

# 16. Aviation, Radar and Telecommunications

## Contents

16.1	Abstract	16-1
16.2	Legislation, Policy and Relevant Guidance	16-1
16.3	Consultation	16-2
16.4	Assessment Methodology and Significance Criteria	16-2
16.5	Baseline Conditions	16-3
16.6	Assessment of Do-Nothing Scenario	16-4
16.7	Assessment of Proposed Development Potential Effects	16-4
16.8	Mitigation	16-5
16.9	Assessment of Proposed Development Cumulative Effects	16-6
16.10	Conclusion	16-6
16.2	References	16-8

This page is intentionally blank.

## 16. Aviation, Radar and Telecommunications

### 16.1 Abstract

16.1.1 This chapter assesses the potential effects that the Proposed Development may have on civil and military aviation interests and telecommunications, both within the site and in the wider area, during construction, operation and decommissioning.

16.1.1 Should the Proposed Development not be consented, the “do-nothing scenario” will apply to the current baseline environment, in that the Applicant will construct the Consented Development. The Consented Development was environmentally assessed and consented in 2015 and the assessment is reported within the Sandy Knowe Wind Farm Environmental Statement (2015).

16.1.2 Assessment of effects to television reception and telecommunications has been scoped out during the Environmental Impact Assessment (EIA) scoping process (refer to Appendix 4.3). The strength of the digital television signal in the area as predicted by Digital UK and the inherently resilient nature of digital television broadcasting, mean that there is a low risk of interference with domestic television reception from a wind energy development at this location. There were also no objections or concerns raised by consultees to the Consented Development in relation to telecommunications. Given that there are no proposed changes to the turbine locations or tip height for the Proposed Development from the Consented Development no objections or concerns are anticipated for the Proposed Development.

16.1.3 This chapter outlines the potential effects of the Proposed Development on telecommunications and aviation interests. Where appropriate, mitigation measures to enhance, prevent, minimise or control identified effects are presented. These mitigation measures have been discussed and agreed with the relevant consultees. Following the implementation of the mitigation measures there would be no significant residual effects.

16.1.4 The predicted residual significant effects for the Proposed Development are exactly the same as those which would arise from the ‘do-nothing scenario’, which would result in the implementation of the Consented Development.

16.1.5 The EIA Regulations, at Schedule 4, require the EIA Report to provide a

*“description of the likely significant effects of the development on the environment resulting from, inter alia:*

*... (e) the cumulation of effects with other existing and/or approved development, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;”*

16.1.6 In this regard, the Proposed Development would be indiscernible from the Consented Development.

### 16.2 Legislation, Policy and Relevant Guidance

16.1.7 The assessment has mainly been informed by relevant policy and guidance documents. Of particular relevance are:

- Scottish Planning Policy (Scottish Government, 2014) (paragraph 169);
- Planning Advice Note 62 – Radio Telecommunications (Scottish Executive, 2001);
- Scottish Government Online Renewables Planning Advice: Onshore Wind Turbines (Scottish Government, 2014);
- Part 1 Wind Energy Development: Development Management Considerations Supplementary Guidance (Dumfries and Galloway, 2017); and
- Wind Energy and Aviation Interests: Interim Guidelines (Wind Energy, Defence and Civil Aviation Interests Working Group, 2002).

16.1.8 Refer to Chapter 5 for further details on the relevant policy framework.

## 16.3 Consultation

16.1.9 Statutory consultees and other relevant non-statutory organisations were consulted to identify the key baseline conditions and areas of concern as part of the scoping process (refer to Appendices 4.3 and 4.4 and Table 16.1). In addition, extended consultation was undertaken with the aviation consultees during the application phase of the Consented Development (refer to Appendix 16.1).

