DESIGN & ACCESS STATEMENT
+
PLANNING STATEMENT
+
SUPPORTING DOCUMENTATION

For the erection of a wind turbine for Mr Dawson at

CLIFFE HOUSE BUNGALOW, MORTIMER ROAD, PENISTONE, SHEFFIELD, S36 9FR

PREPARED BY

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INTRODUCTION

This statement aims to demonstrate that the proposed turbine provides environmental, economic and social benefits to the property and the wider community whilst any social impacts have been minimised, through careful consideration of location, scale, design and various other site specific circumstances, which provide the special circumstances to outweigh any perceived harm to the Countryside.

This statement should be read in conjunction with all other documentation and, whilst there is a level of repetition within the main body of text, this statement sets out national and regional policy directly relating to Green Belt and openness to ensure clarity to the issues involved.

This document moves through the following relevant sections to demonstrate the appropriateness of the turbine at the property:

1. The Applicant and Reasons for the Application

2. Design and Access Statement

   a. Location and Situation
   b. Scale and Appearance
   c. Technical aspects of the site
   d. Construction
   e. Access for construction works
   f. Highway safety standards
   g. Technology Suppliers and installers

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5. Economic, Social and Environmental Assessment of the proposed Development

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8. Historic and Cultural Assessment

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11. Landscape and Visual Assessment

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APPENDICES

Appendi1 1 Location Plan 1:10,000 Scale

Appendix 2 Site Plan 1:1250 Scale, Aerial Site Plan 1:250 Scale, Location Plan 1:2,500 Scale, Turbine Plan 1:1000 Scale

Appendix 3 Turbine Specification and Elevation drawings

Appendix 4 Manufacturer's Information

Appendix 5 Acoustic Report and Noise Data

Appendix 6 Consultations

Appendix 7 Photographs / Photo Montage

The Applicant

The applicant is Mr David Dawson, the landowner of Cliffe House Bungalow, Mortimer Road, Penistone, Sheffield, S36 9FR. The Turbine provider is "Kinetica", and "JDA Architects" are acting as agents.

Reasons for the Application

The applicant has occupied and owned the property for a number of years, and due to the recession and rising costs the family are looking for more financially viable ways to sustain the property and its surrounding areas, and are therefore looking to diversify and achieve long term stability. The family are also concerned about the on-going rise in cost for energy.

The applicant wishes to use the locally abundant winds to generate electricity for domestic and agricultural use and in doing so assist in meeting the regional and national targets for increasing the proportion of energy from renewable sources.

The applicant is proposing to install an 'Endurance E-3120' wind turbine in a field to the South of the property. Any surplus electric generated at times when the turbine is operational would be exported to the National Grid for public distribution via the District Network Operator for the benefit of the community.

Summary of reasons:-

- To lower the properties carbon footprint
- To break away from on-going rising energy costs
- To achieve a steady, sustainable future for the holding.
- To achieve savings in revenue that can be re-invested into the property.
- To assist in the "greening" of the property and its local environment.

Installing one wind turbine on the property is considered the best option of providing renewable energy production on the property. The primary reason being that the wind speed on the property has been recorded at 6.1m/s; this is excellent for micro generation wind turbine/s.

As an alternative to wind energy the family have looked at Photovoltaic cells. However these are based on complex technology and require a large surface area to create the same amount of electricity. They also have a potentially greater visual impact on the landscape than wind turbine.

DESIGN and ACCESS STATEMENT

Location and Situation

The Location Plan is shown in Appendix 1 at 1:10,000 scale to allow the full envelope of land owned by the applicant which surrounds the proposed site to be shown, including the location of the proposed turbine in relation to other local properties.

A Site Plan at 1:2500 and 1:1250 scale is shown in Appendix 2. This is the lowest possible scale to clearly identify the proposed location field and its boundaries. The site plan shows the proposed position of the wind turbine edged in red.

Scale and Appearance

The turbine will be installed on a 24.6m tall tower with 19.2 diameter blades (34.6m to blade tip). Please see Appendices 3 and 4 for elevation drawings and specification of the wind turbine. The tower to be installed is a tapered self-supporting galvanised steel structure. The turbine nacelle and blades are white. This design is specifically to minimise the visibility of the structure by blending in with the skyline.

Technical aspects of the site

Please note that Paragraph 98 of the National Planning Policy Framework (2012) states that;

'98 - When determining planning applications, local planning authorities should;

- Not require applicants for energy development to demonstrate either the overall need for renewable or low carbon energy and also recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions;'

Notwithstanding, careful consideration has been taken to site the wind turbine ensuring that the positioning will not cause any significant detriment to the landscape or wildlife in the area as discussed in "impacts" below, but also ensuring that the position of the turbine is in an area that maximises the potential energy capture from 'clean' wind available across the site.

The proposed site location has been selected for a variety of reasons:

A) The wind speed; the site has an average wind speed of 6.1m/s at 10m above ground level.
B) The absence of wind barriers; the wind turbine on this site will experience no hindrance from obstacles such as buildings and trees, which could set up wind eddies and vortices and limit efficient energy production
C) The limited impact on the landscape; wildlife and surrounding residential dwellings – is covered later in the planning application documentation.

The wind turbine installed here will be able to work efficiently to produce electricity for the property and associated properties with the potential capacity of producing excess electricity that can be fed into the National Grid.

Construction

The Turbine

The application area that will be disturbed during the construction of the base and tower will be 36m2. On completion of construction any disturbed area will be reinstated to full agricultural use. The final base, including the control box, will occupy an area of less than 4.5 metres by 3 metres.

Access for Construction Works

The dotted line on the Location and Site map indicates the access route for delivery of the turbine, tower and foundations. This temporary access route across the location field will not require any permanent hard surface or change in the makeup of the ground surface. There are no plans to excavate any soils other than for the turbine foundations. Conditions and routes across the field are suitable for heavy equipment and are well understood. It should be noted that there is no requirement for a regular vehicle access to the turbine site other than for delivery and installation of the foundations and wind turbine itself.

Highway safety safeguards

The proposed wind turbine site will not require any changes to the local highways for access or maintenance.

No extra traffic will be generated as a result of the installation of the wind turbine, other than for the initial delivery of the equipment and an annual routine maintenance visit. Transportation of the wind turbine, blades and tower to the property will be via lorry, using standard transport planning procedures to comply with highway safety standards.

Technology suppliers and installers

The turbine's manufacturer is 'Endurance Wind Power' and details of the turbine specification can be viewed in the Appendices.

The wind turbine will be installed and commissioned by a Micro-generation Certified Scheme (MCS) certified installer.

3. National Policy

3. NATIONAL POLICY

3.1 Making the case for wind turbines / promoting energy recycling

The Stern report 2006 clearly demonstrated that climate change must be managed if we are to avoid catastrophic social and environmental effects. Planning is identified as an important tool to combat climate change. Climate change and sustainable development have been firmly placed at the heart of the planning system, which must make a fundamental contribution to reducing carbon dioxide emissions, stabilising climate change and advancing a low-carbon economy

The UK has a target for 10% of electricity to come from renewable sources by 2010, and 15% by 2015. In addition the UK has agreed to a binding target that 20% of the EU's energy consumption must come from renewable sources by 2020, with a proposed UK contribution of 15% by 2020. The bulk of these targets are expected to be delivered locally, through the planning system.

Onshore wind farms are identified as having a vital role in meeting renewable energy targets there is less clarity over the impact of individual / domestic wind turbines.

The benefits of wind electricity

- Wind is a plentiful energy source: the UK has 40 per cent of Europe's total wind energy.
- Cuts carbon footprint: wind electricity is renewable energy.
- Lower Fuel Bills: the Energy Saving Trust is reporting on a range of micro wind systems to discover how much energy they can save. However, at the moment there is not enough data from existing wind turbine installations to provide a figure.
- Ear Fee-In Tariffs (FITs): Micro and small wind turbines are eligible for FITs <50kWs, and above 50kWs for both FITs and ROCs <5 MW, from 2010.

3.2 The National Planning Policy Framework and Planning Policy Statements

The National Planning Policy Framework (NPPF) superseded the Planning Policy Statements (PPS) in April 2012; this section identifies key principles of the NPPF which directly effect this application. The superseded Planning Policy Statements have been included where guidance in the NPPF is limited or non-existent.

3.3 Achieving Sustainable Development

The Presumption In Favour Of Sustainable Development

The NPPF sets out the Governments approach for planning in favour of sustainable development. Paragraph 14 states "At the heart of the National Panning Policy Framework is a presumption in favour of sustainable development". The document identifies three elements to sustainable development; economic, social and environment. Paragraph 7 details how they will affect the planning system;

"7. There are three dimensions to sustainable development: economic, social and environmental. These dimensions give rise to the need for the planning system to perform a number of roles:

***an economic role** – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time*

to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;

***a social role** – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and*

***an environmental role** – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy."*

The document makes it clear that the three 'dimensions' are dependent on each other, and to achieve a sustainable development, all three must be incorporated into its design simultaneously.

Response

The proposal for a wind turbine to generate electrical power for the property is wholly consistent with principles outlined in the NPPF, each role has been tested against the design individually and as a whole to ensure that it meets the criteria for sustainable development.

3.4 Core Planning Principles

The NPPF also sets out 12 core planning principles which 'should underpin both plan-making and decision-taking'. The principles reinforce the Government's commitment to climate change and low-energy generation. In reference to climate change and low-energy generation paragraph 17 states;

'These 12 principles are that planning should:

- *support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy);*

- *contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value, where consistent with other policies in this Framework;*

- *promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions (such as for wildlife, recreation, flood risk mitigation, carbon storage, or food production);"*

Response

The proposal for a wind turbine is supported by the Core Planning Principles set out in the NPPF, the installation of the wind turbine/s uses wind as a renewable energy source helping 'support the transition to a low carbon future', reduces the reliance on fossil fuels therefore 'reducing pollution' and is reusing agricultural land promoting the benefits of 'mixed use developments'.

3.5 Delivering Sustainable Development

3. Supporting a Prosperous Rural Economy

Paragraph 28 details the importance of supporting economic growth in rural areas. In reference to climate change and low-energy generation, paragraph 28 states:

'To promote a strong rural economy, local and neighbourhood plans should:

- *promote the development and diversification of agricultural and other land-based rural business;*

- *support sustainable rural tourism and leisure developments that benefit businesses in rural areas, communities and visitors, and which respect the character of the countryside. This should include supporting the provision and expansion of tourist and visitor facilities in appropriate locations where identified needs are not met by existing facilities in rural service centres."*

Response

The application for a/the wind turbine/s supports the need for economic grow in the rural community; the landowner uses the land for agricultural purposes and the turbine will help provide energy for its associated uses. It will give the landowner the opportunity to diversify their business into other areas.

9. Protecting Green Belt Land

Paragraph 80 of the National Planning Policy Framework states;

"Green Belt service five purposes:

- *to check the unrestricted sprawl of large built-up areas;*
- *to prevent neighbouring towns merging into one another;*
- *to assist in safeguarding the countryside from encroachment;*
- *to preserve the setting and special character of historic towns; and*
- *to assist in urban regeneration, by encouraging the recycling of derelict and other urban land."*

Paragraphs 87 to 91 of the National Planning Policy Framework refer to the 'Presumption against inappropriate development' in the Green Belt and state:

"87. As with previous Green Belt policy, inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances.

88. When considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt. 'Very special circumstances' will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations.

89. A local planning authority should regard the construction of new buildings as inappropriate in Green Belt. Exceptions to this are:

- *buildings for agriculture and forestry;*
- *provision of appropriate facilities for outdoor sport, outdoor recreation and for cemeteries, as long as it preserves the openness of the Green Belt and does not conflict with the purposes of including land within it;*
- *the extension or alteration of a building provided that it does not result in disproportionate additions over and above the size of the original building;*
- *the replacement of a building, provided the new building is in the same use and not materially larger than the one it replaces;*
- *limited infilling in villages, and limited affordable housing for local community needs under policies set out in the Local Plan; or*
- *limited infilling or the partial or complete redevelopment of previously developed sites (brownfield land), whether redundant or in continuing use (excluding temporary buildings), which would not have a greater impact on the openness of the Green Belt and the purpose of including land within it than the existing development.*

90. Certain other forms of development are also not inappropriate in Green Belt provided they preserve the openness of the Green Belt and do not conflict with the purposes of including land in Green Belt. These are:

- *mineral extraction;*
- *engineering operations;*
- *local transport infrastructure which can demonstrate a requirement for a Green Belt location;*
- *the re-use of buildings provided that the buildings are of permanent and substantial construction; and*
- *development brought forward under a Community Right to Build Order.*

91. When located in the Green Belt, elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources. "

Response

It is considered that the development proposed does not conflict with the National Planning Policy Framework and that very special circumstances exist - i.e. the switch away from a source of energy which contributes to the production of greenhouse gases and to climate change – energy produced by the wind turbine/s will be used to power the landowner's property, any excess energy produced will be exported to the Nation Grid with the potential to power buildings in the local community helping it to become a carbon neutral society. It could also be argued that the process of creating energy from wind is an engineering operation. This document provides evidence that outweighs the harm to the Green Belt and warrant planning permission being approved.

10. Meeting the Challenge of Climate Change, Flooding and Coastal Change

Paragraphs 93 and 94 of the National Planning Policy Framework identify the role planning authorities play in ensuring they meet renewable and low carbon energy targets, they state;

"93. Planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development.

94. Local planning authorities should adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk, coastal change and water supply and demand considerations."

Paragraphs 97 and 98 focus on the use and supply of renewable and low carbon energy, they state;

"97. To help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources. They should:

- *have a positive strategy to promote energy from renewable and low carbon sources;*
- *design their policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts;*
- *consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure the development of such sources;*
- *support community-led initiatives for renewable and low carbon energy, including developments outside such areas being taken forward through neighbourhood planning; and*
- *identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.*

98. When determining planning applications, local planning authorities should:

- *not require applicants for energy development to demonstrate the overall need for renewable or low carbon energy and also recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and*
- *approve the application if its impacts are (or can be made) acceptable. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should also expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas."*

Response

With regard to the current proposal for a wind turbine, paragraphs 97 and 98 above are of particular relevance. The smaller output of electricity should be considered to have real value and provides the optimum balance between sufficiently viable and sustainable energy

production and minimal impact upon the landscape and Green Belt openness. The move towards a decentralised energy source will not only help meet National and Local targets, but it will help promote energy from renewable and low carbon sources and will enable the local community to reduce their reliance on fossil fuels.

The site allows the environmental and social impacts of interested stakeholders to be minimised through extremely careful consideration of location and siting and with the mast being considered a "small" scale turbine we believe the design is also in accordance with the relevant policy.

