



## **Clachaig Glen Wind Farm**

### **Environmental Impact Assessment Report**

#### **Volume 2a**

#### **Main Report**

# **Chapter 15: Infrastructure and Telecommunications**

# 15. Infrastructure and Telecommunications

## 15.1 Introduction

15.1.1 This chapter of the Environmental Impact Assessment Report (EIAR) addresses the potential effects of the Proposed Development on utilities infrastructure (such as gas pipelines and overhead cables) and telecommunication assets. Transport infrastructure and aviation are addressed in Chapters 14: Traffic, Transport and Access and 16: Aviation Safeguarding of this EIAR.

## 15.2 Legislation, Policy and Guidance

15.2.1 Relevant overarching planning policies applicable to the Proposed Development are detailed in Chapter 6 of this EIAR: Planning and Energy Policy Context and the standalone Planning Statement. The following national and local planning policies are relevant when assessing potential impacts on infrastructure and telecommunications.

15.2.2 Scottish Planning Policy (SPP) (2014a) sets the national planning policies for renewable energy and more specifically wind farm infrastructure. Paragraph 169 states that proposals for energy infrastructure developments should consider impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised.

15.2.3 The Argyll and Bute Local Development Plan (LDP) was adopted in 2015. The LDP sets out local planning policy for renewable energy. The following policy is relevant to wind farm infrastructure:

- Policy LDP 6 – Supporting the Sustainable Growth of Renewables - states that the council will support renewable energy developments where it can be demonstrated that there are no significant adverse impacts on local communities and that developments are compatible with adjacent land uses (this can also encompass surrounding infrastructure and telecommunications). The policy states a number of criteria against which development will be assessed. One of the criterion set is that impacts on telecommunications and broadcasting installations, particularly transmission links should not be compromised.
- Policy LDP 11 – Improving our Connectivity and Infrastructure - sets local policy for improving transport and infrastructure links within Argyll and Bute. The LDP recognises that there are currently constraints on renewable energy development, as a result of insufficient grid capacity, that will need further investment during the plan period.

15.2.4 Argyll and Bute Council are currently in the process of preparing a new Local Development Plan (LDP2). This is expected to be adopted in January 2023. As LDP2 is still to be examined, the adopted LDP remains the primary policy consideration. Nevertheless, relevant policy includes:

- Policy 30 – The Sustainable Growth of Renewables - states that renewable energy developments should be consistent with the principles of sustainable development and be able to demonstrate that there would be no unacceptable individual or cumulative environmental

effects. In assessing any application, the Council will additionally have regard to the opportunities for energy storage. With regard to this chapter, Policy 30 states an assessment should be made on the impacts of all developments on telecommunications and broadcasting installations, with an emphasis that transmission links should not be compromised.

- 15.2.5 Planning guidance is contained within the Scottish Government Specific Advice Sheet Online Renewables Planning Advice: Onshore Wind Turbines (Scottish Government, 2014b). With respect to infrastructure and telecommunications, this document states:

“Wind turbines produce electro-magnetic radiation which can interfere with broadcast communications and signals. The Radiocommunications Agency (RA) register of all civil radio communications installations in the UK can identify any radio installations in the neighbourhood of a wind farm site, but will not identify their owners. Applicants should make direct contact with any authorities or bodies likely to have an interest, in particular, the local emergency services, local authority services departments, gas and electricity companies.”

## 15.3 Methodology

- 15.3.1 Consultation was undertaken in June 2021 with the Office of Communications (Ofcom) and relevant operators (see Section 15.4) to confirm the location of infrastructure assets and telecommunication links that may be affected by the Proposed Development and to establish the extent of the required separation distances between the turbines and identified interests.
- 15.3.2 The purpose of the consultation exercise was to inform the design of the Proposed Development to ensure that the Development Site layout avoids adverse effects on infrastructure assets and telecommunication links and to influence mitigation where required.
- 15.3.3 The assessment of the potential effects of the Proposed Development on electromagnetic interference (EMI) is based upon whether there is interference with a telecommunication link or television signal. The same principle applies to infrastructure, where there is interference on an existing asset.
- 15.3.4 The Proposed Development has been designed so far in a practicable manner as practicable to avoid adverse effects on infrastructure assets, and where such effects are identified, appropriate mitigation can be agreed with the operator to ensure that any residual effects on their assets are acceptable.

