

**OBJECTION TO
THE ERECTION OF WIND TURBINES
NEAR HATCH LANE
WESTON**

PLANNING REFERENCE 08/00047/1

**WESTON WIND TURBINE WORKING GROUP
JANUARY 2009**

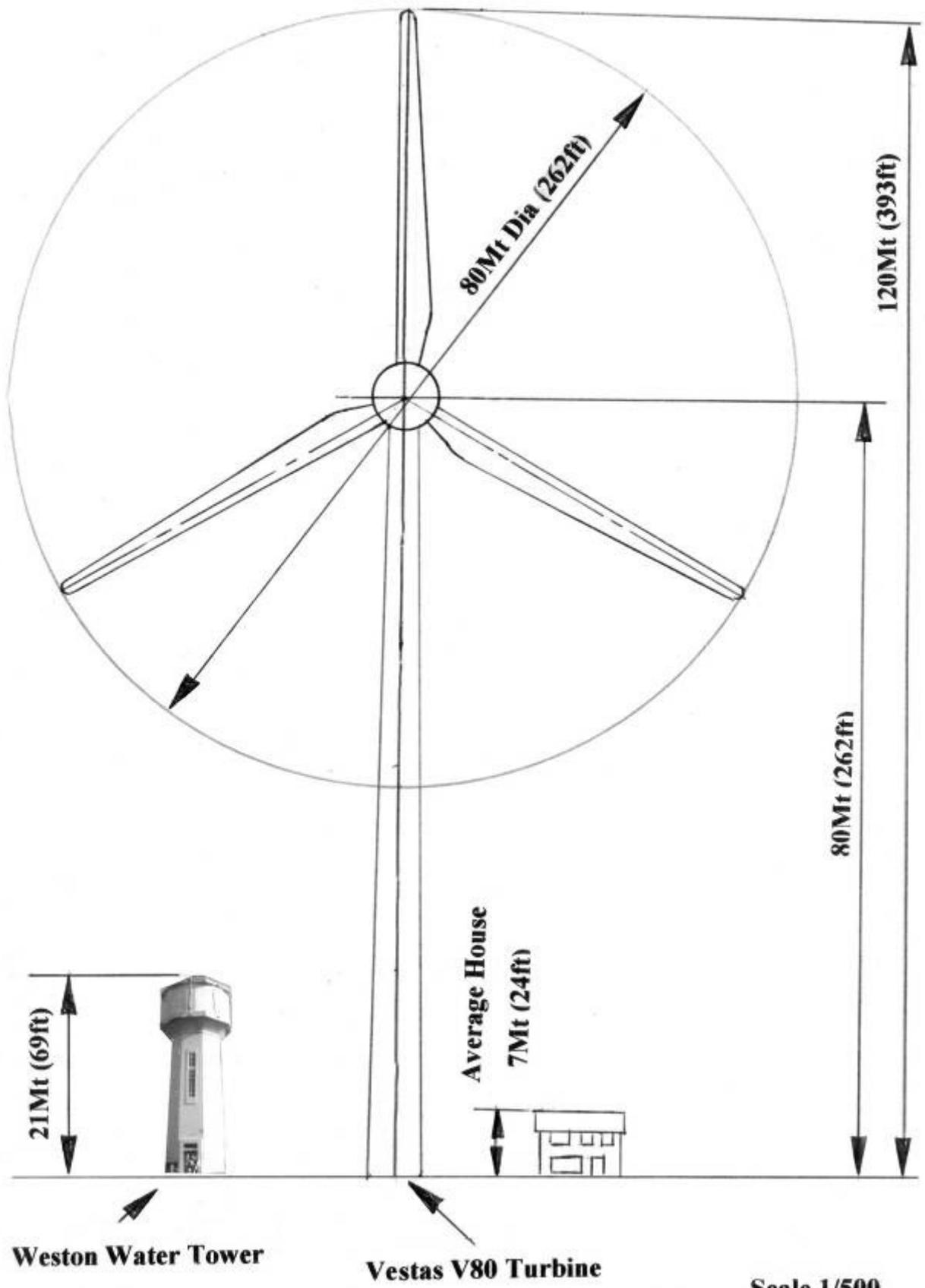
ACKNOWLEDGEMENT

The Weston Wind Turbine Working Group as a body would like to thank the many individuals who contributed to the production of this document.

They have worked tirelessly and diligently over a period of four months to produce a document which is both technical in nature but eminently readable.

The document highlights and explains the many issues which will impact on our communities should this application be approved.

*Weston Wind Turbine Working Group
January 2009*



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INTRODUCTION AND BACKGROUND

This document is a submission by the Weston Wind Turbine Working Group to North Hertfordshire District Council objecting to planning application 08/00047/1.

The application is by Weston Park Farms (the Developer) for Full Planning Permission: Change of use of agricultural land and siting of 3x120m Wind Turbines (2MW), 1x 52.5m wind speed mast, access tracks and detached equipment building, Weston Hills, off Hatch Lane, Weston, SG4 7EB.

It is noted that this application does not detail who would be responsible for running and maintaining the turbines.

An original planning application was submitted to North Hertfordshire District Council (NHDC) by the developer in 2006. In order better to understand the complex issues surrounding this type of proposed development, Weston Parish Council (WPC) sought volunteers from the community to study the issues and prepare a report to provide unbiased factual and non-technical information prior to WPC making its response to the application. These volunteers formed what became known as the Weston Wind Turbine Working Group and produced for the WPC a detailed report. That report was made available to many parties including NHDC and the developer. Before a response could be made by WPC the developer withdrew the application as, *inter alia*, no adequate Environmental Statement had been included.

Following the developer's re-submission for a materially identical development, a consensus developed that the group should be re-formed, this time to present a considered objection to this second planning application. Accordingly a number of individuals have come together to detail a response to this application.

The contributors to this document are experienced professionals in a variety of fields including academic research methodology, project management, applied biology and engineers in various areas including aerospace and civil engineering.

A great deal of research has been undertaken to ensure that the technical content of this report is accurate and is supported by verifiable data.

We are seeking to demonstrate that the siting of the wind turbine cluster on Weston Hills cannot be allowed to proceed and to urge the Planning Department and the Planning Control Committee of North Hertfordshire District Council to refuse this application.

We have sought to avoid the cutting and pasting of large sections from well known and much-visited anti-wind farm websites. Inevitably some use has been made of material obtained from the Internet, though these are in the main planning documents, inspectors' reports and authoritative and independent documents.

Of particular assistance, has been Government Inspectors' Reports in connection with developers' appeals against planning refusal. These thorough investigations have provided an invaluable insight into the process of investigating the true impact of wind farms on local communities. In particular we have found the following of considerable use:

- a) APP/N2535/A/04/116685 Laughton Wind Farm Laughton Essex November 2005
- b) APP/V3310/A/06/2031158 Brent Knoll nr. Burnham-on-Sea January 2008

- c) APP/LO635/A/07/2047477 Aston Grange Farm nr. Runcorn 5 November 2008
- d) APP/W0530/A/05/1190473 Boxworth Enquiry December 2006

All of these appeals have relevance to this application particularly the Laughton Wind Farm which has many of the characteristics of Weston.

Scotland appears to be more sympathetic to the impact wind farms are having on their environment and the adverse effects on nearby communities. In particular we have found the following also to be of considerable use:

- a) Scottish Planning Policy 6 – Renewable Energy
- b) Supplementary Planning Guidance for Wind Energy Proposals in Perth and Kinross.

If this application were being made in Scotland it is highly likely that it would be rejected.

We recognise that there are pressures on the UK Government and local government to contribute to the UK's renewable energy commitment. We understand that NHDC is not required to consider the merits of wind technology. Whilst we are convinced that some of the political, strategic and economic imperatives driving this commitment are seriously flawed, these are not seen as an issue that can be dealt with in this document other than to demonstrate that the benefits of the proposal are considerably exaggerated and that there is no over-arching need in Hertfordshire for a wind farm in this location. Even if the claims are accepted and even if the turbines were to have a capacity factor of 1 (ie 100% efficient) the amount of electricity produced is not sufficient to justify the harm that will be done. The planning authority does have to take into account the detrimental impact of this proposal and weigh it against the theoretical benefits.

We have also sought to avoid knee jerk reactions and emotional arguments. We see it as regretful, however, that objectors must restrict their arguments to those areas covered by the planning process otherwise their case will in effect be ignored. Whereas those in favour merely have to publish their support backing it up with emotional, green issues and economic sentiment which are not core planning issues.

The Government Document Planning Policy Statement 22 (PPS22) states “that wind farm developments should not be excluded if it can be demonstrated that the wider environmental benefits outweigh any harm by reason of inappropriateness”.

It is our intention to demonstrate beyond reasonable doubt that this site is inappropriate and trust that the planning authority will rigorously examine the claimed economic and environmental benefit.

We will detail inaccuracies and flaws in the application.

As previously stated, if this application was in Scotland it would almost certainly not proceed. Under Scottish Planning Policy 6 – Renewable Energy, wind turbines within 2km of any home would be discouraged. There are hundreds of homes in this area within 2km of the Weston Hills Site. In addition, the Supplementary Planning Guidance for Wind Energy Proposals in Perth and Kinross introduce a factor of 20 times the height from ground to blade tip as further separation distance which in this case would be 2.4km.

We do not say NO to all wind farm development in the county. We merely wish to ensure that they are sufficiently distant from people's homes as to have an insignificant impact on them and that the Green Belt is not compromised.

In addition to the serious issue of the Green Belt, we have addressed numerous other issues including the significant effect this development is likely to have on local aviation, on endangered species, on other environmental considerations, on TV reception and on local amenities as well as its enormous visual impact.

The theoretical saving on carbon emissions is greatly exaggerated in the application. On-shore wind farms, particularly in the south of England operate only at the lower end of theoretical capacity i.e. around 0.25 capacity factor. In addition, at the time of preparing this report the British Wind Energy Association (which represents developers), under pressure from the Advertising Standards Agency, have been obliged to reduce by 50% the claimed carbon dioxide savings. It is the inflated figure that is claimed in the application.

It is acknowledged that the developer may, in time, be able to address some of these issues to the satisfaction of the planning authority. Some of the adverse effects may be capable of amelioration. However, in our opinion a significant number, for instance inappropriate development in the Green Belt, and visual impact, cannot be addressed no matter how many times this application is resubmitted for consideration.

On the subject of proliferation we are extremely concerned that this application, if approved, will be followed by an application for further wind turbines on nearby land owned by the developer.

Finally, we would express a strong wish that this application is not granted subject to a long list of Planning Conditions. There are so many errors and anomalies in the application that we feel these must be corrected before this proposal can ever be seriously considered.

WESTON WIND TURBINE WORKING GROUP
January 2009

EXECUTIVE SUMMARY

After careful consideration of all the factors involved in this application, the Weston Wind Turbine Working Group concludes that the application should be refused, for the reasons detailed in the following pages.

In these pages we catalogue a long list of objections on several key issues, which objections individually are alone compelling grounds for refusing this application. Cumulatively, we firmly believe that they present a case against the proposed development which is quite overwhelming.

1. General Site Location

We object to this development owing to its proximity to areas of population density. This site should never have been included in Hertfordshire Renewable Energy Study's area suitable for the development of wind farms. Indeed a close inspection of the HRES map appears to show that it may well be outside the identified area.

This small site is extremely constrained by noise issues due to its proximity to dwellings and lack of space to reconfigure the arrangements of the turbines.

The site is far too close to Weston and parts of Baldock and Letchworth.

The HRES identified areas as suitable for wind farms on the basis of low population density. Several thousand people live within 2 or 3 km of this site. On no account can this immediate area be considered an area of low population density.

We have demonstrated that the site is unsuitable in many respects for this development. This is a small site close to many homes and it cannot reasonably be argued that the development will not have a serious impact on those people. It is too small to accommodate three wind turbines of this size. It is extremely constrained by noise issues.

2. Visual Impact

We object to this application on the grounds that it would not be in accordance with Planning Policy Statement 22 (PPS 22), Planning Policy Guidance 2 (PPG2) in respect of the Green Belt and would be in direct contravention of Policy 12 of the North Hertfordshire District Plan 2 and Planning Policy Statement 7. The developer has signally failed to demonstrate in any way how the impact of these enormous structures can be mitigated as he is required so to do. In fact they will be overbearing and dominate the landscape for miles around. They will significantly alter the local landscape character for the worse and will seriously impact the setting of nearby Conservation Areas again in contravention of PPG2. The application concentrates on area 222 and ignores the considerable impact on areas 219 (Baldock Gap) and 224 (N Herts Chalk Upland).

The proposed site lies within the protection of the Green Belt, where NHDC policy is in accord with planning guidance not to approve applications that would result in significant visual impact. The site is also within NHDC's Landscape Conservation Area 2 where the Council's policy is to restrict planning permission to those projects that positively enhance the landscape. The landscape assessment of the area does not support the developer's

contention that the turbines would be masked by the 'visual clutter' of existing pylons; indeed the local topography would be incapable of absorbing three wind turbines of the proposed height. As the Weston Hills site is on a high point locally, the turbines would be visible over a wide area which would encompass the neighbouring towns of Baldock, Letchworth, Hitchin and Stevenage and further in a broad north-east to north-west arc. The application is dismissive of the visual impact on surrounding villages and towns. It states that Baldock is concealed by the escarpment. However, much of Baldock (including the hundreds of people who live in Clothall Common) will have a direct view of the wind farm. Letchworth is barely mentioned in the application. The wind turbines will tower 650ft above the town.

As millions of pounds of tax payers' money was devoted to conserve the landscape above the Baldock by-pass it would be inconsistent to place three 120m structures in the very area which was to be conserved and protected.

In addition there will be a significant impact on Baldock High Street where a considerable amount of public money is being spent on refurbishment and landscaping. For evidence of the likely impact please refer to the photomontage View 2 of the Appendix to this document.

Planning Policy Statement PPS 22 places an obligation on the developer to show that the renewable energy developments being promoted are in an appropriate location, are of an appropriate scale and can be accommodated without adverse environmental impacts. The application seriously underestimates the true impact of the proposals on the landscape and on visual amenity. It must, therefore, be concluded that this proposal is in conflict with Key Principle (viii) of PPS 22.

Weston Hills is a prominent landmark which has high visibility over a wide area. The considerable visual quality of this locally important landscape will be significantly reduced rather than strengthened by the development.

3. Green Belt

We object to this application on the grounds that it has failed to demonstrate the very special circumstances which are required to outweigh the harm that will be caused to the Green Belt by this wind farm and should therefore be refused.

Planning Policy Statement 22 (PPS 22) states with respect to Green Belts

"When located in the green belt, elements of many renewable energy projects will comprise inappropriate development, which may impact on the openness of the green belt. Careful consideration will therefore need to be given to the visual impact of projects, and developers will need to demonstrate very special circumstances that clearly outweigh any harm by reason of inappropriateness and any other harm if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources".

Many renewable energy projects will comprise inappropriate development. Certainly all wind farms are *per se* inappropriate on Green Belt land.

The only Environmental Benefit that the developer can describe is a degree of carbon offset based on an exaggerated electricity output. Even if the turbines were 100% efficient, instead of around 25%, the amount of useable electricity produced is so small

as to be virtually meaningless. The developer also claims that this development would prevent any further encroachment onto the Green Belt. We do not need 400ft high industrial machines for this purpose, we have planning laws in place to ensure it.

The most important attribute of Green Belts is their openness. An accepted definition of openness in this context is a freedom from built development. A visit to the proposed site shows the area to be remarkably open. It is possible to see from horizon to horizon in all directions. There are few trees or other obstacles. It is true that at ground level the presence of three turbine masts will enable farming to continue underneath (albeit limited by the huge concrete plinths that will be required). However, the main attribute of the Green End plateau is the "big sky". There is a wonderful feeling of openness there. However, the area of sweep of the turbine blades is over 2 acres. Raise 2 acres into the sky, cause them to rotate, and that openness is totally lost.

4. Noise Impact Assessment

We object on the basis that the Noise Impact Assessment, as it stands, is inadequate to support the approval of the proposed wind farm development. Our detailed review has demonstrated that the predicted noise levels have been severely underestimated and the background noise survey carried out to such a poor standard that the wind farm design is not proven to meet the ETSU-R-97 noise limits.

Further, we believe that it would be totally unacceptable to compensate for the inadequate Noise Impact Assessment by imposing and relying upon Planning Conditions to control potential noise issues. Measurement of wind turbine noise when a wind farm is up and running is expensive, time consuming and known to be fraught with problems. It is therefore imperative that the development is shown to be capable of meeting the ETSU-R-97 noise limits via a robust and accurate Noise Impact Assessment before it is allowed to proceed.

The noise levels predicted at the two closest properties have been underestimated by at least 7.7dB(A) by failing to consider adverse conditions. (An increase of 7.7dB would be perceived by the human ear to be an approximate doubling of the sound).

The background noise measurements are invalid because the microphones have been located where background noise would be significantly higher than at the properties being surveyed. Two background noise surveys are insufficient to demonstrate that the whole of Weston and Clothall are protected by the ETSU-R-97 noise limits. The properties selected for the surveys and the position of microphones was not agreed with the local authority as required by ETSU-R-97. This objection is fully supported by mathematical analyses, photographs, and references to evidence of good practice used in other UK wind farm noise impact assessments.

5. Aviation

We object on the basis that the siting of the proposed wind turbines close to the only available approach/departure path to Graveley airfield would effectively prevent the safe use of the airfield. This would be a major loss of amenity for pilots.

In addition, we object on the basis that it is of considerable concern that the narrowing of the busy corridor of airspace between Luton and Stansted will further

funnel aircraft together, increasing the possibility of mid-air collisions or indeed collisions with the turbines themselves.

The proposed siting of the turbines is only 200m from the CAA-mandated flight path into and out of Graveley airfield. Due to this, their size and the turbulence generated by such machines, any aircraft attempting to fly into or out of Graveley airfield would have to give the proposed wind turbines a very large berth in order to have any confidence of not encountering dangerous turbulence. The juxtaposition of built up areas, restricted airspace and the proposed turbines would result in aircraft having to make dangerous manoeuvres at low altitude. This means that this development is likely to result in the closure of Graveley airfield. This will be a considerable loss of amenity locally.

The proposed development site is on the Western edge of a North-South corridor in the form of a “tunnel” of unrestricted airspace between the Luton and Stansted Control Zones (CTRs) which extends from ground level upwards. This corridor is particularly congested due to its location on an edge of the CTR, with aircraft taking the most direct routing close to the edge, when heading towards the North or West. The size of the turbines is such that they would create a hazard in this area, causing aircraft to be further funnelled together and increasing the risk of mid-air collisions or even collision with the turbines themselves.

6. Television Reception

We object on the basis that the application lacks detail in respect of TV Interference and no specialist in the field has been consulted as is the expectation of OFCOM and the BBC.

The term “manageable” used by the developer is unacceptable as it is not quantifiable. Nor has any cost or liability assessment been carried out. If a specialist in the field confirms that reception difficulties are likely then the application should be refused until such time as the necessary repeater stations or other remedial measures are in place.

It is quite unacceptable that communities will suffer poor or no reception for what is likely to be a long period of time. Nor is it acceptable to expect viewers to retune to another transmitter thereby losing local content broadcasting.

There are a number of cases in the UK of wind farms affecting TV reception.

The proposed wind farm would lie exactly in a direct line between Weston and the Sandy Heath transmitter. It is almost inevitable that TV Reception in Weston will be affected. As the wind farm site is so small there is no scope to relocate the turbines and any future additional turbines would only serve to exacerbate the problem.

Several thousand homes may be affected, according to the BBC Engineering tool. There are some 350 homes in Weston meaning that reception difficulties are likely to be encountered much further afield including Baldock and Letchworth. Note also that the number stated does not include those that will be affected but could retune to a different transmitter. The total number of homes affected is likely to run to many thousands.

The developer states that interference is manageable and that he is totally committed to the avoidance of television signal difficulties caused by the wind turbine installation. The

developer has not carried out any cost or liability assessment nor consulted any specialist in the field as is expected.