11. Conserving and Enhancing the Natural Environment

Section 11 identifies the need to protect the natural and local environment, ensuring that important landscapes, geological interests and biodiversity are not detrimentally affected by developments.

Paragraphs 115 and 116 focuses on the areas of special recognition, they states:

"115. Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads.

116. Planning permission should be refused for major developments in these designated areas except in exceptional circumstances and where it can be demonstrated they are in the public interest. Consideration of such applications should include an assessment of:

- *the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;*
- *the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and*
- *any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated. "*

Response

It is considered that the proposed development does not conflict with the National Planning Policy Framework, as the site is not within an area of special recognition.

The extent of the landowner's property can be viewed in the appendix and the contents of this document prove that the site has been chosen to maximise exposure to the prevailing winds without having a detrimental impact the landscape.

3.6 Additional Considerations

Community Involvement

Paragraph 66 of the National Planning Policy Statement states;

"66. Applicants will be expected to work closely with those directly affected by their proposals to evolve designs that take account of the views of the community. Proposals that can

demonstrate this in developing the design of the new development should be looked on more favourably."

Although PPS 22 has been superseded, the companion guide provides useful guidance and expands on the idea of community involvement;

PPS 22– A Companion Guide – Planning for Renewable Energy

Community Involvement

The government advises that, at its simplest level, a community involvement process should ensure that people:

- Have access to information
- Can put forward their own ideas and feel confident that there is a process for considering ideas:
- Can take active part in developing proposals and options;
- Can comment on formal proposals; and
- Get feedback and be informed about progress and outcomes.

"There are many methods of community involvement that may be appropriate at different stages of the planning process. Under the planning system, applicants for significant development proposals are also required to undertake a certain amount of community consultation."

"Local Authorities will have the power to identify the level of community involvement they consider appropriate for different types of "significant" planning application".

Response

Whilst the applicant has no objection in the community sharing the relevant information, and respond to the planning application in the normal way. The scale of the proposal for a "small" turbine does not represent a "significant" application – and therefore should not be burdened with cumbersome large scale "Community Involvement" scenario.

Environmental Impact Assessment (EIA)

DETR Circular 02/99 Environmental Assessment suggests that a formal EIA is more likely to be required if a wind farm has more than five turbines or if its generating capacity is greater than 5 MW.

NPPF Paragraph 118 states:

"118. When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- *if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an*

adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;"

The NPPF requires all applications which could significantly harm an environmentally sensitive area such an SSSI or Ramsar Site to demonstrate the benefits of the development. Should these benefits clearly outweigh the impacts then the development of the site should be permitted.

A companion Guide to superseded PPS22 "Planning for Renewable Energy" section 5.16 states "smaller renewable energy applications that do not require full environmental assessment, landscape and visual assessment should be considered"

Response

In this case the application is for one wind turbine (50 kW) of far less than 1MW capacity, the turbine is not located on land which could be deemed as having a special designation for example an SSSI or Ramsar Site; therefore the application should not require an Environmental Impact Assessment. However the consideration of this small scale turbine is offered within this document and the accompanying photographs.

(1megawatt = 1000 kilowatts)

4. Local Policy

4. PLANNING POLICY

The site in question falls under the following regional and sub-regional plans and policies;

1. Regional Spatial Strategy (RSS) for Yorkshire and the Humber
2. Barnsley Metropolitan Borough Council Unitary Development Plan (adopted 2000)
3. Barnsley Metropolitan Borough Council Local Development Framework
   3.1. Core strategy (adopted 8/9/2011)

The site also includes the following designations:

- Green Belt
- Agricultural Land Grade 4

The Yorkshire and the Humber Plan – Regional Spatial Strategy to 2026

The RSS for Yorkshire and the Humber is supportive of renewable energies, and has specifically identified the importance of wind turbine technology as a method by which to achieve the goal of increased renewable energy generation. In the *Environment* section of Table 2.2: '*Delivering the core approach over 15-20 years*' (p.33) the RSS states that LDFs (Local Development Frameworks) should aim for;

"Increased generation of renewable energy, but mostly from wind turbines"

Policy E1: *Creating a successful and competitive regional economy* is also broadly relevant here;

"In order to create a more successful and competitive regional economy, plans, strategies, investment decisions and programmes should help to deliver:

… J. Opportunities for business relating to the Region's unique environmental assets and challenges, including sustainable construction, renewable energy, resource and waste efficiency and environmental technologies and the 'low carbon economy" – p.139

It is considered that the current proposal does not conflict with the RSS for Yorkshire and the Humber, and will support the region's goals for increasing renewable energy generation.

Barnsley Metropolitan Borough Council LDF – Core Strategy (2011)

The Core Strategy clearly demonstrates Barnsley MBC's commitment to combating the causes and effects of climate change, noting that increasing and encouraging the production of renewable energy in the borough whilst protecting the countryside and amenity is one of the key challenges of today. The following comprises the most relevant and succinct policies pertaining to the current proposal;

CSP 6 Development that Produces Renewable Energy	We will allow development that produces renewable energy as long as there is no significantly harmful effect on: - the character of the landscape and appearance of the area - living conditions - biodiversity, geodiversity and water quality

	- heritage assets, their settings and cultural features and areas - infrastructure including radar Proposals must be accompanied by information that shows how the local environment will be protected, and that the site will be restored when production ends.

Although this policy is relatively broad in comparison to similar provisions in the DPDs of other LAs, paragraph 9.36 clearly states that policy CSP6 applies to all development that produced renewable energy, regardless of size, type or scale.

It is considered that the current proposal is in compliance with CSP6.

With regards to the criteria outlined in CSP21 'Rural Economy', we regard the current proposal to be in support of sustainable diversification and development of the rural economy, and expect that it will result in the growth of the client's business. We expect there to be no adverse effect on the countryside, biodiversity, Green Belt, Landscape or the local character of the area.
It is considered that the current proposal is in compliance with CSP21.

Through compliance with the above mentioned policies it is expected that the current proposal will also comply with policies relating to protection and enhancement of the Green Belt. More detailed consideration of how the proposal relates to the Green Belt is included in the following section.

Barnsley Metropolitan Borough Council Unitary Development Plan (2000)

Having been informed that the UDP will still carry some weight in the consideration of this proposal, this section considered those policies of the UDP which will be of relevance. UDP policies ES12, ES12A and ES12B have all been superseded by Core strategy Policy CSP6, which was considered in the previous section. However, with specific regard to wind energy generation, the following is still of relevance;

Policy ES11	Proposals for wind energy generation will be assessed with regard to the following factors: a. The effect both individually and cumulatively on landscape and visual amenity of the area b. The impact on residential amenity with particular reference to noise, visual outlook, and shadow flicker and flashing from turbine blades c. The provision of a satisfactory access to the highway network having regard to visual amenity and the safety of road users including likely distraction to motorists d. The effect on wildlife, ecology and archaeology of the immediate area e. The effect on agricultural land uses f. Electro-magnetic effects g. The provisions for the connection to the electricity transmission and supply system h. The effect of shadow flicker or flashing from the turbine

	blades The Council will expect a detailed statement which has regard to these issues, to accompany any application for wind power development proposals, where such an appraisal is deemed necessary in view of the implications of the proposal.

It is worth noting also that paragraph 3.226 of the UDP states that in Barnsley "the most significant source of renewable energy is from wind because the more elevated areas, especially in the western half of the Borough on the fringe of the Peak District national Park, have sufficiently high annual mean wind speeds to make the establishment of wind turbines viable." Thus, despite the 'undulating landscape' worries of the Core Strategy with regard to western areas of the Borough (Core strategy paragraph 9.39), we consider the site to be highly suitable for the proposed wind turbine.

It is considered that the current proposal is in accordance with the provisions of Policy ES11. Since the UDP has more specific policies relating to protection of the Green Belt the following have also been taken into consideration with regards to the current proposal;

Policy GS7	Without prejudice and subject to the application of policies GS8, GS8A. GS8B, GS8C, GS8D, GS8E and GS9 in this plan, development within the Green Belt will not be permitted unless it maintains the openness of, and does not conflict with the purposes of including land in, the Green Belt.

Policy GS8	Within the Green Belt, the construction of new buildings will not be permitted, except in very special circumstances, unless it is for the following purposes: a. Agriculture or forestry b. Essential facilities for outdoor sport or outdoor recreation, for cemeteries, or for other uses of land which preserve the openness of the Green Belt and which do not conflict with the purposes of including land in it c. The replacement of existing dwellings in compliance with policy GS8E.

Policy GS9	Development within the Green Belt, or conspicuous from it, should not by reason of its siting, materials or design result in significant harm to the visual amenity of the Green Belt.

It is considered that the current proposal does not conflict with any of the provisions in the aforesaid policies: it will not detract from the openness of the green Belt, nor will it conflict with the purposes of including land within the Green Belt. The proposal is for the purpose of agricultural diversification, and is of a small enough scale that it should not cause any unacceptable impact on the visual amenity of the Green Belt.

Conclusion

The Development

The development the subject of this application comprises the following:

A full application for the erection of one Endurance E3120 55kW wind turbine on the land to the South of Cliffe House Bungalow, Mortimer Road, Penistone, S36 9FR.

Summary of Key Benefits

The use of the site for a wind turbine delivers the following key benefits:

- A viable, sustainable development proposal;
- A modest height turbine;
- A secure, legible scheme;
- Use of high quality design and materials;
- No harm to the landscape value of the area; and
- No material impact on either the site access or nearby road network;

Statutory Requirements

Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires planning applications to be determined in accordance with the Development Plan unless material considerations indicate otherwise.
The development has been tested against the adopted Development Plan and accords with its provisions.
Other material considerations have also been taken into account, including local Supplementary Planning Documents and national and sub-regional planning policy guidance notes and statements all of which support the proposal.

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5. Economic, Social and Environmental Assessment of the proposed Development

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Economic benefits

Paragraph 28 of the National Planning Policy Framework states;

"Planning policies should support economic growth in rural areas in order to create jobs and prosperity by taking a positive approach to sustainable new development. To promote a strong rural economy, local and neighbourhood plans should:

- *promote the development and diversification of agricultural and other land-based rural businesses;"*

It is proposed that the wind turbine will produce electricity for the property. The electricity produced will replace/reduce the mains electricity supplied to the property and reduce the running costs over time.

It is also proposed that a 'small' turbine will generate an income from the sale of any surplus electricity generated at times when the turbines are operational but demand is low which would be exported back to the National Grid for public distribution via the District Network Operator for the benefit of the community.

Indirect benefits include marketing the local area as "forward thinking" and "green".

- Job creation: direct & indirect
- Increased security and reliability of supply
- Cheaper fuel bills
- Increased income for landowners
- Property diversification/revitalisation

Social Benefits

Paragraph 97 of the Nation Planning Policy Framework states:

"To help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources."

Installing a wind turbine will provide the property with an alternative source of electricity ensuring that the property will have power for lighting, heating and machinery into the future, assisting in the retention of employment in a rural area and contributing to social stability.

The turbine will offer educational opportunities, leading to a wider awareness of renewable energy and an increased interest in environmental issues.

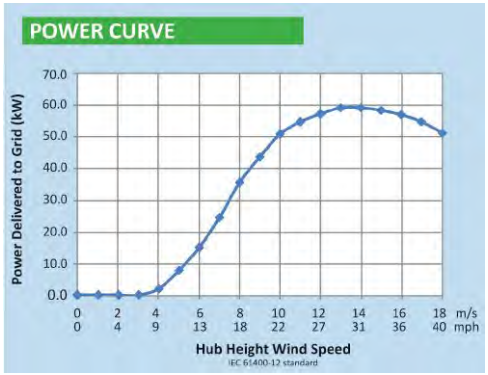
The turbine will also assist the government in meeting the regional and national targets for increasing the proportion of energy from renewable sources.

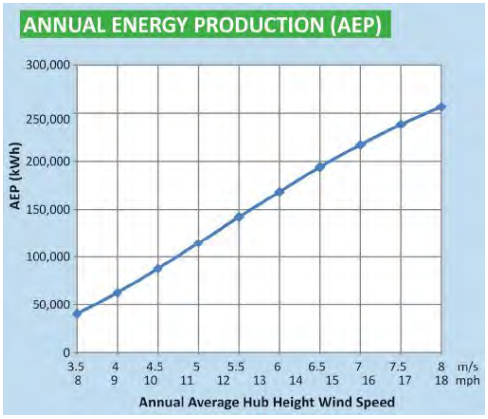
Indirect benefits include marketing the local area as "forward thinking" and "green".

Environmental Benefits

The wind turbine will produce 218,000 Kwh of renewable energy per turbine (based upon manufacturer's literature at a wind speed of 7m/s) typical at this site for use by the property annually. This will have a direct impact on reducing carbon emissions and thus reducing the rate of global change. Other benefits will be improved air quality through the reduction in the use of fossil fuels and a reduction in landfill associated with traditional energy providers waste.

- Reducing carbon emissions
- Air quality improvements
- Landfill reduction







JDA Architects

6. Noise

6. Noise

The National Planning Policy Framework (2012) states;

"109. The planning system should contribute to and enhance the natural and local environment by

- *preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability;*

123. Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;"*

Further to paragraph 109 and 123, the Companion Guide to the superseded PPS 22 provides useful guidance on potential noise emitted from a wind turbine.

Planning Policy Statement 22 Companion Guide states:-

"Well-specified and well-designed wind farms should be located so that increases in ambient noise levels around noise-sensitive developments are kept to acceptable levels with relation to existing background noise. This will normally be achieved through good design for the turbines and through allowing sufficient distance between the turbines and any existing noise-sensitive development, so that noise from the turbines will not normally be significant. Noise levels from turbines are generally low and, under most operating conditions, it is likely that turbine noise would be completely masked by wind-generated background noise.

There are two quite distinct types of noise within a wind turbine. The mechanical noise produced by the gearbox, generator and other parts of the drive train; and the aerodynamic noise produced by the passage of the blades through the air. Since the early 1990s there has been a significant reduction in the mechanical noise generated by wind turbines and it is now usually less than, or of a similar level to, the aerodynamic noise. Aerodynamic noise from wind turbines is generally unobtrusive – it is broad-band in nature and in this respect is similar to, for example, the noise of wind in trees."

There is no evidence that ground transmitted low frequency noise from wind turbines is at a sufficient level to be harmful to human health.

A study found that:

- Vibration levels 100m from the nearest turbine were a factor of 10 less than those recommended for human exposure in critical buildings, (i.e. laboratories for precision measurement)
- Tones above 3.0 Hz were found to attenuate rapidly with distance – the higher frequencies attenuating at a progressively increasing rate.