## 15.4 Baseline Environment

- 15.4.1 An EIA Scoping Report was issued to the Scottish Government's Energy Consents Unit (ECU) in July 2020 for comment on the proposed scope and methodology of the EIA. The EIA Scoping Opinion was issued in reply to this by the ECU in October 2020 (see Appendices 5.1: Scoping Report and 5.2: Scoping Opinion; EIAR Volume 3). Relevant responses from consultees relating to this report are summarised in Chapter 5 of this EIAR: Summary of Consultation.
- 15.4.2 A consultation was undertaken for the 2016 EIA with Ofcom and relevant operators to identify the location of infrastructure assets and telecommunication links that may have been affected by the

Consented Development, and to confirm the extent of the required separation distances between the turbines and identified interests.

15.4.3 Following further iterations of the layout design at the Development Site, further consultation was undertaken with a number of service providers in July to November 2020 and again in June 2021 to confirm the location of potentially affected infrastructure assets and telecommunication links, as shown on Figure 15.1 Infrastructure Assets (EIAR Volume 2b). Details of the consultees contacted are listed below:

- Ofcom,
- Vodafone,
- Atkins Ltd,
- Joint Radio Company (JRC),
- Scottish Water Telemetry,
- British Telecom (BT),
- CSS Spectrum Management Services Ltd,
- Arqiva,
- Openreach,
- SSE,
- Scotland Gas Networks, and
- Scottish Water.

15.4.4 Each of the consultees was provided with the Development Site and proposed turbine locations (Figure 4.1a, EIAR Volume 2b; and Appendix 15.1: Coordinates Tables, EIAR Volume 3) and additional materials where appropriate. The iterative design process is reported in the Design Statement.

15.4.5 Table 15-1 provides a summary of the responses received and information on the telecommunication links and infrastructure assets that intersect the Development Site or are within the vicinity. The table also provides details of the clearances required and applied to the Proposed Development’s design to avoid impacts on identified telecommunication links and infrastructure assets.

**Table 15-1 Summary of Consultation**

Service Provider	Date Response Received	Response	Design Considerations
	05 March 2015	Recommend contacting Vodafone, Atkins and JRC.	N/A
Ofcom	14 June 2021	Following a review of the Fixed Links on the Ofcom Spectrum information portal <a href="https://www.ofcom.org.uk/spectrum/information/spectrum-information-system-sis/spectrum-information-portal">https://www.ofcom.org.uk/spectrum/information/spectrum-information-system-sis/spectrum-information-portal</a> there are no additional links within the vicinity of the Development Site boundary.	N/A

Service Provider	Date Response Received	Response	Design Considerations
Vodafone	15 December 2015	No objection to the proposal.	N/A
	24 June 2021	The coordinates provided do not cause any interference with any of our links.	N/A
Atkins Ltd	07 December 2015	The application has been examined in relation to ultra high frequency (UHF) Radio Scanning Telemetry communications used by our Client in that region and we are happy to inform you that we have no objection to the proposal. Please note that this is not in relation to any Microwave Links operated by Scottish Water.	Scottish Water Telemetry were contacted as a result of this consultation.
	22 June 2021	The consultation response remained the same as detailed above.	N/A
Joint Radio Company (JRC)	06 April 2016	After an initial objection, further consultation was undertaken with JRC to assess the turbine locations used for what is now the Consented Development. It was then cleared with respect to radio link infrastructure operated by the local electricity utility and Scotia Gas Networks.	N/A
	17 August 2020 (Scoping response)	The Proposed Development is still clear as detailed above.	N/A
	29 June 2021	This proposal is cleared with respect to radio link infrastructure operated by the local electricity utility and Scotia Gas Networks.	N/A
Scottish Water Telemetry	*N/A	A response from Scottish Water Telemetry was not received. These were not originally recommended to be contacted by Ofcom, but a consultation was undertaken anyway following the Atkins Ltd. response.	N/A
BT	08 February 2015	We have studied this wind farm proposal with respect to Electromagnetic Compatibility (EMC) and related problems to BT point-to-point microwave radio links. The conclusion is that the project should not cause interference to BT's current and presently planned radio networks.	N/A
	24 July 2020 (Scoping response)	The consultation response remained the same as detailed above.	N/A
	22 June 2021	The consultation response remained the same as detailed above.	N/A
CSS Spectrum Management Services Ltd	*N/A	A response from CSS Spectrum Management Services Ltd. was not received. It was recommended in the 2013 Scoping Response that they were contacted separately to the Ofcom consultation. Contact details were provided in the 2013 Scoping Response and used for the consultation.	N/A
Arqiva	22 June 2021	We have considered whether this development is likely to have an adverse effect on our operations	N/A