The developer mentions the erection of repeater stations as a possible solution. This could take years to achieve and unless the full range of free to air programmes is available (which may not be possible) via any repeater this is not an acceptable solution.

It will not be possible to make the necessary changes within an acceptable period of time. Viewers could find themselves for a long period of time without acceptable reception.

It is quite unacceptable that communities suffer poor reception for what is likely to be a long period of time.

It is not true to say that digital reception will not be affected although digital reception is more robust than analogue. The BBC states that both analogue and digital reception can be affected. The problem with digital reception is that if the signal is degraded sufficiently then the receiver cannot decode and therefore there will be no reception at all. As the turbines are in direct line with the transmitter and Weston the blades will almost certainly interfere with the output of digital transmission packages.

According to Planning Policy Guidance 8 (PPG8) *"...a practical remedy may not always be possible. In this case, where broadcast transmitters are involved, there should be full consultation with the broadcasting authorities before such a course is adopted"*.

No such consultation has taken place.

7. Ecology (Bats)

There is strong evidence that the turbines would have an adverse effect on the bat population and as such we believe that the planning authority has no alternative but to refuse this application.

It is understood that Natural England (as a statutory consultee) has not raised any objections to the proposed development with respect to bats. If this is indeed the case, then it would appear that they are not adhering to their own guidance. As a result NHDC are requested to consult them further.

It must be remembered that bats are a protected species and there are heavy penalties for breaking the law.

This study carried out to support this objection demonstrates decisively that the Bat Survey Report provided in this application is grossly inadequate. The survey schedules are not in accordance with recognised guidance (including that drawn up by Natural England) and vital information to validate the results is missing. Turbine 1 is too close to a commuting hedge (again this is contrary to Natural England guidance) and no follow up information on the impact of the Baldock bypass construction on the local bat population has been provided. A full assessment of the impact of the bypass construction has to be made before any further, major development which could impact the bat population once again should be allowed. There is also growing evidence from abroad that bats suffer barotrauma in the vicinity of turbines and no account has been taken of this. In raising no objection to this development, Natural England appears to have ignored its own guidance.

Clearly, the assessment of the impact of the development on the local bat population is inadequate.

8. Visualisation

We object to this application on the grounds that the visualisations in the application are misleading and inadequate.

Visualisations in wind farm planning applications follow “Best Practice”. To a large extent this Best Practice has been developed by the British Wind Energy Association whose aim is to promote the development of wind farms in the UK. They represent developers’ interests. The panorama views present in the application follow this Best Practice. They are wholly unrepresentative of what the human eye perceives. They show an angle of 120 degrees. The human eye sees much more than this but actually only focuses on about 6-10 degrees.

In addition there are no visualisations from Letchworth at all and none from important areas of Baldock.

9. Benefits and Need

A “cost benefit analysis” is part of the planning process. When set against detrimental impacts such as visual impact, potential noise issues and desecration of the Green Belt we believe that the application should be refused.

The degree of benefit is important to assess, as it is against this that the inevitable detrimental effect on the local environment is weighed. The former must clearly outweigh the latter.

In order to calculate the electricity output it is recommended that a 40m wind mast be erected for a period of 12 to 18 months. The developer failed to do this and is therefore unable to calculate the efficiency of the turbines with any accuracy. Notwithstanding this the developer claims that the wind farm will displace some 15,300 tonnes of carbon dioxide per year and that it will produce enough electricity to supply 3,300 homes.

Using the British Wind Energy’s own calculator we estimate the actual saving of carbon dioxide to be 6,780 tonnes per year.

Our calculation (shown in full in Section 9 below) clearly shows the claim made by the developer that the wind farm will reduce carbon dioxide emission by 15,300 tonnes per year is grossly exaggerated and is more than twice the true value. It is assumed that the developer has made some mathematical errors or has used incorrect data in his calculations.

Similarly, the developer’s claim that the wind farm will produce 19,000 MW/hr is grossly exaggerated and would require a capacity factor of 0.36. This is most unrealistic and totally unachievable at the proposed location.

The Eastern Region Renewable Energy Planning Study has shown that the best opportunities for renewable energy projects in Hertfordshire are active and passive solar sources, municipal solid waste & general industrial & commercial waste, short rotation coppice & forestry, and straw, along with small amounts from various other sources.

Some minimal local economic benefit may arise through construction and decommissioning (the latter in 25 years time). However, any permanent and meaningful local employment benefit will be negligible or non-existent.

Thus there is no over-arching need for wind generated renewable energy in Hertfordshire. Set against these so called benefits, the detrimental impact this wind farm, and the many other wind farms being proposed in this relatively small area, will have, far outweighs any benefit. Indeed we would also point out that even if the turbines were 100% efficient the output would not justify the detrimental impacts.

10. Turbine Separation Distances

This application should be refused on the basis of inadequate turbine separation.

It essential that the developer includes a written statement from the turbine manufacturer, Vestas, within the application, fully detailing the implications of reduced turbine separation in this Wind Farm design. This must include Noise and Safety. It is understood that the Vestas guarantee may be invalidated if the turbine separation is not to specification.

The separation of the Vestas V80 turbines is less than the requirements specified by the turbine manufacturer. Vestas Technical Specification (Document Ref. 944406.13) states at section 1.4:

“The wind turbines can be placed in wind farms with a distance of at least 5 rotor diameters (400 m) between the wind turbines. If the wind turbines are placed in one row, perpendicular of the predominant wind direction, the distance between the wind turbines must, at least be 4 rotor diameters (320 m).”

It is noted from the developer's Grid References and Layout Drawing WB001 that the turbines are located with a separation of just 312m, 314m and 342m, which are well below the required minimum of 400m.

It is understood that the separation minima are specified in order to eliminate aerodynamic interaction between the turbines, specifically wake turbulence. Turbulence can affect turbine stability, efficiency and noise calculations. It is also understood that the Vestas guarantee may be invalidated if the turbine separation is not to specification.

11. Turbine Location Inconsistencies

Until the turbine positions are defined accurately and consistently, Noise, Visual Impact, Safety, Ecology and many other statements within the application are questionable. Position data is fundamental. It should have been checked and corrected before the application was issued for consultation. It is of great concern that the turbine position errors could have potentially affected the responses given by consultees.

Given the foregoing we believe that this application should be refused.

There appear to be critical errors and inconsistencies concerning the turbine positions within the Red Line Drawing, OS Grid References, Layout Drawing WB001 and the Noise Contour Map:-

Although the developer has stated that the OS Grid References take precedence over any other dimensions, this statement could easily be overlooked. All drawings that are in error should have been corrected or clearly annotated. In their current state they are at best worthless and are potentially misleading.

1. The OS Grid References do not align with the turbine centres as drawn on the Red Line Drawing. All three turbine positions are in error, the worst being Turbine 2 with an Easting error of over 100m.

2. The positions of the turbines shown on the Noise Contour Map within the noise report do not agree with the positions shown on the Red Line Drawing or the OS Grid References. But oddly, the distances from the turbines to properties 1 and 2 that are stated in the noise report (620m and 760m respectively) agree with the distances calculated using the turbine OS Grid References.

3. Within the Layout Drawing, the turbine separation distances agree exactly with distances calculated using the OS Grid References, but the distances stated from the turbines to physical features such as paths and roads do not agree with the OS Grid References and seem to agree better with the Red Line Drawing.

12. Safety

There is sufficient concern with regard to the issue of road safety for this application to be referred back to the Hertfordshire County Council Highways Department. Further, the issue of ice shedding highlighted by the recent Whittlesey incident suggests that the application should be refused pending the outcome of the investigation into ice-shedding.

We urge the planning authority not to dismiss claims that turbines may be unsafe. There are many examples of turbine failure and the above H&SE investigation may lead to new standards of safety and separation being introduced. The developer's turbines may well suffer air turbulence which could cause stresses which may lead to failure.

To date there are relatively few wind farms in the UK. It is inevitable that as more and more are brought on-stream the incidences of turbine failure will increase.

We urge the planning authority not to dismiss claims that turbines may be unsafe. There are many examples of turbine failure and the current Scottish H&SE investigation into a recent turbine collapse may lead to new standards of safety and separation being introduced.

The siting of the turbines in close proximity to Hatch Lane is of considerable concern in relation to general safety and road safety. There are three significant aspects to this.

Danger from objects falling from the turbines

On 3 December 2008 in Whittlesey, Cambridgeshire, ice was shed from a wind turbine narrowly missing a house. Blades moving at in excess of 100mph are capable of catapulting ice into the surrounding area at speeds in excess of 100mph making them potentially lethal projectiles. This appears to have happened at Whittlesey.

Distraction factor for drivers

The Caithness Windfarm Information Forum (www.caithnesswindfarms.co.uk) details three fatalities in Scotland due to road accidents which according to the police were due to 'driver distraction of turbines'. These all occurred on a road at the point where

turbines first became visible. Just this very scenario exists in Hatch Lane. Traffic coming up from London Road Baldock will have no view of the turbines until they reach the top of the hill whilst negotiating the sharp right hand bend.

Turbine Collapse

The developer's turbines may well suffer air turbulence due to their being sited closer together than the recommended distances which could cause stresses which may lead to failure.

The most recent report by the HSE Scotland Director states that there is an on-going investigation into the collapse of a wind turbine. It says "*This will have international implications as it is examining the siting of turbines near population centres*". This may well be relevant to a collapse near a road less than 200m away, a house 600m away and a bridleway 100m away.

EXECUTIVE SUMMARY CONCLUSION

The Weston Wind Turbine Working Group calls on the North Hertfordshire Planning Authority to refuse this application.

1 GENERAL UNSUITABILITY OF THE LOCATION

Hertfordshire County Council commissioned Entec UK Ltd to produce a report advising them how best it could address the issue of renewable energy. This is known as the Hertfordshire Renewable Energy Study (HRES)

Entec sought to identify which areas of the County are suitable for wind turbine development. They identified North Hertfordshire and parts of East Hertfordshire as they are “...*the most sparsely populated areas and hence have the largest amount of land unconstrained by noise issues*”.

The Weston Wind Turbine Working Group contacted Entec in 2006 and asked what criteria they adopted for identifying North Hertfordshire. Entec confirmed that it was based on population density.

HRES includes a crude map identifying the “suitable” areas (Figure 5.1) page 45. The prime areas are described as “potentially attractive”. Peripheral areas are described as of “limited attractiveness”.

A closer inspection of the HRES map also seems to show that the site proposed for this wind farm may well be outside the identified area.

The Study states that “population centres are obviously not suitable for wind farm construction” quoting, amongst other places, Stevenage. However, Baldock and Letchworth and the areas immediately surrounding them are major population centres but are not mentioned in the Study. There are estimated to be some 10,000 people living within 2 or 3km of the proposed development.

HRES states that “The proximity of dwellings is also likely to severely limit turbines in several other districts”.

There is one dwelling approximately 600m from the nearest turbine mast (560m from the nearest blade tip which is the noisiest part of the structure travelling at times in excess of 100mph) and a number of dwellings only 700 to 800m away. There are many dwellings in Weston around 1km away. There are many dwellings in Baldock and Letchworth closer to the proposed turbines than a large number in Weston.

In a landmark court case, the judge ruled that a turbine sufferer was entitled to a Council Tax reduction because her £170,000 home had been rendered worthless by a turbine only 930m away. Hansard reports that some Local Authorities are already giving discretionary Council Tax reductions thus acknowledging the devaluation of some affected properties. With so many properties around the same distance away or closer to the proposed development there could be a significant impact on Council Tax in the NHDC area. (Refs 1-1 and 1-2)

The proposed wind farm site measures 500m x 500m = 2500m = 25 hectares. The HRES states that as a rule of thumb 100 hectares will support between 10 and 15 MW. On that basis the turbine site will support between 2.5MW and 3.75MW max. This compares with the proposed 6MW capacity. This is technical confirmation that Pomme Piece is too small to support the proposed wind farm

The following is an extract is from the Supplementary Planning Guidance for Wind Energy Proposals in Perth and Kinross. It refers to “dominance”. It is not unreasonable to infer that placing three 120m wind turbines on a hill that is 70m above the town where the viewing angle is significantly raised would result in an unacceptable dominance. It states:-

“In some locations, aspects of local visual effects may be as important as wider landscape considerations and wind energy developments should not dominate surrounding features. Turbine height is important both for distance over which the development might be visible and also the potential dominance of such large structures to people and buildings close to them although dominance is not just a question of height but also of the relative angle of elevations. This depends not only on the turbine but also on the local topography. Dominance is not necessarily a problem in itself but can become oppressive when it affects residential or other high occupancy buildings and locations. A further aspect of dominance is the effect created when placing the turbine next to or on another significant element in the landscape. The turbines may then appear to dwarf landmarks or to shrink a local hill for instance. It is suggested that these and other issues be addressed by keeping turbines a distance of at least the equivalent of 20 height to blade tip lengths away from buildings, dwellings and other sensitive locations”

In the case of this application, that would preclude a wind farm any closer than 2.4km to a dwelling. This would take in the whole of Weston and Clothall, a significant part of Letchworth and most of Baldock.

In the appeal decision relating to Laughton Wind Farm (Ref. 1-3) the inspector said *“Because of their proximity and their elevated position, I consider that they would have an unacceptably dominating impact upon the village. They tip the balance between a development that would be otherwise acceptable and one that is not, and they justify the dismissal of this appeal. I have considered all the other points raised but they do not outweigh the considerations that have led me to my decision”*

Laughton is a village with similar characteristics to those of Weston and which, likewise, contains conservation areas. The inspector was concerned that the nature of the setting of the village would be harmed.

The turbines would have been 1.4km from the village. Large parts of Weston would be only 1km from the proposed development with some individual houses closer than that.

We object to this development owing to its proximity to areas of population density. This site should never have been included in Hertfordshire Renewable Energy Study’s area suitable for the development of wind farms. Indeed a close inspection of the HRES map appears to show that it may well be outside the identified area.

This small site is extremely constrained by noise issues due to its proximity to dwellings and lack of space to reconfigure the arrangements of the turbines.

It is far too close to Weston and parts of Baldock and Letchworth.

References

1-1 Evidence for Submission to the Select Committee On The Economics of Renewable Energy paragraph 2.7 by Jane Davis (MA RN) and Julian Davis (BSC) June 6th 2008

1-2 Appeal Decision Number 2525475645/032C - Council Tax Appeals English Tribunals

1-3 Appeal Decision APP/N2535/A/04/116685 Laughton Wind Farm Mount Pleasant Farm Laughton Essex November 2005

2 VISUAL IMPACT

The aim of this section is to crystallise issues submerged in the information overload comprising Section 2 of the Environmental Statement of the application and to emphasise the constraints that apply to the site.

The proposed site lies within the protection of the Green Belt where NHDC policy is in accord with planning guidance not to approve applications that would result in significant visual impact. The site is also within NHDC's Landscape Conservation Area 2 where the Council's policy is to restrict planning permission to those projects that positively enhance the landscape. The landscape assessment of the area does not support the developer's contention that the turbines would be masked by the 'visual clutter' of existing pylons; indeed the local topography would be incapable of absorbing three wind turbines of the proposed height. As the Weston Hills site is on a high point locally, the turbines would be visible over a wide area which would encompass the neighbouring towns of Baldock, Letchworth, Hitchin and Stevenage and much further in a broad north-east to north-west arc.

As millions of pounds of tax payers' money was devoted to conserve the landscape above the Baldock by-pass it would be inconsistent to place three 120m structures in the very area which was to be conserved and protected.

In addition there will be a significant impact on Baldock High Street where a considerable amount of public money is being spent on refurbishment and landscaping. For evidence of the likely impact please refer to the photomontage View 2 of the Appendix to this document.

Planning Policy Statement 22 (PPS 22) places an obligation on developer to show that the renewable energy developments being promoted are in an appropriate location, are of an appropriate scale and can be accommodated without adverse environmental impacts. The application seriously underestimates the true impact of the proposals on the landscape and on visual amenity.

It must, therefore, be concluded that this proposal is in conflict with Key Principle (viii) of PPS 22.

The area that is the subject of the application lies not only within Green Belt but is also included in one of NHDC's three Landscape Conservation Areas (LC2).

Paragraph 5.2 the *Environmental Statement* of the application (pp.32-33), headed *LC2 Green Belt*, seeks to confine consideration of Green Belt issues by disingenuously claiming that the presence of wind turbines would discourage further planning applications for other forms of encroachment. This represents a deliberate obfuscation of landscape conservation issues by attempting to submerge them beneath consideration of a single aspect of Green Belt function, that of limiting urban sprawl. The 2001 amendments to *Planning Policy Guidance 2 (PPG 2)* make it clear that the Green Belt has a far broader role as stated above. In addition *Planning Policy Statement 7 (PPS7), Sustainable Development in Rural Areas*, encourages the protection of the open countryside.

The application also includes a request for change of land use. If this is granted it will defeat the very claim made by the developer that further development would be discouraged. In fact, further development would be made easier if the land use were to be changed.

given the unambiguous safeguards for the landscape furnished by PPG2 and PPS7, the area does not require the detracting presence of wind turbines for its supposed protection. The foreword to PPG2 stipulates that Green Belt must be protected as far ahead as can be seen and lists amongst its functions opportunities for access to open countryside in order to retain attractive landscapes. Paragraph 1.7 confirms that the purposes of including land in Green Belt are of paramount importance to its continued protection, whilst para. 3.15 states that visual amenity should not be injured by proposals for development within Green Belt. Such explicit declarations underscore the broader concepts of Green Belt and its wider purpose beyond the containment of urban sprawl. Support for this interpretation of the published guidance is to be found in the inspectors' reports this year when dismissing appeals against refused planning consent at Brent Knoll (near Burnham-on-Sea) (Ref. 2-1) and Aston Grange Farm (near Runcorn) (Ref. 2-2).

The North Hertfordshire Landscape Character Assessment areas included within LC2 are predominately 222 (Weston – Green End Plateau) with contributions from 219 (Baldock Gap) and 224 (N. Baldock Chalk Uplands). Policy 12 of the *North Hertfordshire District Plan* (Ref. 2-3) states that the Council will protect the landscape by not normally granting planning permission for development proposals:-

- i) Generally, which do not fit into the landscape because of their siting, design, materials, colour or lack of new landscaping.
- ii) In Landscape Conservation Areas which do not positively enhance the landscape taking into account the factors in i) above.

The landscape character assessment strategies for the areas constituting LC2 are that, in the case of the Weston - Green End Plateau, there is scope for improvement and conservation. The line of pylons along the A1(M) on the western aspect of the N. Baldock Chalk Uplands is noted but the conservation and restoration recommendation for the area clearly refutes any suggestion that it might be subject to 'visual clutter' created by these pylons, a phrase that is conjured with in the *Non -Technical Summary* (p.4) of the application. Further, pylons are static whereas turbine blades rotate.

The landscape of the Weston Plateau at this point is elevated but relatively flat with predominately arable fields, few hedgerows and isolated plantations. It is traversed by rights of way with extensive views over the low lying plains towards Bedford in the North West and Cambridge to the North East. The landscape is rare in this area. It is distinctive for giving the visitor a sense of spaciousness and openness to the sky which is a valuable asset especially because of its proximity to the townspeople of Baldock and Letchworth.

The construction of the turbines, wind speed mast, access roads and ancillary buildings is essentially an engineering operation that is inappropriate development in Green Belt. The enormous height of the turbines and their closeness to each other, coupled with the presence of other structures, the movement and speed of the blades and associated noise will result in the whole development being viewed as a single entity. This is harmful to visual amenity and can not be construed as maintaining openness.

The site on the Weston Plateau is indivisibly linked with the surrounding Landscape Character Area known as the Baldock Gap which includes the scarp slopes to the west, north and east of Weston Hills. A development may influence the character of an adjacent character area. Thus, this landscape would also suffer, as well as the area in which the proposal lies. Here, the scarp and ridge defines the edge of the higher chalk land, the end of the Chilterns, and forms a prominent landmark that is highly visible over a wide area arcing from the west, through the north to the east.