Inspector Robin Brocks BA (Hons) MRTPT issued a report on the influence noise and the companion guide to PPS22 has on a planning decision;

> *"The Companion Guide to PPS22 makes clear that the purpose of ETSU-R-97 is to derive "indicative noise levels calculated to offer a reasonable degree of protection to wind farm neighbours without placing unreasonable restrictions on wind farm development or adding unduly to the costs and administrative burdens on wind farm developers".*
>
> *ETSU derived limits can offer no guarantee that turbine noise will be inaudible at all dwellings and that no one will ever be disturbed by it. The aim is to achieve a balance, not absolute protection. If wind energy is to be developed, "reasonable" protection may mean that some changes and increases in ambient noise are inevitable.*
>
> *The Councils critique of the noise assessment takes a strongly precautionary approach, which appears to seek a degree of protection that goes well beyond what ETSU seeks to achieve. Whilst that approach is understandable it does not accord with the balance in national advice between achieving a reasonable degree of protection for wind turbine neighbours and not unduly restricting development considered important in the national interest."*
>
> *(Appeal Decision APP/PO40/A/11/2150950 – Inspector Robin Brocks BA (Hons) MRTPT).*

The inspectors comments on Appeal Decision APP/PO40/A/11/2150950 proves that turbines should not be expected to be inaudible at dwellings and that no one will ever be disturbed by it

Noise Assessment

A site visit was made to identify the most suitable design and location for the turbine. The site chosen maximises the exposure to the prevailing winds and minimises the risk of turbulence from trees or buildings in the vicinity.

Background Noise levels

The installation has been appropriately specified, designed and located to allow sufficient distance between the turbine and any existing noise-sensitive developments – the only residence within audible distance is Millbrook House and this is 250m away from the turbine, as such the noise from the generator will not be a nuisance or a material consideration in deciding the planning application.



Typical Noise Levels (Health and Safety Executive)

Predicted noise levels

The manufacturers of the turbine have focused on minimising noise output throughout the operating range of turbine. The manufacturer's noise specification is attached as an Appendix.

The only noise that is audible is the gentle 'swooshing' noise of the blades cutting through the air. Whilst it is not possible to eradicate this noise completely, the blades are designed to be aerodynamic so cutting through the air and reducing noise levels. Due to the proposed site for this wind turbine it is extremely unlikely that local residents would be troubled by any noise generated.

See Appendix 5 – Acoustic Report & Noise Data

Proposed mitigation/compensation

No mitigation or compensation is required.

Conclusion

The proposed wind turbine can be constructed at the proposed location and operated in accordance with best practice without causing nuisance or materially affecting the amenity of others.

7. Shadow Flicker

7. Shadow Flicker

Site Appraisal

The National Planning Policy Framework (2012) does not provide any guidance on Shadow Flicker created by wind turbines; therefore the Companion Guide from the superseded Planning Policy Statement 22 acts as information only to assist with public consultation.

Planning Policy Statement 22 Companion Guide states:-

Under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off; the effect is known as 'shadow flicker'. It only occurs inside buildings where the flicker appears through a narrow window opening.

A single window in a single building is likely to be affected for a few minutes at certain times of the day during short periods of the year. The likelihood of this occurring and the duration of such an effect depend upon:

- *The direction of the resident relative to the turbine(s)*
- *The distance from the turbine(s)*
- *The turbine hub-height and rotor diameter*
- *The time of year*
- *The proportion of day-light hours in which the turbine operates*
- *The frequency of bright sunshine and cloudless skies (particularly at low elevations above the horizon); and,*
- *The prevailing wind direction*

Only properties within 130 degrees either side of north, relative to the turbine can be affected at these latitudes in the UK – turbines do not cast long shadows on their southern side.

The further the observer is from the turbine, the less pronounced the effect will be. There are several reasons for this:

- *There are fewer times when the sun is low enough to cast a long shadow*
- *When the sun is low it is more likely to be obscured by either cloud on the horizon or intervening buildings and vegetation; and,*
- *The centre of the rotor's shadow passes more quickly over the land reducing the duration of the effect*

Shadow flicker can be mitigated by siting wind turbine at sufficient distance from residences likely to be affected. Flicker effects have been proven to occur only within ten rotor diameters of a turbine. Therefore, if the turbine has 80m diameter blades, the potential shadow flicker effect could be felt up to 800m from a turbine.

Around 0.5% of the population is epileptic and of these around 5% are photo-sensitive. Of photo-sensitive epileptics less than 5% are sensitive to lower frequencies of 2.5-3 Hz, the remainder are sensitive only to higher frequencies. The flicker caused by wind turbine/s is equal

to the blade passing frequency. A fast-moving three-bladed machine will give rise to the highest levels of flicker frequency. These levels are well below 2 Hz. The new generation of wind turbine is known to operate at levels of below 1 Hz.

Turbines can also cause flashes of reflected light which can be visible for some distance. Careful choice of blade colour and surface finish can help reduce the effect. Light grey semi-matt finishes are often used for this.

Summary

Shadow flicker occurs when the rotating blades of the turbine interrupt the light from the sun. The effect occurs early in the morning and late in the evening and is more likely in the winter months when the sun is lower in the sky casting shadows further.

Care should be taken to ensure that any property within 72m of the turbine at a direction from 120 degrees west and 120 degrees east does not have a light sensitive outlook towards the turbine.

An assessment of the site shows that the nearest property to the turbine is Millbrook House and this is some 250m from the turbine, and is therefore not likely to be effected by shadow flicker.

Conclusion

The drawings in the appendices give a more accurate guide to potential shadow flicker zones. No properties are affected.

In this case, the separation distance is well in excess of the recommendations demonstration that shadow flicker is not a material consideration in the determination of this case.

8. Historic and Cultural Assets

8. Historic and Cultural Assets

Site Appraisal

The field where the turbine is to be located is currently used for agricultural purposes.

Predicted Impacts

A 500m search of the area surrounding the turbine using the English Heritage Gateway shows;

- No listed buildings are affected by the proposed construction or operation of the turbine.
- The location is not within a conservation area.
- No scheduled monuments or known sites of archaeological interest are affected by the proposed construction or operation of the turbine.

Measures to be taken

The applicant wishes to assist the local planning authority to meet the ambitions of National Planning Policy Framework (2012). Accordingly during excavation of the void for the base of the turbine should any building foundations, artefacts or other unusual finds be made then these will be notified to the County Archaeologist in accordance with the Code of practice.

Conclusion

There are no foreseeable impacts that will affect any built or cultural heritage assets but measures implemented during the construction stages will ensure that any artefacts found can be identified and recorded.

9. Ecology and Hydrology

9. Ecology and Hydrology

Site Appraisal

The turbine has been located in an open field that is currently used for agricultural purposes. With the nature of the farming practices that take place, no species have been able to establish long term habitats on the field floor and therefore there are no species or habitats of value that will be affected by the construction or operation of the turbine.

Searching the natural England website shows that the site is:

- Not within a Nature reserve or Country Park
- Not a site of special scientific interest (SSSI)
- Not a Ramsar site
- Not in a Biosphere reserve
- Not in a special protection area.
- Not in a RSPB reserve
- Not in a traditional orchard
- Part of an Agri-environment scheme namely the Environmental Stewardship Scheme (ESS)and allocated as (ELS) entry level stewardship
- Allocated as Less Favoured Area under the Statutory Rural Designations
- The land and general vicinity of the turbine is not designated as having any local, regional, national or international ecological interest.
- The locality contains no locally rare or protected species of plant, animal or bird.
- There are no nearby sites designated for ecological value.
- No ecological assets of any significance will be affected by the construction or operation of the turbine.

Birds and Bats

The National Planning Policy Framework does not provide specific guidance on the potential impact wind turbines may have on birds and bats, therefore we have used the Companion Guide for the superseded Planning Policy Statement 22 as information only to assist with public consultation.

Companion Guide: Planning Policy Statement 22 states:-

"The impact of a wind farm on the local ecology should be minimal. A typical wind farm will usually leave the land between the turbine/s totally unaffected. There is little evidence that domesticated or wild animals will be affected by a wind farm – indeed, there are examples of cows and sheep grazing right up to the base of turbine/s.

PPG9 on nature conservation gives advice about the inter-relationship between nature conservation and development control. Apart from the movement of the blades, the development of wind turbine/s warrants no different approach in terms of ecological considerations from any other development. Evidence suggests that the risk of collision between moving turbine/s blades and birds is minimal both for migrating birds and for local habitats. The attention of local planning authorities and developers is particularly drawn to the "Ramsar Convention on Wetlands of International Importance (Cmnd 6465)", EC Council Directive on the Conservation of Wild Birds (Directive 79/409/EEC), the EC Council Directive on

the conservation of natural habitats and of wild fauna and flora (92/43/EEC) and the Berne Convention on the Conservation of European Wildlife and Natural Habitats.

Experience indicates that bird species and their habitats are rarely affected by wind turbine/s developments and the impact of an appropriately designed and located wind farm on the local bird life should, in most cases, be minimal. To date, the most common concern has been the risk of 'bird strike', i.e. birds flying through the area swept by the blades and being hit, causing injury or death. This is most likely to occur if a wind turbine/s is erected directly in a migration path, or where there are high concentrations of particular species, (i.e. birds feeding). Most birds in flight can be expected to take action to avoid obstacles but different species will vary in their reaction."

Natural England have produced "Bats and onshore wind turbine/s" technical information note TIN051. This technical note states that:

"*Evidence in Britain is that most bat activity is in close proximity to habitat features. Research has shown that bat activity declines at 35m from hedge / tree lines" (Natural England Technical Information Note TIN051).*

The proposed location of the turbine has been chosen to meet the requirements set out in the Natural England Technical Information Note (TIN051), ensuring that the wind turbine blade tips are the recommended distance from the existing hedges/trees, to minimise/mitigate the risk to birds or bats whilst flying along the hedge rows to feed. This has been calculated using Natural England Formulae in TIN051. For this particular turbine, the distance is 55m from hedge/tree lines.

Further to the aforementioned planning policy, a number of Organisations have provided information for the construction industry, particularly in relation to wind turbines.

Natural England have produced "Bats and onshore wind turbines" technical information note TIN051. This technical note states that:

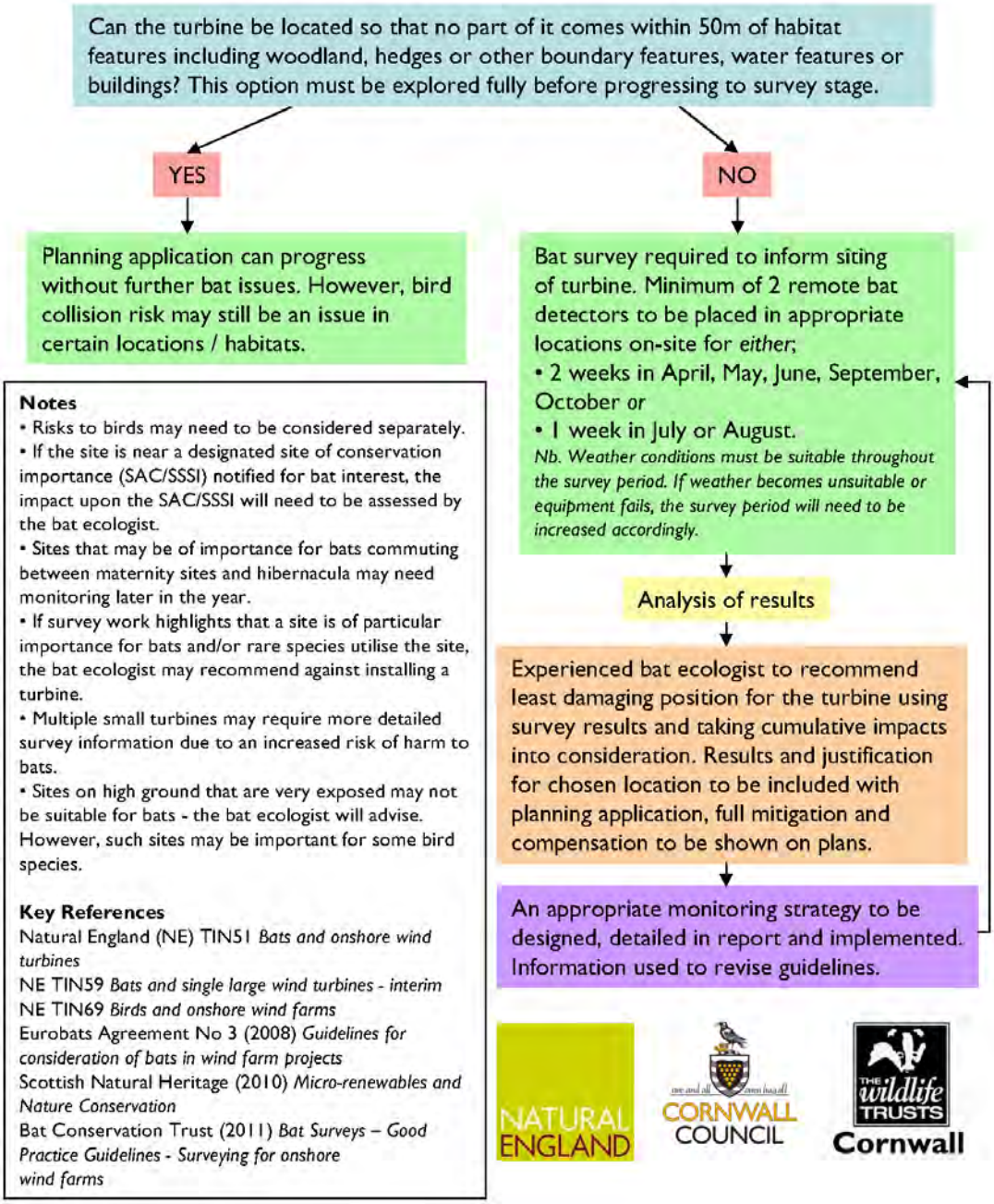
"*Evidence in Britain is that most bat activity is in close proximity to habitat features. Research has shown that bat activity declines at 35m from hedge / tree lines" (Natural England Technical Information Note TIN051).* It goes further to state the *"To minimise risk to bat populations our advice is to maintain a 50 m buffer around any feature (trees, hedges) into which no part of the turbine intrudes. This means the edge of the rotor-swept area needs to be at least 50 m from the nearest part of the habitat feature. Therefore, 50m should be the minimum stand-off distance from the blade tip to the nearest feature."*

The proposed location of the turbine has been chosen to meet the requirements set out in the Natural England Technical Information Note (TIN051), ensuring that the wind turbine blade tips are the recommended distance from the existing hedges/trees, to minimise/mitigate the risk to birds or bats whilst flying along the hedge rows to feed. This has been calculated using Natural England Formulae in TIN051. For this particular turbine, the distance is 55m from hedge/tree lines.

