20 km of the Site.</p>	<p>The radar effects on RAF Lossiemouth and RRH Buchan would be mitigated against, the strategy for which would be discussed in the EIAR and should be agreed with Lossiemouth and Buchan airports.</p> <p>Since the proposed turbines are >150 m in height to blade tips, they would trigger a requirement for visible spectrum obstruction lighting. The EIAR will explore the potential for a reduced lighting scheme for submission to the Civil Aviation Authority (CAA) for approval. Radar-activated lighting systems would also be evaluated.</p>

²⁵ Scottish Environment Protection Agency (SEPA), 2017. Guidance Note 31. Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Online. Available at: [lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf](https://sepa.org.uk/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf) (sepa.org.uk) [accessed 28/01/2021]

²⁶ <https://data.gov.uk/dataset/c2f57ed9-5601-4864-af5f-a6e73e977f54/ancient-woodland-inventory-scotland>

²⁷ URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/49869/ETSU_Full_copy_Searchable.pdf [accessed 03/11/2020]

²⁸ URL: <https://www.ioa.org.uk/sites/default/files/IOA%20Good%20Practice%20Guide%20on%20Wind%20Turbine%20Noise%20-%20May%202013.pdf> [accessed 03/11/2020]

Topic	Analysis	Design Guidance
	The Site is located within Low Flying Area (LFA) 14, where military aircraft are permitted to fly as low as 250 feet above ground level. The Site is wholly located within a part of LFA 14, which has been designated by the MoD as a "low priority military low flying area less likely to raise concerns".	
Telecommunications	<p>The Ofcom Spectrum Information Portal identifies two fixed telecommunications links within 3 km of the Site. These are Airwave microwave links running from Ardwell, south of the Site, to Succoth, then north to Glass. Atkins and the JRC have confirmed that there are no water or energy industry scanning telemetry links in the vicinity of the Site.</p> <p>Terrestrial television signals in the area are provided from three transmitters: Knockmore (16 km north west of the Site); Durriss (59 km south, south east of the Site); and Gartly Moor (15 km east of the Site).</p>	<p>The two Airwave microwave links to the south and east of the Site would be at least 1.5 km from all turbines in the Proposed Development. Since this eliminates the possibility of potential significant effects, no further assessment of those assets will be conducted.</p> <p>There are no scanning telemetry systems in the vicinity with the potential to be affected.</p> <p>The potential for significant effects on television reception quality is minimal and therefore no mitigation is proposed.</p>

APPENDIX C
DESIGN EVOLUTION WIRELINES

Technical Appendix C: Selected Design Appraisal and Wirelines

1.1 Landscape and Visual Selected Design Evolution Appraisal

1.1.1 The design of the Proposed Development took account of a range of commercial, technical and environmental considerations. The following appraisal is intended to provide an illustration of the efficacy of the Proposed Developments iterative design in achieving a suitable landscape and visual fit and minimisation of landscape and visual effects. It is indicative of the appraisal undertaken, as part of the iterative design process for the Proposed Development, and should be read in conjunction with Chapter 3, Section 5.6: Mitigation in the Environmental Impact Assessment Report and the Design Statement (DS).

As described in Chapter 3 and the DS, there were seven main design layouts. For the purposes of this appraisal, the key iterations comprise:

- An initial Scoping Layout – (18 turbines with a 200 m maximum tip height) - based on an initial desk-based constraints review and with consideration of findings of the ornithology and ecology surveys;
- Layout A: Wind Optimised Layout (16 Turbines with a 200 m maximum tip height) - turbines 3 and 14 removed to lessen cultural heritage and landscape and visual impacts;
- Layout B: Landscape and Visual Analysis Layout (11 Turbines with a 200 m maximum tip height) - revised layout based on the findings of a further detailed landscape and visual analysis which led to the removal of turbines 1, 2, 5, 12 and 15; and
- Layout F: Design Freeze Layout (11 Turbines with a 200 m maximum tip height) - represents the finalised design freeze layout of the Proposed Development and incorporates a number of minor changes to preceding iterations in Layouts C, D and E. This layout also entailed the renumbering of turbines and refinements to the Proposed Development's infrastructure.

1.1.2 Landscape and visual priorities that informed the design development included:

- The use of turbine sizes that would maximise yield whilst simultaneously minimising the Proposed Development's footprint and infrastructure requirements, thereby reducing impacts on the landscape fabric of the Site;
- The preference for turbines of a size that would be consistent with that of the proposed Garbet and Clashindarroch II wind farm developments, thereby limiting any incongruity between these closest schemes and the Proposed Development;
- Positioning of turbines on the flatter or gently undulating parts of the Site, away from exposed edges overlooking the Deveron Valley and Glen Markie;
- Arrangement of turbines to achieve a balanced and coherent array with minimal 'stacking'¹;
- Preferential use of existing tracks on-site to minimise effects associated with this aspect of the Proposed Development;
- Minimisation of the amount of Site infrastructure and ancillary elements required, and careful positioning and design to ensure that such elements are screened from the majority of external receptor locations; and
- Careful siting and design of proposed substation to minimise visibility from external receptor locations.

1.1.3 This appraisal focuses on the appearance of the Scoping Layout and Layouts A, B and F from three distinct sensitive receptor locations:

- Auchindoun Castle;
- The summit of Ben Rinnes; and
- A minor road in Deveron Valley.

1.1.4 The location of these three viewpoints is indicated in Volume 3a, Figure 5.8: Viewpoint Location Plan. These locations were selected to represent a range of receptor locations in different directions elevations and distances.