The turbines would be positioned immediately above the distinctive scarp slope and towering to twice the height of the slope itself. The undulating slope is typified by dry headed valleys and wooded areas, with some particularly attractive pockets of landscape particularly on the north east slope in the vicinity of Clothall village. The Baldock Gap landscaping is cited as in need of strengthening and reinforcement. The considerable visual quality of this locally important landscape will be significantly reduced rather than strengthened by the proposed development.

The area that features in the proposal has been established as one of landscape value that merits care and enhancement. As such, the landscape would be highly sensitive to the presence of three turbine towers which will not positively enhance the landscape as required by the *NHDC District Plan and PPG 2*, indeed they will have an overbearing effect. The national grid pylons will not mask the turbines to any degree from the west as claimed in the proposal, given that the pylons are of a height of 50-60m and on no more than a 100m contour line compared to the 120m turbines with foundations at 145m. The statement on p.5 of the *Design and Access Statement* seeks to detract from this comparison referring only to 'highly visible' pylons in unspecified locations. There can be no doubt that the turbines would stand out within the setting and the landscape would be unable to absorb the impact of features so out of scale with the host topography.

In the application and in the course of subsequent media interviews, the developer argues that the turbines are intended as temporary structures and that, in 25 years, they will be demolished and the land returned to farming. This case is unsustainable. Twenty-five years cannot be regarded as a 'temporary' period: it is more than a generation and during that time the quality of the landscape will be eroded, as will the quality of life of those living in the immediate neighbourhood. Concrete foundations in excess of 3,000 cu.m. cannot readily be removed, indeed the developer has stated that he has no intention of removing the foundations. These huge blocks of concrete will be there indefinitely. Thus, a green field site will have been changed irrevocably into a brown field site, with a new Landscape Character definition and with the consequent potential for related development. At the Boxworth Public Enquiry (Ref. 2-4) in December 2006 which dismissed an appeal against refusal the Inspector stated:-

".....the appellant acknowledges that the period envisaged is equivalent in human terms to a generation. Although I recognise the 25 year period is the appellant's suggestion, I nevertheless understand that some of the earlier turbines on established wind farms have been replaced by more recent models, and, in the event of the appeal succeeding, I consider this would be a more likely future than the closure of the site at the end of the period."

Further, at the end of 25 years the need for renewable energy is not likely to have reduced. There is ample evidence in the UK of earlier wind farms (of a temporary nature) receiving planning permission for ever bigger replacement turbines.

Much of the west side of the village of Weston lies in a conservation area that would be open to the dominance of the turbines. Restrictions in such an area mean, for example, that it is necessary to apply for planning permission for the erection in a garden of a log cabin greater in size than 11 cu.m. It would seem anomalous to take such care of a conservation area which might then be subjected to three industrial structures of a height of 120m only 1km distant. In this regard, the *Perth and Kinross Supplementary Planning Guidance for Wind Farms* - Guideline 2, p.12, (Ref. 2-5) advises a distance of 20 times the height to blade tip of the turbine structure as a minimum distance of the assemblage from the nearest dwelling. The recommendation is based on consideration of the relative dominance wind turbines would have in the landscape. The three turbines on Weston Hills would be totally dominant, given that the proposed siting is the highest point in a

large area at 145m above sea level, 75m above Letchworth and 70m above Baldock. The Perth and Kinross guidance would place a 120m turbine 2.4km from any houses.

Of particular significance are the statutory requirements of Sections 66(1) and 72(1) of the Planning (Listed Buildings and Conservation Areas) Act 1990. The first requires that special regard shall be paid to the desirability of preserving Listed Buildings or their settings or any other features of special architectural or historic interest which they possess. The second requires that special attention shall be paid to the desirability of preserving or enhancing the character or appearance of Conservation Areas. The latter is extended by PPG15 to include, as a material consideration, the handling of development proposals that are outside Conservation Areas but which would affect the setting or views into or out of the Area.

The proposed wind turbines would be located in an area that is not fully developed. The surrounding landscape is characterised by open countryside with a number of villages, towns, hamlets and individual dwellings within a 5km radius. There are also many Public Rights of Way, bridleways and lanes within the site vicinity. The introduction of tall, moving features would therefore result in a significant change to the landscape and visual amenity for a variety of residential and recreational receptors within the surrounding area. The wind turbines would be out of scale with their landscape setting and unacceptably dominant in the surrounding countryside. They would have an unacceptable impact on the area comprising the setting of nearby Conservation Areas and the views into and out of those Areas.

Although there are several listed buildings in Baldock, the building that will be affected most by the proposed turbines is the substantial Georgian rectory in Clothall. When defining the setting of a listed building the Planning Guidance for the Historic Environment (PPG15) also states that 'A proposed high or bulky building might also affect the setting of a listed building some distance away, or alter views of an historic skyline'. The rectory will be rather closer than 'some distance' from the proposed turbines and certainly the skyline of established antiquity overlooked by its rear elevation will be destroyed.

In the construction of the Baldock bypass approximately 22% of the £32M overall cost was devoted to ameliorating the visual impact of the road. This figure was made up of £5.5M additional costs for the building of the tunnel together with £1.5M spent on landscaping to conceal a view of the bypass from Clothall Common and to soften the impact of the western incline (Ref. 2-6). Is this investment paid for by the County's tax payers to be discarded so soon by mounting turbines in the immediate proximity?

The application is dismissive of the visual impact on surrounding villages and towns. It states that Baldock is concealed by the escarpment. However, much of Baldock (including the hundreds of people who live in Clothall Common) will have a fine view of the wind farm. Letchworth is barely mentioned in the application. The wind turbines will tower 650ft above the town.

At the Public Inquiry at Brent Knoll (Ref. 2-1) (APP/V3310/A/06/2031158) the Inspector concluded that:

"However, private and public interests may coincide where a proposal would have such a severe adverse impact on the outlook of a property that it would make it a significantly less attractive place to live, as perceived by a reasonable observer without strong views for or against the type of development in question. In such a situation protecting the amenities of a dwelling may be a legitimate and material planning consideration."

The key to this is that if a development makes a property a significantly less attractive place to live then this is a planning consideration. It cannot be argued that placing three 120m turbines only 600m and 900m from dwellings doesn't make them significantly less attractive places to live, unless of course the occupant is the beneficiary of the income from the development.

The Brent Knoll judgement also stated:

“The motion of the blades would in my view be persistently intrusive and potentially disturbing seen from the closest dwellings with a view of the proposal.”

As stated above, the introduction of tall, moving features onto Weston Hills would result in a significant change to the landscape and visual amenity

We object to this application on the basis that it would not be in accordance with elements of Planning Policy Statement 22 (PPS 22), Planning Policy Guidance 2 (PPG2) in respect of the Green Belt and would be in direct contravention of Policy 12 of the North Hertfordshire District Plan 2 and Planning Policy Statement 7. The developer has signally failed to demonstrate in any way how the impact of these enormous structures can be mitigated as he is required so to do. In fact they will be overbearing and dominate the landscape for miles around. They will significantly alter the local landscape character for the worse and will seriously impact the setting of nearby Conservation Areas again in contravention of PPG2. The application concentrates on area 222 and ignores the considerable impact on areas 219 (Baldock Gap) and 224 (N Herts Chalk Upland).

References

2-1 The Brent Knoll nr. Burnham-on-Sea Appeal of January 2008 reference (APP/V3310/A/06/2031158).

2-2 The report of the Aston Grange Farm nr. Runcorn Appeal of 5 November 2008 reference APP/LO635/A/07/2047477.

2-3 North Hertfordshire District Local Plan (1996)

2-4 The Report of the Boxworth Enquiry December 2006 reference APP/W0530/A/05/1190473

2-5 Supplementary Planning Guidance for Wind Energy Proposals in Perth and Kinross. http://www.pkc.gov.uk/NR/ronlyres/856EF5E6-B08F-457A-9CEC-DA6F2DFE96ED/0/WindEnergy_SPG_May2005.pdf

2-6 The sums quoted were obtained from Hertfordshire Highways project managers for the A505 Baldock Bypass scheme

3 GREEN BELT

Planning Policy Statement 22 (PPS22) states with respect to Green Belts:-

“When located in the green belt, elements of many renewable energy projects will comprise inappropriate development, which may impact on the openness of the green belt. Careful consideration will therefore need to be given to the visual impact of projects, and developers will need to demonstrate very special circumstances that clearly outweigh any harm by reason of inappropriateness and any other harm if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources”.

Planning Policy Guidance 2 (PPG2) details five purposes for including land in Green Belts

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

Green Belt land is there:-

- 1) to provide opportunities for access to the open countryside for the urban population;
- 2) to provide opportunities for outdoor sport and outdoor recreation near urban areas;
- 3) to retain attractive landscapes, and enhance landscapes, near to where people live
- 4) to improve damaged and derelict land around towns
- 5) to secure nature conservation interest; and
- 6) to retain land in agricultural, forestry and related uses.

There is, in addition, a general presumption against inappropriate development within them. Such development should not be approved, except in very special circumstances. Inappropriate development is, by definition, harmful to the Green Belt. It is for the developer to show why permission should be granted. Very special circumstances to justify inappropriate development will not exist unless the harm by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations.

The visual amenities of the Green Belt should not be injured by proposals for development within or conspicuous from the Green Belt which, although they would not prejudice the purposes of including land in Green Belts, might be visually detrimental by reason of their siting, materials or design.

Green Belt policy has a relatively long history. Its two fundamental aims are recorded in paragraph 1.4 of PPG2 – its permanence and its openness. In order to secure the retention of openness, development within the Green Belts is severely restrained.

The most important attribute of Green Belts is their openness. An accepted definition of openness in this context is a freedom from built development. A visit to the proposed site shows the area to be remarkably open. It is possible to see from horizon to horizon in all directions. There are few trees or other obstacles. It is true that at ground level the presence of three turbine masts will enable farming to continue underneath. However, the main attribute of the Green End plateau is the “big sky”. There is a wonderful feeling of openness there. However, the area of sweep of the turbine blades is over 2 acres. Raise 2 acres into the sky, cause them to rotate and that openness is totally lost.

In Appeal Ref: APP/L0635/A/07/2047477 Aston Grange Farm, Aston, Runcorn,

Cheshire (Ref. 3-1) the inspector stated - *“The space around the structure would become essentially defined by its proximity to the turbine. I believe furthermore that the significance of the effect on openness must be considered to increase in proportion to the number of turbines. Indeed, in circumstances where more than one turbine is to be erected in the form of a group, cluster or farm, the interaction between the individual turbines would act to further diminish openness”*.

Further, the inspector, in justifying his refusal, said *“I have concluded that the turbines would conflict with both of the criteria included in paragraph 3.12 (of PPG2) and that the scheme therefore constitutes inappropriate development. Paragraph 3.2 of PPG2 records that inappropriate development is, by definition, harmful to the Green Belt. It continues that there is a presumption against inappropriate development, and that the Secretary of State will attach substantial weight to the harm to the Green Belt when considering any planning application or appeal concerning such development.*

I consider the main issue in this case is whether the scheme would be inappropriate development in the Green Belt, and if so, whether other considerations would clearly outweigh the harm – together with any harm resulting from any injury to visual amenity – and thus constitute the very special circumstances necessary to justify such development. In this case I have also concluded for the reasons I have given that the visual amenity of the Green Belt would be injured. These amount to substantial hurdles. For the very special circumstances to exist this harm must be clearly outweighed by other considerations”.

The sole special circumstance in the case of the Weston Hills is the production of a very small amount of electricity much of it incapable of being used as it will be generated at night when demand is low and being met from traditional sources. In addition such electricity cannot be used as the permanent load supply.

Placing three 120m high wind turbines not only on Green Belt land but land that is highly visible for many miles around and overlooking the towns of Baldock and Letchworth and the villages of Clothall and Weston must impact on the visual amenity and is in conflict with Planning Policy Guidance 2 (PPG2).

Both PPS22 and local plans clearly indicate that a wind farm of this size will comprise inappropriate development in the Green Belt. Permission for such inappropriate development should only be given if very special circumstances can be shown to outweigh the detrimental impact. No planning controls or obligations can in any way mitigate the negative effect on the Green Belt.

For the very special circumstances described in PPG2 the balance of advantage must be obvious and evident. In this case the inappropriateness of the scheme would be substantially aggravated by the injury to visual amenity – principally as a result of the height of the proposed turbines in this open landscape setting.

Finally, there is no reference to paragraph 6f of the Horner + Maclellan Report (Ref. 3-2) which requires an assessment of whether the proposed turbines would extend the urban/infrastructural character of Letchworth and Baldock and the nearby bypass further into the wider countryside and in this case specifically the Green Belt.

The application has failed to demonstrate a very special circumstance and should be refused.

References

3-1. Runcorn Appeal Decision APP/L0635/A/07/2047477

3-2 Notes on landscape information submitted with Planning Application 06/01843/1, prepared by Caroline Stanton, Horner + Maclennan Landscape Architects on the behalf of Hertfordshire County Council dated 21 November 2006.

4 NOISE IMPACT ASSESSMENT

4.1 SUMMARY

PPS22 states that ETSU-R-97, *The Assessment and Rating of Noise from Wind Farms*, should be used to assess and rate noise from a wind energy development. Accordingly, the developer commissioned a Noise Impact Assessment (Ref. 4-1) which includes calculated noise predictions and measurements of existing background noise. The Noise Impact Assessment has been reproduced in Section 7 of the Environmental Statement submitted by the developer.

In formulating this objection, it was considered to be of little value criticising the noise limits laid down in ETSU-R-97. Nor was it considered worthwhile putting forward an assemblage of the anecdotal information currently circulating on the internet. This objection focuses entirely on technical deficiencies identified in the Noise Impact Assessment for the proposed wind farm at Weston Hills.

In studying the Noise Impact Assessment, it was immediately apparent there are serious shortcomings in the noise predictions and background noise surveys. A detailed review was therefore carried out by a competent engineer.

It has been demonstrated that the predicted noise levels have been severely underestimated and the background noise survey carried out to such a poor standard that the wind farm design is not proven to meet the ETSU-R-97 noise limits. The Noise Impact Assessment, as it stands, is inadequate to support the approval of the proposed wind farm development.

It is hoped that this detailed objection will assist NHDC Planning Services in recommending to the Planning Committee that the application be rejected on the grounds of *inadequate demonstration that the wind farm design is capable of meeting the noise limits defined in ETSU-R-97*.

4.2 BACKGROUND

Noise level predictions and background noise surveys are fundamental in demonstrating to the community, the developer and the planning authority, that the proposed wind farm is capable of meeting the ETSU-R-97 noise limits.

It is important to understand that although guidance is given in ETSU-R-97, and methods for calculating noise propagation are specified in ISO-9613-2 and 9613-1, there are many areas where an acoustic consultant can influence the results of the predicted noise calculations. For example, he must assume appropriate atmospheric conditions, consider appropriate absorption properties of the ground, utilise accurate coordinates for the turbine positions and must ensure microphones are located sensibly to pick up realistic background noise. The final outcome of a Noise Impact Assessment is dependent on many factors which must be given careful consideration to ensure the results are not biased in favour of the development proceeding.

ETSU-R-97, by its own admission, is a compromise that does not offer total protection to wind farm neighbours. It states:-

“This document describes the framework for the measurement of wind farm noise and gives indicative noise levels thought 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 or local authorities.”

It is therefore imperative that the Noise Impact Assessment is carried out in a manner that does not further degrade the degree of protection given to the community. Failure on the part of the acoustic consultant to consider adverse scenarios, or errors made in the analysis, would exacerbate this situation.

The detailed review that lead to this objection on noise has identified areas where worst case conditions have not been addressed within the noise calculations. The effects have been quantified. To support these claims, reference is made to examples of ‘best practice’ in other wind farm Noise Impact Assessments carried out recently in the UK.

The critical review of the noise levels predictions has been carried out using a computer model tailored to facilitate sensitivity analyses. The model utilises the noise propagation algorithms contained in ISO9613-2 and ISO9613-1 as directed by ETSU-R-97.

The review of the background noise survey involved a close examination of the microphone positioning at the two properties surveyed, a critical inspection of the data obtained and a review of the final analysis. In view of the fundamental deficiencies identified, it was not considered worthwhile to request the source data for scrutiny.

4.3 NOISE LEVEL PREDICTIONS

4.3.1 Atmospheric Absorption

The developer's noise impact assessment fails to consider adverse atmospheric conditions for the calculation of atmospheric attenuation. The report states that the temperature and relative humidity assumed were 20 deg C and 70% respectively. However, the results of the independent sensitivity analysis, shown in Figure 4-1, modelled specifically for the proposed wind farm, demonstrates that when the temperature is 6 deg C and the relative humidity is 90% the noise level at Property 2 would be 0.75dB greater than the value predicted by the developer. (These alternative atmospheric conditions do not represent the absolute worst case, more a typical adverse scenario). This error contributes 0.75dB to the total underestimation of noise predicted for House 2.

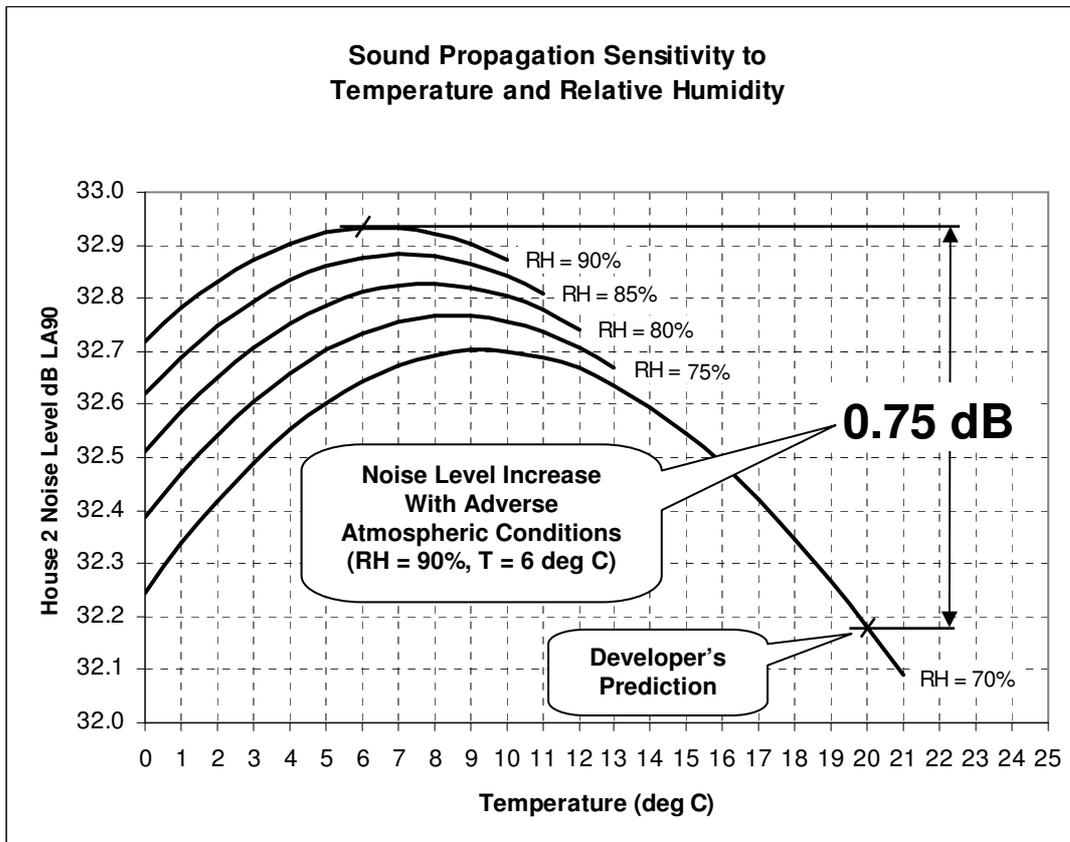


Figure 4-1 Sensitivity analysis – Atmospheric Absorption (House 2)

4.3.2 Ground Effect

The developer's noise impact assessment fails to consider worse case ground effect. The report states that noise attenuation due to ground effect was predicted using a Ground Factor of 0.7 to cater for flat farmland. However, a worse case Ground factor of 0 should be used to cater for hard (reflective) ground surfaces near to the noise receiver. Hard reflective surfaces could typically be patios, paths, roads and waterlogged or frozen ground. Hard reflective ground surfaces result in reduced or negative attenuation when calculated using ISO 9613-2 algorithms. The results of the independent sensitivity analysis, shown in Figure 4-2 conducted specifically for the proposed wind farm, shows that when a Ground Factor of 0 is assumed for the receiver location, the noise level at

Property 2 would be 4.42dB greater than predicted by the developer. This error therefore contributes 4.42dB to the total underestimation of noise predicted for House 2.