Natural England has also worked together with Cornwall Council and Cornwall Wildlife Trust to complete a simple process map which gives advice for prospective turbine installers; "Recommended approach for bats and single small wind turbines in Cornwall". Although the process map is for guidance in Cornwall, it is still an important document which provides useful information on how to approach Bats on a site, and whether or not it is prudent to undertake a bat survey.

Recommended approach for bats and single small wind turbines in Cornwall (Approximately 10-30m hub height or 5-100kW)

Cornwall Wildlife Trust, Natural England and Cornwall Council
March 2011



Notes

- Risks to birds may need to be considered separately.
- If the site is near a designated site of conservation importance (SAC/SSSI) notified for bat interest, the impact upon the SAC/SSSI will need to be assessed by the bat ecologist.
- Sites that may be of importance for bats commuting between maternity sites and hibernacula may need monitoring later in the year.
- If survey work highlights that a site is of particular importance for bats and/or rare species utilise the site, the bat ecologist may recommend against installing a turbine.
- Multiple small turbines may require more detailed survey information due to an increased risk of harm to bats.
- Sites on high ground that are very exposed may not be suitable for bats - the bat ecologist will advise. However, such sites may be important for some bird species.

Key References

Natural England (NE) TIN51 *Bats and onshore wind turbines*
NE TIN59 *Bats and single large wind turbines - interim*
NE TIN69 *Birds and onshore wind farms*
Eurobats Agreement No 3 (2008) *Guidelines for consideration of bats in wind farm projects*
Scottish Natural Heritage (2010) *Micro-renewables and Nature Conservation*
Bat Conservation Trust (2011) *Bat Surveys – Good Practice Guidelines - Surveying for onshore wind farms*

NATURAL ENGLAND
CORNWALL COUNCIL
THE wildlife TRUSTS Cornwall

Similarly Scottish Natural Heritage has also issued a document which complements the TIN051. Micro Renewables and the Natural Heritage Guidance Note 2009 providing further assistance; particularly giving information on the best times of year to install a wind turbine.

Micro renewables and the natural heritage. Guidance Note. October 2009.

Micro wind turbines

"Well located micro wind turbines are likely to have little or no impact on the natural heritage. However, in some locations potential impacts on birds and bats could be significant. All micro wind turbines currently require planning permission.

However, to reduce the potential for negative impacts on these bird populations and to avoid introducing a further pressure on existing populations it is therefore recommended that if a micro wind turbine is installed on or near a building it is located to minimise the potential impact on house dwelling birds by locating the turbine as far from regular nest sites as is practical. It would also be advisable to avoid installing a turbine close to nest sites during the breeding season (March – September).

Until the impacts are better understood, and mindful of the legal protection which applies to bats, SNH recommends a precautionary approach to the siting of micro wind turbines in certain locations, as indicated below.

As such, in choosing a location for a micro-turbine (both roof mounted and free standing) it is recommended that they should not be installed:

- *On buildings known to or suspected to contain bat roosts*
- *Within 50m of a known bat roost*
- *On buildings where bats are frequently observed*
- *On known bat flyways (commonly along watercourses, hedges, woodland edges)"*

Equestrian Animals

There has been much debate into whether the installation and continued running of turbines affect horses in a negative way. The British Wind Energy Association argues that *"there are many examples of wind energy in the UK in very close proximity to equestrian activities, illustrating the two can co-exist."* Their document *"Wind Energy and Horses"* goes further to state that *"It is worth noting that everything has the potential to upset horses, from traffic to litter in hedgerows. However, horses become quickly accustomed to unfamiliar things in their environment, and this respect wind turbines are no different."*

The Document also recommends that clear views of the turbine in respect of the horse and the rider helps stop unexpected movement which could have a negative effect on the horse, the land between the school and the turbine is open and free flowing and will provide a view which will not shock the horses or their riders. One such example provided by the document is of the Camel Valley Riding Club in Cornwall which holds events near the Delabole Wind farm.

The British Horse Society has also provided guidance on wind farms;

"'That, as a starting point when assessing a site and its potential layout, a separation distance of four times the overall height should be the target for National Trails and Ride UK routes, as these are likely to be used by equestrians unfamiliar with turbines, and a distance of three times overall

height from all other routes, including roads, with the 200m recommended in the Technical Guidance to PPS 22 being seen as the minimum, where it is shown in a particular case that this would be acceptable. The negotiation process recommended in PPS 22 should indicate whether, in the particular circumstances of each site, these guidelines can be relaxed or need strengthening to minimise or eliminate the potential difficulties."

The Site is located 115m away from the nearest footpath to the North and approximately 220m to the nearest road (Mortimer Road) and we believe that this is adequate distance for a turbine to be placed in relation to the any horse's stabled or ridden.

Predicted Impacts

A small amount of excavation will be required for the concrete base to anchor the turbine tower. Any excavated subsoil will be retained on the property and the topsoil will be spread around the tower on completion of the construction and cultivated to marry in with the surrounding undisturbed adjoining agricultural land.

No designated main rivers, private watercourses, or ground Water Protection zones will be materially affected by the construction of the concrete pads to support the turbine.

Conclusion

The site plan indicates an area of potential bird and bat impact, and proves that no trees or hedgerows are in close proximity. The proposed construction and operation of the turbine can be carried out without having an impact on the ecology or hydrology of the site.

10. Public Safety and security

10. Public Safety and security

Site Appraisal

There are no public footpaths in the field where the turbine is to be located.

The Site is located 115m away from the nearest footpath to the North and approximately 220m to the nearest road (Mortimer Road).

Predicted Impacts

The wind turbine is erected in accordance with manufacturer's instructions are stable and safe structures. In accordance with best practice the turbine has been located to achieve a setback of at least fall over distance from nearby roads, buildings, paths and public access routes.

The National Planning Policy Framework (2012) does not provide any guidance on Public Safety around wind turbines; therefore we have used the superseded Planning Policy Statement 22 Companion Guide as information only to assist with public consultation.

Planning Policy Statement 22 Companion Guide states:-

"The minimum desirable distance between wind turbines and occupied buildings to meet safety requirements will be far less that the distances required to mitigate noise and visual impacts. Experience indicates that properly designed and maintained wind turbine is 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 operation of the machines. There has been no example of injury to a member of the public.

The only source of possible danger to human or animal life from a wind turbine would be the loss of a piece of the blade, or, in most exceptional circumstances, of the whole blade. Many blades are composite structures with no bolts or other separate components. Blade failure is therefore most unlikely. Even for blades with separate control surfaces on or comprising the tips of the blade, separation is most unlikely.

The minimum desirable distance between wind turbines and occupied buildings calculated on the basis of expected noise levels and visual impact will often be greater than that necessary to meet safety requirements. Fall over distance (i.e. the height of the turbine to the tip of the blade) plus 10% is often used as a safe separation distance."

Measures to be taken

No additional measure to those already proposed

Conclusion

The plans in the appendix indicate a potential fall-over zone for the turbine and proves that there are no public accessible areas which insect this zone. The measures already proposed for the location, construction and operation of the turbine will effectively manage any risks to local public safety and security.

11. Landscape and Visual Assessment

11. Landscape and Visual Assessment

Bearing in mind the size and scale of this proposal for a wind turbine, a fully detailed assessment of the landscape and visual impacts is not considered appropriate or necessary by European and UK legislation.

Paragraph 97 of the National Planning Policy Framework (2012) states;

"To help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources. They should:

- *design their policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts;"*

Landscape Character

According to Defra's Magic Service the landscape character of the area is 'neutral and acid pastures and acid deciduous woodlands; acid communities such as bracken and gorse in the uplands'. The soilscape is 'freely draining slightly acid loamy soils'. The main landcover is 'arable and grassland'.

The site is classed as "less Favoured" or "Disadvantaged land.

Disadvantaged land means land;

- Which is, in the opinion of the appropriate Minister, inherently suitable for extensive livestock production but not for the production of crops in quantity materially greater than that necessary to feed such livestock as being capable of being maintained on such land, and

- Whole agricultural production is, in the opinion of the appropriate Minister, restricted in its range by, or by any combination of, soil, relief, aspect or climate.

According to Barnsley Metropolitan Borough Council's 'Barnsley Borough Landscape Character Assessment' (2002) the landscape character is 'Upland Rolling Farmland', and the landscape sub-character is 'Penistone Upland Rolling Farmland'.

Impact on the visual landscape

It must be noted that one of the main benefits of wind turbines are that they do not have a permanent impact on the environment. Once the turbines ceases to produce electricity it can be removed and the land can be returned to its former condition.

It is believed that the erection of the wind turbine would not dominate the appearance of the surrounding landscape to the extent that it would seriously harm the appreciation of the

landscape from either individual dwellings or the settlements as a whole. The photo graphs in the Appendices highlight this.

All of the distinct aspects of the landscape discussed above at the property make the landscape less sensitive to the presence of the wind turbines, the presence of such structure being absorbed into the landscape with minimal harm on the character and nature of the area.

As mentioned above in the Design and Access statement the site has been chosen so that visual impact is kept at a minimum without compromise to wind speed and power output. The location of the turbines has been kept near to the property, thereby creating less of a visual impact on the landscape. The careful design and structure of the micro wind turbine creates an appearance that is aesthetically pleasing to the eye. The design and colour minimises the visibility of the structure, mitigating the impact of the turbine.

Landform – The landform in the vicinity of the property is smooth, convex and free flowing and therefore less sensitive to the installation of wind energy.

Landcover – the landcover in the vicinity of the property is simple, uncluttered with extensive areas of consistent ground cover and therefore less sensitive to the installation of wind energy.

Skylines & settings – The Skylines & settings in the vicinity of the property are not prominent and have already been affected by built development with local farms and villages, and are therefore less sensitive to the installation of wind energy. There are energy transmission towers to the East of the proposed turbine which help reduce its prominence.

Visibility & Views – The Visibility & Views in the vicinity of the property are reasonably contained by topography, buildings and trees and hedges, which help to screen the proposed turbines from most locations, the distance from which the turbines can be viewed from publicly accessible property also helps diffuse the visibility.

Views of the turbine from within the immediate locality will open especially from the nearby roads (Mossley Road and Mortimer Road) however the trees located to the North of the turbine reduces any silhouetting which could occur. Views from nearby properties vary significantly; Views from Cliff House and Millbrook House to the North are limited due to the tree which surrounds the properties (less so Millbrook House), Views from Mossley House and Cranbury Farm have already been affected by large agricultural buildings and neither properties directly face the turbine.

The visibility of the wind turbines from a long distance will have minimal impact on the overall visual quality of the area and on the existing character of the landscape. The slender form of the turbine allows good visual permeability and retains the distant views of the surrounding landscape. The large abundance of trees to the South (Sheephouse Wood) and the large built up areas of Cubley and Penistone to the North reduce the impact the turbine will have on the wider landscape.

The design and scale of the turbine will mean that the overall landscape will remain unchanged.

Capacity Assessment

The proposal is for one 'small' turbine.

According to Barnsley Metropolitan Borough Council's 'Barnsley Borough Landscape Character Assessment' (2002) the general landscape capacity for 'Penistone Upland Rolling Farmland' is low

The 'Renewable and Low Carbon Energy Capacity Study for Yorkshire and Humber Part B: Opportunities and Constraints Mapping – Draft Report' (AECOM, 2010) places the site location within the area for 'potential wind energy' ('Sheffield City Region Energy Opportunity Plan').

Conclusion

With the Landscape character type proving that the area has the capacity to absorb 'small' scale turbine, the application should be considered appropriate development.

Turbine groupings
Single – 1 turbine
Small group – up to 3 turbines
Small wind farm – up to 5 turbines
Medium wind farm – 6 to 10 turbines
Large wind farm – 11 to 20 turbines
Very large wind farm – 21 to 30 turbines

Turbine height
Very small – 25m or less to blade tip (average power rating around 12kW)
Small – 25-60m to blade tip (average power rating around 0.5MW)
Medium – 60-90m to blade tip (average power rating around 1MW)
Large – 90-130m to blade tip (average power rating around 2.5MW)

Cumulative Effect

The National Planning Policy Framework (2012) refers to the need to take account of the cumulative effect of any project.

Cumulative effect:

"The impact in which a series of wind turbines have an effect greater than the sum of their individual effects, when the relationship between the two can be expressed in linear form".

A desktop study of planning application for wind turbines in the local area has found the following;

2011/1212 - Erection of 1 no. 10 KW wind turbine (15m height to hub) at Lower Belle Clive Farm, S36 9FE – Registered (Over 2 km away from proposed turbine)

2011/0417 - Erection of 15Kw, 15m wind turbine at Little Doubting Farm, S36 9FS – Appeal Dismissed (Approximately 1.3 km away from the proposed turbine)

2011/1327 – Erection of a 12 metre high free standing wind turbine at High Cote Farm, Cubley – Approved for a temporary period (Over 2 km away from the proposed turbine)

Due to the sheer distances involved and the landscape topography of the site and locality in general it is felt that the cumulative impact of the proposed turbine will be minimal.

The visibility of the wind turbine from a long distance will have minimal impact on the overall visual quality of the area and on the existing character of the landscape.

The design and scale of the turbine will mean that the overall landscape will remain unchanged.

The erection of a turbine will have little effect on access issues or amenity in the local vicinity.

Conclusion

The submission demonstrates that the turbine can be constructed and operated with minimal impact on the character and value of the local landscape.

12 Access

Access

Site Appraisal

Paragraph 32 of the National Planning Policy Framework (2012) states:

"All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- *safe and suitable access to the site can be achieved for all people"*

Further to paragraph 32, the Companion Guide to the superseded PPS 22 provides useful guidance on suitable access to the proposed wind turbine site.

Planning Policy Statement 22 Companion Guide states:-

"The road access to a wind farm site will need to be able to accommodate trailers carrying the longest loads (usually blades), as well as the heaviest and widest loads (generally the cranes required in erection). Amendments to existing roads required to gain access to site should be detailed in any wind farm planning application.

On-site tracks need to meet the weight and dimensional requirements detailed above.

Larger hard standings are also required next to each turbine to act as bases for cranes during turbines erection and component lay down areas. These are generally treated as temporary features and are decommissioned after construction."

Transportation of the wind turbine blades and tower to the property will be via a standard lorry, using standard transport planning procedures to comply with Highway safety standards.