Service Provider	Date Response Received	Response	Design Considerations
		and have concluded that we have no objections to the Proposed Development.	
Openreach	16 November 2020	A number of telecommunication assets have been identified within the vicinity of the proposal, three of which intersects the Development Site boundary at the site entrance. The Utilities Report is intended to be for project planning and feasibility only. It is not suitable to be used for construction or excavation purposes.	N/A
SSE	09 January 2014	A number of 6.6/11kV overhead cables have been identified within the vicinity of the Proposed Development, one of which intersects the Development Site at the site entrance.	A 220m clearance for turbines has been applied to the design where necessary (ground to tip height + 10%) (Energy Networks Association, 2012). The cable intersecting the site entrance will be undergrounded in order that the components of the Proposed Development can be delivered safely to site.
	19 October 2020	SSE asset maps reviewed via <a href="http://www.linesearchbeforeudig.co.uk">www.linesearchbeforeudig.co.uk</a> There have been no changes since the 2014 consultation.	
Scotland Gas Networks	13 January 2014	Records show that there are no gas mains in the area of the Development Site.	N/A
	19 October 2020	SGN asset maps reviewed via <a href="http://www.linesearchbeforeudig.co.uk">www.linesearchbeforeudig.co.uk</a> There are no gas mains within the Development Site.	N/A
Scottish Water	22 January 2014	A number of water assets have been identified within the vicinity of the Development Site. An isolated water main intersects the western side of the Development Site.	The design of the Consented Development avoided intersecting the isolated water main.
	27 July 2020 (Scoping response)	Scottish Water has no objection to this planning application; however, the applicant should be aware that this does not confirm that the Proposed Development can currently be serviced and advice provided should be followed.	N/A

\* Where a response was not received, this was chased up with a further email with no reply.

## 15.5 Embedded Mitigation

15.5.1 A reduction in the number of turbines and the refined alignment of the final design to minimise potential significant effects on environmental receptors has resulted in a reduction in potential effects of the Proposed Development on EMI and other infrastructure.

## 15.6 Assessment of Effects

- 15.6.1 There will be no impact on telecommunication links during the construction and decommissioning phases, as any disturbance to EMI will occur only when there is a physical obstruction to the telecommunication link and television signal.
- 15.6.2 The UK has now switched to digital television transmission, which is less susceptible to degradation and interference from wind turbines than the previous analogue system and will only occur in specific instances. Digital television reception (Freeview or digital terrestrial television) offers a high degree of resistance to some of the signal impairments (particularly delayed image interference) that can affect analogue television reception. Since the digital switchover has taken place within the UK, digital transmitter powers have been increased to around ten times the previous level and digital signals have been added to the relay transmitter network. These improvements have greatly increased the availability and robustness of digital terrestrial reception (Ofcom, 2009). Therefore, given the distance between the nearest dwelling and any proposed turbines (1.2 km), significant effects on TV signals are not expected to occur. The consultation response from Arqiva has confirmed that their TV assets should not be affected. Similarly, radio reception is not expected to be affected.
- 15.6.3 The Energy Networks Association (2012) 'Separation between Wind Turbines and Overhead Lines, Principles of Good Practice' states that wind turbines should be positioned no less than the equivalent of the ground to tip height of the turbine plus 10% away from overhead line conductors (i.e. 220m in the case of the Proposed Development). It also states that: *"the wake downwind of a wind turbine could have significant effects on overhead line conductors, potentially causing increased levels of motion and, in extreme cases, conductor clashing. Within three rotor diameters distance [i.e. 465m in the case of the Proposed Development] behind the turbine, there may be an increased risk of wind-induced conductor motion, which would lead to increased wear and/or fatigue damage and consequent shortening of the overhead line's asset life."*
- 15.6.4 With the exception of the overhead line crossing the entrance to the Development Site, the site and all the proposed wind turbines of the Proposed Development are outside of these clearance distances. In regard to the overhead line that crosses crossing the entrance to the Development Site, it will be undergrounded in order to ensure that the components of the Proposed Development can be safely delivered to site. Therefore, it is determined that there are no likely effects on overhead lines and underground cables.
- 15.6.5 A number of water assets have been identified within the vicinity of the Proposed Development. An isolated water main intersects the western side of the Development Site. The design of the Proposed Development has avoided intersecting this water main.
- 15.6.6 All of the wind turbines and the meteorological mast have been sited away from the telecommunications links detailed in Table 15-1 at distances well in excess of the required recommended separation / clearance distances. No impacts on telecommunications links are therefore predicted.
- 15.6.7 The layout of turbines, the meteorological mast, access tracks and associated infrastructure at the Development Site have been designed to accommodate the specific requirements of all the

infrastructure stakeholders as detailed in Table 15-1. In the only instance where the design of the Proposed Development has been unable to address those requirements, with the overhead line crossing the Development Site entrance, this will be undergrounded prior to turbine component delivery for safety. No adverse effects on existing infrastructure are therefore predicted to occur.

## 15.7 Mitigation and Monitoring

- 15.7.1 The Applicant will continue to engage with service providers throughout the construction phase to ensure that any micro-siting of the Proposed Development will not cause adverse effects to existing infrastructure.
- 15.7.2 The overhead line that crosses the Development Site entrance, as identified by SSE and recorded in Table 15-1, will be undergrounded prior to turbine component delivery for safety during construction.
- 15.7.3 No interference to residential television or radio signals is expected from the construction or operation of the Proposed Development. In accordance with standard industry good practice, if any nuisance complaints from residents arise regarding television or radio reception during construction or operation, they will be followed up and mitigation measures implemented where if necessary. Example mitigation measures may include installation of a satellite dish to receive Freesat or a free-to-air digital satellite television that should not be affected by the Proposed Development.

## 15.8 Residual Effects

- 15.8.1 No effects on existing infrastructure and telecommunications as a result of the Proposed Development are anticipated. As a result, the residual effect is **Not Significant**.

## 15.9 Cumulative Effects

- 15.9.1 As the Proposed Development is expected to have no significant effect (or no noticeable effect) on infrastructure and telecommunications, the Proposed Development would not contribute to any cumulative effects when considered along with other projects in the local area. Therefore, no cumulative effects are expected.

## 15.10 Summary of Assessment

- 15.10.1 A number of infrastructure assets have been identified in the vicinity of the Proposed Development. The layout of turbines, the meteorological mast, access tracks and associated infrastructure at the Proposed Development Site have been designed to accommodate the specific requirements of all the infrastructure stakeholders. In the only instance where the design of the Proposed Development has been unable to address those requirements, with the overhead line crossing the Development Site entrance, this will be undergrounded prior to turbine component delivery for safety. No significant effects are therefore predicted to occur on infrastructure.



## 15.11 References

- Argyll and Bute Council (2015). Local Development Plan Written Statement Adopted March 2015. [Online]. Available: <https://www.argyll-bute.gov.uk/sites/default/files/ldp/adopted/Written%20Statement/Argyll%20and%20Bute%20Adopted%20Local%20Development%20Plan%20Written%20Statement%20Final%20with%20Cover.pdf>. [Accessed: 19/10/20]
- Argyll and Bute Council (2019). Proposed Local Development Plan 2: Written Statement. [Online]. Available: <https://www.argyll-bute.gov.uk/sites/default/files/Unknown/finalpldp2writtenstatementdepositv2.pdf>. [Accessed: 04/11/20].
- Energy Networks Association. (2012). Separation between Wind Turbines and Overhead Lines, Principles of Good Practice.
- Ofcom (2009). Tall structures and their impact on broadcast and other wireless services.
- The Scottish Government (2014a). Scottish Planning Policy (SPP) [Online]. Available: <https://www.gov.scot/publications/scottish-planning-policy/>. [Accessed: 19/10/20]
- Scottish Government (2014b). Online Renewables Planning Advice: Onshore Wind Turbines. [Online]. Available: <https://www.gov.scot/publications/onshore-wind-turbines-planning-advice/>. [Accessed: 19/10/20]