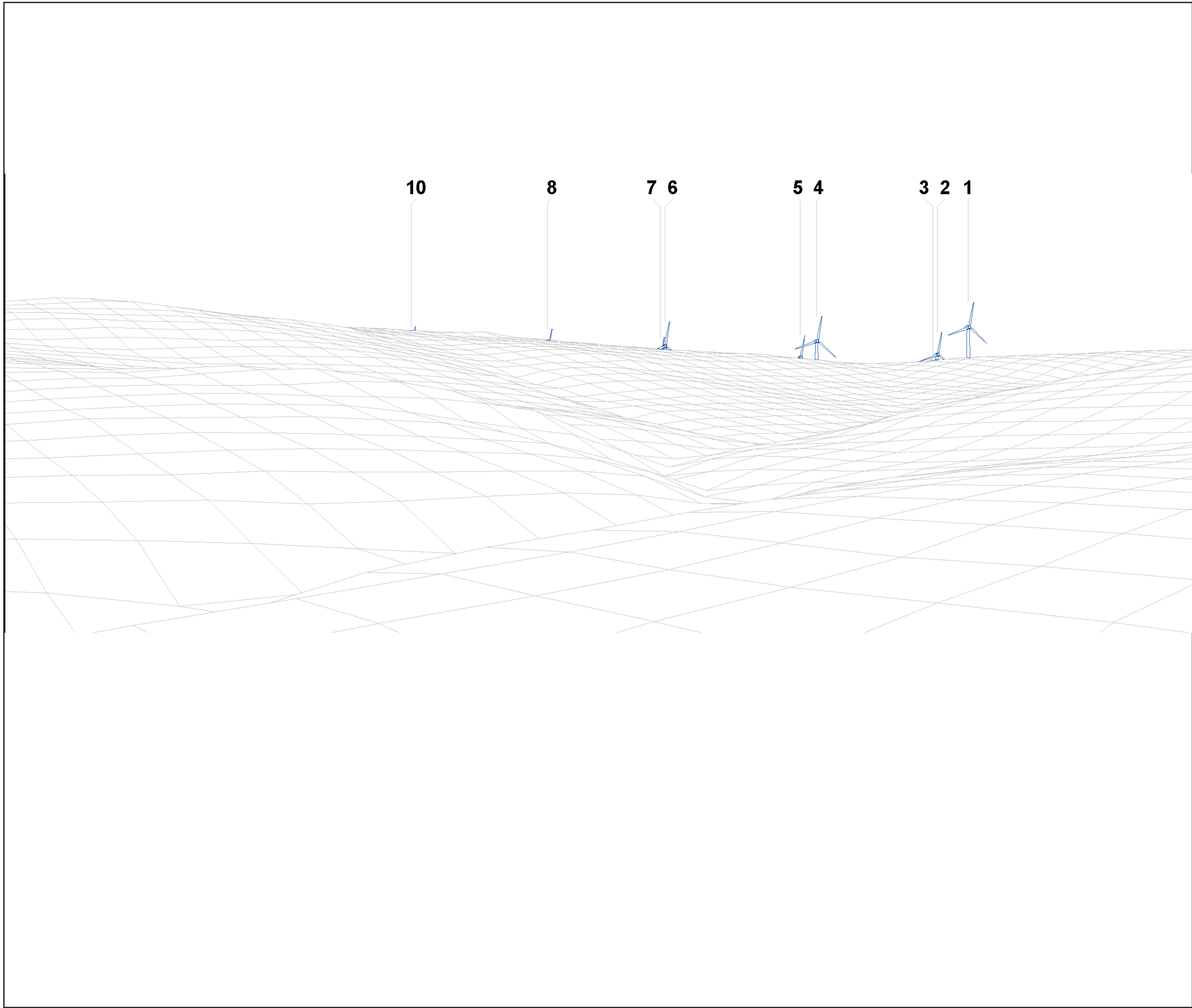
1.1.5 Table 3.3.1: Viewpoint Appraisal, below, provides a concise description and appraisal for each layout at each of the selected viewpoints and should be read in conjunction with the comparative wirelines in Figures 3.1.1a to 3.1.3d.

Viewpoint	Scoping Layout	Layout A	Layout B	Layout F
Auchindoun Castle	See Figure 3.1.1a Seen from this viewpoint the Scoping Layout would have formed a prominent feature on the skyline above the incised valley associated with Slatequarry Burn, with attendant effects on the scale of the valley landscape.	See Figure 3.1.1b In response to initial landscape and visual analysis and cultural heritage advice, turbine numbers were reduced to 16 with limited effect on the landscape and visual fit the scheme. It did however achieve a discernible 'setting back' of the turbines from the exposed upland edge.	See Figure 3.1.1c The further reduction in turbine numbers to 11 in response to further detailed landscape and visual analysis provided for a significant reduction in the Proposed Development's visibility and prominence with only one rotor evident. This served to reduce potential effects on the scale and character of the intervening valley landscape.	See Figure 3.1.1d Layout F, which is a refinement of the preceding layout would result in little change to layout B viewed from this viewpoint.
Minor road in Deveron Valley	See Figure 3.1.2a All of the Proposed Development's turbines would be visible, forming a prominent and complex array on the skyline above this lower lying and enclosed viewpoint. The Scoping Layout resulted in a notable degree of 'stacking'.	See Figure 3.1.2b Reductions in the numbers of turbines, coupled with the adoption of degree of set back from the exposed edges of the Site and repositioning of turbines resulted in an appreciable improvement in the composition of the Proposed Development, including reductions in 'stacking'. However, some increased complexity resulted in the eastern (right hand) part of the array, with Turbine 15 being particularly prominent.	See Figure 3.1.2c The reductions in turbine numbers in response to further detailed landscape and visual analysis provided for a simpler and more compact array. This iteration eliminated some of the most prominent turbines that were included in Layout A and provided for a greater degree of perceived set back from the exposed edges of the Site.	See Figure 3.1.2d Final changes to the design of the Proposed Development resulted in a slight narrowing of the array in the view from this viewpoint.
Ben Rinnes	See Figure 3.1.3a Seen from this elevated viewpoint, the Scoping Layout would appear as a single cluster of turbines, with notable	See Figure 3.1.3b Based on initial landscape and visual analysis and cultural heritage advice, the number of turbines was reduced, serving to narrow the extent of the array in the	See Figure 3.1.3c Further reductions in turbine numbers in response to further detailed landscape and visual analysis narrowed the array, simplified its	See Figure 3.1.3d Layout F represented a refinement to scheme B, with minor improvements to

¹ Overlapping of turbines with resultant complexity and discordant rotor movement.

Viewpoint	Scoping Layout	Layout A	Layout B	Layout F
	stacking associated with Turbines 1 and 5, 4 and 7, and 13 and 14.	view slightly. However, this did not eliminate 'stacking' effects.	appearance and reduce the incidence of 'stacking'.	the coherence of the scheme evident.

1.1.6 From this it is apparent that, viewed from these viewpoints, that design changes in Layout B provided the greatest improvements in the landscape fit and appearance of the Proposed Development, whilst helping to achieve reductions in potential landscape and visual effects, as discussed in Chapter 5: Landscape and Visual Amenity in the EIAR. Subsequent iterations (Layouts C, D, E and F) served mainly as relatively minor refinements based on a range of environmental and technical considerations.



Key:


 Proposed Craig Watch Wind Turbine

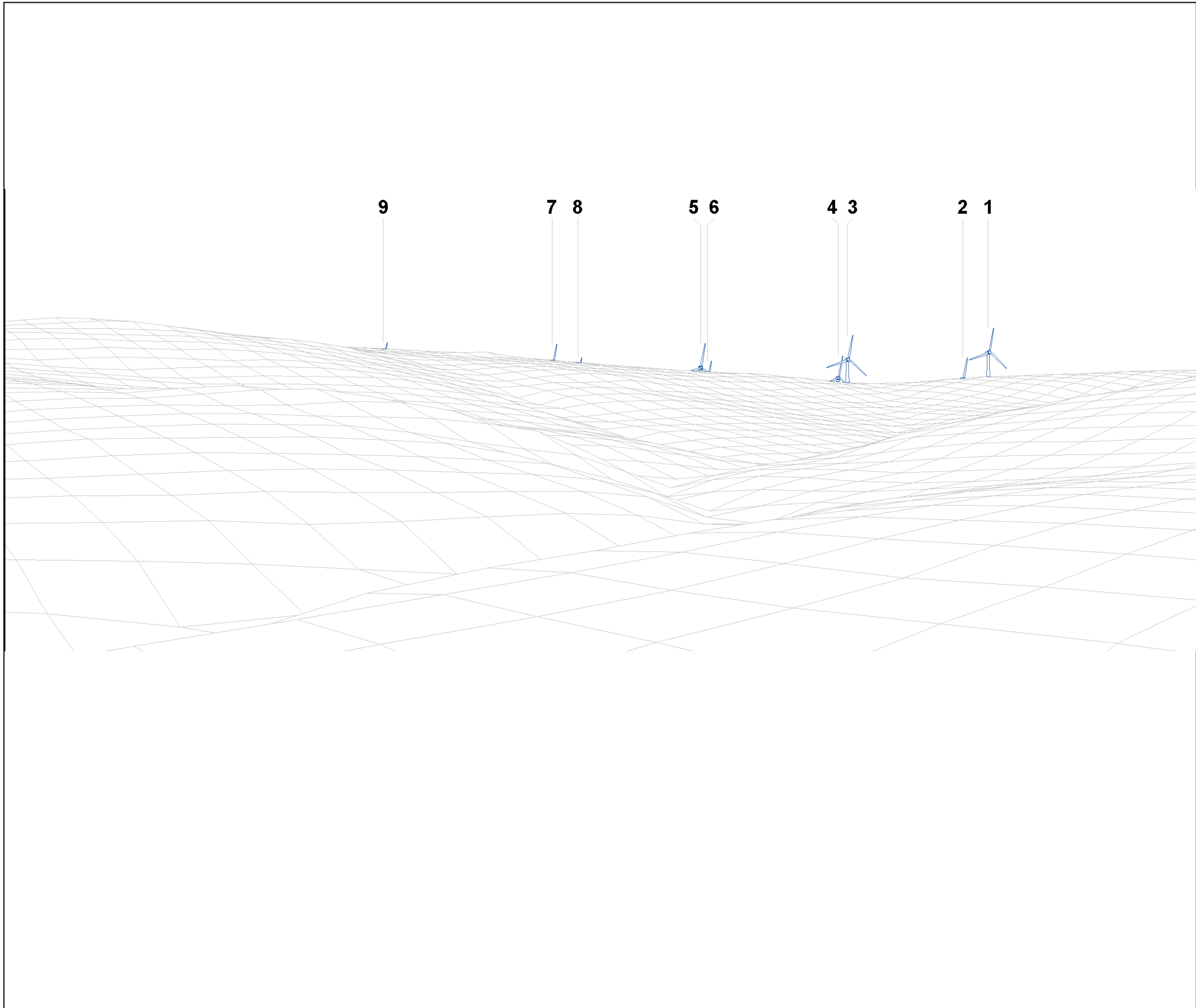
Figure Title:
**Cultural Heritage (Auchindoun Castle)
 Wireline – Scoping Layout**

Project Name:
**Craig Watch Wind Farm
 Environmental Statement**

Project Number: 1620010178	Figure No: 3.1.1a
Date: May 2022	Prepared By: JBM
Scale: NTS	Issue: 1

Client:



Key:


 Proposed Craig Watch Wind Turbine

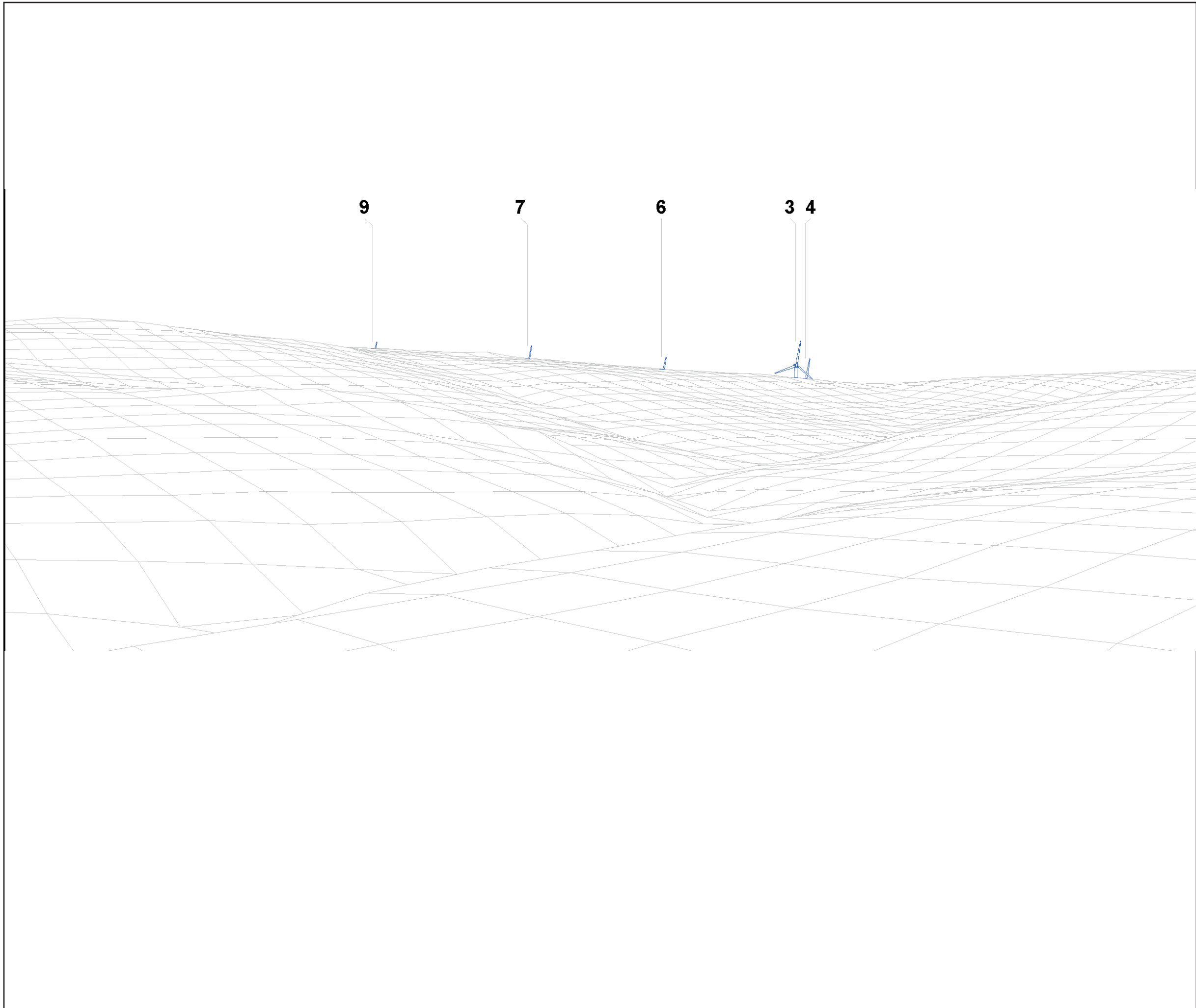
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**Cultural Heritage (Auchindoun Castle)
 Wireline – Layout A**

Project Name:
**Craig Watch Wind Farm
 Environmental Statement**

Project Number: 1620010178	Figure No: 3.1.1b
Date: May 2022	Prepared By: JBM
Scale: NTS	Issue: 1

Client:



Key:


 Proposed Craig Watch Wind Turbine

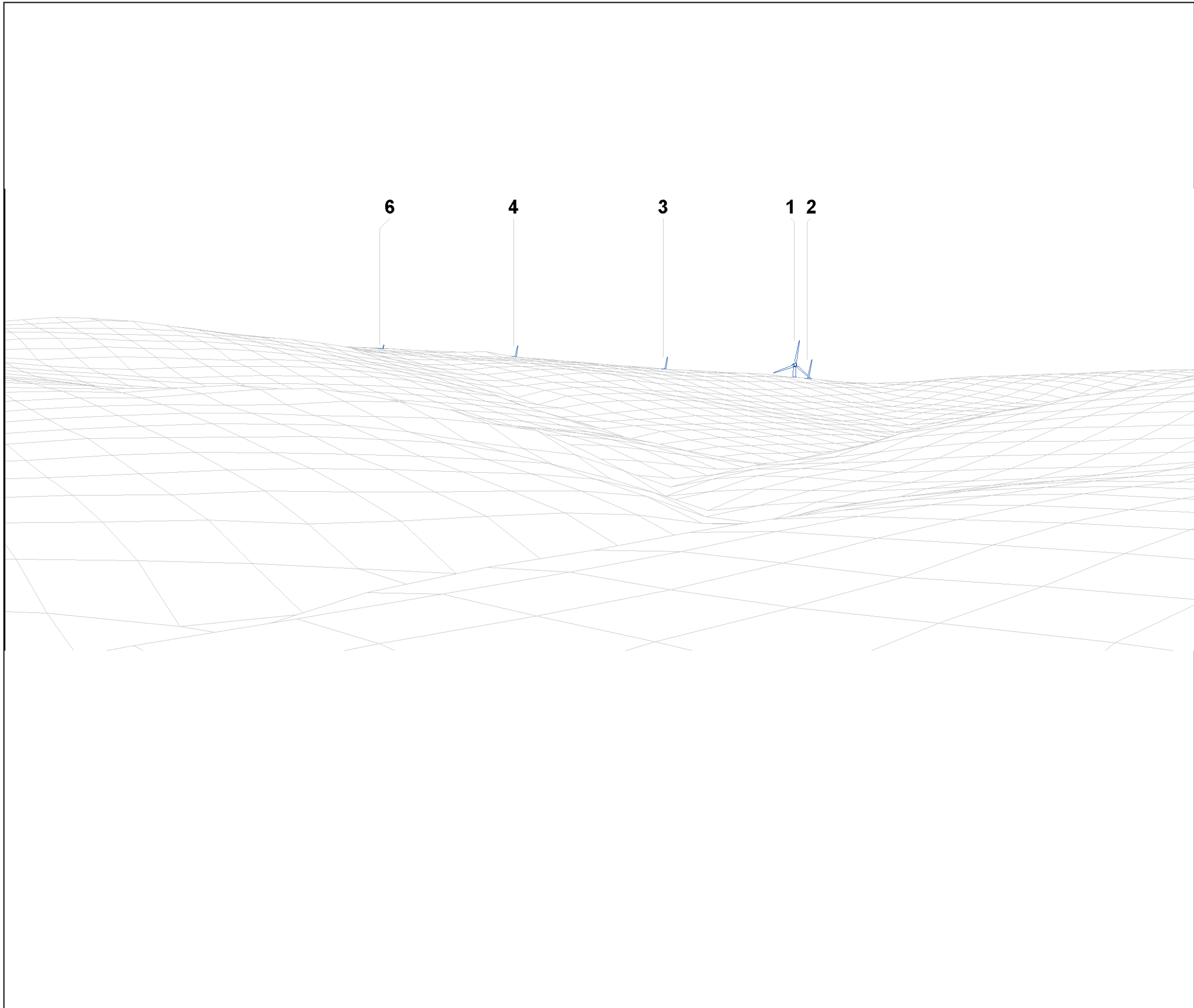
Figure Title:
**Cultural Heritage (Auchindoun Castle)
 Wireline – Layout B**

Project Name:
**Craig Watch Wind Farm
 Environmental Statement**

Project Number: 1620010178	Figure No: 3.1.1c
Date: May 2022	Prepared By: JBM
Scale: NTS	Issue: 1

Client:



Key:


 Proposed Craig Watch Wind Turbine

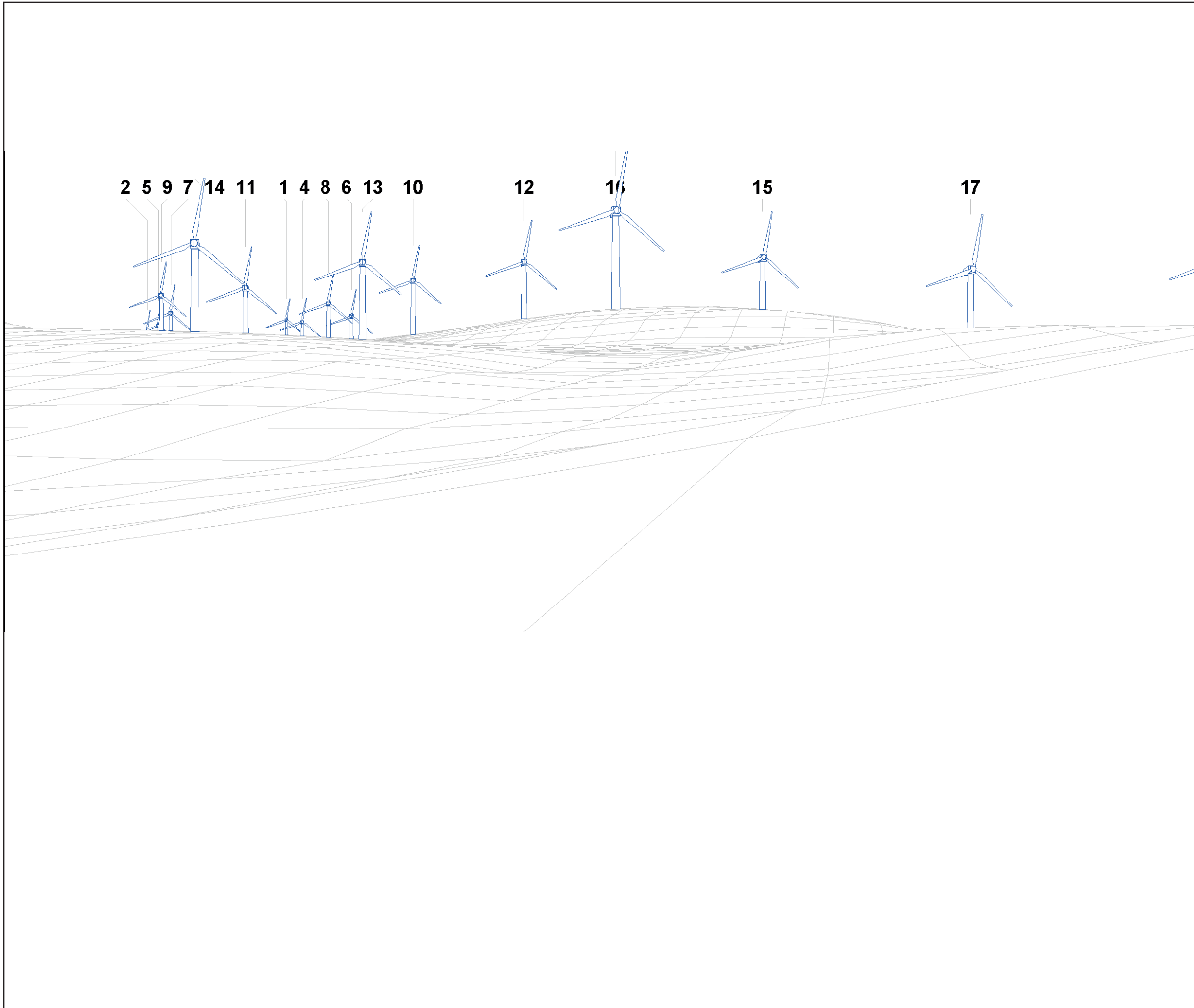
Figure Title:
**Cultural Heritage (Auchindoun Castle)
 Wireline – Layout F**