Vehicular access to the site is via the standard roads and onto the premises. This access route will be used to deliver the turbine and construction equipment to the property. From the property the turbine will be transported to its final location across a field utilising an existing track.

There are no plans to excavate any soils to form additional tracks or hard standings. Should additional support be required this can be provided by temporary matting.

It should be noted that there are no requirements for a regular vehicle access to the turbine/s sites, other than for delivery and installation and decommissioning.

The turbine site will not require any changes to the local highways for access or maintenance.

No extra traffic will be generated as a result of the installation other than the initial deliveries and annual maintenance visits.

Conclusion

The construction and operation of the turbine will have no detrimental effect on local highway network, and relatively easy access for 4x4 construction traffic onto the site is available without the need for the construction of any permanent access track.

13. Decommissioning

13. Decommissioning

The design of the turbines is such that when it comes to the end of their useful life (after approximately 20-25yrs), they can be refitted – subject to planning approval of any changes, or they can be dismantled with ease and the restoration of the site can be carried out without major disruption to the landscape.

The turbine and mast parts can be sent for recycling or repair and re-use.

Concrete foundations can be "grubbed up" if required and removed from site, and the landscape returned to its natural condition.

Conclusion

The proposal is in accordance with national, regional and local development plan policy.

We feel that the proposal will have no negative effects on the local landscape due to the construction, design, materials and finishes to be used on the turbine.

Compared with other "power station" generation apparatus, wind turbines offer an easy, economical method for complete removal, recycling and site restoration.

14. Summary

14. SUMMARY

The introduction states that:

This statement aims to demonstrate that the proposed turbine provides environmental, economic and social benefits to the property and the wider community. Any social impacts have been minimised through careful consideration of location, scale, design and various other site specific circumstances which provide the special circumstances to outweigh any perceived harm to the countryside.

The Companion Guide for the Superseded PPS22 states that:-

The successful development of wind energy always entails detailed consideration of a number of factors.

- Access – can large delivery vehicles gain access to the site without major modifications to the public road network?
- Extent of site – is the site large enough to accommodate sufficient turbine? (As a rule of thumb, 1 km^2 of unconstrained land can accommodate 1.3MW turbines)
- Wind speed – Is there sufficient resource for a viable project?
- Planning permission – Is there a reasonable prospect of obtaining planning permission?
- Grid Connection – Is the grid infrastructure within a reasonable distance?
- Proximity to dwellings – Is the site constrained by a population centre, or scattered dwellings?
- Air safeguarding and Electromagnetic Interference (EMI).
- Landscape and ecological designations.
- Meets the requirements of applicable development plan policies.
- Does not compromise the reasons behind any relevant area designation, or it if does, provides a substantive case for allowing the project to proceed, (e.g. by demonstrating that any economic, social or environmental benefits clearly outweigh the reasons for the designation), and,
- Addresses the issue of visual impact and cumulative visual impact, where relevant.

Environmental and economic benefits:

- The development will enable the property to diversity in order to strengthen the business (helping rural business to stay in business and grow" is a key target of the RES.
- Generating electricity will enable the property to reduce costs.
- Not only would the property be providing their own electricity, excess energy would be

supplied back into the National Grid, providing benefits for the community as a whole.

- By helping to sustain rural enterprise, it will enable the property to continue to maintain and manage the landscape, thus helping to protect the character and appearance of the surrounding countryside for future generations.

CONCLUSION

The proposal is in accordance with national, regional and local development plan policy.

We feel that the proposal will have no negative effect on the local landscape due to the construction, design, materials and finishes to be used on the turbine.

Compared with other "power station" generation apparatus, wind turbines offer an easy economical method for complete removal, recycling and site restoration.

The Design and Access Statement section of this document provides supporting information to prove that the proposed turbine is of appropriate scale and appearance and that the project can be safely constructed on site.

National Policy is very supportive of reducing carbon dioxide emissions and advancing a low carbon economy and, in particular encouraging local authorities to support wind turbine and wind farm development.

Local Policies again support sustainable inclusive development where developers provide evidence to support their proposals.

The economic, social and environmental benefits of wind turbine development projects are clearly stated in all national and local policies and numerous study papers.

Noise and shadow flicker have been considered for the site and the combination of high specification equipment and siting have eliminated any nuisance to residents or the property.

Based upon the English Heritage Gateway there are no historic or cultural assets in the area of the proposed development.

Research on the Ecology and Hydrology of the site and of the wind turbine has proved that the development will not have a negative impact.

Public safety and security assessments have proved that turbines in general are safe structures and that the proposed location avoids any public footpaths, bridleways or buildings.

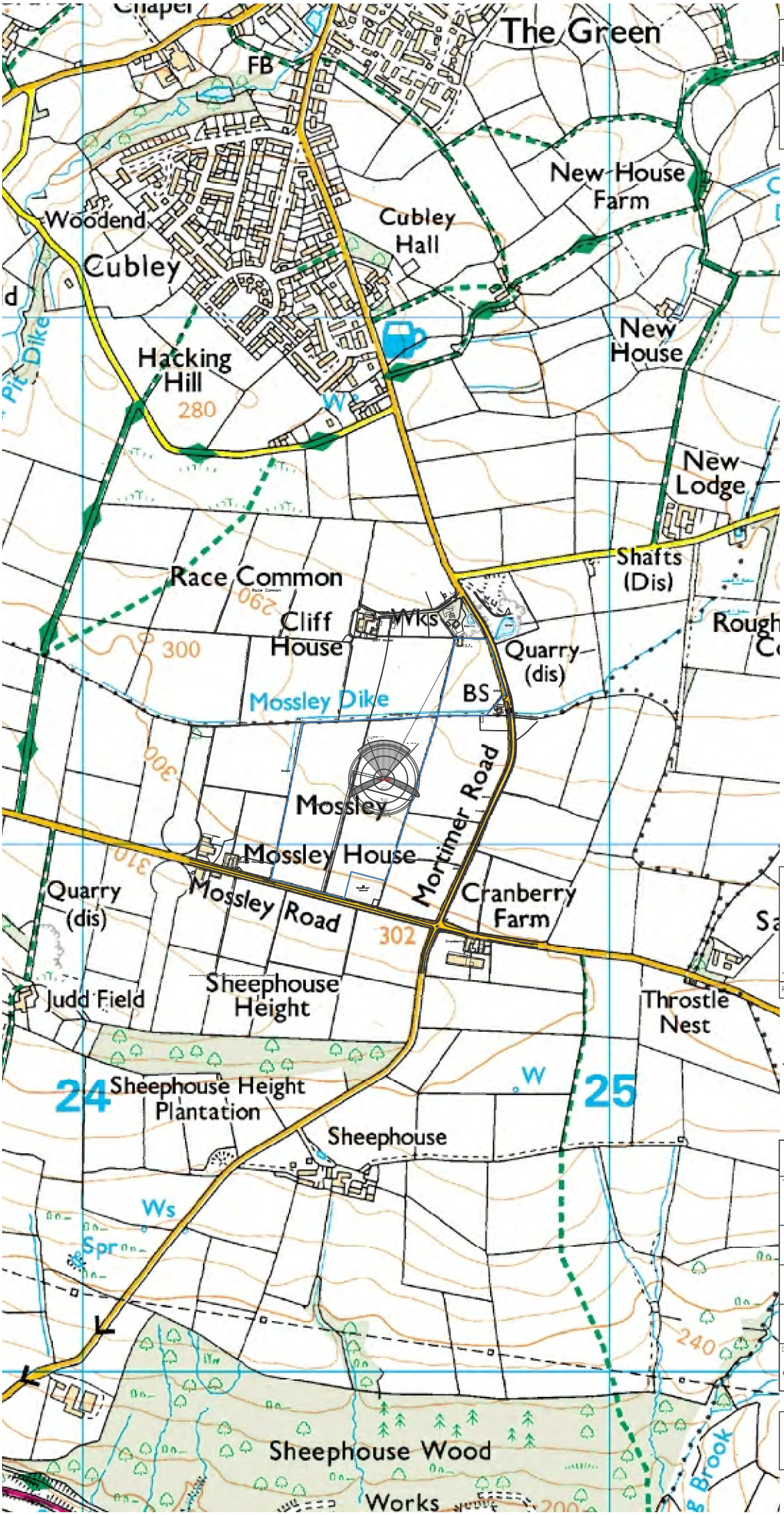
The proposed location is not a site of special scientific interest and therefore ideally suited for wind turbines development.

The site is easily accessible for the standard vehicles that will be required to construct the wind turbine development and decommissioning can, just as earlier, be carried out as and when appropriate.

The proposals for the wind turbine provide many benefits to the property and the wider community without impacting on the local residents, flora or fauna. We therefore ask that the Planning Application receives a positive response.

JDA Architects

APPENDIX 1 –
LOCATION PLAN 1 :10,000 SCALE



Notes

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N

Proposed installation of 1 No Wind Turbine

TURBINE 1
424571 Easting 401122 Northing

Rev	Description	Date	By
-	-	-	-

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Architects

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Mr Dawson

Cliffe House Bungalow, Wind Turbines

Location Plan 1: 10,000

Drawing Number	Rev.	Scale:	@	Date:
630-KE0176-001	-	1:10,000	A4	05-04-2012
		Drawn by: NS		Checked By: BJ

Pr	Preliminary	C	Contract
F	Feasability	Cn	Construction
P	Planning	As	As Built
T	Tender	Other	-

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APPENDIX 2 – PLANS

SITE PLAN 1:1250 SCALE

LOCATION PLAN 1:2500 SCALE

TURBINE CONSTRAINTS PLAN 1:1000 SCALE

AERIAL VIEW 1:1250 SCALE



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Proposed installation of 1 No Wind Turbine

TURBINE 1
424571 Easting 401122 Northing

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Site Plan 1: 1250

Drawing Number	Rev	Scale	@	Date
630-KE0176-003	-	1:1250	A3	05-04-2012
		Drawn by: NS		Checked By: BJ

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F	Feasabilty		Cn	Construction	
P	Planning		As	As Built	
T	Tender		Other	-	

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Proposed installation of 1 No
Wind Turbine

TURBINE 1
424571 Easting 401122 Northing

Rev.	Description	Date	By
-	-	-	-

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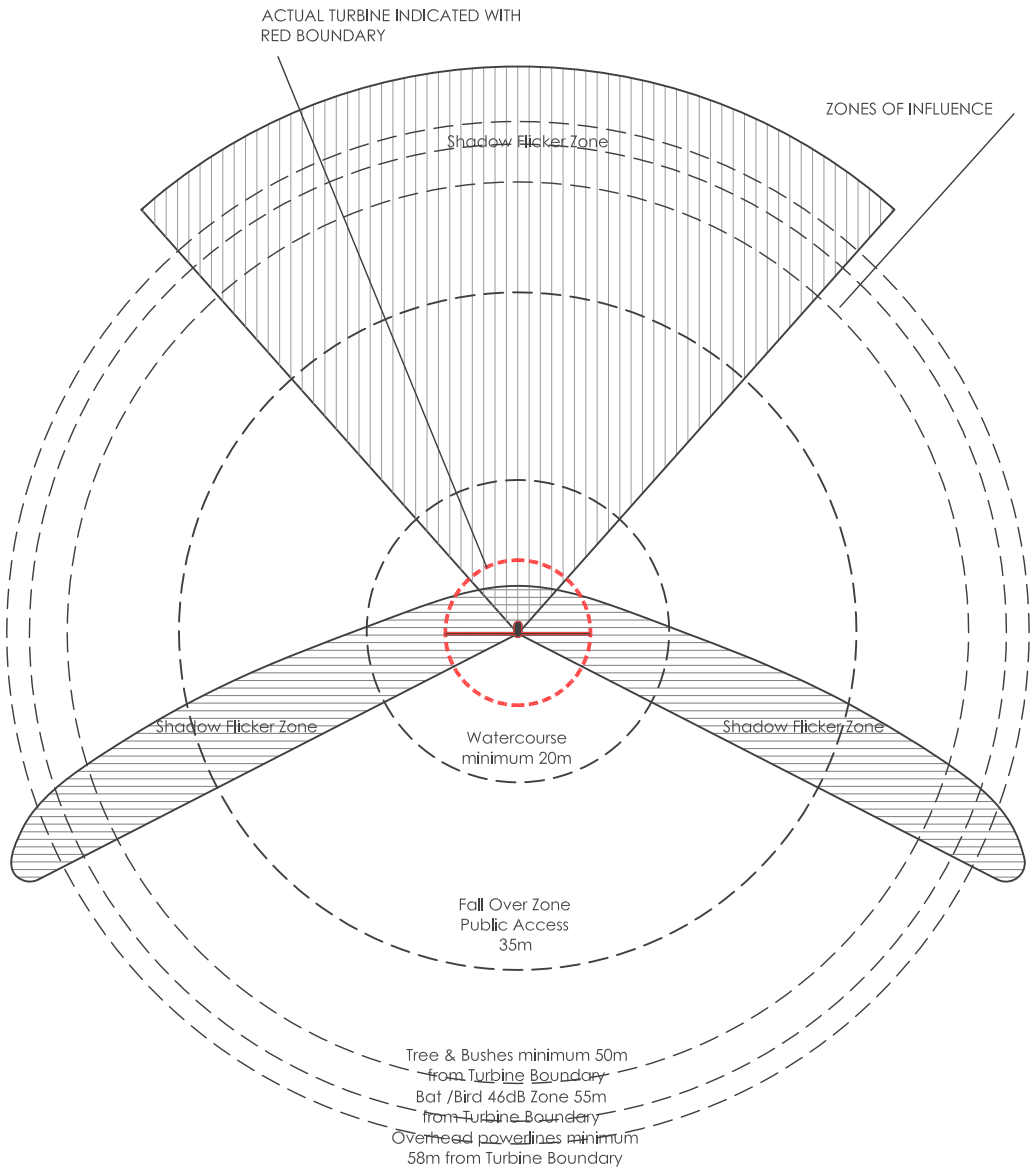
Cliffe House Bungalow,
Wind Turbines

Location Plan 1: 2,500

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		Drawn by: NS		Checked By: BJ

Pr	Preliminary	C	Contract
F	Feasability	Cn	Construction
P	Planning	As	As Built
T	Tender	Other	

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Wind Turbines

Turbine Plan 1: 1000

Drawing Number	Rev.	Scale:	@	Date:
630-KE0176-005	-	1: 1000	A4	05-04-2012
		Drawn by: NS		Checked By: BJ

Pr	Preliminary		C	Contract	
F	Feasability		Cn	Construction	
P	Planning		As	As Built	
T	Tender		Other	-	