**Table 16.1 - Consultation responses**

Stakeholder	Consultation Response
Glasgow Prestwick Airport (GPA)	No objection subject to the conditions imposed on the Consented Development also being imposed on the Proposed Development.
Ministry of Defence (MoD)	The MOD does not object to the Proposed Development however requests that the Proposed Development should be fitted with MOD accredited aviation safety lighting. The perimeter turbines should be fitted with 25 candela omni-directional red lighting or infrared lighting with an optimised flash pattern of 60 flashes per minute of 200ms to 500ms duration at the highest practicable point. The cardinal turbines should be fitted with combination lighting: 25 candela omni-directional red lighting and infrared lighting with an optimised flash pattern of 60 flashes per minute of 200ms to 500ms duration at the highest practicable point.
National Air Traffic Services (NATS) En Route Plc (NERL)	No objection subject to the conditions imposed on the Consented Development also being imposed on the Proposed Development.
The Joint Radio Company Limited	No objection.

## 16.4 Assessment Methodology and Significance Criteria

16.1.10 This section describes the methods by which the baseline aviation infrastructure has been identified and how the potential effects of the Proposed Development on this infrastructure has been assessed.

### **Consultation**

16.1.11 As per Section 16.3, statutory consultees and other relevant non-statutory organisations were consulted to identify baseline conditions and potential development impacts. Further

consultation was undertaken with the aviation and radar consultees through previous application processes.

### ***Study Area***

- 16.1.12 The aviation assessment study area covered southern Scotland and northern England.

### ***Assessment of Potential Effect Significance***

- 16.1.13 Wind farms may affect aviation in two ways, the physical obstruction that could be caused by the turbines and the impact the turbines could have on communications, navigation and surveillance equipment (Wind Energy, Defence & Civil Aviation Interests Working Group, 2002).
- 16.1.14 The aviation assessment therefore considers the impacts of the Proposed Development on civil and military radar through a Line Of Site (LOS) assessment, detectability analysis and shielding analysis. Note that detectability analysis is not possible for Secondary Surveillance Radar.
- 16.1.15 The assessment also assessed the impacts of the Proposed Development on air traffic and airspace usage and military low flying zones.

### ***Requirements for Mitigation***

- 16.1.16 Following the assessment of potential effects, and in consultation with appropriate statutory consultees, professional expertise was used to determine appropriate mitigation options for discussion with the relevant consultees.

### ***Assessment of Residual Effect Significance***

- 16.1.17 The residual effects are determined through re-assessing the potential effects taking into consideration the proposed mitigation.

## **16.5 Baseline Conditions**

### ***Airspace and Radar***

- 16.1.18 There are six Primary Surveillance Radars (PSRs) and five Secondary Surveillance Radars (SSRs) within the study area as follows:
- Lowther Hills NATS PSR and SSR;
  - Glasgow Prestwick Airport's PSR;
  - Glasgow Airport's PSR & SSR;
  - Edinburgh Airport's PSR & SSR
  - Spadeadam (Berry Hill) PSR and SSR; and
  - Spadeadam (Deadwater Fell) PSR and SSR.

The site lies some 35 km south-east of GPA which is equipped with a primary surveillance radar. The site is located 17 km west of the NATS En Route Ltd (NRL) radar station at Lowther Hill. This is equipped with primary and secondary surveillance radars which are

used by controllers at Scottish Area Control (Prestwick) to provide air traffic services to aircraft in transit over Scotland and the north of England. This radar is currently in the process of being upgraded.

- 16.1.19 The Proposed Development lies within a high priority military low flying zone and in tactical training area (LFA 20T) where aircraft can fly as low as 100 feet for training purposes (Wind Energy, Defence & Civil Aviation Interests Working Group, 2002).

## 16.6 Assessment of Do-Nothing Scenario

- 16.1.20 Should the Proposed Development not be consented, the “do-nothing scenario” will apply to the current baseline environment, in that the Applicant will construct the Consented Development.

- 16.1.21 The Consented Development was environmentally assessed and consented in 2015 and the assessment is reported within the Sandy Knowe Wind Farm Environmental Statement (2015).

## 16.7 Assessment of Proposed Development Potential Effects

### *Introduction*

- 16.1.22 The potential effects below are all considered to be adverse unless stated otherwise.
- 16.1.23 Potential effects on aviation would principally occur during operation of the Proposed Development. Potential effects may occur during construction and decommissioning, however these would be of lesser magnitude.

### *Airspace and Radar*

- 16.1.24 The Proposed Development is located within a high priority low flying zone for military aircraft.
- 16.1.25 The Proposed Development turbines will be in LOS of the Lowther Hill PSR and SSR and GPA PSR. Following the LOS assessment a detectability assessment was undertaken at Prestwick Airport and at Deadwater Fell and Berry Hill PSR as these are military owned and the MoD undertakes their assessment on detectability alone.
- 16.1.26 A detectability assessment was not undertaken at Lowther Hill PSR as the installation is an L-Band en-route radar and the detectability analysis is not applicable to this type of radar. However, based on the distance from the Proposed Development and taking into consideration that all of the turbines would be fully visible to the PSR it is likely that the Proposed Development will have an operational adverse effect.
- 16.1.27 The detectability assessment concluded that a number of turbines could be detectable to Prestwick Airport’s PSR and none would be detectable to the PSRs at Deadwater Fell or Berry Hill.
- 16.1.28 A shielding assessment determined that there is unlikely to be any significant shielding available to obstruct the view of the turbines from the PSR at Lowther Hill or the PSR at GPA.

16.1.29 The potential effects of the Proposed Development on the airspace usage by the MOD & NATS have been discussed and consultation confirmed that mitigation measures will remove the adverse effects of the Proposed Development on the low flying area and GPA primary radar.

16.1.30 Full details of the assessments are available in Appendix 16.2 and summarised in Table 16.2 below.

**Table 16.2 – Summary of Potential Effects to Radar and Aviation**

Description of Effect	LOS	Detectability	Additional Shielding	Operational Effect
Effects to MoD Low Flying area	N/A	N/A	N/A	Adverse
Effects on Glasgow Prestwick Airport's Primary Surveillance Radar	Potential turbines visible.	Potential turbines detectable.	No significant shielding.	Adverse
Lowther Hill PSR Radar	All turbines are fully visible.	Anticipated adverse effect.	No significant shielding.	Adverse
Lowther Hill SSR	All turbines are fully visible.	N/A	N/A	No adverse effect anticipated*

## 16.8 Mitigation

16.1.31 Consultation with the MOD, GPA and NATS regarding mitigation for the Consented Development led to agreements being reached between the Applicant and these organisations regarding the mitigation that would require to be implemented to address the potential adverse impacts of the Consented Development on aviation infrastructure. The agreement with MOD, GPA and NATS can be found in Appendix 16.1. The agreement in place between the Applicant and GPA will remain the same for the Proposed Development and is contracted.

16.1.32 The Proposed Development will be fitted with MOD accredited aviation safety lighting. The perimeter turbines should be fitted with 25 candela omni-directional infrared lighting with an optimised flash pattern of 60 flashes per minute of 200 ms to 500 ms duration at the highest practicable point. The cardinal turbines should be fitted with combination lighting: 25 candela omni-directional infrared lighting with an optimised flash pattern of 60 flashes per minute of 200 ms to 500 ms duration at the highest practicable point.

16.1.33 The Applicant will provide written confirmation to the Ministry of Defence and Defence Geographic Centre of the anticipated date of commencement and completion of construction; the maximum height above ground level of the construction equipment and the position of each wind turbine in latitude and longitude. The Applicant will also confirm with Dumfries and Galloway Council that this has been undertaken.

16.8.1 Assessment of Proposed Development Residual Effects

16.1.34 Subject to the implementation of the mitigation, to the satisfaction of the MOD, NATS and GPA; the Proposed Development would not adversely affect aviation interests. Therefore, the MoD, GPA and NATS should have no objection to the Proposed Development.

16.1.35 There would be no impacts on aviation or defence activities during the construction phase.

## 16.9 Assessment of Proposed Development Cumulative Effects

16.1.36 Potential cumulative effects are unlikely to be significant or adverse.

## 16.10 Conclusion

16.1.37 This chapter has reported on the assessment of the potential effects of the Proposed Development on civil and military aviation and telecommunications interests, which may arise due to the construction, operation and decommissioning of the Proposed Development.

16.1.38 The Proposed Development has been assessed as potentially resulting in a number of impacts on civil and military aviation infrastructure and facilities. Consultation with GPA, NATS and the MoD, has resulted in the agreement of mitigation which has addressed the potential adverse impacts of the Proposed Development (refer to Appendix 16.1).

16.1.39 Potential effects to television reception and telecommunications were scoped out during the scoping process (refer to Appendix 4.3) due to the resilience of the digital broadcast signal.

16.1.40 The predicted residual significant effects for the Proposed Development are exactly the same as those which would arise from the 'do-nothing scenario', which would result in the implementation of the Consented Development.

16.1.41 The EIA Regulations, at Schedule 4, require the EIA Report to provide a

*“description of the likely significant effects of the development on the environment resulting from, inter alia:*

*... (e) the cumulation of effects with other existing and/or approved development, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;”*

16.1.42 In this regard, the Proposed Development would be indiscernible from the Consented Development.

**Table 16.3 - Summary Table (Operation)**

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect
	Significant	Adverse		
Effects to MoD low flying area.	Significant	Adverse	Infrared aviation lighting will be installed at the highest practicable point	Not significant
Effects on Glasgow Prestwick Airport's	Significant	Adverse	A Radar Mitigation Scheme agreed through the Section 36	Not significant

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect
Primary Surveillance Radar.			Application will be implemented for the lifetime of the Proposed Development	
NATS object to the Section 36 Application due to the Proposed Development's potential to give rise to false plots at the Lowther Hill CMB Radar.	Significant	Adverse	A Radar Mitigation Scheme agreed through the Section 36 Application will be implemented for the lifetime of the Proposed Development	Not significant

## 16.2 References

Dumfries and Galloway Council (2014). *The Dumfries and Galloway Local Development Plan*. Available at: <http://www.dumgal.gov.uk/index.aspx?articleid=11907>.

Dumfries and Galloway Council (2017). *Part 1 Wind Energy Development: Development Management Considerations Supplementary Guidance*. Available at: [https://www.dumgal.gov.uk/media/17607/Part-1-Wind-Energy-Development-Development-Management-Considerations-Screening-Determination/pdf/0892-16 Wind Energy Guidance Part 1.pdf](https://www.dumgal.gov.uk/media/17607/Part-1-Wind-Energy-Development-Development-Management-Considerations-Screening-Determination/pdf/0892-16%20Wind%20Energy%20Guidance%20Part%201.pdf)

Ofcom (2009). *Tall Structures and their Impact on Broadcast and Other Wireless Services*. Available at: [http://licensing.ofcom.org.uk/binaries/spectrum/fixed-terrestrial-links/wind-farms/tall\\_structures.pdf](http://licensing.ofcom.org.uk/binaries/spectrum/fixed-terrestrial-links/wind-farms/tall_structures.pdf). Accessed on: 4 June 2015.

Scottish Executive (2001). *Planning Advice Note 62 – Telecommunications*. Available at: <http://www.scotland.gov.uk/Publications/2001/09/pan62/pan62->. Accessed on: 4 June 2015.

Scottish Government (2014). *Scottish Planning Policy*. Available at: <http://www.gov.scot/Publications/2014/06/5823>.

Scottish Government (2014). *Scottish Government Online Renewables Planning Advice: Onshore Wind Turbines*. Available at: <http://www.gov.scot/Resource/0045/00451413.pdf>.

Wind Energy, Defence & Civil Aviation Interests Working Group (2002). *Wind Energy and Aviation Interests – Interim Guidelines*. Available at: <http://webarchive.nationalarchives.gov.uk/+http://www.berr.gov.uk/files/file17828.pdf>.