To support this objection, reference is made to a Noise Impact Assessment carried out by the leading UK acoustic consultancy, Hayes McKenzie Partnership where a Ground Factor of 0 was used as worst case (Ref. 4-2).

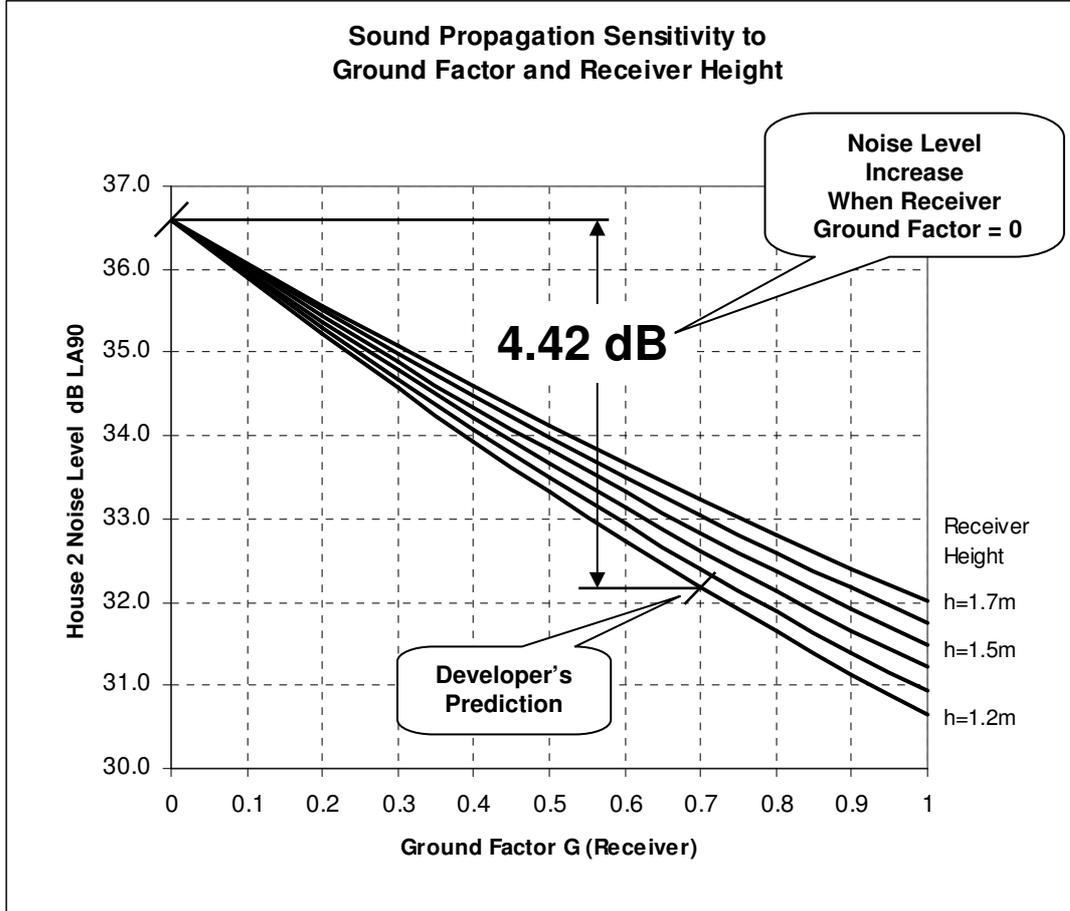


Figure 4-2 Sensitivity Analysis – Ground Factor at Receiver (House 2)

4.3.3 LAEQ to LA90 Conversion

The developer's predicted noise levels are given in terms of $L_{A90,10\min}^1$, to provide compatibility with the background noise survey results. Since the predicted noise levels would have initially been calculated in terms of L_{AEQ} , it would have been necessary to make a conversion to the $L_{A90,10\min}$ descriptor. Indeed, this is discussed in ETSU-R-97 which states "the $L_{A90,10\min}$ of the wind farm is likely to be about 1.5 to 2.5 db(A) less than the L_{AEQ} measured over the same period". ETSU-R-97 does not give a precise value for the adjustment, but instead provides a likely range. In order to protect the local community it would be prudent to consider the worst case scenario and apply the smallest reduction of 1.5dB from the suggested range. However, the developer has applied a reduction of 2.0dB resulting in a noise prediction 0.5dB lower than if the more conservative value had been used.

¹ $L_{A90,10\min}$ is a descriptor used when measuring background noise to eliminate short duration unrepresentative noise. It is the noise level exceeded for 90% of the time over a 10 minute period.

Clearly, with imprecise guidance given in ETSU-R-97, it is to be expected that there will be variability between acousticians in the values used. Typically the reductions applied are either 1.5dB or 2dB. Evidence of best practice suggests the value of 1.5dB should be used and to support this objection, reference is made to a Noise Impact Assessment carried out by Entec (Ref. 4-3).

By not adhering to best practice, it is concluded a contribution of 0.5 dB is made to the total underestimation of noise predicted for House 2.

4.3.4 Vestas Warranted Noise Level Accuracy (+/- 2dB)

The noise emitted from each wind turbine at source provides the starting point in any wind farm noise propagation calculation. Turbine noise emission levels are measured during the turbine's design and certification phase and are then used by acoustic consultants to predict noise levels around individual wind farms. Like any measurement made in a scientific environment, some degree of inaccuracy will exist. It is normal practice for a manufacturer to warrant accuracy levels applicable to a product's performance within the 'product specification'. Indeed, within the Vestas V80 specification 944406.13 (Ref. 4-4) the turbine sound power level at source has an accuracy of +/- 2dB(A), as indicated in the extract shown in Figure 4-3.

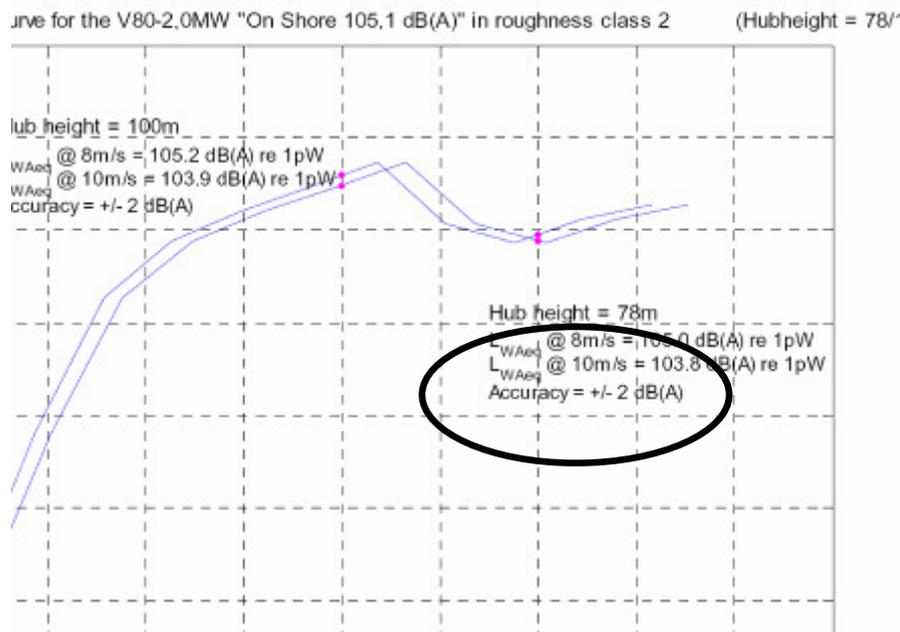


Figure 4-3 Extract from Vestas V80 Specification Showing Quoted Accuracy of Warranted Noise Output

It is 'good practice' in any scientific analysis to consider accuracy levels in order to establish the best and worst possible outcomes. The Noise Impact Assessment must be conducted in a way that provides the community, the developer and the approving authority with confidence that the wind farm design is actually capable of meeting the noise limits set out in ETSU-R-97. The worst case inaccuracy must therefore be assumed.

Since the developer has not followed best practice and taken account of the published accuracy of the turbine sound power levels, it is concluded this will contribute 2.0 dB to the total underestimation of noise predicted for House 2.

To support this objection, reference is made to a Noise Impact Assessment (also for the Vestas V80 turbine), carried out by the UK's leading acoustic consultancy, Hayes McKenzie Partnership (Ref. 4-2). It states:- *The levels are warranted by the manufacturer to be within +/- 2 dB. Accordingly, in order to assume a worst case scenario, 2db has been added to each of these levels in carrying out predictions of noise effect.*

4.3.5 Cumulative Error in Noise Predictions

Table 4-1 provides a summary of the individual errors in the noise predictions resulting from failure to consider worst case conditions. The total error at House 2 is 7.67 dB(A). (An increase of 7.7dB(A) would be perceived by the human ear to be an approximate doubling of the sound).

Table 4-1 Cumulative Effect of Errors in Noise Prediction (House 2)

Contribution	Error
Atmospheric Absorption	0.75 dB
Ground Effect	4.42 dB
L _{AEQ} to L _{A90} Conversion	0.50 dB
Warranted Accuracy (+/- 2 db)	2.00 dB
Total	7.67 dB

The acoustic consultants predicted noise level at House 2 is 32.1 db (9m/s wind). When the total error above is taken into account, the predicted noise level rises to 39.8 dB(A).

(Equivalent values for House 1 have not been determined, although they are likely to be very similar to the values for House 2.)

4.4 BACKGROUND NOISE SURVEYS

4.4.1 Introduction

A background noise survey was carried out at the two closest properties as part of the Noise Impact Assessment. The objective of the surveys was to allow a comparison between background noise and predicted turbine noise at the chosen locations. Sources of background noise in the locality of Weston would include wind generated noise in trees, hedges and grass, distant road traffic and agricultural machinery. Some short term noise would also occur from passing aircraft and road vehicles, but in theory these would be eliminated by the use of the $L_{A90,10min}$ descriptor.

The precise location at which background noise surveys were made was not agreed in consultation with the local authority as required by ETSU-R-97. It is understood that NHDC Planning Services have no record of such consultation.

4.4.2 Microphone Positions at House 2

The accuracy of a background noise survey depends on careful positioning of each microphone. The microphone needs to be located as close as possible to the subject property in order to pick up realistic background noises and sound levels. (However, to avoid sound reflection from the building it should ideally be positioned more than 10m away.) ETSU-R-97 gives clear guidance on microphone positioning.

The Noise Impact Assessment provides details of the microphone positions at House 2 and includes a photograph as evidence. This photograph is reproduced in Figure 4-4.

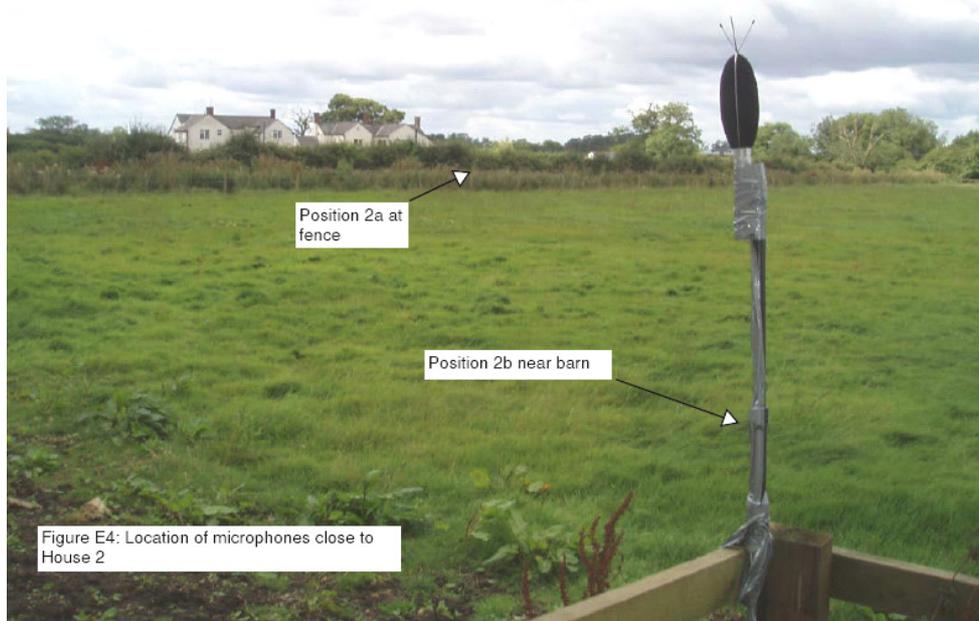


Figure 4-4 Developer's Photograph Showing Microphone Positions at House 2

At 'House 2' there was ample scope for the developer to position the microphone close to the property, either in the rear garden or the adjacent field. Surprisingly, the microphone was initially located at position '2a', a distance of approximately 80m from 'House 2'. It was then moved to a second position, '2b', approximately 150m from the property to, as the report describes, 'assess the effect of insect noise in nearby long grass on

background measurements during the day'. Measurement of insect noises was a blatant attempt to artificially increase the sound levels and distort the background noise survey in favour of the development.

Figure 4-5 shows the position of the microphones marked on an aerial photograph, which clearly demonstrates that there was no attempt to locate them near to House 2

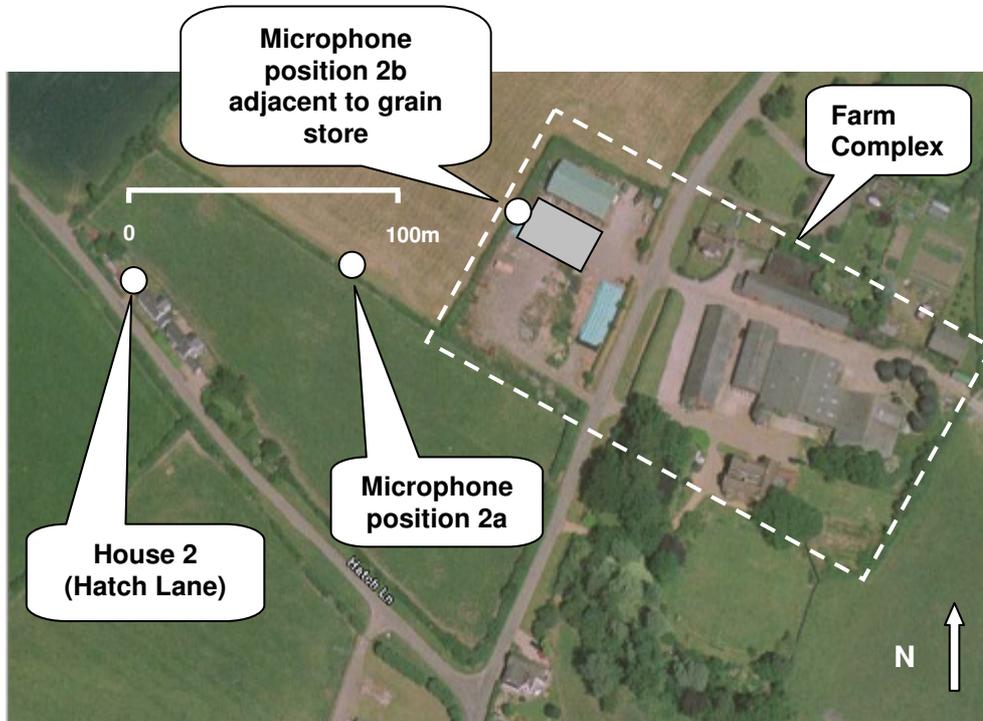


Figure 4-5 Aerial View Showing Microphone Positions at House 2

Both microphone positions were located near to the developer's farm complex at Darnall's Hall. This means that extraneous noises from farm machinery would have been recorded and if these were not short duration they may have been included within the $L_{A90,10min}$ background readings. This alone is enough to cast serious doubt over the validity of the background noise readings at House 2.

However, to make matters worse, microphone 2b was located directly beneath an air outlet on a grain store as shown in Figure 4-6. This outlet is associated with the grain store environmental conditioning system. The background noise survey was conducted at harvest time during August 2007. It is understood that grain store heating or cooling systems are often operated immediately after harvest to lower the moisture content of the grain. Consequently, it is highly likely that the background noise measurements at House 2 have been contaminated by noise from the grain store operation. Video and sound evidence has been obtained demonstrating the significant noise emitted from the outlet when in operation.

It is difficult to comprehend why straightforward noise measurements were not taken near to House 2. This could easily raise doubts about the honesty of the whole Noise Impact Assessment.

The positions of the microphones at locations 2a and 2b were totally inappropriate, rendering the background noise survey at House 2 invalid.



Figure 4-6 Microphone Position 2b Adjacent to Grain store

4.4.3 Microphone Position at House 1

The Noise Impact Assessment describes the microphone position at House 1 and provides a photograph as evidence, shown reproduced in Figure 4-7.



Figure 4-7 Developer's Photograph - Microphone Position at House 1

This microphone was positioned slightly to the west of House 1 within the grounds of the water reservoir and in direct line of site to the A1(M) motorway, approximately 0.8km away. The background noise from the A1 at this location is significant and 'continuous', particularly during the busy periods and would almost certainly have dominated the recorded sound levels. As shown in the photograph, House 1 is shielded to some extent from the A1 noise by the fence and tall hedge, which would act as a sound barrier. The house itself acts as a sound barrier to much of the garden. The background noise within the garden of House 1 would be at a much lower level than measured by the microphone in the grounds of the reservoir. The microphone should have been positioned on the opposite side of the fence and house within the garden of House 1.

The background noise survey at House 1 is therefore inaccurate and must be considered invalid.

4.4.4 Timing of the Noise Surveys (Seasonal Effects)

ETSU-R-97 discusses ways of preventing noise survey data being weighted by unrepresentative conditions including seasonal effects.

The background noise surveys were carried out between 4th and 20th of August 2007. This would have been harvest time for the cereal crops growing at the local farms. Houses 1 and 2 are both in close proximity to extensive arable farmland and would have been subjected to fairly continuous noise from combine harvesters and tractors during the day and night. Even a very distant combine harvester is noticeably audible. Due to its continuous nature, this type of agricultural noise would not be eliminated automatically by use of the $L_{A90,10min}$ descriptor and therefore will have raised the average levels of the survey.

The background noise surveys at Houses 1 and 2 are therefore inaccurate and must be considered invalid.

4.4.5 Data Reduction

The data points plotted by the acoustic consultant for the background noise survey at House 2 (Quiet Daytime Period) are shown in Figure 4-8 .