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N

Proposed installation of 1 No Wind Turbine

TURBINE 1
424571 Easting 401122 Northing

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-	-	-	-

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Aerial Site Plan 1: 1250

Drawing Number	Rev	Scale:	@	Date:
630-KE0176-004	-	1:1250	A3	05-04-2012
		Drawn by: NS		Checked By: BJ

Pr	Preliminary	C	Contract
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P	Planning	As	As Built
T	Tender	Other	-

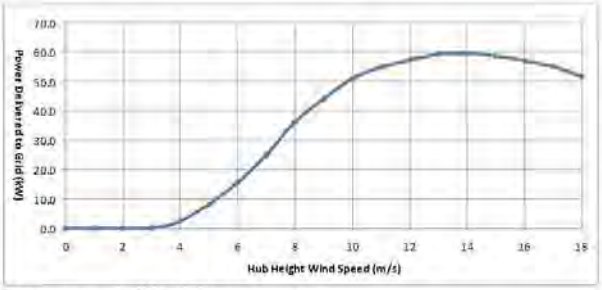
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APPENDIX 3 –
EQUIPMENT ELEVATIONS & TURBINE SPECIFICATION

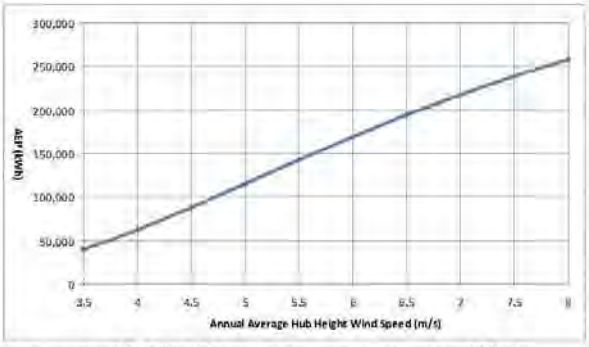
JDA Architects

Interim Technical information sheet - Endurance E3120 Wind Turbine

Endurance E3120 Power Curves and Performance



Endurance E3120 Power curve



Endurance E3120 Annual Energy Production (AEP)

Windspeed, m/s	Output, Watts
3	0
4	2200
5	8100
6	15200
7	24800
8	35800
9	43800
10	50900
11	54800
12	57300
13	59300
14	59300
15	58600
16	57100
17	54900
18	51400
19	51400
20	51400
21	51400
22	51400
23	51400
24	51400
25	51400

Endurance E3120 Tabulated power curve

Annual Average Hub Height Wind Speed (m/s)	AEP (kWh)	FiT Generation Revenue (24.1p/kWh)	FiT Export Revenue (3p/kWh)
3.5	40,064	£9,655.42	£1,201.92
4.0	62,526	£15,068.77	£1,875.78
4.5	87,951	£21,196.19	£2,638.53
5.0	114,927	£27,697.41	£3,447.81
5.5	142,240	£34,279.84	£4,267.20
6.0	168,927	£40,711.41	£5,067.81
6.5	194,253	£46,814.97	£5,827.59
7.0	217,664	£52,457.02	£6,529.92
7.5	238,751	£57,538.99	£7,162.53
8.0	257,234	£61,993.39	£7,717.02

Annual Energy Production and FiT generation and export revenue table

NB. Electricity consumed on site at point of generation will not attract the export tariff, but will have a value equivalent to the (significantly higher) avoided cost of imported electricity.

Turbine

Kinetica has carefully selected the best available medium scale wind turbines available. We believe the Endurance E3120 is the leading machine in its wind class (III) and FIT category (15-100kW).

- Production quality is very high, with due emphasis on specification of key components such as the ABB Generator and Flinders/Siemens gearbox.
- Endurance provides a robust 5 year warranty through approved installers. The warranty covers maintenance, parts and labour.
- Endurance has proved diligent and prompt in addressing technical issues as they have arisen.
- Kinetica is committed to providing leading install and operation services to enable our customers to maximise returns over the turbine lifetime.
- UK E3120 installations are providing outstanding performance and returns to customers. Site visits and customer testimonials can be arranged on request.

Production

On typical UK sites with modest wind speeds the Endurance E3120 provides more power and better revenue generation than any other available turbine in its class or feed in tariff category. This is the result of three main design criteria:

- Tuning – Endurance have specifically designed the E3120 to generate the most power between 5 – 7.5 m/s ('class III' wind regime). Most UK farm sites will fall into this category.
- Swept area – the E3120 has the largest swept area in its class (290 m2) enabling more energy capture at typical wind speeds.
- Induction Generator – the Endurance generates grid quality AC directly, providing efficient generation with no invertors or inversion loss.

  E3120 installations are performing at, or slightly above, the generation levels predicted by the Endurance power curve and AEP table and real performance figures (not theoretical calculations or achieved at one controlled test site).

Endurance wind power

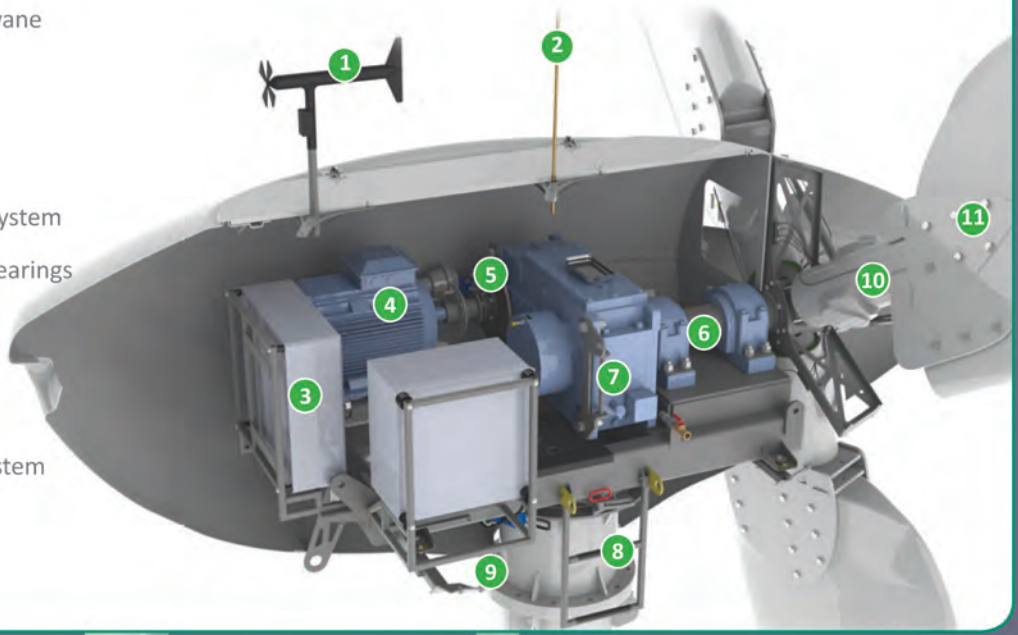
GREEN ENERGY THAT WORKS

E-3120

50 kW model



1. Anemometer & wind vane
2. Lightning protection
3. Control panel
4. Induction generator
5. Fail-safe disk braking system
6. Main shaft with two bearings
7. Gearbox
8. Access ladder
9. Yaw damper
10. Pitch control safety system (patent pending)
11. Fiberglass blade



endurancewindpower.com

SPECIFICATIONS

E-3120

TURBINE

Configuration	3 blades, horizontal axis, downwind
Rated power @ 11 m/s	55 kW
Applications	Direct grid-tie
Rotor speed	43 rpm
Cut-in wind speed	3.5 m/s (7.8 mph)
Cut-out wind speed	25 m/s (56 mph)
Survival wind speed	52 m/s (116 mph)
Design lifetime	30 years *
Overall weight	3990 kg (8800 lbs)

ROTOR

Rotor diameter	19.2 m (63.0 ft)
Swept area	290 m^2 (3120 ft^2)
Blade length	9.00 m (29.5 ft)
Blade material	Fiberglass / Epoxy
Power regulation	Stall control (constant speed)

GENERATOR

Type	Induction generator
Configurations	3ϕ, 400 VAC @ 50 Hz

BRAKE & SAFETY SYSTEMS

Main brake system	Rapid fail-safe dual mechanical brakes
Secondary safety	Pitch control system (for over-speed regulation) using passive spring-loaded mechanism (patent pending)
Automatic shut down triggered by :	- High wind speed - Grid failure - Over-speed - All other fault conditions

CONTROLS

Control System	Programmable logic controller (PLC)
User interface	Wireless or wired networked software interface for remote monitoring and control

WARRANTY

Turbine & controls	5 years

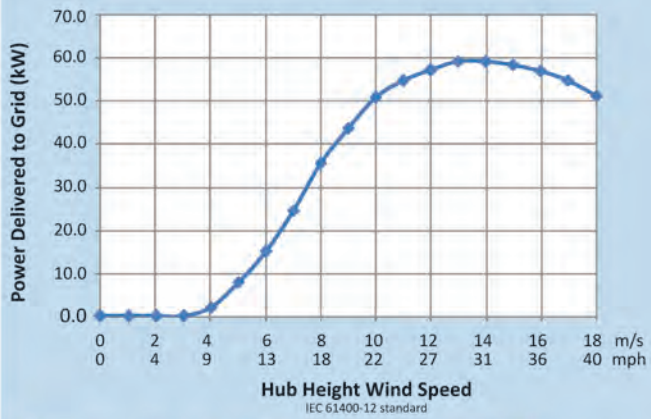
TOWERS

Types	Free-standing monopole: 25 m hub height
Maintenance access	Safe climbing system Working space inside the nacelle Tower-top work platform

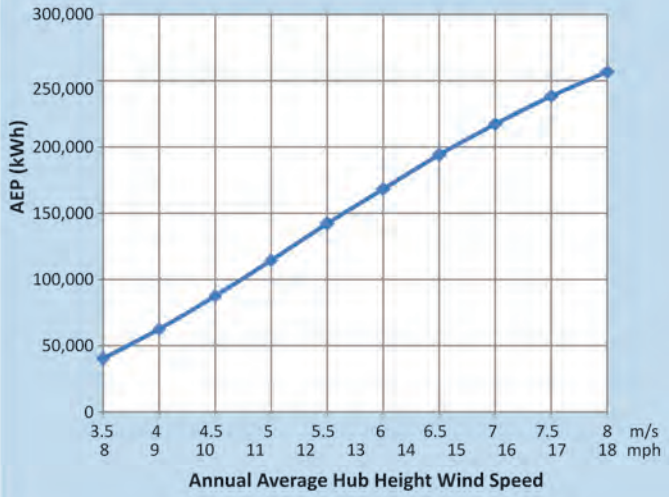
*Provided service and maintenance schedules are strictly followed



POWER CURVE



ANNUAL ENERGY PRODUCTION (AEP)



Your local Endurance dealer:

dulas

Dulas Ltd
+44 (0) 1654 705000
wind@dulas.org.uk
www.dulas.org.uk

renewableUK Member 2010

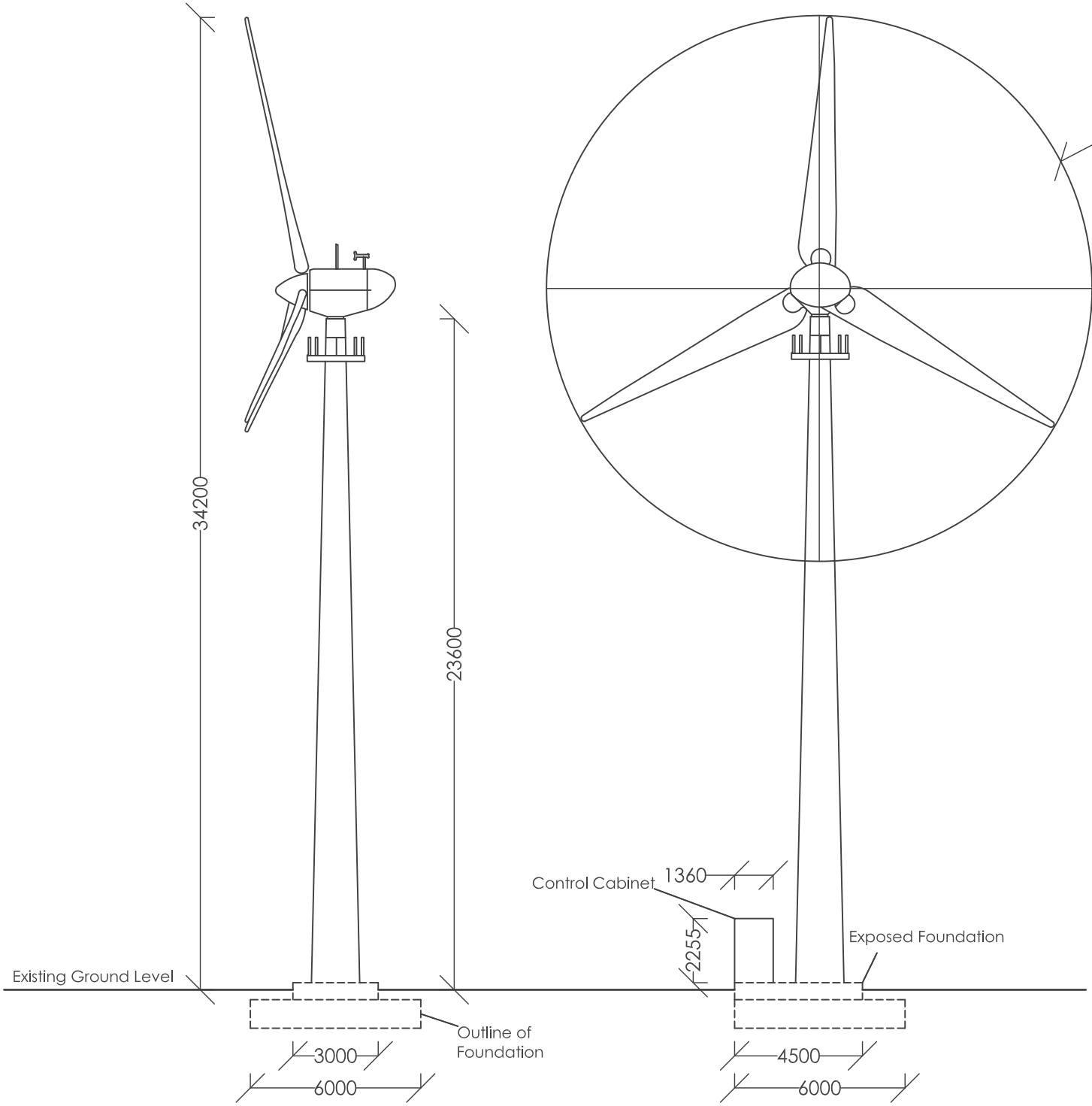
American Wind Energy Association MEMBER

canwea

Endurance wind power

GO GREEN! We print our brochures on recycled paper and use only all-natural soy-based ink, rather than nasty petroleum-based products. Even the protective aqueous coating is environmentally friendly, water-based and biodegradable!