Project Name:
**Craig Watch Wind Farm
 Environmental Statement**

Project Number: 1620010178	Figure No: 3.1.1d
Date: May 2022	Prepared By: JBM
Scale: NTS	Issue: 1

Client:



Key:


 Proposed Craig Watch Wind Turbine

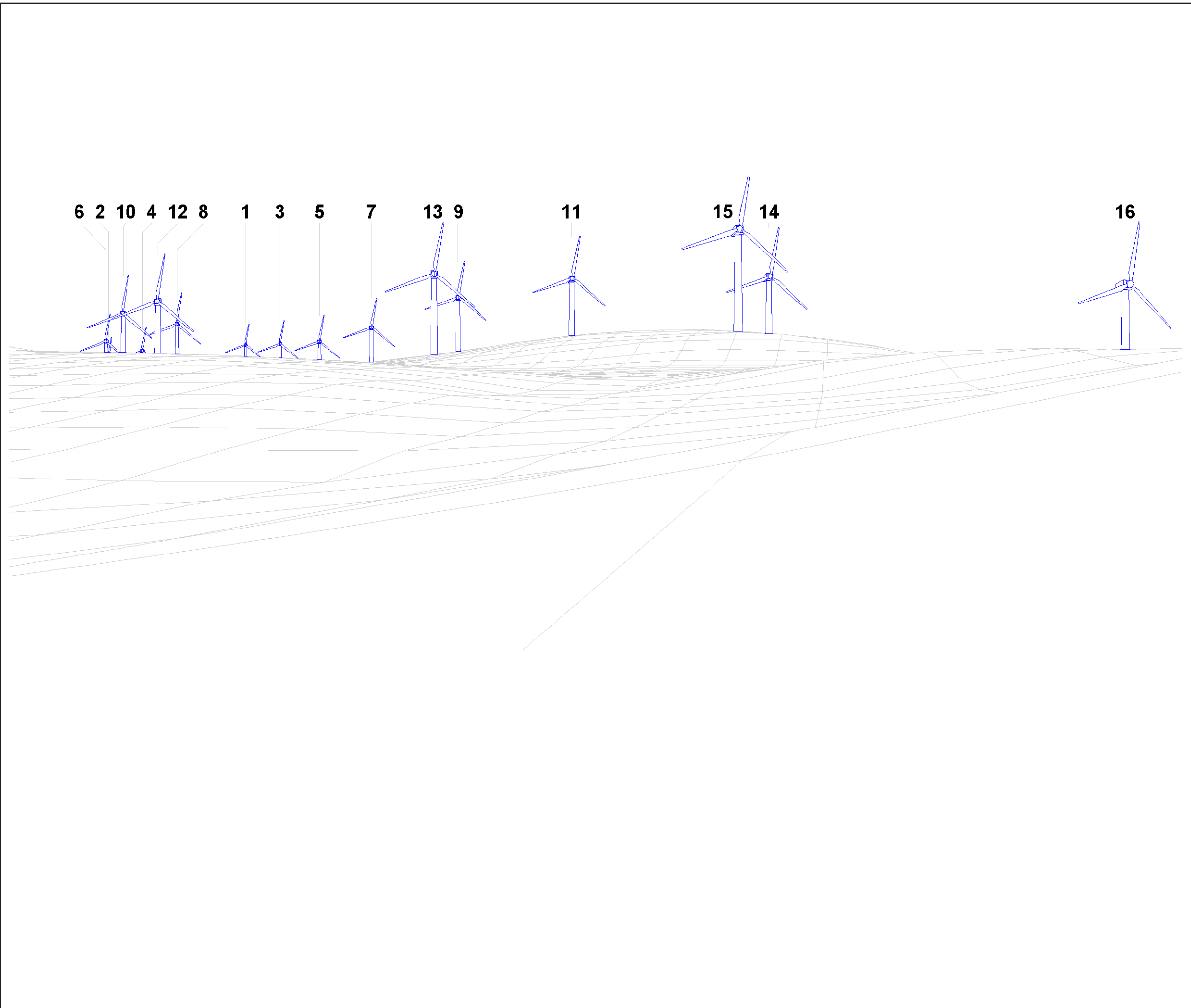
Figure Title:
 LVIA (Minor Road in Deveron Valley)
 Wireline – Scoping Layout

Project Name:
 Craig Watch Wind Farm
 Environmental Statement

Project Number: 1620010178	Figure No: 3.1.2a
Date: May 2022	Prepared By: JBM
Scale: NTS	Issue: 1

Client:



Key:


 Proposed Craig Watch Wind Turbine

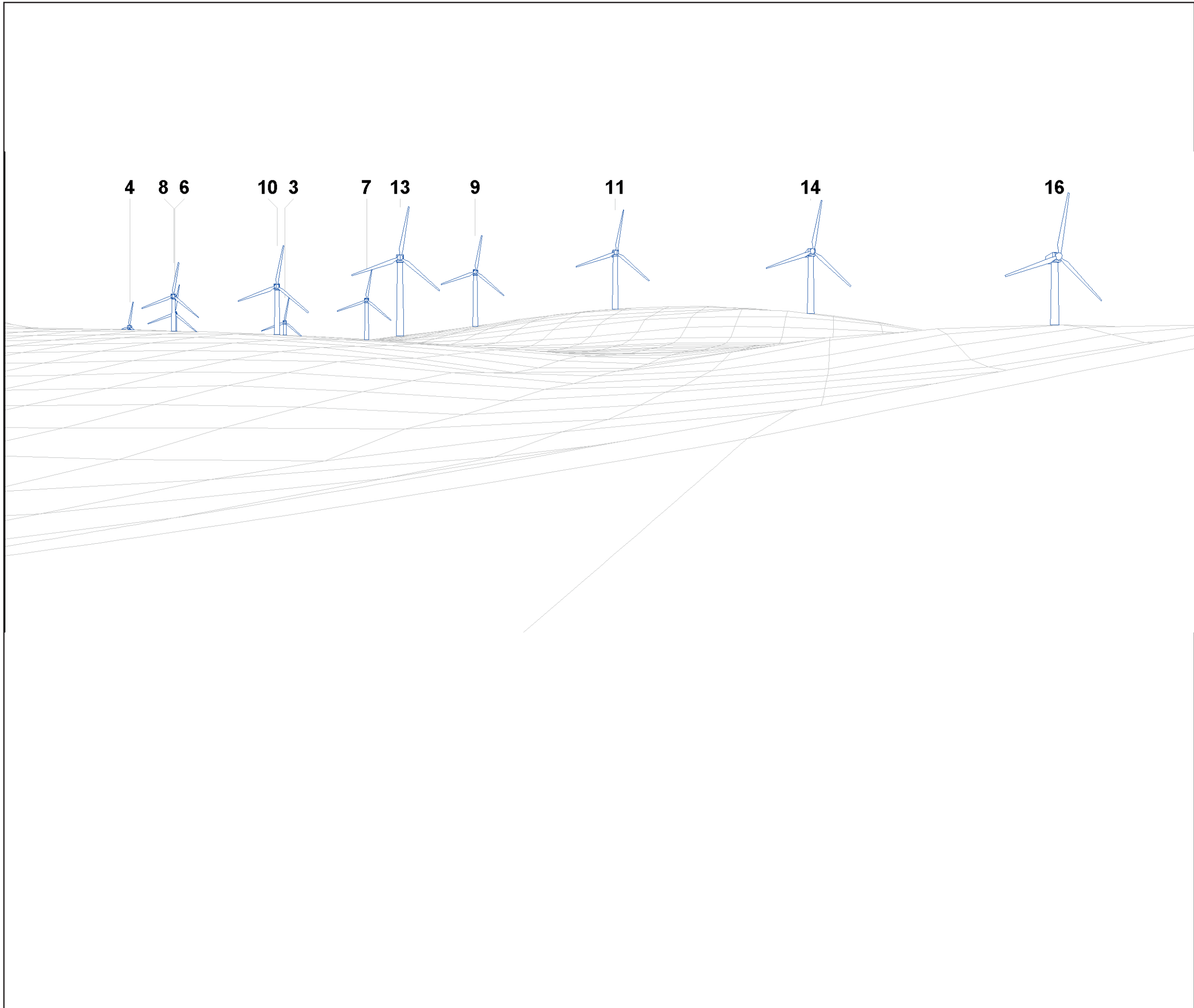
Figure Title:
LVIA (Minor Road in Deveron Valley)
Wireline - Layout A

