

CHAPTER 12 – INFRASTRUCTURE AND SAFETY

CONTENTS

12 INFRASTRUCTURE AND SAFETY	2
Introduction	2
Safety of Wind Turbines	2
Television Reception.....	3
Telecommunications	4
Aviation	5

APPENDICES

Appendix 12.1: Linesearch Enquiry

12 INFRASTRUCTURE AND SAFETY

Introduction

- 12.1 This chapter assesses the potential effects of the Proposed Development with respect to existing and proposed infrastructure, telecommunications, and civil and military aviation safety. This chapter also describes the baseline conditions at the Site and surrounding area; the mitigation measures required to prevent, reduce or offset potential effects; and the predicted residual effects after these measures have been implemented.

Safety of Wind Turbines

- 12.2 Modern wind turbines are designed and manufactured to withstand the most extreme weather conditions which arise in the United Kingdom in terms of wind speeds, turbulence and temperature. The structural parts of the turbines and all aspects relating to the foundations and associated infrastructure will be designed to withstand adverse weather conditions and would meet the relevant structural safety legislation.
- 12.3 Turbine control and monitoring systems operate with safeguarding mechanisms to protect the infrastructure from damage. The mechanisms would be used in the case of faults arising, including situations where the speed of the blades or power production may cause damage to the turbines, they would shut down automatically through the installation of failsafe braking mechanisms. In addition, turbines are fitted with vibration sensors so that if, in the unlikely event a blade is damaged or significantly ices, the turbine would automatically shut down.
- 12.4 The Health and Safety Executive (HSE) prepared an expert report in 2006, which examined the potential risks relating to health and safety at work that might arise from some specific energy development. This report 'The 2006: Energy Review: HSE Expert Report' states that:

'The planning process also has an important role to play in helping identify and address health and safety issues prior to development and construction, such as turbine location'.

- 12.5 It also states that:

'Full consideration of issues such as turbine location relative to other structures, highways and areas where public have access will help ensure the continued safe development and reputation of the wind industry. The application of sensible risk assessment as an integral part of the planning process should help to identify risks and highlight any measures required to reduce them to an acceptable level'.

- 12.6 Several British Standards (including BS61400-1:2004) were identified within the HSE report that apply to wind turbine generators and their safety requirements. These standards specify requirements for safety of onshore wind turbine generator systems irrespective of location or environment, including design, installation, maintenance and operation under specified environmental conditions. They also cover all subsystems, including control and protection mechanisms, internal electrical systems, support structures, foundations and the electrical interconnection equipment. The standards are concerned with quality assurance during design and manufacture and also with the adequacy of the assembly, installation, maintenance and operational procedures.
- 12.7 The HSE report recognises that wind turbines are frequently located on land open to the public, so account needs to be taken of hazards such as whole or partial blade failure, falling ice, fire and lighting. The report also acknowledges that the history of the industry indicates that the likelihood of occurrence of incidents from these hazards is low.
- 12.8 Properly designed and maintained wind turbines are a safe technology. The very few accidents that have occurred involving injury to humans have been caused by failure to observe manufacturers' and operators' instructions for the operation of machines. There has been no record of injury to a member of the public.
- 12.9 The safety record of wind turbines is considered to be exemplary; as such that wind farm safety would not be considered a significant issue with regard to the Proposed Development.

Television Reception

- 12.10 Where it is proved that the operation of the Proposed Development could have an impact on the level of television reception received, it is expected that the

Applicant will provide mitigation and remedial work, which is usually undertaken pursuant to a planning condition.

Telecommunications

Communication Links

- 12.11 Consultation was carried out with communication link operators to determine possible effects and implications of the Proposed Development in relation to communication links.
- 12.12 The following bodies were consulted to help establish the baseline environment with respect to the location and extent of existing utility infrastructure:
- Ofcom
 - BT
 - Arqiva
 - EE
 - 3G
 - JRC
 - Atkins
 - Welsh Water Telecoms Assets
- 12.13 Consultation was undertaken to establish the impact the Proposed Development may have on microwave links in the vicinity of the Site. Operational link ends were mapped to determine the location of operation links, and stand-off distances were applied based on recommendations from individual operators.
- 12.14 Telecommunication operators generally have their own criteria for safeguarding links from wind turbines. Generic stand-off distances are often specified to ensure that there will be no operational impacts on operator telecommunication links. Stand-off distances are often conservative and ensure interference be avoided without a requirement for further analysis.
- 12.15 The link path points provided by the operators were plotted and applied to the Site Constraints Plan (See Figure 3.0). All operational links paths and end points (and associated exclusions zones) are located away from proposed turbine locations. No objection was raised by other parties consulted as part of previous

rounds of consultation and it is predicted that interference is not a concern, therefore it is anticipated that mitigation is not required.

Pipeline Infrastructure

- 12.16 A Linesearch enquiry was undertaken which showed that there is no gas pipeline infrastructure located across the Site, no effects are therefore anticipated. A copy of the Linesearch enquiry is provided at Appendix 12.1.

Power Line Infrastructure

- 12.17 A site walkover survey was undertaken by the Developer which concluded that there is no power line infrastructure located across the Site. Therefore no effects are anticipated.

Aviation

- 12.18 The Proposed Development has been assessed for potential impact on identified aviation stakeholders. The following aviation stakeholders have been considered as part of previous rounds of consultation:
- Ministry of Defence (MOD);
 - NERL Safeguarding (NATS);
 - Meteorological Radars;
 - Civil Aerodromes; and
 - Non-Radar Equipped Licensed Aerodromes.
- 12.19 In all cases it is considered that there would be no likely effects on aviation infrastructure as a result of the Proposed Development.