April 2010 © Endurance Wind Power



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Mr Dawson

Cliffe House Bungalow,
Wind Turbines

Turbine Elevation 1: 200

Drawing Number	Rev.	Scale:	@	Date:
630-KE0176-006	-	1: 200	A4	05-04-2012
		Drawn by: NS		Checked By: BJ

Pr	Preliminary		C	Contract	
F	Feasability		Cn	Construction	
P	Planning		As	As Built	
T	Tender		Other	-	

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APPENDIX 4 –
MANUFACTURER'S INFORMATION

Endurance wind power

we power the future



E-3120 50kW Wind Turbine

The Endurance E-3120 wind turbine is designed to produce renewable energy efficiently, reliably, safely, and quietly. This turbine is ideal for larger farms, schools, hospitals, and commercial/industrial sites, and will produce 100,000 - 250,000 kWh per year in appropriate winds.

green energy that works

CE

www.endurancewindpower.co.uk

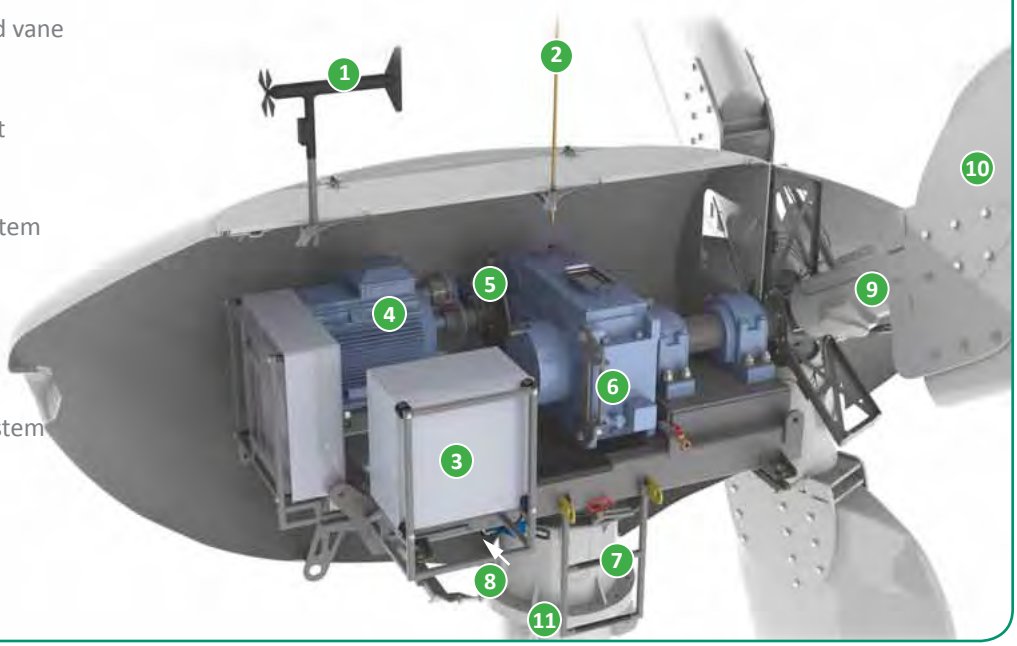
E-3120 Benefits

- Contributes to the national renewable energy and carbon emission reduction targets
- Promotes community sustainability values
- Eligible for renewable energy credits
- Provide an additional revenue stream with the government's Feed-In-Tariff program
- Provides energy independence

renewableUK | canwea | AWEA

E-3120 50kW Wind Turbine

1. Anemometer and wind vane
2. Lightning rod
3. Nacelle control cabinet
4. Induction generator
5. Fail-safe disk brake system
6. Gearbox
7. Access ladder
8. Yaw damper
9. Pitch control safety system
10. Fiberglass blade
11. Tower



1 Anemometer and wind vane

Measures wind speed and direction to control starting, stopping, and orientation of the turbine to maximize power production.

2 Lightning rod

Guides lightning to the ground, protecting the turbine.

3 Nacelle control cabinet

Houses the tower-top electronics in a weather-protected environment for maximum reliability. The main turbine control panel is located at the base of the tower for easy access.

4 Induction generator

Delivers grid-compatible power and eliminates the need for an inverter or other power electronics. This improves efficiency and reliability, and reduces up-front costs.

5 Fail-safe disk brake system

Safely stops the wind turbine using twin brake calipers in situations such as extreme wind or grid failure.

6 Gearbox

Drives the generator at full speed while the rotor turns slowly. The gearbox uses rugged, conventional design for long life and high reliability.

7 Access ladder

Allows easy and safe access to the nacelle for maintenance. Safety is a top design priority.

8 Yaw damper

While the turbine is aerodynamically oriented by the wind, the yaw damper smooths the movement to ease tower and rotor loads.

9 Pitch control safety system

Provides backup protection against rotor over speed. If the rotor turns too fast for any reason, the blades are pitched by a spring mechanism to control the speed.

10 Fiberglass blade

Designed to quietly and efficiently produce energy, particularly in light winds.

11 Tower

Attractive monopole towers are available in 24 and 36.5m (80 and 120 ft) to comply with height restrictions or reach the best winds at your site.

Cornerstones of Endurance Design

Production Efficiency

Most distributed wind customers did not select their site for wind resources, but look to generate power from the wind available to them. Endurance wind turbines are designed specifically for less-than-perfect wind conditions.



Swept Area
The blades capture the energy of the wind. The larger the rotor diameter, the more wind energy the turbine captures. The Endurance E-3120 has a 19m (63 ft) rotor diameter- one of the largest rotor diameters per rated kW in its class- to capture the most wind energy.

Motoring
Motoring starts the blades spinning so the turbine operates in lighter wind conditions than if it relied solely on the wind to start.

Generator Type
The induction generator produces electricity that can be transferred to the power grid without inverters. This provides lower equipment and maintenance costs and increases overall power production.

Reliability

All Endurance turbines have been extensively tested to ensure customers receive dependable energy production. They are built with proven commercial components for durability and easy support in the future.

Five Year Warranty
Endurance offers one of the best warranties in the wind industry, covering all defective components and labor for five years.

Safe Operation

When the turbine control system detects any fault, such as high wind or a grid power loss, the dual caliper disc brake system activates, safely stopping the turbine until the condition is cleared.

Passive Stall Rotor Design
The fixed-speed rotor aerodynamically stalls the blades as the first layer of protection for the turbine during high winds.

Control and Remote Interface Software
Each Endurance wind turbine is operated safely by an onboard computer system with advance control logic. This system also records data including energy production, average power, wind speed and event history. Turbine controls and data are also remotely available from a web browser.

Quiet Operation

Quiet operation is essential for a wind turbine in a community environment. Endurance turbines use slowly turning blades and high-quality manufactured components to make them the quietest turbines in their class.

Clean Aesthetics

A wind turbine makes a powerful statement about your commitment to the environment and clean energy. Endurance wind turbines have clean lines and make an attractive addition to any landscape.

APPENDIX 5 –
WIND TURBINE ACOUSTIC REPORT & NOISE DATA

Endurance E-3120 Wind Turbine Generator - Noise - indicative site suitability guidance

Report prepared by M Potts BSc (Hons), MSc, MIOA

The following report has been prepared by Echo Acoustics Ltd and is intended to assist indicative (strategic-level) assessment of site suitability for the installation of an Endurance 50 kW wind turbine generator (WTG). The report is based upon data from the turbine noise test report undertaken by Hayes Mackenzie in February 2011 (report ref: HM: 2300/R1), in accordance with the International Eletrotechnical Commission Standard IEC 61400-11 (2006) *Wind turbine generator systems – Part 11: Acoustic noise measurement technique*. The Hayes Mackenzie tests were undertaken for a fully operational turbine at East Ash Farm, Bradworthy, Devon.

Table 1 presents:

- The calculated hub-centre apparent sound power level (dB $L_{WA,k}$) for a single turbine, over the normal operational range of wind speeds for the turbine (3 to 12 metres per second [m/s]).
- The predicted background noise for each wind speed; this is based on a regression analysis of the background noise measurements, correlated with wind speed (measured at 12m above ground level), obtained during the turbine acoustic test.
- External receptor noise level at 200m and 250m from the turbine.
- Indicative distances at which the turbine noise levels would reduce to 45 dB(A) and 40 dB(A) [dB(A) in this context means dB L_{Aeq}], at each given wind speed; these criteria are based on guidance from Renewables UK[1], which suggests that noise within the region 40 dB(A) to 45 dB(A), at potentially noise-sensitive receptors, would generally be deemed acceptable.

Table 1: Indicative single-turbine noise calculations

Wind speed	dB(A)				Distance to..	
	BG noise	WTG SWL	WTG @ 200 m	WTG @ 250 m	45 dB(A)	40 dB(A)
3	35.9	86.9	29.9	27.9	35	62
4	35.8	87.2	30.2	28.2	36	64
5	36.6	87.4	30.4	28.4	37	66
6	38.2	92.9*	35.9	33.9	70	125
7	40.3	89.0	31.9	30.0	44	79
8	42.9	90.6	33.5	31.6	53	95
9	45.8	92.5	35.5	33.6	**67**	119
10	48.6	94.4	37.4	35.5	84	149
11	51.4	95.8	38.7	36.8	97	173
12	53.8	95.7	38.7	36.7	97	172
13	55.7	93.3	36.3	34.3	73	130

*The Hayes Mackenzie report identified potential tonal noise at 6m/s wind speed, therefore 5 dB added to source noise at this wind speed to provide conservative assessment.

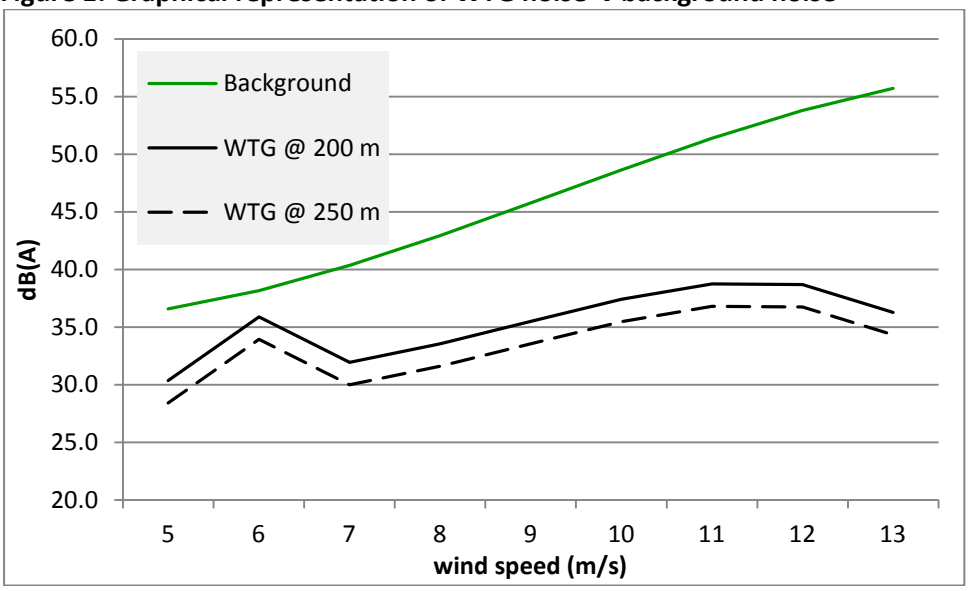
The tabulated data are graphically presented in Figure 1.

[1] British Wind Energy Association, 2008. "*Small Wind Turbine Performance and Safety Standard*"

Endurance E-3120 Wind Turbine Generator - Noise - indicative site suitability guidance

Report prepared by M Potts BSc (Hons), MSc, MIOA

Figure 1: Graphical representation of WTG noise v background noise



It is often asserted, in discussions related to planning for wind turbines, that rural background noise levels may be as low as 20 to 30 dB L_{A90}, but this disregards the significant consideration that such low noise levels generally occur under calm meteorological conditions with no wind; in these circumstances the turbines would not operate and no noise would be generated. Assessment of turbine noise as winds increase cannot be undertaken without due regard for the associated increase in background noise.

Additional significant considerations are:

1. Is the receptor property shielded from direct line of sight of the turbine by agricultural buildings or other structures? Limited additional sound attenuation will be provided by such 'shielding', but studies have shown a positive correlation between visual perception of wind turbines and perception of noise.
2. Is the receptor surrounded by agricultural buildings, trees and other structures which all tend to increase background noise with increasing wind speeds? In this case, it is highly likely that the actual wind-generated background noise at a receptor property due to wind interacting with buildings and trees is likely to be higher than presented in the Table and Figure above which are simply mathematical extrapolations. It is reasonable to infer that the back-ground noise at the residential property would show on the Figure as a rising or exponential line and that wind turbine noise would never exceed background noise. It is also worth observing that at high wind speeds, towards the upper operational range of the turbines, local residents are very likely to be indoors with windows closed - the external wind turbine noise levels may become somewhat irrelevant in these circumstances.
3. Is a receptor in a particularly sheltered location i.e. valley-bottom, where background noise levels may be very low relative to high-speed turbine operation?
4. Alternatively, are receptors close to other significant noise sources such as roads etc, which might allow a lesser turbine set-back distance.
5. Small wind turbines do not give rise to significant levels of low frequency noise or infrasound, nor to unusual noise characteristics (such as amplitude modulation) that can sometimes occur with large turbines.
6. Ground-borne vibration is rarely perceptible from small wind turbines and is certainly unlikely to be perceptible at distances of more than 10 or 20 metres from the turbine base.

APPENDIX 6 – CONSULTATION

CONSULTATION
For this small scale wind turbine application it would be overly onerous to expect a full public consolation. However it is understood that the normal planning procedure will encompass advertising the application and writing to neighbours for comments.

AVIATION
PPG22 states that turbine developers should liaise with the MOD / CAA etc. however this has been updated due to the massive amount of enquires sent to these bodies.

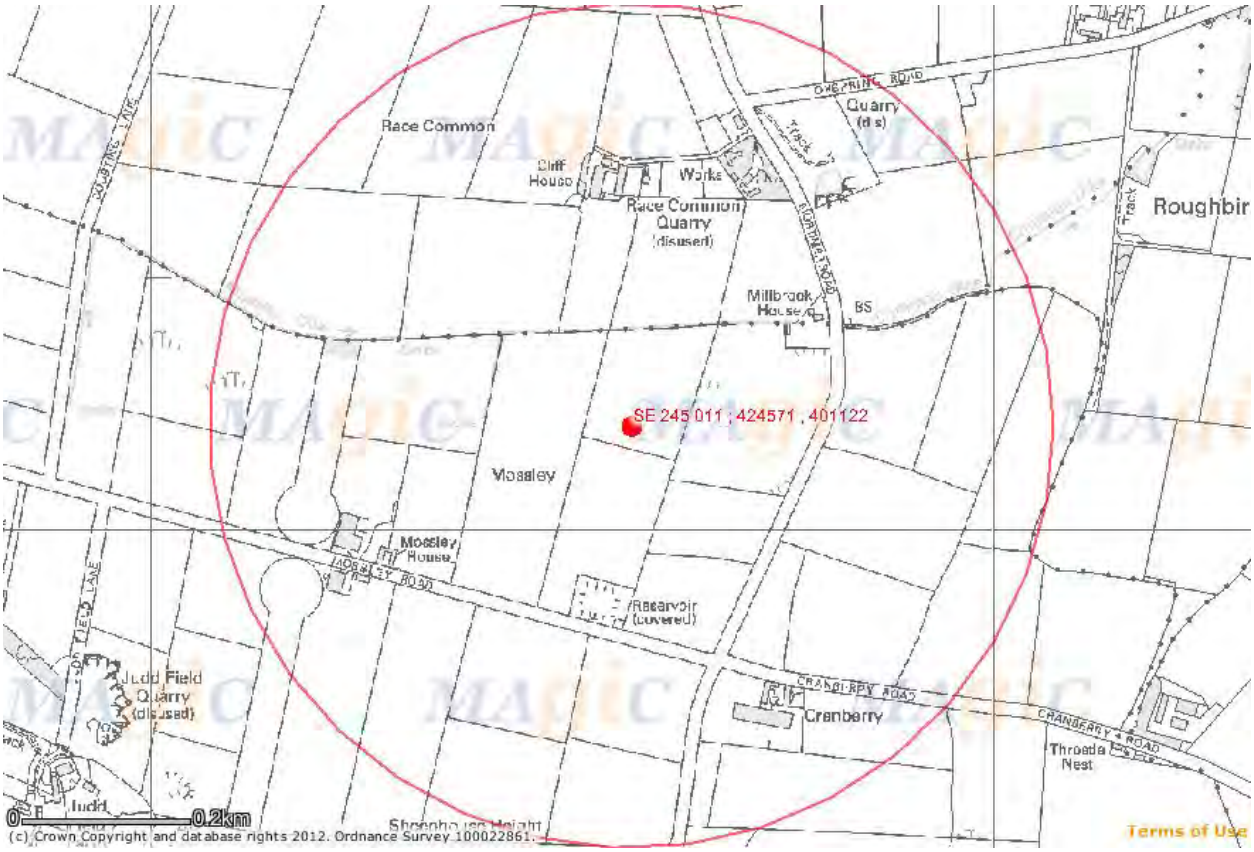
CAA only becomes Consultees for sites larger than 50MW.

MOD will only respond to actual planning applications, via a planning officer, and not general enquiries.

Site Check Report

Report generated on April 26 2012.

You clicked on the point:
Grid Ref: SE 245 011
Full Grid Ref: 424571 , 401122



The following features have been found within 500 metres of your search point:

Town or Village Greens (England)
There are no features within your search area.

Walking for Health (England)

There are no features within your search area.

Counties, Metropolitan Districts and Unitary Authorities (England)

Name	Geographic Level
BARNSLEY	METROPOLITAN DISTRICT

NUTS1 - Government Office Regions (England)

Reference	Name	Hotlink
UKE	YORKSHIRE AND THE HUMBER	http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/european/yorkshire-and-the-humber/index.html

National Trails (England)

There are no features within your search area.

Doorstep Greens (England)

There are no features within your search area.

Millennium Greens (England)

There are no features within your search area.

Country Parks (England)

There are no features within your search area.

Registered Common Land (England)

There are no features within your search area.

Countryside and Rights of Way Act, Section 15 Land (England)

There are no features within your search area.

Countryside and Rights of Way Act 2000 - Access Layer (England)

There are no features within your search area.

Forestry Commission Conservancy Boundaries (England)

Reference	Name
1	YORKSHIRE AND THE HUMBER

Natural England Regions (England)

Name	Reference	Hotlink
YORKSHIRE & THE HUMBER REGION	1420318	HTTP://WWW.NATURALENGLAND.ORG.UK/REGIONS/YORKSHIRE_AND_THE_HUMBER/DEFAULT.ASPX

English Heritage Regions (England)

Reference	Name	Link
YH	YORKSHIRE AND THE HUMBER	HTTP://WWW.ENGLISH-HERITAGE.ORG.UK/SERVER/SHOW/NAV.8516

Environment Agency - Public Face Areas

Area Office Address	Region Name
GLOBAL AVENUE, , LEEDS, LS11 8PG	NORTH EAST

Environment Agency - Water Management Areas

Area Office Address	Region Name
GLOBAL AVENUE, , LEEDS, LS11 8PG	NORTH EAST

Environment Agency - Public Face Regions

Region Name	Regional Office	Address
NORTH EAST	RIVERS HOUSE	LEEDS

Environment Agency - Water Management Regions

Region Name	Regional Office	Address
NORTH EAST	RIVERS HOUSE	LEEDS

Catchment Abstraction Management Strategy (CAMS) Reference Boundaries

CAMS Name
DON AND ROTHER

Parliamentary Constituencies (England)

Reference	Name
24706	PENISTONE AND STOCKSBRIDGE CO CONST

NUTS2 - Combined Counties (England)

Reference	Name
UKE3	SOUTH YORKSHIRE

NUTS3 - Counties and Groups of Unitary Authorities (England)

Reference	Name
UKE31	BARNSLEY, DONCASTER AND ROTHERHAM

LAU1 - Districts and Unitary Authorities (England)

Reference	Name
UKE3101	BARNSLEY

Parishes (England)

Name	Description	Administrative Region
LANGSETT CP	Civil Parish or Community	BARNSLEY_DISTRICT_(B)
PENISTONE CP	Civil Parish or Community	BARNSLEY_DISTRICT_(B)
OXSPRING CP	Civil Parish or Community	BARNSLEY_DISTRICT_(B)

Local Enterprise Partnership Boundaries (England)

Local Enterprise Partnership Name
LEEDS CITY REGION

National Cycle Network (GB)
There are no features within your search area.

Biosphere Reserves (GB)
There are no features within your search area.

National Nature Reserves (GB)
There are no features within your search area.

Ramsar Sites (GB)
There are no features within your search area.

Special Areas of Conservation (GB)
There are no features within your search area.

Special Protection Areas (GB)
There are no features within your search area.

Important Bird Areas (GB)
There are no features within your search area.

Sites of Special Scientific Interest (GB)
There are no features within your search area.

RSPB Reserves (GB)
There are no features within your search area.

Traditional Orchards - Provisional (England)
There are no features within your search area.

Limestone Pavements (England)
There are no features within your search area.

Undetermined Grassland (England)
There are no features within your search area.

Blanket Bog (England)
There are no features within your search area.

Purple Moor Grass and Rush Pasture (England)
There are no features within your search area.

Lowland Raised Bogs (England)
There are no features within your search area.

Lowland Heathland (England)
There are no features within your search area.

Lowland Dry Acid Grassland (England)
There are no features within your search area.

Lowland Calcareous Grassland (England)
There are no features within your search area.

Fens (England)
There are no features within your search area.

Coastal and Floodplain Grazing Marsh (England)
There are no features within your search area.

Lowland Meadows (England)
There are no features within your search area.

Upland Heathland (England)
There are no features within your search area.

Reedbeds (England)
There are no features within your search area.

Upland Hay Meadows (England)
There are no features within your search area.

Upland Calcareous Grassland (England)
There are no features within your search area.

Ancient Woodland (England)
There are no features within your search area.

Forestry Commission Woodland (England)
There are no features within your search area.

National Inventory of Woodland and Trees (England)
There are no features within your search area.

Coastal Vegetated Shingle (England)
There are no features within your search area.

Coastal Sand Dune (England)
There are no features within your search area.

Maritime Cliff and Slope (England)
There are no features within your search area.

Mudflat (England)

There are no features within your search area.

Saline Lagoons (England)

There are no features within your search area

Natural Areas (England)

Reference	Name	Hotlink
24	COAL MEASURES	http://www.naturalareas.naturalengland.org.uk/science/natural/na_details.asp?na_id=24&s=&r=3

National Character Areas (England)

ference	Name	Hotlink
	YORKSHIRE SOUTHERN PENNINE FRINGE	HTTP://WWW.NATURALENGLAND.ORG.UK/OURWORK/LANDSCAPE/ENGLANDS/CHARACTER/AREAS/YORKSHIRE_SOUTHERN_PENNINE_FRINGX

2001 Settlements (England)

There are no features within your search area.

Landscape Typology (England)

Landscape Character Type	Definitive Attributes - Explanation of Coding	Contributions of Land Use	Land Use Associated Features	Contributions of Land Use Associated Features
UPA	HTTP://MAGIC.DEFRA.GOV.UK/WEBSITE/TYPOLOGY/LANDSCAPE_GLOSSARY.PDF	APPARENT	ROUGH PASTURE	INSIGNIFICANT

Post 1988 Agricultural Land Classification (England)

There are no features within your search area.

Agricultural Land Classification - Provisional (England)

Reference	Name
4	GRADE 4

Dudley Stamp Land Use Inventory (England and Wales)

Land Use Class
6
4
7
2
2
5
5

Soilscape (England)

Reference	Name	Main Surface Texture Class	Natural Drainage Type	Natural Fertility	Characteristic Semi-natural Habitats	Main Land Cover
6	FREELY DRAINING SLIGHTLY ACID LOAMY SOILS	LOAMY	FREELY DRAINING	LOW	NEUTRAL AND ACID PASTURES AND DECIDUOUS WOODLANDS; ACID COMMUNITIES SUCH AS BRACKEN AND GORSE IN THE UPLANDS	ARABLE AND GRASSLAND
17	SLOWLY PERMEABLE SEASONALLY WET ACID LOAMY AND CLAYEY SOILS	LOAMY	IMPEDED DRAINAGE	LOW	SEASONALLY WET PASTURES AND WOODLANDS MAINLY, BUT NOT EXCLUSIVELY, ON THE UPLAND FRINGE	GRASSLAND WITH SOME ARABLE AND FORESTRY

Scheduled Monuments (England)

There are no features within your search area.

Protected Wreck Sites (England)

There are no features within your search area.

Nitrate Vulnerable Zones (England)

NVZ TYPE
NVZ DEFERRED SLURRY STORAGE AREA

Local Nature Reserves (England)

There are no features within your search area.

Biosphere Reserves (England)

There are no features within your search area.

National Nature Reserves (England)

There are no features within your search area.

Ramsar Sites (England)

There are no features within your search area.

Special Protection Areas (England)

There are no features within your search area.

Special Areas of Conservation (England)

There are no features within your search area.

Sites of Special Scientific Interest Units (England)

There are no features within your search area.

Sites of Special Scientific Interest (England)

There are no features within your search area.

World Heritage Sites (England)

There are no features within your search area.

Nitrate Sensitive Areas (England)

There are no features within your search area.

Areas of Outstanding Natural Beauty (England)
There are no features within your search area.

Environmentally Sensitive Areas (England)
There are no features within your search area.

National Parks: Lake District and Yorkshire Dales Variation Orders 2012 - subject to confirmation (England)
There are no features within your search area.

National Parks (England)
There are no features within your search area.

Moorland Line (England)
There are no features within your search area.

Less Favoured Areas (England)

Reference	Type
D	DISADVANTAGED

Registered Battlefields (England)
There are no features within your search area.

Registered Parks and Gardens (England)
There are no features within your search area.

Land Management Initiatives (England)
There are no features within your search area.

Catchment Sensitive Farming Capital Grant Scheme Target Areas (England)
There are no features within your search area.

Catchment Sensitive Farming Delivery Initiative 2011-2014 (England)
There are no features within your search area.

Upland Experiment Areas (England)
There are no features within your search area.

Important Bird Areas (England)
There are no features within your search area.

Heritage Coasts (England)
There are no features within your search area.

Objective 1 Areas (England)

Reference	Name	NUTS1
D06	OBJECTIVE 1	YH

Objective 2 Areas (England)
There are no features within your search area.

National Forest (England)

There are no features within your search area.

Green Belt (England)

Reference	Name of Local Plan	Date Local Plan was Published	Status	Authority	Scale of Original Plan
13744472	BARNSLEY UNITARY DEVELOPMENT PLAN	31/12/2000	ADOPTED	BARNSLEY METROPOLITAN BOROUGH COUNCIL	1:25,000

Community Forests (England)

Reference	Name	Hotlink
9	SOUTH YORKSHIRE FOREST PARTNERSHIP	HTTP://WWW.SYFOREST.CO.UK

National Trust Properties (England)

There are no features within your search area.

Woodland Trust Sites (England)

There are no features within your search area.

English Woodland Grant Scheme (England)

There are no features within your search area.

Woodland Grant Scheme 3 (England)

There are no features within your search area.

Woodland Grant Scheme 2 (England)

There are no features within your search area.

Woodland Grant Scheme 1 (England)

There are no features within your search area.

Forest Plans (England)

There are no features within your search area.

Dedication (England)

There are no features within your search area.

Felling Licence Applications (England)

There are no features within your search area.

WES Agreements (England)

There are no features within your search area.

Energy Crops Scheme - 1st Tranche (England)

There are no features within your search area.

Energy Crops Scheme - 2nd Tranche (England)

There are no features within your search area.

Environmental Stewardship Agreements (England)

Scheme	Start Date	Status	Agreement Ref
ENTRY LEVEL PLUS HIGHER LEVEL STEWARDSHIP	01/07/2010	LIVE	AG00302358
ENTRY LEVEL STEWARDSHIP	01/06/2009	LIVE	AG00293666
ENTRY LEVEL STEWARDSHIP	01/08/2010	LIVE	AG00316334
ENTRY LEVEL STEWARDSHIP	01/08/2011	LIVE	AG00387829

Environmentally Sensitive Area Agreements (England)

There are no features within your search area.

Countryside Stewardship Agreements (England)

There are no features within your search area.

APPENDIX 7 –
PHOTOGRAPHS / PHOTO MONTAGE



Typical Foundation excavation



Typical reinforcement bars



Example reinforcement lowered into foundations.



Example completed foundations



Example completed foundation and “grubbed up” land





Typical “Endurance E-3120” 50KW Turbine images