Project Name:
Craig Watch Wind Farm
Environmental Statement

Project Number: 1620010178	Figure No: 3.1.2b
Date: June 2022	Prepared By: KL
Scale: NTS	Issue: 1

Client:



Key:


 Proposed Craig Watch Wind Turbine

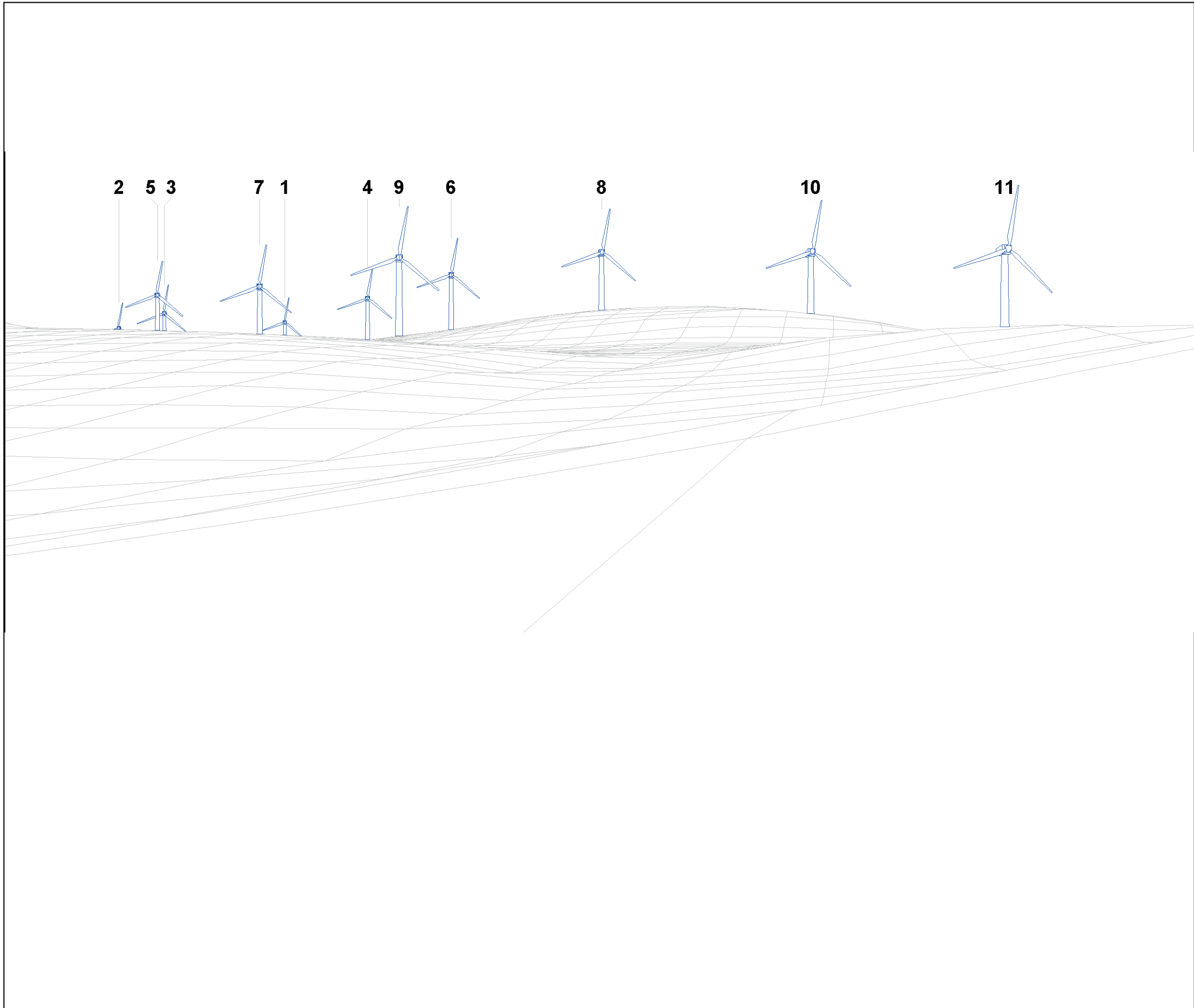
Figure Title:
 LVIA (Minor Road in Deveron Valley)
 Wireline – Layout B

Project Name:
 Craig Watch Wind Farm
 Environmental Statement

Project Number: 1620010178	Figure No: 3.1.2c
Date: May 2022	Prepared By: JBM
Scale: NTS	Issue: 1

Client:



Key:


 Proposed Craig Watch Wind Turbine

Figure Title:
 LVIA (Minor Road in Deveron Valley)
 Wireline – Layout F

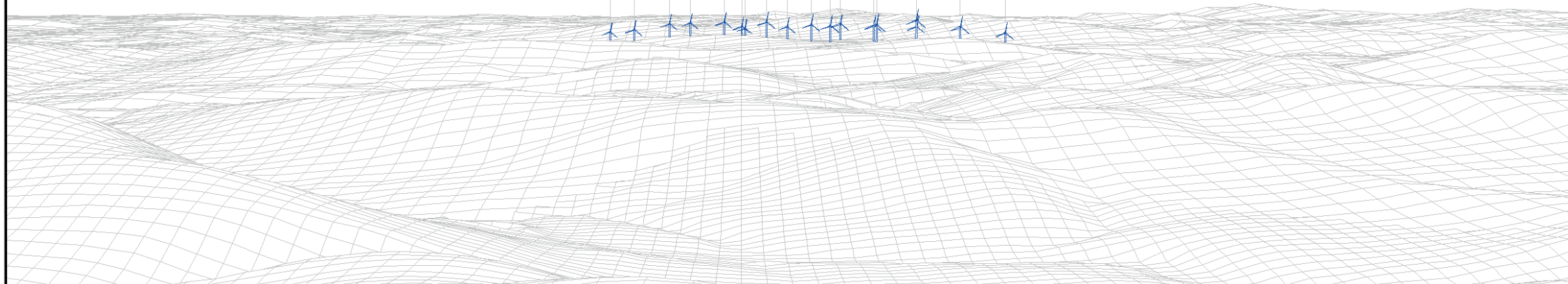
Project Name:
 Craig Watch Wind Farm
 Environmental Statement

Project Number: 1620010178	Figure No: 3.1.2d
Date: May 2022	Prepared By: JBM
Scale: NTS	Issue: 1

Client:




18 17 15 16 12 13 14 10 11 8 6 9 7 4 1 5 2 3



Key:

 Proposed Craig Watch Wind Turbine

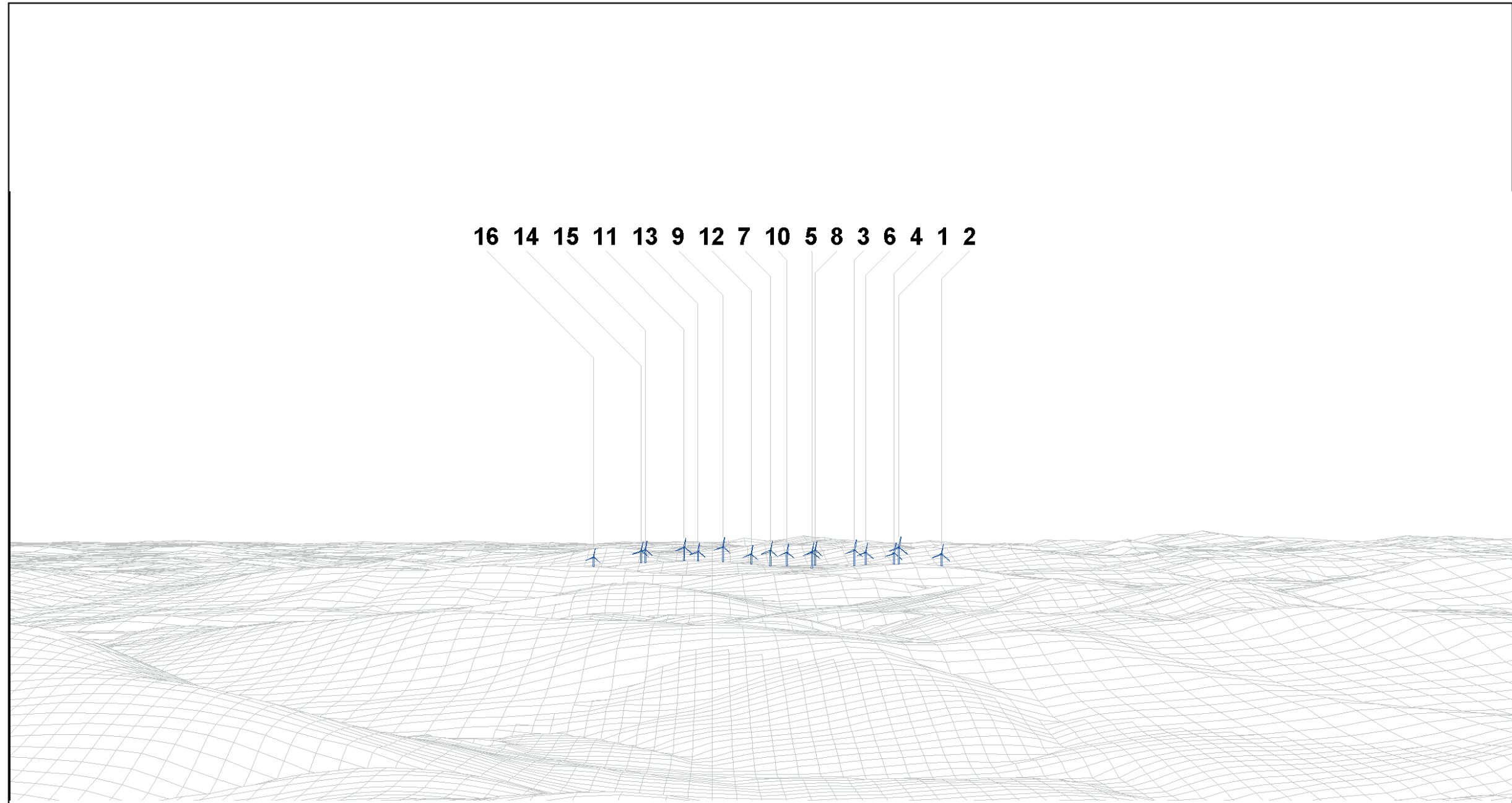
Figure Title:
LVIA (Ben Rinnes)
Wireline – Scoping Layout

Project Name:
Craig Watch Wind Farm
Environmental Statement

Project Number: 1620010178	Figure No: 3.1.3a
Date: May 2022	Prepared By: JBM
Scale: NTS	Issue: 1

Client:
 **Statkraft**

 **RAMBOLL**



Key:


 Proposed Craig Watch Wind Turbine

Figure Title:
 LVIA (Ben Rinnes)
 Wireline – Layout A

Project Name:
 Craig Watch Wind Farm
 Environmental Statement

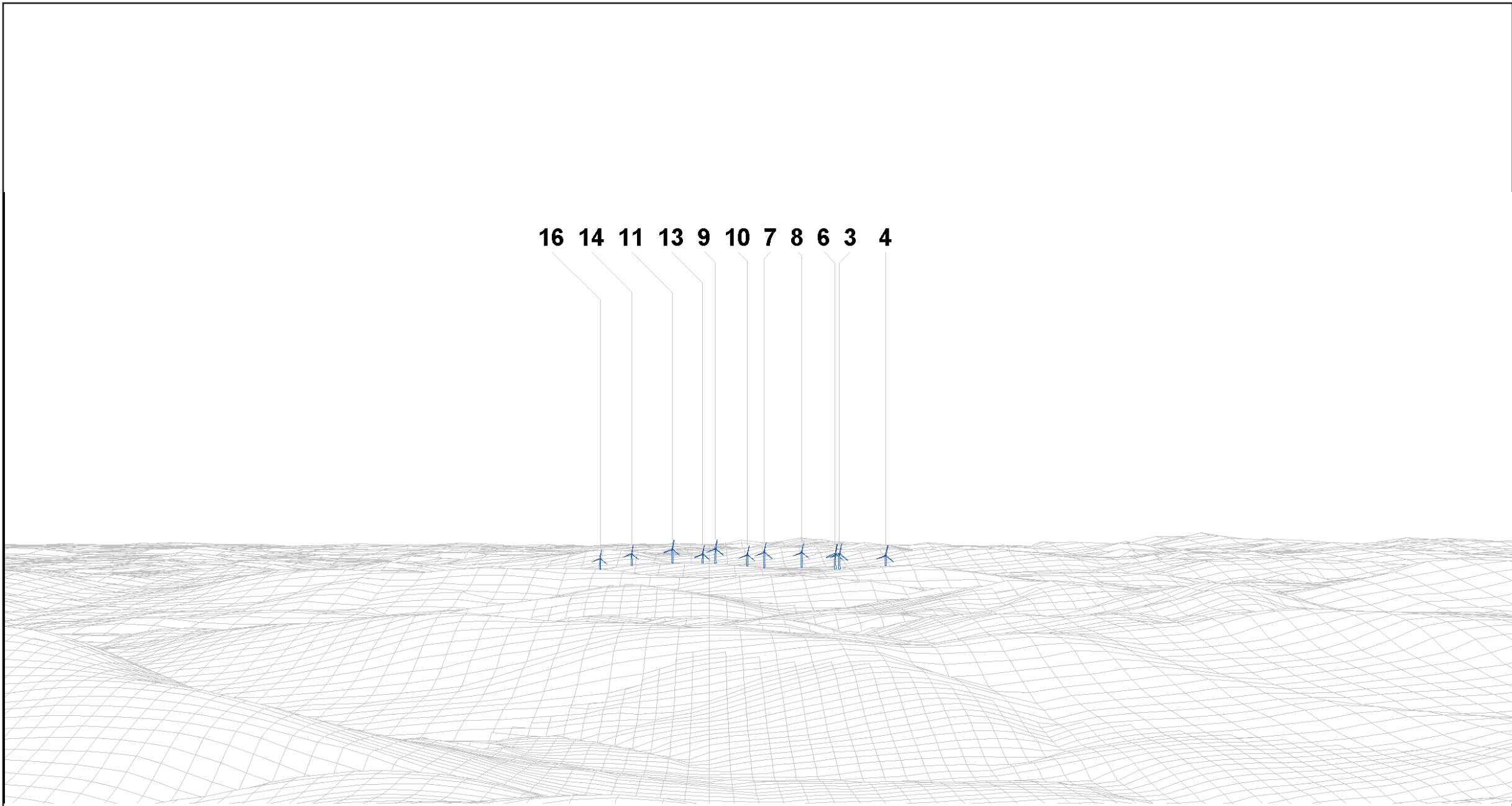
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Date: May 2022	Prepared By: JBM
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Scale: NTS	Issue: 1
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Client:



Key:

 Proposed Craig Watch Wind Turbine

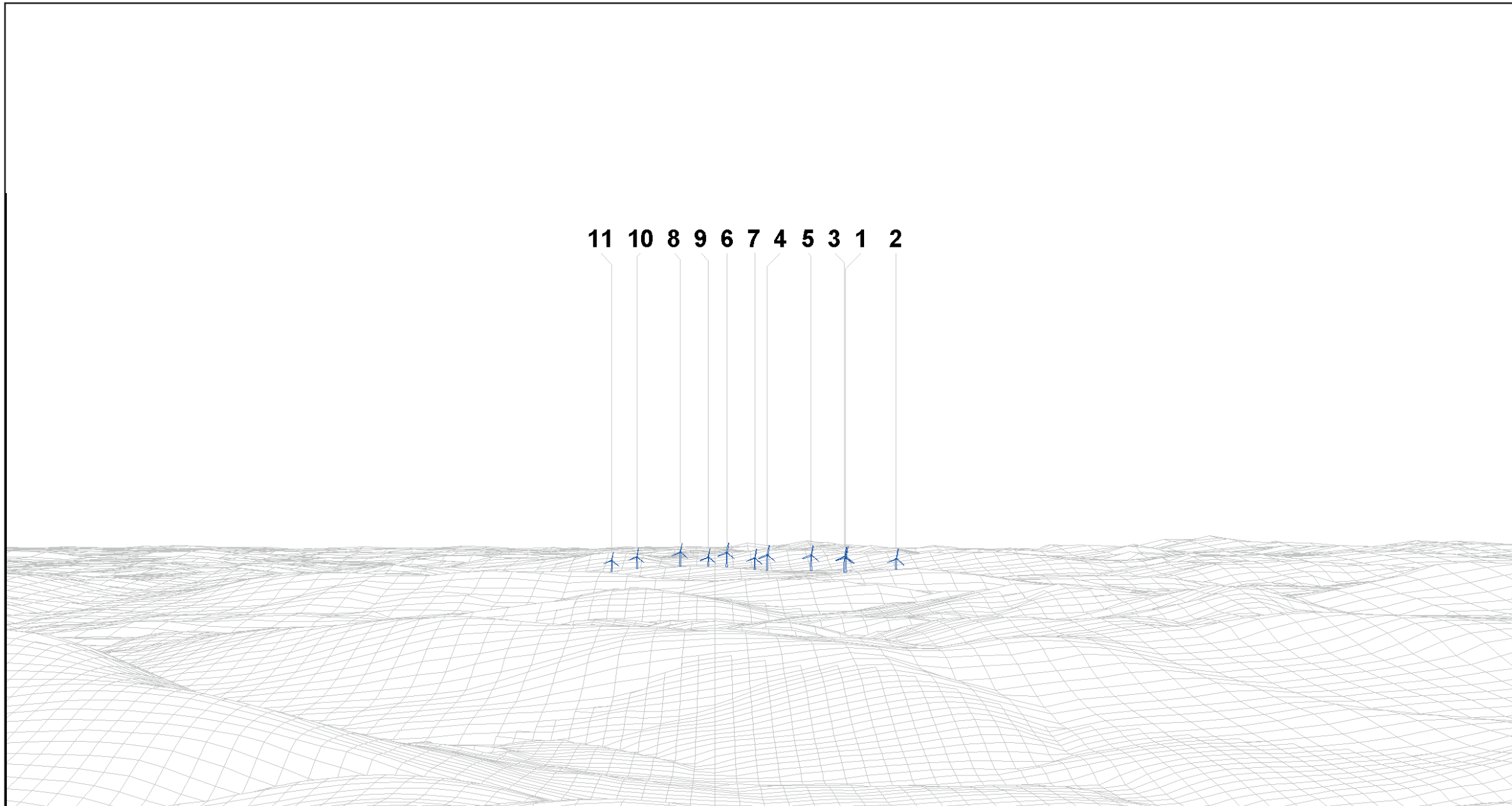
Figure Title:
LVIA (Ben Rinnes)
Wireline – Layout B

Project Name:
Craig Watch Wind Farm
Environmental Statement

Project Number: 1620010178	Figure No: 3.1.3c
Date: May 2022	Prepared By: JBM
Scale: NTS	Issue: 1

Client:
 **Statkraft**

 **RAMBOLL**



Key:

 Proposed Craig Watch Wind Turbine

Figure Title:
 LVIA (Ben Rinnes)
 Wireline – Layout F

Project Name:
 Craig Watch Wind Farm
 Environmental Statement

Project Number: 1620010178	Figure No: 3.1.3d
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Date: May 2022	Prepared By: JBM
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Scale: NTS	Issue: 1
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Client:

