

15. Infrastructure

15.1 Non-Technical Summary

- 15.1.1 This chapter addresses the potential impact of the Proposed Development on Telecommunication, Utility infrastructure, Aviation and Radar situated in the vicinity of Tom na Clach Wind Farm Extension (hereafter known as 'Proposed Development').
- 15.1.2 Consultation has been carried out by Infinergy Limited, on behalf of Nan Clach Extension Limited ('the Applicant'), with organisations who own or operate infrastructure close to the Proposed Development. The results have shown that there is electricity utility infrastructure within the site boundary, and that *micro-siting/embedded mitigation* in the design of the scheme and design solutions to address prior to construction was required.
- 15.1.3 There are no microwave links which will be impacted by the Proposed Development
- 15.1.4 Based on the consultation process, and mitigation applied where required, the Proposed Development is predicted to have no effects on infrastructure.

15.2 Introduction and overview

- 15.2.1 The Applicant received a planning permission for Tom nan Clach Wind Farm (hereafter referred to as the 'Operational Scheme'), a 13-turbine scheme, together with associated infrastructure, on 28th October 2016 from the Planning and Environmental Appeals Division (Planning Appeal Ref: PPA-270-2150). The Proposed Development has been designed as an Extension to this scheme.
- 15.2.2 This section considers the potential effects of the Proposed Development (including the provision of micro-siting the wind turbines and related infrastructure by +/-50m) on infrastructure, telecommunications, utilities, aviation and radar. These matters have been investigated through consultation with the relevant system operators and accounted for in the iterative wind farm design process.
- 15.2.3 This design process ensures that wherever possible, turbines are located in areas where there would be no effects on infrastructure, telecommunications, utilities, aviation and radar interests. Where this is not possible, agreement is reached with the providers of such services for alternative arrangements to be made so that these services will not be affected by the wind farm.

15.3 Methodology

Assessment scope and approach

- 15.3.1 The infrastructure, telecommunications, utilities, aviation and radar assessment is largely based on consultation by the Applicant with a number of organisations known to have an interest in telecommunications, utilities, aviation and radar infrastructure in the area.

- 15.3.2 The Applicant undertook a consultation exercise for the Operational Scheme during 2015 (Infinergy, 2015), and received 'No Objection' from infrastructure related consultees following submission of further information in some instances.
- 15.3.3 During 2021, the Applicant undertook a desk-based consultation exercise for the Proposed Development to establish the baseline relating to infrastructure owned or managed by the following organisations:
- Joint Radio Company Limited (JRC)
 - Civil Aviation Authority (CAA);
 - Ministry of Defence (MoD);
 - National Air Traffic Service (NATS);
 - Ericsson (on behalf of EE Limited);
 - Highland and Islands Airports Limited (HIAL);
 - Vodafone;
 - Viginmedia02 (Telefonica);
 - Atkins;
 - British Telecom;
 - Scottish and Southern Energy;
 - Scotia Gas Networks (SGN); and
 - Scottish Water.

15.4 Baseline information

Infrastructure

- 15.4.1 An enquiry was entered into the Linesearchbeforeudig facility which *"provides a single point of contact for all initial enquiries relating to the apparatus owned and/or operated by our Members, which now totals over 30,000 kms of assets such as buried underground transmission gas/oil pipelines and fibre optic cable ducts"*. The results of this enquiry showed that the proposed wind farm was not in the zone of interest for any of the Linesearch members which includes National Grid gas and electricity transmission networks (not including local high-pressure gas pipelines).
- 15.4.2. Scottish and Southern Energy (SSE) provides an online mapping service, via lsbud.co.uk, which provides details of low voltage and high voltage underground electricity cables and overhead lines along with associated infrastructure. This service was utilised to check if any electrical plant or infrastructure is present in the vicinity of the Proposed Development and if any mitigation measures will be required.
- 15.4.3. Consultation with the SSE online mapping service showed that there is SSE infrastructure present within the site boundary and in close proximity to the proposed wind turbines.

15.4.4. In addition, the Applicant mapped the location of the 33kV underground powerline (see **Figure 3.0**), based on the 'as-built' drawings of the Operational Scheme.

15.4.5. The location of this infrastructure was identified and mapped during the design process for the Proposed Development.

Telecommunications

15.4.5. Extensive desk-based consultations revealed that there are no microwave links which could be potentially affected by the Proposed Development.

Summary

15.4.6 **Table 14.1** below provides a summary of initial responses.

Table 15.1 Consultees Relevant to this Assessment

Consultee	Response	Objection
Telecommunications		
BT	Studied the proposed wind farm (22/04/21) and concluded that the wind farm should not cause interference to BT's current and presently planned radio networks.	No
Atkins Ltd.	The above application has now been examined (01/02/22) in relation to 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 your proposal.	No
JRC	This proposal cleared with respect to radio link infrastructure (16/04/21).	No
Vodafone	It was confirmed (26/1/22) that they have no microwave links in the area that would be affected by the Proposed Development.	No
Ericsson	No response forthcoming	Unlikely
Virgin Media O₂	It was confirmed (24/01/22) that they have no microwave links in the area that would be affected by the proposed development.	No
Infrastructure		
Isbud.co.uk	For the Proposed Development (Infinergy, 2019) details of the proposal were entered into https://lsbud.co.uk/ , based on formal response and no response from listed members, no assets in proximity to the Proposed Development.	No
Scotland Gas Networks	Following an online request (lsbud.co.uk, as above), it was found that there are no SGN gas mains within the vicinity of the Proposed Development.	No
Scottish Water	09/04/21 stated: "...no objection to the planning application".	No
Scottish and Southern Energy	Lsbud.co.uk was accessed (as above), confirming location of underground 33kV cable used by the Operational Scheme. By embedding mitigation into the design of the Proposed Development, and in discussion with affected parties to come up with design solutions, no objections are anticipated.	n/a
Aviation & Radar		
MoD	Stated (27/04/21) "...MoD has concerns about this proposal...will cause unacceptable interference to the ATC radar used by	No

Consultee	Response	Objection
	Lossiemouth...will cause a potential obstruction to these low flying training activities.." 07/12/21, following submission of <i>Design Freeze</i> Proposed Development turbine co-ordinates, MoD stated (see Appendix 15.A): "...subject to the conditions detailed in Appendix A, the MoD has no objection to the proposed development..".	
HIAL	HIAL stated (29/04/21): "...the turbines could affect the Instrument Flight Procedures (IFP's) for the airport...HIAL would require a IFP Impact Assessment." Following submission of an IFS Safeguarding Report (see Appendix 15.B), HIAL stated: "...accept the findings (or no impact)...subject to the turbines locations and/or height not changing during the planning process".	No
NATS/NERL	Stated (27/04/21)"..The Proposed Development has been examined from a technical safeguarding aspect and does not conflict with safeguarding criteria..no sageguarding objection to the proposal."	No

Predicted Trends in the Absence of Development

15.4.7 On the basis of consultations undertaken, no details of additional planned infrastructure, telecommunications, utilities, aviation and radar developments in the vicinity of the development site have been received. If the Proposed Development was installed, any future developments would be required to take account of the presence of wind turbines in their implementation.

Information gaps

15.4.8 In some cases, service providers have not responded to the consultations sent out by the Applicant. Generally, where consultees do not respond, it is presumed their services are unaffected by the proposed development.

15.4.9 There is the possibility that the consultation process has not picked up some services. However, the process has however been as inclusive as possible.

15.5 Topic specific design evolution

Scheme layout response to potentially significant effects

15.5.1 Consultation indicates that there is electricity infrastructure within or in close proximity to the site that requires mitigation of the Proposed Development layout.

15.5.2 There is an underground 33kV powerline which is located close to the Proposed Development, which connects the Operational Schemes.

15.5.3 The turbine and related site infrastructure has involved embedded mitigation to avoid any potential impacts on this infrastructure, there is one instance of an internal access track crossing over the 33kV powerline.

- 15.5.4 There are readily available design solutions which can mitigate any risk from constructing an internal access track over an underground 33kV cable, which the Applicant will design in consultation with the owner of the Operational Scheme and SSE.
- 15.5.5 Consultation indicates there is no gas or water infrastructure located in within or in close proximity to the site that requires alteration of the Proposed Development layout.
- 15.5.6 A micro-siting provision has been requested as part of the planning application for the Proposed Development whereby any wind turbine and related infrastructure can be moved by up to 50m, taking into consideration known environmental and technical constraints. This provision will be used to respond to any additional unforeseen infrastructure constraint.
- 15.5.7 Consultation indicates there are no microwave links located in close proximity to the Proposed Development that require alteration of the Proposed Development.
- 15.5.8 Following submission of the turbine co-ordinates on which the Proposed Development is based on, the MoD indicate they "*subject to the conditions...the MoD has no objection to the proposed development*".
- 15.5.9 HIAL removed their objection, following submission of an IFS Safeguarding Report.

15.6 Predicted effects of the scheme

- 15.6.1 With the exception of the 33kV SSE infrastructure, there has been no infrastructure identified within or in close proximity to the proposed development, there are no predicted effects of the scheme.
- 15.6.2 As there are no fixed microwave links in proximity to the Proposed Development, therefore there are no predicted effect of the scheme on microwave links.

15.7 Mitigation and enhancement measures

- 15.7.1 As a result of the location of the 33kV SSE infrastructure, mitigation was embedded into the design layout for the Proposed Development to avoid any impacts. Additional measures will take place prior to construction, in consultation with the Operational Scheme and SSE.
- 15.7.1 No other mitigation is required since there are is no other infrastructure present within the Proposed Development boundary.

15.8 Assessment of residual effects

During construction

- 15.8.1 There are no microwave links in the vicinity of the proposed wind farm, therefore there are no predicted residual effects.

During Operation

- 15.8.2 There are no microwave links in the vicinity of the proposed wind farm, therefore there are no predicted residual effects.

Effects during decommissioning

- 15.8.2 There are no predicted residual effects on infrastructure, telecommunications, utilities, aviation and radar during decommissioning of the proposed wind development.

Cumulative effects

- 15.8.3 All potential effects in respect of telecommunications, infrastructure, utilities, aviation and radar are anticipated to have been mitigated therefore no cumulative effects will arise.

References

Line search before you dig online: www.lsbud.co.uk, last accessed 25th January 2022.