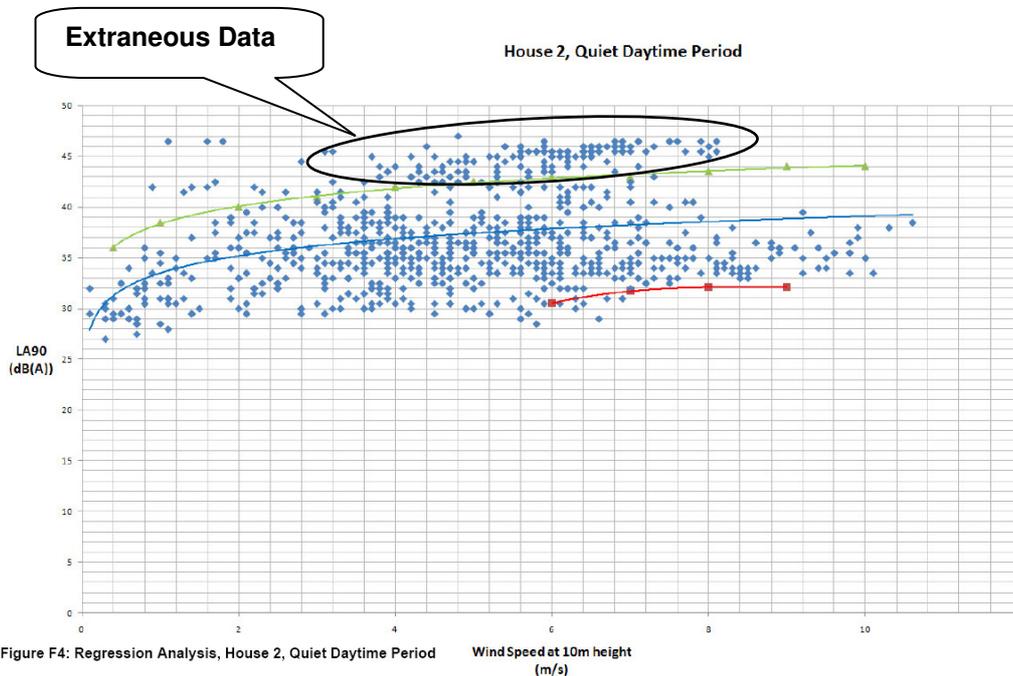


Figure 4-8 Developer’s Daytime Background Noise Plot for House 2 (Annotated)

An area of extraneous data with particularly high noise level, in the region of 45 dB, is shown highlighted. There is no explanation given in the Noise Impact Assessment as to the source of this extraneous data. This data is too distinct from main data to be ignored. It is possible this could be atypical noise resulting from the operation of farm machinery nearby, operation of the grain store adjacent to microphone 2b or the noise from rainfall hitting the ground, grain store or microphone.

ETSU-R-97 highlights the need to discard unrepresentative data. Unless this suspicious data can be fully explained and proven to be representative background noise at House 2, it should be removed.

By removal of the extraneous data, the curve of best fit (based on the method of least squares) is likely to be lowered by a significant amount, perhaps as much as 5 dB. This would clearly result in there being insufficient margin above the predicted noise level at House 2 to meet the noise limits specified in ETSU-R-97.

It is highly likely that if the background noise survey had been carried out correctly and the noise predictions carried out using best practice, the ETSU-R-97 noise limits would be exceeded at House 2.

4.4.6 Extent of Background Noise Surveys

Background noise surveys were carried out at only two locations. These were the two closest properties to the wind farm. It does not follow that the closest properties are necessarily the most noise sensitive. This is explained below.

By way of example, a property located in a valley might be shielded from the wind and therefore have a low level of wind created background noise. It might also be shielded from distant motorway noise. However it could still have direct line of sight to the wind farm and receive the full extent of noise. The fact that it is slightly further away from the wind farm than the nearest properties is therefore irrelevant and the noise impact should be fully explored.

One such area of Weston is Hitchin Road. The properties near to the village gates are in a shallow valley but have direct line of sight to the wind turbines. The distance to the nearest turbine is 955m compared with 760m for House 2 in Hatch Lane. The predicted noise level for the Hitchin Road location is only 2.4 dB less than for House 2. However the background noise in Hitchin Road could be 5dB(A) lower than the background noise at House 2. The houses in Hitchin Road could therefore suffer a greater noise impact.

There are undoubtedly other areas of Weston that could be regarded as special cases requiring a background noise survey.

ETSU-R-97 states that the developer should agree the locations of the properties at which background noise surveys should be made with the local authority. It is understood that NHDC Planning Services have no record of any such consultation taking place.

It is concluded that insufficient properties have undergone background noise surveys to demonstrate that the ETSU-R-97 noise limits can be met throughout the community of Weston and Clothall. Surveys should be carried out at further noise sensitive properties. These should be identified by careful consideration of the factors affecting background noise including terrain, wind direction and possible barriers restricting noise from the A1M. The locations must be agreed by the local authority.

4.5 FURTHER CONCERNS AND DISCREPANCIES

1. The Ordnance Survey grid coordinates for the wind turbines are not quoted in the Noise Impact Assessment. This prevents verification that the predicted noise levels are based on the turbine coordinates given in the application. The turbine positions are known to have been altered several times during the process of finalising the application. Consequently, the latest positions may not have been fed back into the noise calculations.
2. The Ordnance Survey grid coordinates are not quoted for Houses 1 and 2. This prevents verification that the correct coordinates have been used in the noise prediction calculations.
3. The turbine positions shown on the noise contour maps disagree with the grid coordinates provided in the application. (It is suspected that the noise plots conform to earlier positions of the turbines.)
4. Predicted noise levels for Houses 1 and 2, when extracted from the contour maps, do not agree with the values tabulated in Table 2 at section 7.3.2 of the Noise Impact Assessment.
5. In the original copy of the Noise Impact Assessment, as opposed to the version reproduced in the Environmental Statement, the 1000m scale within the legend for the noise contour plots is 4% smaller than the 1000m grid lines shown on the corresponding Ordnance Survey map. This suggests that the noise contour plots have been overlaid on the map inaccurately. The noise contours should therefore extend outwards by 4%. This could explain the previous comment. (It should be noted that

the contour plots reproduced in the Environmental Statement are completely out of scale compared with the legend.)

6. The spacing between the turbines is considerably less than the 400m minimum distance recommended by Vestas in their specification 944406.13 (Ref. 4-4). The recommended spacing is necessary to avoid wake turbulence effects. The actual spacing of the three turbines is 312m, 314m and 342m. Vestas has confirmed this will have an effect on noise. (Ref. 4-5)

4.6 CONCLUSION

We object on the basis that the Noise Impact Assessment, as it stands, is inadequate to support the approval of the proposed wind farm development. A detailed review has demonstrated that the predicted noise levels have been severely underestimated and the background noise survey carried out to such a poor standard that the wind farm design is not proven to meet the ETSU-R-97 noise limits.

Further, we believe that it would be totally unacceptable to compensate for the inadequate Noise Impact Assessment by imposing and relying upon Planning Conditions to control potential noise issues. Measurement of wind turbine noise when a wind farm is up and running is expensive, time consuming and known to be fraught with problems. It is therefore imperative that the development is shown to be capable of meeting the ETSU-R-97 noise limits via a robust and accurate Noise Impact Assessment before it is allowed to proceed.

The noise levels predicted at the two closest properties have been underestimated by at least 7.7dB(A) by failing to consider adverse conditions. An increase of 7.7dB(A) would be perceived by the human ear as an approximate doubling of the sound.

The background noise measurements are invalid because the microphones have been located where background noise would be significantly higher than at the properties being surveyed. Two background noise surveys are insufficient to demonstrate that the whole of Weston and Clothall are protected by the ETSU-R-97 noise limits. The properties selected for the surveys and the position of microphones was not agreed with the local authority as required by ETSU-R-97. This objection is fully supported by mathematical analyses, photographs, and references to evidence of good practice used in other UK wind farm noise impact assessments.

References

- 4-1 Spectrum Acoustic Consultants, (2007) *Noise Impact Assessment Proposed Weston Barns Wind Turbine Development*, October.
- 4-2 Hayes McKenzie Partnership, (2004) *Proposed Wind Farm at Largie Estate, Argyll and Bute Environmental Impact Assessment – Noise*, April, pp. 14 -16
- 4-3 ENTEC, (2008) *Noise Impact Assessment for Proposed Wind Farm, Blackstone Edge*, January, pp. 51-52
- 4-4 Vestas Technology Dept, (2005) *Item No 944406.13 Vestas V80-2.0MW Optispeed Wind Turbine*, December, p.5
- 4-5 Donker, R (2008) Re: Information from Vestas Celtic on V80 Wind Turbine Spacing, e-mail, 24 Nov. (Available on request to Weston Wind Farm Working Group)

5 AVIATION

5.1 GRAVELEY AIRFIELD

Graveley airfield is situated 7 nautical miles north east of Luton Airport at 330 feet Above Sea Level (ASL) and has approximately 1500 aircraft movements per annum. The airfield is inside Luton Control Zone (CTR) and therefore has to operate under a letter of agreement between the airfield operator and National Air Traffic Services (NATS). This agreement requires aircraft approaching or departing from Graveley to remain below 1000 ft ASL and mandates that exit/entry of the zone is to the north as depicted by the green lines in Figure 5-1.

The proposed wind turbines are situated 2 miles to the North of the airfield, some 200 metres to the East of the approach/departure path. The base of the turbines will be at 465 feet ASL, with the blades reaching 865 feet ASL.

A normal 3 degree descent to the airfield places aeroplanes at a height of only 550 feet above the strip's ground level (or 880 ASL) creating a clear hazard.

A similar hazard exists on take off where heavily laden or low-powered aeroplanes climb out of the Graveley valley. Airworthiness requirements demand a minimum climb rate of 300 feet per minute. This climb rate places aeroplanes taking off to the north only 450 feet above airfield level, or 780 ft ASL when adjacent to the proposed turbines.

The above means that aircraft approaching or leaving Graveley airfield would have to pass extremely close to the proposed turbines and would not be able to safely pass above them.

Aircraft approaching or departing to/from Graveley airfield need to overfly the proposed site in order to avoid overflying the built-up areas of Baldock, Letchworth and Weston. This is to maintain safety and the requirement to remain clear of built up areas for reasons of noise. This also applies to other aeroplanes entering and leaving the north east corner of the Luton Control Zone, such as those operating out of Hitchin (Rush Green).

The nature of the development would constitute a "congested zone" under rule 5 of the Air Navigation Order and therefore pilots would need to avoid the site by 1000 feet vertically and 600m horizontally as depicted by the orange line in Figure 5-1. This effectively closes off the existing mandated flight path for Graveley airfield.

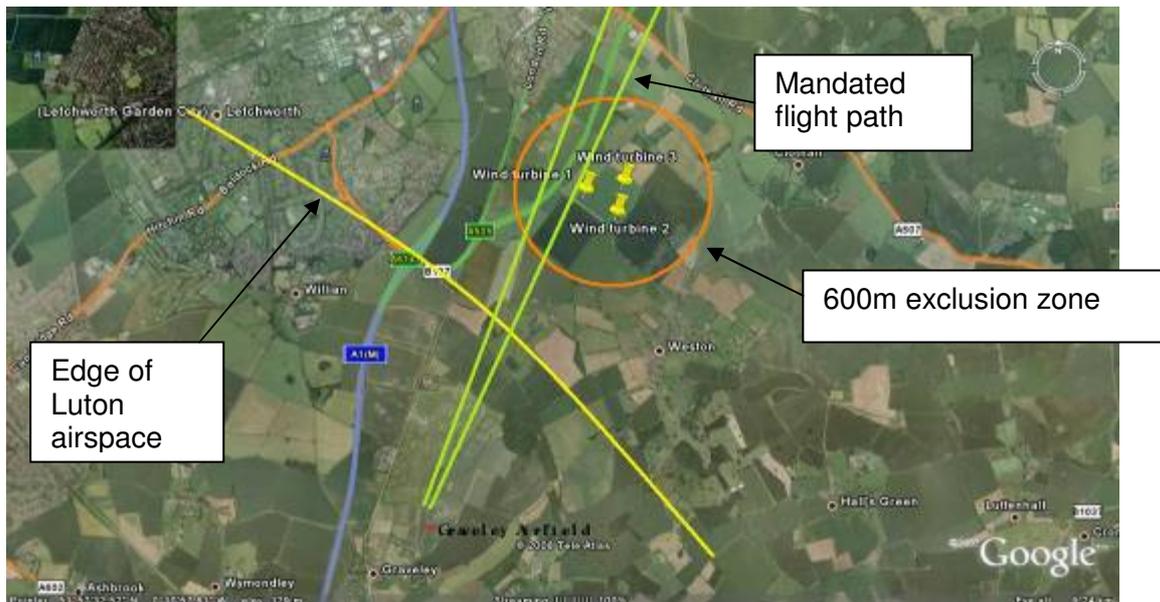


Figure 5-1 Mandated Flight Path in Relation to Wind Farm Exclusion Zone

5.2 TURBULENCE

Wind turbines consist of aerofoil shaped blades arranged in a vertical plane. The effect of removing energy from wind passing through the blades is to reduce the wind speed behind the turbine. This along with tip losses creates vortices or wake turbulence. Wake turbulence is well understood for aircraft, it has been documented that there have been serious and fatal accidents in the UK to light aircraft because pilots were unable to maintain control after being caught in the wake vortex generated by heavier aircraft. The Civil Aviation Authority have published a “Safety Sense” leaflet providing information for pilots concerning the dangers of wake turbulence and how to avoid it:

http://www.caa.co.uk/docs/33/SRG_GAD_WEBSSL15.PDF

The following text is extracted directly from the above leaflet:

“The heavier the aircraft and the slower it is flying, the stronger the vortex. Among other factors, the size of the vortex is proportional to the span of the aircraft which generates it, for instance a Boeing 747, with a span of 65 metres trails a vortex from both wingtips each with a diameter of around 65 metres.”

The proposed wind turbines have a blade diameter of 80 metres – greater than the above mentioned Boeing 747. It can therefore be safely assumed that they will generate vortices of comparable magnitude.

A further CAA publication – “Aeronautical Information Circular (AIC) 17/ 1999 (Pink 188) Wake Turbulence”:

http://www.nats-uk.ead-it.com/aip/current/aic/pink/EG_Circ_1999_P_017_en.pdf

This details the minimum spacing between aircraft in order to avoid problems of wake turbulence. From this document it can be seen that the combination of “heavy” to “light” results in a requirement for a spacing of 6 to 8 nautical miles.

The type of aircraft operating into and out of Graveley airfield are significantly lighter than the 7000/17000 kg ceilings defined in the above document – many being sub-500kg, the effects of turbulence therefore being exacerbated.

Any aircraft attempting to fly into or out of Graveley airfield would therefore have to give the proposed wind turbines a very large berth in order to have any confidence of not encountering dangerous turbulence. The juxtaposition of built up areas, restricted airspace and the proposed turbines would result in aircraft having to make dangerous manoeuvres at low altitude.

5.3 AIR SPACE

The proposed development site is on the Western edge of a North-South corridor in the form of a “tunnel” of unrestricted airspace between the Luton and Stansted CTRs which extends from ground level upwards. At 2500 feet ASL above the site is the Luton Control Area (CTA) which extends East to join with the Stansted CTR. This corridor is in an area where the land rises to approximately 500 feet ASL and therefore has an effective height of some 2000 feet. Aircraft in transit are normally required to fly at least 500 feet above ground level – and as mentioned above not within 1000 feet vertically and 600m horizontally of a “congested area”.

Due to the risk of incursion into the Luton CTA due either to an inadvertent climb or errors in altimeter pressure setting, pilots tend not to fly at the vertical limit of airspace – i.e. the maximum height ASL normally flown below a 2500 foot ceiling would normally be 2000 feet. As can be seen, with a maximum limit of 2000 feet ASL flown, the turbines extending to 870 feet ASL and the requirement to avoid them vertically by 1000 feet, it is impractical to fly above them. This therefore effectively closes a part of this corridor.

Any aircraft arriving from or departing towards the West or North-West tends to follow the edge of the restricted airspace when flying through this corridor in order to follow the most direct line of flight. As a result, the proposed site is in a particularly congested part of this corridor due to its location.

We object on the basis that the effect of the siting of the proposed wind turbines close to the only available approach/departure path to Graveley airfield would effectively prevent the safe use of the site. This would be a major loss of amenity for pilots.

In addition, it is of considerable concern that the narrowing of the busy corridor of airspace between Luton and Stansted will further funnel aircraft together, increasing the possibility of mid-air collisions or indeed collisions with the turbines themselves.

6 TELEVISION RECEPTION

There are number of cases in the UK of wind farms affecting TV reception.

The Hertfordshire Renewable Energy Study states:- *“Wind turbines can affect electromagnetic signals, as used by analogue television broadcasting and radio communications. Many options for fixing potential television reception problems are available. Fixed communication links require a line of sight path between the transmitter and receiver. To avoid affecting such links, a wind farm can be designed so that turbines are placed away from the line of sight paths.”*

The proposed wind farm would lie exactly in a direct line between Weston and the Sandy Heath transmitter. It is almost inevitable that TV Reception in Weston will be affected. As the wind farm site is so small there is no scope to relocate the turbines and any future additional turbines would only serve to exacerbate the problem.

The developer acknowledges that there may well be interference but that it is “manageable” and that they are totally committed to the avoidance of television signal difficulties caused by the wind farm.

Several thousand homes may be affected, according to the BBC Engineering tool <http://windfarms.kw.bbc.co.uk> . Reception up to 5km from a wind farm may be affected. As there are some 350 homes in Weston meaning that reception difficulties are likely to be encountered much further afield most notably Baldock and Letchworth. Note also that the number stated does not include those that will be affected but could retune to a different transmitter. The total number of homes likely to be affected could run to many thousands. This is yet another reason why this location is unsuitable – See Section 1.

The developer states that there is the option to view a different transmitter (Crystal Palace). However, this would mean the loss of local content broadcasting. In some areas there are already reception problems with Crystal Palace. Digital reception of Channel 5 from Crystal Palace is often poor. Further, changing to Crystal Palace will require a change of aerial type and orientation. The transmission characteristics of the two transmitters are different. There is no certainty that re-tuning to a different transmitter would solve the problem, indeed the Crystal Palace transmitter is at greater distance but of similar power to the Sandy Heath transmitter, hence with lower theoretical signal strength in the effected area.

It will not be possible to make the necessary changes within an acceptable period of time. There are a finite number of aerial fitters in this area. By the time any problem is discovered the conversion date from analogue to digital will be approaching and aerial fitters are likely to be fully occupied and have large backlogs of work. In addition they are already busy installing Freesat for HD viewing. Viewers could find themselves for a long period of time without acceptable reception.

The developer mentions the erection of repeater stations as a possible solution. This could take years to achieve as one or more suitable locations will need to be identified taking into account the effects of terrain on signal propagation properties. Land will have to be identified and planning permission obtained. Once operational, the type and orientation of every single aerial in the area which will use the repeaters will have to be changed as the signal from repeater stations is polarised at 90 degrees to signals from main transmitters to avoid interference. Main transmitter aerials will not receive repeater station signals. All affected receiver appliances will have to be retuned.

A further critical issue is beginning to become apparent. In questions raised by a Member of the House of Commons on behalf of his constituents it emerged that for digital Freeview signals, due to frequency spectrum limitations not all repeater stations may be capable of transmitting the full range of free-to-air (including HD) programmes. The developer must be required to investigate this issue, and if this proves to be the case in this instance the use of repeaters as a possible solution must be withdrawn from the application and other means established.

Clearly it would not be cost effective either for the developer, or any other body, to put additional repeater stations or other measures in place to meet the needs of analogue TV transmissions, when further changes would need to be implemented after the change to Digital TV planned in this region for 2012. Therefore it would seem sensible to require the erection of any turbine structures to be delayed until after that date when full power DTV signals are available from the main regional transmitter and local repeaters. It would not be acceptable for there to be even a short period of say a couple of years where analogue signals are degraded by the wind farm.

It is essential that any planning consent safeguards the interests of television viewers as was the case with Royd Moor and Yorkshire Water where the local authority had the foresight to include conditions in the consent. The developer must be legally committed to this and strict timescales for resolution imposed and sanctions detailed. Also, there must be a process whereby there is an independent assessment as to whether reception has been materially affected to avoid protracted arguments.

Whilst the issue of television reception may be soluble this is not a minor or short term issue. The Companion Guide to Planning Policy Statement 22 (PPS22) states that any likely TV Reception difficulties are predictable. Apart from consulting the BBC Website tool the developer appears not to have consulted any specialist in this field.

Peter Mandy, Senior Associate Technical Advisor at OFCOM has advised us as follows:-

"If the (BBC) tool identifies the possibility of problems, or if there is any other reason to believe TV reception may be affected, the developer would need to engage a private consultant to carry out a more detailed analysis or survey work. The planning authority would then need to satisfy themselves that all environmental impacts, including TV reception, have been considered."

The BBC Factsheet "The Impact of Large Buildings and Structures (Including Wind-Farms) on Terrestrial Television Reception"

(http://www.bbc.co.uk/reception/info/pdf/buildings_factsheet.pdf) states:

"If there is potential for interference to television reception (predicted or measured) then local authorities will usually expect wind farm developers to take remedial action. This will typically require an on-site survey to determine appropriate remedial measures".

The consultation process for potential wind farm impacts on television is well-established but because of the split responsibilities between the BBC, two parts of Ofcom, Crown Castle and NTL, it lacks integration. Ofcom licenses most fixed radio links in the UK and this covers some of the television transmission network. However they are not responsible for UHF rebroadcast links (RBLs or repeater stations). It is therefore necessary to consult all four television bodies plus the fixed link department of Ofcom to obtain an assessment of the likely impact of a wind farm proposal on television. There is also uncertainty derived from differences in policy on the response to consultations. Some of the television consultee organisations will provide preliminary pre-planning

assessments which enable developers to assess project risk at an early stage. Others provide no response until after a planning application is submitted.

It is not true to say that digital reception will not be affected although digital reception is more robust than analogue. The above-mentioned BBC Factsheet (page 1 Introduction) clearly states that both analogue and digital reception can be affected. The problem with digital reception is that if the signal is degraded sufficiently then the receiver cannot decode and therefore there will be no reception at all.

According to Planning Policy Guidance 8 (PPG8) "...a practical remedy may not always be possible. In this case, where broadcast transmitters are involved, there should be full consultation with the broadcasting authorities before such a course is adopted". No such consultation has taken place.

In addition the possibility of any detrimental effect on DAB, FM and other local radio broadcasting services is uncertain and this issue is not addressed by the developer.

It could take a great deal of time to resolve all problems even if the developer fully cooperates. There will be no easy fix.

We object on the basis that the application lacks detail in respect of TV Interference and no specialist in the field has been consulted as the expectation of the likes of OFCOM and the BBC.

The term "manageable" used by the developer is unacceptable as it is not quantifiable. Nor has any cost or liability assessment been carried out. If a specialist in the field confirms that reception difficulties are likely then the application should be refused until such time as the necessary repeater stations or other remedial measures are in place.

It is quite unacceptable that communities will suffer poor or no reception for what is likely to be a long period of time. Nor is it acceptable to expect viewers to retune to another transmitter thereby losing local content broadcasting.

7 ECOLOGY (BATS)

7.1 INTRODUCTION

All bat species and their roosts are legally protected in the UK. Protection is afforded under both EU and UK law (Refs. 7-1, 7-2 & 7-3). The developer's Environmental Statement acknowledges this protection (section 8.3.3.2. d) and states 'Bats themselves may be impacted by turbines located next to bat roosts or along commuting routes. A full assessment of the use of the site by bats, including assessment of flight lines is required to determine the potential impact to bats.' This is a requirement under Bat Mitigation Guidelines, English Nature (Ref. 7-4).

Planning authorities are also required to take account of the presence of protected species, including bats, when considering applications for planning permission. Details are provided in ODPM Circular 06/2005 (Ref. 7-5) which compliments Planning Policy Statement 9 (PPS9) (Ref. 7-6). Under PPS9, planning decisions should aim to maintain, and enhance, restore or add to biodiversity and geological conservation interests and they should also prevent harm to biodiversity and geological conservation interests. Under this legislation planning authorities may refuse applications on the grounds of adverse effects on these species, or if an assessment of the impact of the development on protected species is inadequate.

This report provides detailed objections to the proposed wind turbine development on the following grounds:

- The Bat Survey information provided by the developer in this application is sparse and incomplete. This represents a 'poor data situation' (as defined by English Nature, Ref. 7-4) and because this survey does not provide an adequate assessment of the effects of the development on the bat population, the application should be refused.
- Turbine 1 is located less than 50m from an identified bat commuting hedge. Location at the proposed grid reference is not consistent with recognised guidelines (Ref. 7-7) and could have an adverse effect on bats commuting and feeding along the hedge.
- The impact of the newly constructed Baldock bypass (to the North West of the proposed site) on the local bat population has not yet been determined. It is too soon to embark upon another major development which may have a further detrimental effect on the local bat population.
- There is mounting evidence that bats suffer barotrauma (a condition where the lungs are fatally damaged when they come too close to low atmospheric pressure areas which occur near rotating turbine blades). Until this phenomenon is better understood, wind turbines should not be located near bat populations.

It is understood that Natural England (as a statutory consultee) has not raised any objections to the proposed development with respect to bats. If this is indeed the case, then it would appear that they are not adhering to their own guidance, as will be demonstrated in this report. As a result NHDC are requested to consult them further.

7.2 BAT SURVEY SCHEDULE AND MISSING DATA

The Bat Survey data provided from the four surveys carried out in April, May, August and September 2007 are sparse and incomplete and are not in accordance with recognised guidance on survey standards. An inadequate survey schedule in terms of survey timing and provision of incomplete results, coupled with what may be unrepresentative results due to low temperatures on the evenings of three of the surveys has resulted in an inadequate assessment of the effects of the development. Consequently, the bat population could be at risk of harm and in accordance with PPS9 the application should be refused. Full data (not just a tabulated summary of results) must be provided over a complete 'active season' in accordance with recognised guidelines before an informed decision can be taken. Despite repeated verbal and written requests made to the developer's agent for a copy of the full ecology report prepared by Scott Wilson, only a brief summary has been made available.

7.2.1 Detailed Evidence

Methodology

Table 2 (section 8) of the Environmental Statement recommends 'to undertake a bat activity survey within the site to determine commuting routes and roosts to a methodology agreed by English Nature.' However there is no evidence that the survey methodology has been agreed by any statutory consultees.

Bats use different roosts and follow different feeding patterns depending upon the time of year, temperature and the availability of insects, so provision of data throughout the active period (April – October) is necessary to provide a true representation of the bat population. Natural England Guidance states that survey effort should be spread across the active season and as a rough guide there should be at least one survey visit per month or remote detectors should be used during that period of time (Bats and Onshore Wind Turbines: Interim Guidance, Natural England, May 2008, section 2) (Ref. 7-7). The developer has only carried out 4 surveys and therefore Natural England guidance has not been adhered to. The Bat Conservation Trust (BCT) (Ref. 7-8) states that to have confidence in a negative result there is an optimum time window for surveys which is June to August. No surveys were carried out in June or July when bats would be expected to be very active, firstly with females suckling their young and then the babies emerging from the roosts. The survey schedule is not consistent with the schedules recommended by the expert groups.

Similarly, there is no explanation or rationale for the choice of survey time. All four surveys commenced 'shortly after sunset', but for best practice, at least one dawn survey would have been expected (Ref. 7-8). Good practice also states that surveys should commence just before sunset, not just after. It is possible this could all have a significant impact on the success of the survey and could result in an underestimation of the population.

Details for the methodology of the survey are inadequate (section 9.2.3.2). Missing information includes the following:

- length of time for each survey
- exact start and end times with respect to sunset (guidelines are available)
- number of times the complete survey of the site was repeated on a particular night
- whether the survey was roughly clockwise/anticlockwise or both
- equipment calibration details

Results

The surveys were said to have been carried out on 'suitable evenings during appropriate climatic conditions when bats are expected to be active' (section 9.2.3.2), however the first survey was carried out on 16 April 2007. In April bats have only just come out of hibernation and although they are hungry and active they may become torpid (cool and inactive) again when cold. With a sunset temperature reported as 12.5 deg C on 16 April (Table 5), this might explain the low number of bats recorded during the first survey.

The second survey was carried out on 29 May, when although evening temperatures might be expected to have risen, the sunset temperature was actually recorded as only 8 deg C. It is generally agreed that such a temperature is too low for a meaningful survey to be carried out. Examination of maximum and minimum temperature recordings for May 2007 (see Figure 7-1) reveals that this survey was carried out on almost the coldest night of the month. Night time minimum temperatures had fallen on 5 consecutive nights with corresponding falls in the daytime maximum. Even if it was not intended that sampling would take place on one of the coldest nights of the month, the report should have addressed the unseasonal temperatures on that evening and in the preceding days. Once again, this might well explain the low level of bat activity recorded (section 9.3.3.2 and Table 5). Even on 8 August (third survey) the sunset temperature was only 13deg C, so it is not surprising that there were no bats detected during this survey.

It is likely that more representative results were obtained on 13 September, when the sunset temperature was 16 deg C, and on this evening more bats were detected. Even the developer's report (9.4.3.) acknowledges that it was 'unusual based on experience on other sites in the area that the hedgerow running north to south (sample point 2) was not used by more bats given its proximity to suitable bat roost habitats in Bush Wood.' If all the surveys had been carried out on warmer, more favourable evenings for feeding, the results might have been very different and therefore the impact of the development on the local bat population is inadequate. Also, given that measurements were only taken over 5 minute periods at each of the survey points, that bats can fly many miles over the course of an evening, and they use different routes at different times of the year, detection of any bats must denote that a significant population is present. Indeed, bat records collected by the Herts & Middlesex Bat Group (verbal communication) indicate that there are significant bat populations in the vicinity of the proposed turbine field and that other species have been detected, not just the Common Pipistrelle.

As for any valid scientific report, full details of the survey results should be documented and provided. The summary given in Table 5 is inadequate. For example there is no information about the timing of the start and end of the survey with respect to dawn/dusk, although the method says this was recorded. We are not told how long the surveys were. This information is crucial to show that the surveys were carried out at appropriate times and in accordance with guidelines (Ref. 7-8). The full ecologist's report for the 2007 surveys prepared by Scott Wilson should have been made freely available, but despite repeated verbal and written requests to the developer's agent, this had not been provided at the date of preparation of this report.

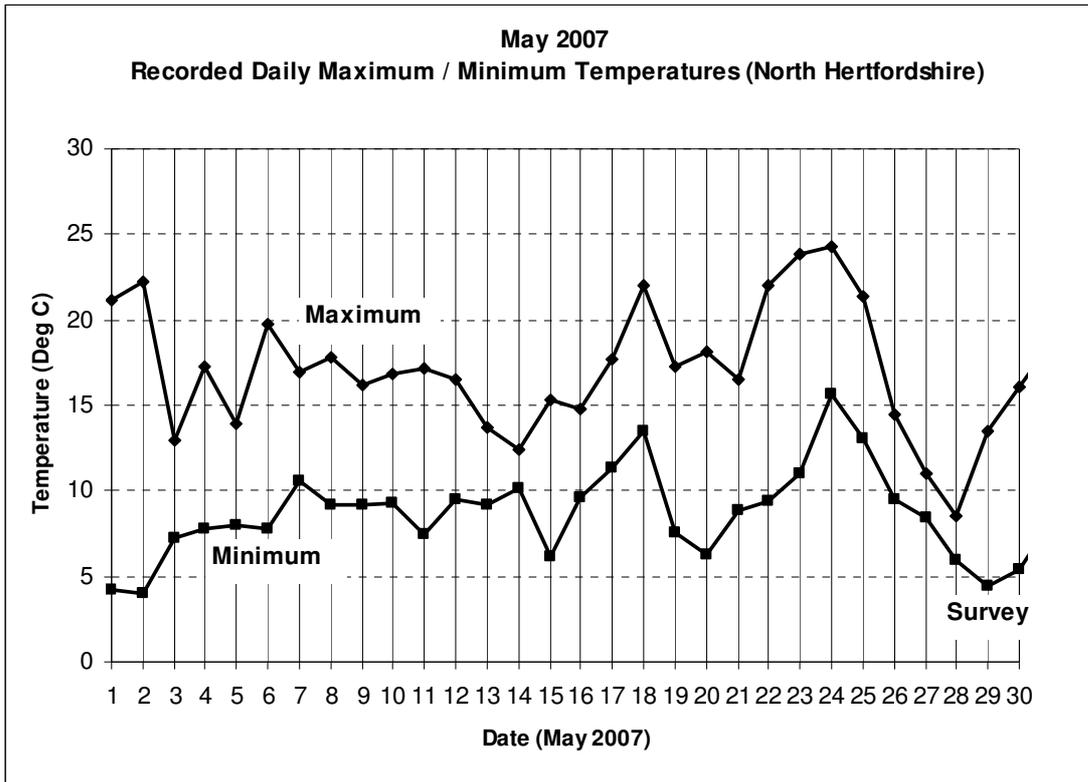


Figure 7-1 Recorded Daily Maximum and Minimum Temperatures in N. Herts, May 2007. (Prepared from Ref. 7-9)

7.2.2 Recommendation

The Bat Survey has been shown to be completely inadequate. It clearly does not address the full impact of the development on the local bat population and therefore the application must be refused. Data must be provided over a complete 'active season' in accordance with recognised guidelines and in accordance with recognised survey standards before an informed decision can be taken.

7.3 TURBINE 1 IS TOO CLOSE TO A COMMUTING ROUTE

Turbine 1 is located only 35m (centre of tower) from an identified commuting hedge used by the Common Pipistrelle and the blades will actually overhang the hedge. This is contrary to Natural England Guidance and because individual bats and therefore the wider population could be at significant risk, the application should be refused.

7.3.1 Detailed Evidence

In the first survey, a Common Pipistrelle was recorded around sample point 9. The survey indicates that it appeared to come from the area of ancient woodland called Bush Wood and proceeded in a South Westerly direction along the hedge line and ditch. This is classic Pipistrelle behaviour, moving out from a wooded roost area along a commuting route in search of food. This particular hedge has a wide field margin strip on the West side of the hedge (ie the turbine side) which has purposely been left uncultivated to encourage biodiversity, so it is not surprising that this hedge is being used as a commuting route to find insects. During the 4th survey, three Common Pipistrelles were identified feeding around this same hedgerow and field margin and commuting along it.

Natural England Guidance (Ref. 7-7) states that turbines should be located 'as far away as possible from roosts and any identified flight paths'. 'In many cases, the risk could be minimised by locating turbines at least 50m from hedgerows, tree-lines or woodland'. As the Pipistrelle is classed as being a medium risk species (with respect to turbines), this is particularly important.

The developer's report acknowledges this guidance (section 9.5, Conclusions and Recommendations) stating 'to prevent risk of bat collision no turbines should be located within 50m of hedgerows or tracks or 100m of woodland. It is surprising therefore, that with co-ordinates (TL 25502 31350), Turbine 1 is located only 35m (centre of tower) from the commuting hedge and the blades will actually overhang the hedge.

7.3.2 Recommendation

As a consequence of the proximity of Turbine 1 to the commuting hedge and field margin running NE/SW of the site, and in accordance with recognised guidelines, there is a clear risk of harm to bats and therefore this development should be refused. In the event that guidance is ignored and planning permission is granted, then to reduce the risk of any impact on bats, Turbine 1 must either be moved further away from the commuting hedge or, if this is not possible, it should be removed from the development completely. As the first alternative is not possible with the turbines already closer together than the manufacturer's recommendations state, Turbine 1 should be removed from the application. If relocation of turbines is considered, great care must be taken to ensure the turbines are not moved closer to any of the other perimeter hedges, particularly the one bordering Hatch Lane, because the survey demonstrates that this hedge is also a bat commuting route.

7.4 IMPACT OF THE BALDOCK BYPASS ON THE LOCAL BAT POPULATION

The Baldock bypass would have had a major impact on bat activity in the vicinity of the nearby Weston Hills Nature Reserve and in the small woods and hedgerows in the vicinity of the proposed turbine site. Commuting routes which were cut during construction have since been replaced, but as no follow up survey has been performed to assess the adequacy of mitigation and the overall effect on local bat populations has not yet been determined, a second major development which could potentially adversely impact the population still further cannot be allowed to take place.

7.4.1 Detailed Evidence

When the Baldock bypass was built a full survey of bat populations in the Weston Hills Nature Reserve and in the surrounding fields adjacent to this development was carried out by the Herts and Middlesex Bat Group and the Desk Survey in this application contains a map showing the location of bat records (section 8.3.1, Figure 3) within the desk study area. Bats can move many miles from roosts along ditches and hedgerows to feed and with an active population identified, bat boxes were placed on both sides of the bypass. This was to encourage the bats during the construction period when commuting routes were cut and until the hedge across the tunnel was re-planted, enabling them to commute up and down to the small woods and hedgerows adjacent to and around the proposed turbine site. Follow up surveys to determine the effectiveness of the mitigation and the overall impact on bat populations have not yet been determined (Ref. 7-10). Bats are generally in hibernation from November, so such a survey cannot be carried until 2009.

7.4.2 Recommendation

In view of the lack of any post bypass construction determination on bat activity to date, a second major development which could potentially adversely impact the population once again, should not be approved until the follow up survey has been completed and no adverse effects have been seen. Although the Common Pipistrelle is the most common bat in the UK, estimates from the National Bat Colony Survey suggest Britain's bat population has declined 70% since 1978 (Ref.7-11) despite being a protected species. It is imperative therefore, that the population is not endangered still further by the proposed development and permission is refused.

7.5 EVIDENCE THAT BATS SUFFER FROM BAROTRAUMA

There is mounting post mortem evidence that bats suffer from barotrauma, until recently a little known phenomenon which occurs when the lungs are fatally damaged as a result of the occurrence of sudden pockets of low pressure in the vicinity of rotating turbine blades. In view of their protected species status and until this phenomenon is better understood, wind turbines should not be located near bat populations.

7.5.1 Detailed Evidence

It is understood that some bats are actively attracted to turbines, curious about the ultrasound they emit. In addition some are attracted to the insects which can collect around the hub, apparently attracted by the heat radiated by the machinery. In mainland Europe, America and Canada bat deaths in the vicinity of turbines has led to growing concern about the location and siting of wind farms. While some casualties occur as a result of impact, they are apparently more often due to the little understood phenomenon of barotrauma. A major study in Canada (Ref. 7-12) has shown that out of 188 dead bats collected from wind farms across southern Alberta, 90% had signs of internal haemorrhaging and 8% had signs of external injuries with no internal injuries.

Bats use echo-location to avoid hitting moving turbine blades, but they cannot detect the sharp pressure changes which occur around the blades. Rotating turbine blades produce a sudden air pressure drop and there is considerable evidence that this causes severe internal injuries, resulting in death. In Germany, Common Pipistrelles (the species identified in the vicinity of the proposed development) are the most frequently recorded turbine casualties (see Figure 7-2) (Ref. 7-13).

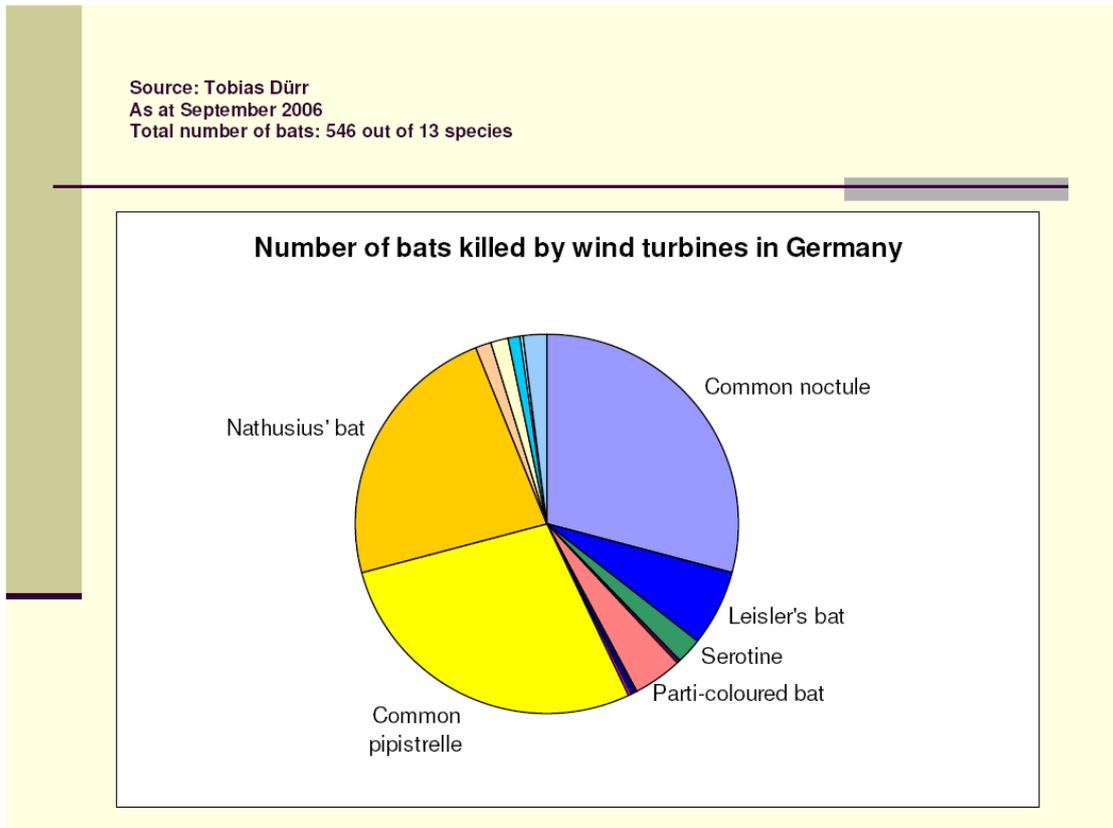


Figure 7-2 Number and type of Bats killed by Wind Turbines in Germany as at September 2006 (Ref. 7-13).

Regrettably, the information currently available about the behaviour of bats in the UK is not sufficient to assess the threat that wind turbines may pose to UK populations and urgently needs to be addressed (Ref. 7-7). In the absence of information generated in the UK, evidence from overseas should be taken into account bearing in mind the conservation status of bats and planning authorities have and should use the power to ensure turbines are not located where they can have a detrimental effect on bat populations.

In situations where permission is granted, in their guidance (Ref. 7-7) Natural England state standardised surveying/monitoring, pre- and post-installation, should be required in most high risk situations and welcomed everywhere. The Common Pipistrelle is assessed as being at medium risk from wind turbines, so if permission is granted for this planning application, post-installation monitoring should be insisted upon. Methods could include installation of remote detectors at height to record activity, and corpse searching. In the words of Natural England 'this data would make a valuable contribution to the evidence base and help set the risk in context'. At The Bat Conservation Trust Wind Turbine Workshop Feb 07 (EUROBATS Resolution 5.6 Wind turbines & bat populations guidelines for the planning process and impact assessments) (Ref. 7-13) they called for

impact assessments to be developed as standard and called for the development of national guidelines.

7.5.2 Recommendation

Although there is insufficient UK generated evidence to assess the threat that wind turbines may pose to local bat populations with respect to barotrauma, bearing in mind their protected species status and with mounting evidence from abroad of the devastating effects wind turbines have, this application should be refused.

In the event that planning permission is granted for this development, the planning authority should impose strict post installation monitoring on this site. This would not only allow accurate monitoring of the population, it would also add to the knowledge base, and more importantly, allow any remedial action to be taken if necessary, thus ensuring the conservation status of the bats as a protected species is maintained.

7.6 CONCLUSIONS

It must be remembered that bats are a protected species and there are heavy penalties for breaking the law.

This study demonstrates decisively that the Bat Survey Report provided in this application is grossly inadequate. The survey schedules are not in accordance with recognised guidance (including that drawn up by Natural England) and vital information to validate the results is missing. Turbine 1 is too close to a commuting hedge (again this is contrary to Natural England guidance) and no follow up information on the impact of the Baldock bypass construction on the local bat population has been provided. A full assessment of the impact of the bypass construction has to be made before any further, major development which could impact the bat population once again should be allowed. There is also growing evidence from abroad that bats suffer barotrauma in the vicinity of turbines and no account has been taken of this. In raising no objection to this development, Natural England appears to have ignored their own guidance.

Clearly, the assessment of the impact of the development on the local bat population is inadequate. There is strong evidence that the turbines would have an adverse effect on the bat population and as such the planning authority has no alternative but to refuse this application for planning.

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8 VISUALISATION

The application states:-

“Visualisations are illustrations that aim to represent an observer’s view of a proposed development... visualisations can never exactly match what is experienced in the field... wind turbines can only be seen when the viewer is facing the direction of turbines ... Although ZTV mapping is a useful method of showing theoretical visibility of a wind farm, there are limitations in application..... Suitable viewpoints were chosen, from a range of potential representative viewpoints... visibility is exaggerated, especially in flat or arable landscapes..... visibility can be greatly diminished from the ground due to relatively small vegetation.”

We have no reason to believe that the visualisations in the application are not industry “Best Practice” but it is quite clear to us that this Best Practice is flawed. The standard is essentially that of the British Wind Energy Association which represents the developers’ interests. The photomontages produced in this way do not, in our opinion, represent the true scale of the wind turbines.

The rationale behind this can be found in a report (Ref. 8-1) by Architect Animations Studios (UK) Ltd dated 29 April 2007 entitled *“The Visual Issue. An Investigation into the techniques and methodology use in wind farm computer visualisations”*.

Photomontages should be created from single frame images and not from extended panoramas. The use of panoramas is claimed by wind farm developers to provide a view similar to that of the human eye. However, the study mentioned above makes the point that while the human eye is capable of a wide angle of view (up to 200 deg), it actually focuses on a much smaller area (e.g. 6-10 deg).

The developer’s photomontages appear to be extended panoramas using multiple frames rather than single images. This produces a very wide image but with no height. Therefore the viewing distance required for true perspective is unrealistically close to the eye. For instance in the application Environmental Statement Figure 21 Viewpoint 11 shows a viewing distance of 19.6 cm (less than 8”). It is extremely difficult for the human eye to focus on the image at this distance let alone view the full width of the panorama.

There is not a single visualisation in the application from the perspective of Letchworth, a town of 10,000 people many of whom live within 1.5km of the site. The plateau is approximately 70 metres above the general level of the town. The turbine tips will be 120m above site level. In other words each of the three turbines will tower 190m above the town i.e. 650ft. The lack of such a visualisation was a major concern of the Letchworth Garden City planning committee meeting dated 23 September 2008 and who subsequently recommended refusal.

There is no visualisation from Baldock. There are many areas of Baldock with line of sight to the turbines. Baldock is approximately 50metres below the site level i.e. 600ft below the turbine tips.

The developer’s ZTV map in Figure 43 indicates that from most of the built-up area of Baldock one, two or three turbines will theoretically be visible to at least half-tower height.

The Photomontage Viewpoint Positions appear very selective. Why are there few viewpoints closer to the proposed turbine site? It is our belief that this is to avoid demonstrating the true impact on Clothall village and Weston. Viewpoints seem to have been selected to reduce the apparent impact of the proposed turbines. Viewpoint 1 has a line of pylons in the fore- and middle-distance which appear much larger than the

photomontage of the turbines. This is contrary to the above-mentioned Best Practice as it diminishes the true impact of the turbines. Had the viewpoint excluded the pylons, this effect would have been lost and a truer impression of the scale of the turbines revealed. In Viewpoint 5 a similar effect is achieved with the roadside lampposts.

It is certainly true that visualisations cannot match the reality as is acknowledged by the developer. Typical photomontages reduce the visual impact. In the panoramic photographs as used in the application the turbines appear to be insignificant. In photographs the turbines are not moving. In a real life situation the receptor's eyes are drawn towards the moving blades particularly if there is a noise associated with it. The only way to produce a realistic interpretation of what the eye sees is, in fact, to exaggerate it.

It is not possible for small obstacles to mask industrial structures 120m high. Even the most avaricious developer cannot expect people to live behind small trees, sheds or bushes, as implied in the application.

The developer states that "bald earth" exaggerates the appearance and that small structures diminish it. Quite the opposite is true. From a variety of locations e.g. Letchworth and Baldock, no bald earth is visible. Second small structures such as trees near the turbines serve to give a true perspective to wind turbines and reveal the true scale.

The Horner + Maclennan Report (Ref. 8-2) recommends a sequential assessment from key routes in the study area, to be made while travelling in both directions. This has not been done by the developer.

We have produced additional photomontages to provide a more realistic impression of the true impact as guided by Horner + Maclennan.

These photomontages and a short introduction can be found in the Appendix at the end of this document.

NB: The photomontages in this document may not be suitable for printing. A further document containing the same images at a higher resolution has been submitted to North Hertfordshire District Council as a Supplement to this document.

It is a well observed illusion that the sun and the moon appear to be much larger at their rising and setting when near the horizon. Photograph the moon in the night sky at its zenith and in the photograph it appears much smaller than the eye perceived it to be. However, when viewed at dawn or dusk the moon and sun appear to be very much larger than they really are. This is because the brain now has a terrestrial reference point with which to make an assessment which is absent at the zenith.

Exactly the same happens when there is a recognisable feature to compare a wind turbine with. In the open they appear to be large structures of course. Place a lone tree nearby or a house and they take on a new dimension. Far from diminishing the apparent size or concealing the turbines these small features only serve to enhance the apparent scale of them. We certainly contest that the developer's photomontages are a worst case scenario.

We object on the grounds that the visualisations in the application are misleading and inadequate.

References

8-1. Report by Alan McDonald Dip Arch RIBA on behalf of Architect Animations Studios (UK) Ltd dated 29 April 2007 entitled *"The Visual Issue. An Investigation into the Techniques and Methodology used in Wind Farm Computer Visualisations"*

8-2. 'Notes on landscape information submitted with Planning Application 06/01843/1', prepared by Caroline Stanton, Horner + Maclennan Landscape Architects on the behalf of Hertfordshire County Council dated 21 November 2006.

9 BENEFITS AND THE NEED

According to the developer, the principal reason for pursuing the installation of wind turbines is to generate electricity and displace carbon dioxide in the atmosphere. The degree of this benefit is important to assess, as it is against this that the inevitable detrimental affect on the local environment is weighed. The former must clearly outweigh the latter.

In order to calculate accurately the annual electricity output from the wind farm it is necessary to measure the wind speed at the wind farm location. To do this, Planning Policy Statement (PPS22) and the Hertfordshire Energy Study recommend that a 40m wind mast should be erected for a period of 12 to 18 months. The developer failed to do this and therefore is unable to calculate the true energy generating capacity of the proposed wind farm.

Notwithstanding this, the developer claims that the wind farm will displace some 15,300 tonnes of carbon dioxide per year and that it will produce 19,000 MWh of electricity each year. These values are incorrect by a very wide margin, as demonstrated below.

In the absence of wind speed data, the British Wind Energy Association (BWEA) provides a formula, which enables the approximate amount of energy produced and the corresponding CO₂ emission reduction to be calculated based on the rated capacity of the wind farm. The formula uses a value of 430g of CO₂ emission reduction for each kWh of electricity generated by the wind farm. This is based on the UK mix of coal, oil and gas fired power stations. The formula also uses a capacity factor of 0.3, which takes into account the intermittent nature of the wind, the availability of the wind turbines and array losses. This is an average capacity factor for the whole of the UK, which is likely to be exceeded in the Scottish Highlands but would be less in lowland or sheltered parts of the UK including Hertfordshire.

The proposed wind farm at Weston has a rated capacity of 6 MW (3 x 2MW).

From the BWEA web site:- <http://www.bwea.com/edu/calcs.html>

CO₂ (in tonnes per year) = (A x 0.3 x 8760 x 430)/1000

Where A is the rated capacity of the wind farm in MW

0.3 is the capacity factor

8760 is the number of hours in a year

430 is the number of grams of CO₂ reduction per kW/h of electricity generated by the wind farm

So, CO₂ (in tonnes per year) = (6 x 0.3 x 8760 x 430)/1000 = 6780

The above calculation clearly shows the claim made by the developer that the wind farm will reduce carbon dioxide emission by 15,300 tonnes per year is grossly exaggerated and is more than twice the true value. It is assumed that the developer has made some mathematical errors or has used incorrect data in his calculations.

Similarly, the developer's claim that the wind farm will produce 19,000 MW/hr is grossly exaggerated and would require a capacity factor of 0.36. This is most unrealistic and totally unachievable at the proposed location.

Hertfordshire is within the lowest wind speed area in the country and, as the amount of electricity produced is proportional to the cube of the wind speed, then the suitability of onshore wind in Hertfordshire must be in question.

The Eastern Region Renewable Energy Planning Study commissioned by the DBERR, has explored the potential for renewable energy in Hertfordshire. The study has shown that the best opportunities for renewable energy projects in Hertfordshire are active and passive solar sources, municipal solid waste & general industrial & commercial waste, short rotation coppice & forestry, and straw, along with small amounts from various other sources.

The Regional Spatial Strategy for the East of England was published in its final form by the Government in May 2008. The developer's Planning Statement and Environmental Statement submitted with the application are out of date in that they rely on the Draft East of England Plan which has been substantially altered. RSS Policy ENG2 acknowledges that onshore wind is only a limited source of energy for meeting the regional target, and not the only source as the developer seeks to imply. There is nothing in the RSS to support the location of large-scale wind turbines in north Hertfordshire generally or specifically in the Weston Hills area.

Thus, there is no over-arching need for wind generated renewable energy in Hertfordshire. Set against these so called benefits the detrimental impact this wind farm, and the many other wind farms being proposed in this relatively small area, will have far outweighs any benefit.

Indeed we would also point out that even if the turbines were 100% efficient the output would not justify the detrimental impacts.

Further, it is claimed by the developer that there will be employment benefit in the area. Some local economic benefits may arise through construction and decommissioning (the latter in 25 years time). However, these benefits do not clearly outweigh the harm caused to the openness and integrity of the Green Belt, and the visual amenity of the surrounding countryside. Modern turbines operate automatically and require little maintenance as is acknowledged by the developer. A small force of maintenance engineers operate on a UK-wide basis and not locally. Thus, any local employment benefit will be negligible or non-existent. Vestas is a Danish Company to whom construction profits accrue.

As a "cost benefit analysis" is part of the planning process, when set against detrimental impacts such as Visual Impact, potential noise issues and desecration of the Green Belt, we believe that the application should be refused.

10 TURBINE SEPARATION DISTANCES

The separation of the Vestas V80 turbines is less than the requirements specified by the turbine manufacturer.

Vestas Technical Specification (Document Ref. 944406.13) states at section 1.4:

“The wind turbines can be placed in wind farms with a distance of at least 5 rotor diameters (400 m) between the wind turbines. If the wind turbines are placed in one row, perpendicular of the predominant wind direction, the distance between the wind turbines must, at least be 4 rotor diameters (320 m).”

It is noted from the developer's Grid References and Layout Drawing WB001 that the turbines are located with a separation of just 312m, 314m and 342m, which are well below the required minimum of 400m.

It is understood that the separation minima are specified in order to eliminate aerodynamic interaction between the turbines, specifically wake turbulence.

Such aerodynamic interaction could potentially introduce unpredictable noise effects and the noise guarantees given by Vestas could possibly be invalidated if the separation minima are not adhered to.

It is also understood that wake turbulence affects the structural loading on nearby turbines. If the required separation is not maintained, structural loads are increased and would invalidate calculations and test evidence used to support certification of the turbine design. Increased structural loading could reduce the safe life of the structure and could cause premature failure with dire safety consequences.

It essential that the developer includes a written statement from the turbine manufacturer, Vestas, within the application, fully detailing the implications of reduced turbine separation in this Wind Farm design. This must include Noise and Safety. It is understood that the Vestas guarantee may be invalidated if the turbine separation is not to specification.

This application should be refused on the basis of inadequate turbine separation.

11 TURBINE LOCATION INCONSISTENCIES

There appear to be critical errors and inconsistencies concerning the turbine positions within the Red Line Drawing, OS Grid References, Layout Drawing WB001 and the Noise Contour Map:-

Although the developer has stated that the OS Grid References have precedence over any other dimensions, this statement could easily be missed. All drawings that are in error should have been corrected or clearly annotated. In their current state they are at best worthless and are potentially misleading.

1. The OS Grid References do not align with the turbine centres as drawn on the Red Line Drawing. All three turbine positions are in error, the worst being Turbine 2 with an Easting error of over 100m.

2. The positions of the turbines shown on the Noise Contour Map within the noise report do not agree with the positions shown on the Red Line Drawing or the OS Grid References. But oddly, the distances from the turbines to properties 1 and 2 that are stated in the noise report (620m and 760m respectively) agree with the distances calculated using the turbine OS Grid references.

3. Within the Layout Drawing, the turbine separation distances agree exactly with distances calculated using the OS Grid References, but the distances stated from the turbines to physical features such as paths and roads do not agree with the OS Grid References and seem to agree better with the Red Line Drawing.

It is thought likely that the grid references have been changed during the compilation of the application. The changes appear to have been reflected in the turbine separation distances given in the Layout Drawing WB001 and the wording within the Noise Report, but have not been reflected in the Red Line Drawing, Noise Contour Map and dimensions to physical features in the Layout Drawing WB001.

Position data is fundamental. It should have been checked and corrected before the application was issued for consultation. Until the turbine positions are defined accurately and consistently, Noise, Visual Impact, Safety, Ecology and many other statements within the application are questionable. It is of great concern that the turbine position errors could have potentially affected the responses given by consultees.

Given the foregoing we believe that this application should be refused.

12 SAFETY

12.1 HIGHWAY SAFETY

The siting of the turbines in close proximity to Hatch Lane is of considerable concern in relation to general safety and road safety.

It is a cause for some concern that Hertfordshire County Council Highways Department has not seen fit to comment on this. We have made enquiries of them and were advised that they are unable to object merely by reason of non-compliance with Planning Policy Statement 22 (PPS 22). They appear not to have been guided by Spatial Planning Advice Note SP02/06 issued by the Highways Agency (Ref. 12-1) which must have equal relevance to roads generally, even those not directly under their control.

SP02/06 states that there is a need to ensure that the safety of road users is not compromised and that an allowance for debris scatter would be required. The document recommends that the distance from any wind turbine to the boundary fence of one of its carriageways should be at least the overall height of the blades + 50% whilst the equivalent PPS 22 guidance is height + 10%. The sweep of Turbine No 2 blades will be much closer to the carriageway, well short even of the reduced PPS 22 figure.

This is of significance in two respects. First, the carriageway is in danger from any objects falling from the turbines and second, the distraction factor for drivers.

12.1.1 Danger from Falling Objects

Regarding this first point - on 3 December 2008 in Whittlesey, Cambridgeshire, ice was shed from a wind turbine narrowly missing a house making BBC News headlines. The developer had assured the local residents that this was not a possibility in weather conditions normally experienced in the area. The weather was not especially cold. An investigation is to take place. Blades moving at in excess of 100mph are capable of catapulting ice into the surrounding area at speeds in excess of 100mph making them potentially lethal projectiles. Weston Hills is a particularly cold spot and we are not reassured by this event. In certain wind directions the blades will be at right angle to Hatch Lane and it is a distinct possibility that any shedding will send ice onto Hatch Lane.

SP02/06 goes on to say *"In certain meteorological conditions significant accretions of ice can build up on wind turbine blades. Surprisingly, moving blades are affected to a far greater extent than stationary blades. Warming or fragmentation may then lead to ice being shed from rotating blades. Large fragments may be thrown considerable distances"*.

This appears to have happened at Whittlesey.

12.1.2 The Distraction Factor for Drivers

Concerning this second point, SP02/06 also states *"Any potential for visual distraction should be minimised, not by screening but rather by the provision of a clear, continuous view of the wind farm over the maximum possible length of approach carriageway. The potential for distraction is considerably worse than with other roadside features – advertisements do not generally rotate – but a clear view from a distance will considerably reduce the temptation for drivers to turn their heads when passing the towers. Sites where topography, vegetation or buildings might conceal the view of the turbines until the last minute must be avoided as drivers would suddenly be distracted and take their attention from the road and other traffic"*.

Just this very scenario exists in Hatch Lane. Traffic coming up from London Road Baldock will have no view of the turbines until they reach the top of the hill whilst negotiating the sharp right hand bend. There they will be confronted by the three 125m turbines only 750m away. There will be considerable distraction for drivers. There is minimal width to pass any on-coming traffic, particularly the school buses, 4WDs and vans.

The change in traffic patterns following the construction of the Baldock Bypass means that Hatch Lane can no longer to be regarded as a local by-way, especially at commuting times. Formerly Hatch Lane was a quiet country lane. This is no longer the case. The presence of wind turbines close to the road is bound to attract the curious whose main objective would be to look at the turbines and perhaps not concentrate fully on the road. The road is no longer safe for children to use and the presence of a wind farm will serve to emphasise this. This really is the loss of a valuable local amenity.

The Caithness Windfarm Information Forum (www.caithnesswindfarms.co.uk) details three fatalities in Scotland due to road accidents which according to the police to were due to 'driver distraction of turbines'. These all occurred on a road at the point where turbines first became visible, this gives further credence to the warning in SP02/06.

In the Boxworth appeal (Ref. 12-2) the potential impact on road safety of wind turbines was considered. The inspector made a number of comments:

"At their closest the turbines would be only just over 250m from the road, and at a height of 100m, I consider they would be an interesting and striking addition to the scene which could easily draw a driver's attention. To my mind the rotation of the blades ensures that they are a significantly more arresting spectacle than, for example, an array of telecommunication masts. Notwithstanding the numbers of wind farms now constructed nationwide, their proximity to roads, and the evidence that wind turbines are not the cause of recorded traffic accidents; I believe that the particular combination of circumstances in this case could be especially critical to the point where optimum driver performance starts to decline. In my view there is very little margin for error on the A14 in its current condition, and I agree with the (Highways) Agency that drivers who are not fully engaged may be further distracted, so increasing the probability of collisions.I conclude that in this case, exceptionally, the proposed development would have a harmful impact on road safety."

On Weston Hills the turbines would be 25m higher and 120m closer to the road. Admittedly Hatch Lane is not the A14 but it is potentially a dangerous road and will be made more dangerous by this development. Near the turbine site there are very narrow sections on tight blind bends where 100% driver attention is of paramount importance.

12.2 TURBINE COLLAPSE

The most recent report by the HSE Scotland Director (Ref. 12-3) states that there is an on-going investigation into the collapse of a wind turbine. It says *"This will have international implications as it is examining the siting of turbines near population centres"*. This may well be relevant to a collapse near a road less than 150m away from one of the turbines, a house 600m away and a bridleway 100m away.

In this incident, a wind turbine was damaged in April 2008 when one of its three blades snapped and fell to the ground during strong winds. The cause of the failure at the Crystal Rig complex in the north east Borders has still to be completed. The wind turbine, one of 31 on the site in the Lammermuir Hills, has been dismantled since the incident.

The research group, Scottish Wind Assessment Project, said it highlighted safety implications of blades becoming detached at high speed and that the incident raised real questions about the possible siting of turbines near houses and public roads.

Further, the wind turbines proposed for Weston Hills will be much closer together (as little as 312m) compared to the minimum distance recommended by Vestas (400m). These recommended distances are to avoid turbulence downstream which affects efficiency. However, wind turbines are massive levers and do not withstand turbulence well. It is for this reason that they are closed down in high winds (25 meters per second).

12.3 BLADE FAILURE

The BBC reported that in the early hours of Sunday 4 January a turbine at Conisholme in Lincolnshire lost one 66ft (20m) blade and another was badly damaged. The turbine is one of 20 at the Conisholme site, which has been only been fully operational since April 2008. The broken blade has been recovered and is being examined.

According to Sky News, the chief executive of GCube, which insures more than 25,000 wind turbines worldwide, said that although it is unusual, this type of incident happens about five or six times a year. He is reported to have said that a blade will sometimes just come off a machine for one reason or another.

Clearly, despite recent advances in turbine design and construction materials, modern turbines are far from immune to partial and complete failure.

It has to be emphasised that one of the proposed turbines will be less than 150m away from Hatch Lane.

There is sufficient concern with regard to the issue of road safety for this application to be referred back to the Hertfordshire County Council Highways Department. Further, the issue of ice shedding highlighted by the recent Whittlesey incident suggests that the application should be refused pending the outcome of the investigation into ice-shedding.

We urge the planning authority not to dismiss claims that turbines may be unsafe. There are many examples of turbine failure and the above H&SE investigation may lead to new standards of safety and separation being introduced. The developer's turbines may well suffer air turbulence which could cause stresses which may lead to failure.

To date there are relatively few wind farms in the UK. It is inevitable that as more and more are brought on-stream the incidences of turbine failure will increase.

References

12-1. Highways Agency Spatial Planning Advice Note SP02 06.
(http://www.highways.gov.uk/aboutus/documents/CRS_558501_SP02_06.pdf)

12-2. Boxworth Enquiry, Cambridgeshire (APP/W0530/A/05/1190473)

12-3. Partnership on Health and Safety in Scotland. HSE Scotland Director's report dated June 2008. (<http://www.hse.gov.uk/scotland/meetings/240608/1002.pdf>) (Item 17)

13 MISCELLANEOUS ISSUES

13.1 APPLICATION DOCUMENTATION ANOMALIES

In our opinion the quality of the application documentation is poor and falls far short of the standard we would expect to see for a development of such importance and having such great implications for the local area and inhabitants.

For instance, on p.30 of the *2008 Planning Statement, Summary and Conclusion paragraph of Section 8: Business, Agricultural & Economic Development* we are advised that *'The proposed development involves the installation of six wind turbines on agricultural land to the north of Swaffham'*. Clearly a cut and paste error.

In the same document *Section 2, Landscape, Visual Impact & Design* beginning on p. 13 lists six policies of Norfolk County Council and the final side heading on p.15, *Summary and Conclusion* carries no following text at all!

The application is not consistent in the location of the turbines, a fundamental issue. During the course of the application the height of the turbines has reduced by 5 metres (no change in turbine type). The town of Letchworth, where the nearest houses are only 1.4km away barely rates a mention. No wind data has been obtained to justify output claims. The application is dismissive of the impact on Weston. It claims local support where clearly this does not exist (see 13.4 below). No experts have been consulted regarding the impact on TV reception and Aviation. An outrageous claim is made that the wind farm, placed on the Green Belt, will protect the Green Belt. Photomontages are inadequate with not a single photograph taken from within the towns of Baldock or Letchworth.

The developer's Planning Statement refers to RPG6 and RPG9 in support of the application. These two documents have been superseded by the Regional Spatial Strategy. It also quotes Policy 54 of the Hertfordshire Structure Plan in support of the application. However, the Structure Plan has also been superseded by the RSS.

The foregoing are just a sample of anomalies in the application. We would hope that this application is not granted subject to a long list of Planning Conditions. There are so many errors and anomalies in the application that we feel these must be corrected before this proposal can ever be seriously considered.

13.2 CONSTRUCTION PERIOD

For a period of time during the building of the by-pass, Hatch Lane was off limits to construction traffic. The lane is an unclassified road suitable for light vehicles only. As it is, the increased commuter traffic, which has developed a rat-run during the morning and evening peaks since the building of the by-pass, breaks up the margins of the road surface faster than the Council can patch it. Even if the components of the turbines are off-loaded from the by-pass, there will be a minimum of 3,000 cubic metres of concrete to be brought onto the site creating a traffic hazard on the winding lane up from the B197. An estimated 650 round trips by HGVs will be involved. One can imagine the wrecked state of the road after four months of such traffic with sure knowledge that there will be no funds in the Highways budget for the necessary re-build.

13.3 BALDOCK RADIO STATION

The Hertfordshire Renewable Energy Study indicated that any development in the N Herts area must be referred to the Metley Hill Radio-Communications Agency, Baldock Radio Station. This station monitors UK radio frequencies on behalf of Ofcom. It is

understood that there is a development exclusion zone around this station. However, that zone may well have been drawn up at a time when structures as large as the wind turbines were not envisaged. It may well be that such large structures will interfere with radio signals and the Agency may wish to review the exclusion zone. The developer must refer the proposal to the Agency and include the answer in the Environmental statement.

13.4 WESTON PARISH COUNCIL OBJECTION / PUBLIC SUPPORT

Weston Parish Council (WPC) has made an official complaint that this application implies that the WPC raised no objection following the first application by the developer. The reason for this is that the application was withdrawn following the publication of the Working Group report which preceded the WPC meeting at which the matter was to be determined.

The application states that there is no significant opposition in Weston and at their first public consultation, at least, there was general support. Quite the contrary is true and these statements are deliberate misrepresentations. Opposition at both meetings was vocal and at times angry.

A doorstep poll conducted in person by Oliver Heald MP revealed very considerable public opposition in Weston.

A poll carried out by WPC showed that of those who responded 75% were against the proposal. Subsequently at the Information Day held by the campaigning group Weston Against Rural Destruction (WARD) both morning and afternoon sessions were "sell-outs" with standing room only in the morning. The overwhelming sentiment was one of considerable concern. The only voice actively in favour of the development (apart from the developer, who was present) was from an employee of a local wind energy company.

13.5 TEMPORARY NATURE AND DECOMMISSIONING

The application seeks to invoke planning relaxations by stating that the wind farm would be temporary ie 25 years. This is a generation and by any reasonable measure cannot be regarded as temporary.

This is backed up by the Inspector's statement in the Boxworth Public Enquiry (Ref. 13-1) *"In my opinion the development proposed is substantial in nature, and the appellant acknowledges that the period envisaged is equivalent in human terms to a generation. Although I recognise the 25 year period is the appellant's suggestion, I nevertheless understand that some of the earlier turbines on established wind farms have been replaced by more recent models, and, in the event of the appeal succeeding, I consider this would be a more likely future than the closure of the site at the end of the period."*

Further, at the end of 25 years the need for renewable energy is not likely to have reduced. There is ample evidence in the UK of earlier wind farms (of a temporary nature) receiving planning permission for ever bigger replacement turbines.

Even if the Council requires the turbines to be decommissioned and the site to be restored to its original condition, as suggested by the developer, it will be very difficult to resist future applications to redevelop or extend the site once the principle of development in this location has been established particularly if a change of land use is granted.

13.6 PROLIFERATION AND CUMULATIVE IMPACT

We are very concerned that once the first wind farm is approved then for a large swathe of the surrounding countryside the landscape character is altered to one “with wind turbines”. The result will be that future consents will be much easier to obtain. The area will have been degraded and no “change of use” would be required.

This is happening more frequently and there are examples at Swaffham, Kettering, Ransmoor and Coldham to name just a few of very many where an initial application for a small number of turbines is followed by an application, or even applications, for many more. It is understood that many sites are wired at the outset to accommodate further turbines and it would be interesting to learn whether this would be the case on Weston Hills and whether the Planning Department of NHDC require to be advised of such a scenario.

Now that this area has been identified as an area suitable for wind farm development there are several applications in various stages of preparation in the area and local communities are relying on their planning departments to provide them with a measure of protection.

In respect of the recommendations in the Horner + Maclennan Report (Ref. 13-2) there is no attempt to comply with paragraph 3g of the report (requiring a cumulative impact assessment in respect of the planning application submitted for three wind turbines at Benington approximately 11 km distant).

Finally, there is no reference to paragraph 6f of the report which requires an assessment of whether the proposed turbines would extend the urban/infrastructural character of Letchworth and Baldock and the nearby bypass further into the wider countryside.

References

13-1 Boxworth Enquiry, Cambridgeshire (APP/W0530/A/05/1190473)

13-2 Notes on landscape information submitted with Planning Application 06/01843/1 prepared by Caroline Stanton, Horner + Maclennan Landscape Architects on the behalf of Hertfordshire County Council dated 21 November 2006.

APPENDIX: PHOTOMONTAGES

As stated in Section 8 of this report the Weston Wind Turbine Working Group contests the developer's claims that the photomontages represent a worst case scenario let alone a realistic scenario. It is our belief that the photomontages provided in support of the application minimise the significance of the visual impact of the proposed turbines.

Consequently, the appended photomontages have been produced to redress this misconception.

The Horner + Maclennan Report (Ref. 8-2) recommends a sequential assessment.

The sequence of our Photomontages and assessment is as follows:

The sequential view commences from just north of Baldock, looking south across St Mary's Church spire. The turbines are then seen from Baldock High Street in the heart of the town looking south along the High Street.

The following views are from the West of Baldock, the north of the Weston Plateau and from Letchworth.

The subsequent sequence covers the western approaches to Weston and from Weston village itself.

Finally, the turbines are seen more closely from the Weston Plateau and from the sensitive landscape near the A507 to the east of the wind farm site.

Thus, a total of 14 views are given on the following pages, including comment on the significance of the visual impact of the turbines at each viewpoint. The criteria given in the developer's environmental statement of the application have been used as guidance in this respect.

The relevant information, including the distance from the nearest turbine, the national grid reference, bearing, the height of the camera, the included angle of view and the viewing distance are given with each photomontage.

The camera used was a 35mm lens-equivalent digital camera with a 30mm focal length. The photomontages were produced using 'Maya' three dimensional professional visualisation software.

From the viewpoints considered herein, the significance of visual impact is judged to be major or moderate to major. The impact would be increased in reality by the moving blades. In mitigation, the impact will reduce with distance so that overall the significance is considered to be moderate to major. However, it should be recognised that the significance of visual impact would be major in all of the sensitive areas of which there are many within the area impacted by the proposed turbines

NB: The photomontages in this document may not be suitable for printing. A further document containing the same images at a higher resolution has been submitted to North Hertfordshire District Council as a Supplement to this document.



View 1 Baldock Church

Bearing 168°

524198E 234606N

Included Angle 42°

Distance from Turbines 3.2km

Viewing Distance 50cm

View 1 is taken from a footpath to the west side of North Road within Baldock at the north of town. St Mary's Church spire is clearly visible above the town but its simple splendour is greatly diminished by the presence of the turbines all around it. This gives a very high impact on this highly sensitive view. The significance of the visual impact is considered to be major.



View 2 Baldock High Street

Bearing 160°

524508E 233850N

Included Angle 42°

Distance from Turbines 2.4km

Viewing Distance 50cm

View 2 shows Baldock High Street in the midst of refurbishment following the construction of the Bypass. Green spaces and hard landscaping are being added to enhance the foreground for the many attractive listed buildings, but this will be degraded by the sight of the turbines in the background. This major change to the view is totally uncharacteristic in this highly sensitive location. The significance of the visual impact is considered to be major.



View 3 Baldock Lane Lower

Bearing 146°

524347E 232816N

Included Angle 43°

Distance from Turbines 1.5km

Viewing Distance 49cm

Taken from Baldock Lane, not far from St Mary's Junior School, which is well with 2Km of the site. Here the houses along Weston Way can be seen with the turbines towering on the ridge above them. The significance of the visual impact is considered to be moderate to major.



View 4 Reservoir Cottage

Bearing 135°

524824E 231964N

Included Angle 42°

Distance from Turbines 0.6km

Viewing Distance 50cm

View 4 taken from the driveway at Reservoir Cottage uses an appropriate angle of view for a comfortable viewing distance, which indicates that the magnitude of the impact on the landscape is very high and not "minimal" as suggested. The photomontage used in the application to attempt to demonstrate this uses a large angle view, 117°. In order to observe this image effectively and achieve the correct representation, viewers are expected to place the picture less than 8 inches (19.6cm), from their eyes. This image, from their viewpoint 11, is unreasonable and would be almost impossible for many people to focus on from the stated viewing distance. Viewed from a comfortable distance, their image would be incorrect and underestimate the impact. The visual impact from Reservoir cottage is considered to be very high. Therefore, the significance of the visual impact is considered to be major.



View 5 Hatch Lane North

Bearing 100°

524991E 231606N

Included Angle 62°

Distance from Turbines 0.3km

Viewing Distance 33cm

View 5, taken close to Hatch Lane Bridge over the bypass, shows the site but only the turbines. In addition, there are several other significant constructions that have not been given a definite proposed location. These include the 52.5m high wind speed mast, a large service building, the roadways and substations for each turbine. It can be seen that this would become a significant engineering development which would be completely at odds with the landscape character of this green belt land. The significance of the visual impact is considered to be major.



View 6 Jackmans

Bearing 106°

523604E 231790N

Included Angle 42°

Distance from Turbines 1.7km

Viewing Distance 50cm

View 6 shows one of the many potential views of the turbines from the Jackmans housing estate at Letchworth. The development would cause a major change to the character of the view from this residential area. The significance of the visual impact is considered to be moderate to major.



View 7 Baldock Lane Upper

Bearing 110°

523981E 232028N

Included Angle 42°

Distance from Turbines 1.3km

Viewing Distance 50cm

View 7 is from Baldock Lane at the edge of Letchworth. This view is used as an example to indicate that the turbines will have an impact on how the landscape is perceived when viewed from Letchworth. The significance of the visual impact is considered to be moderate to major.



View 8 Footpath by A505

Bearing 60°

524186E 231175N

Included Angle 62°

Distance from Turbines 1.1km

Viewing Distance 33cm

Moving towards the site from the west this view is taken from the footpath to Lannock, next to the A505, just before the start of the Baldock Bypass. Although this viewpoint is immediately behind the highway boundary, the landscaping carried out for the construction of the Bypass has screened the road from view. The turbines, however, would be in full view and any mitigation measures to lessen their impact in landscaping terms would be unlikely to be successful. The significance of the visual impact from this public right of way is considered to be moderate to major.



View 9 Lannock Hill

Bearing 36°

524470E 230548N

Included Angle 42°

Distance from Turbines 1.3km

Viewing Distance 50cm

View 9 shows the view from the roadside of Hitchin Road from Weston at the top of Lannock Hill. The size of the turbines can be compared with the nearby trees and hedgerows. This emphasises their size and demonstrates that this would be a major change to the openness of this upland landscape, which is rare in the region. There would be similar views from the rear of properties along Hitchin Road and Fore Street in Weston and from several public rights of way. It is considered that the visual impact and sensitivity is high at these locations and that the significance of the visual impact would be moderate to major.



View 10 The Snipe

Bearing 6°

525554E 230264N

Included Angle 62°

Distance from Turbines 1.1km

Viewing Distance 33cm

View 10 is taken from a similar position at The Snipe in Weston to one given in the application, i.e. Viewpoint 2. We have used a similar angle of view and have produced a comparable result, in terms of turbine location and relative size. This confirms that the two systems used to produce the photomontages are compatible and allays any doubts regarding accuracy. It is also agreed that this area is a highly sensitive location and that the visual impact is high. Significance of the visual impact is considered to be moderate to major.



View 11 Hatch Lane Properties

Bearing 325°

525864E 230710N

Included Angle 42°

Distance from Turbines 0.7km

Viewing Distance 50cm

Approaching the site from the south, this view is taken near to the residential properties at the Weston end of Hatch Lane. This is only 750m from the nearest turbine. It has a high visual impact not only to these properties, but also to many in Fore Street, along to Green End and Clothall. These dominant elements are in full view from the nearby property. The significance of the visual impact is considered to be moderate to major.



View 12 Hatch Lane South

Bearing 335°

525560E 230971N

Included Angle 52°

Distance from Turbines 0.4km

Viewing Distance 40cm

A second view from beside Hatch Lane at the half distance, between the turbines and the residential properties emphasises the high sensitivity and magnitude of the visual impact of this proposal and the significance of the visual impact is considered to be major from this point.



View 13 Footpath Weston hills

Bearing 281°

525684E 231678N

Included Angle 62°

Distance from Turbines 0.2km

Viewing Distance 33cm

View 13 is taken from the public right of way between Green End and Baldock, which is immediately adjacent to the proposed development. Here, this footpath is linked to the nearby Hertfordshire Way, which is a long-distance right of way. There is a mixture of footways/bridleway and permissive bridleway, which are well used and form loop routes from Weston and Baldock. This is a high level route which offers tranquillity and fine wide ranging views, particularly towards Clothall, the Wallington scarp slopes and the North Baldock uplands to the north-east. The proposed engineering operation is totally uncharacteristic in this very highly sensitive location so close to public rights of way and long distance trails. The significance of the visual impact is considered to be major.



View 14 Warren Lane

Bearing 215°

526344E 233185N

Included Angle 42°

Distance from Turbines 1.7km

Viewing Distance 50cm

This photograph, taken from the north-east at Warren Lane, near to the public right of way to Bygrave, shows the undulating slopes of the Baldock Gap landscape conservation area, with the turbines towering above. The robustness of this landscape is weak. It is a distinctive, beautiful landscape that is susceptible to small change and would be dominated by the turbines which are totally uncharacteristic. It is considered that the significance of the visual impact would be major.