**RWE**

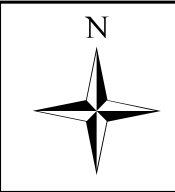
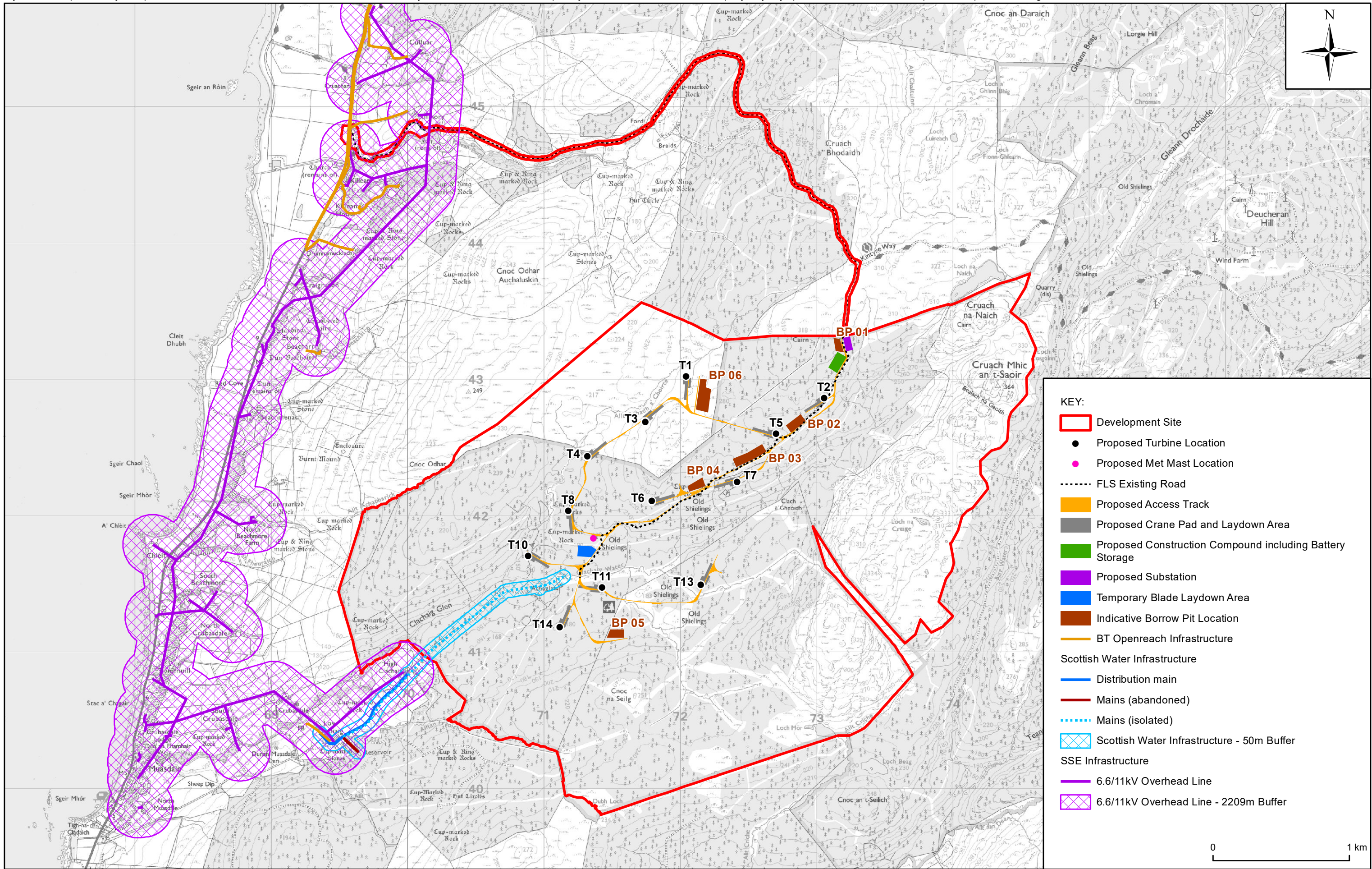
# **Clachaig Glen Wind Farm**

**Environmental Impact Assessment Report**

**Volume 2b**

**EIAR Figures**

**Figure: 15.1**



- KEY:**
- Development Site
  - Proposed Turbine Location
  - Proposed Met Mast Location
  - FLS Existing Road
  - Proposed Access Track
  - Proposed Crane Pad and Laydown Area
  - Proposed Construction Compound including Battery Storage
  - Proposed Substation
  - Temporary Blade Laydown Area
  - Indicative Borrow Pit Location
  - BT Openreach Infrastructure
  - Scottish Water Infrastructure**
  - Distribution main
  - Mains (abandoned)
  - Mains (isolated)
  - Scottish Water Infrastructure - 50m Buffer
  - SSE Infrastructure**
  - 6.6/11kV Overhead Line
  - 6.6/11kV Overhead Line - 2209m Buffer

0 1 km

Client: **RWE**

Project: **CLACHAIG GLEN WIND FARM ENVIRONMENTAL IMPACT ASSESSMENT**

Title: **FIGURE 15.1 INFRASTRUCTURE ASSETS**

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Drawn: LC	Checked: AR
Verified: DL	Approved: SW
Date: JANUARY 2022	Scale at A3: 1:25,000
Drawing Number: CG_220106_EIA15.1_v2	A3

