

7. A New Road Safety Issue

It had been the intention of DTOG in this report to concentrate only on the 6 reasons for refusal of the last application and analyse whether the current application overcomes these reasons. However, a new road safety issue has arisen as a result of the applicant relocating Turbine 1. It has been moved 90 metres towards the A3079, close to where the pedestrians, cyclists and horse-riders using the Ruby Way will cross this road. This chapter explains the new danger and shows why the application now fails to satisfy Policy DVT18.

This chapter has 5 sub-sections:

- 7.1 The New Location of Turbine 1
- 7.2 The Safe Road Design Team Technical Note (May 2007)
- 7.3 The British Horse Society Recommendation
- 7.4 Recent Turbine Failures in the UK
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7.1 The New Location of Turbine 1

7.1.1 In the previous Dunslund Cross application Turbine 1 (T1) was 210 metres from the A3079. The applicant has had to move it closer to the road in this re-application to try to make the noise immissions at the nearest properties fall within ETSU-R-97 limits. Putting T1 closer to the A3079 is the only way that three turbines can still be erected on this constrained site without breaching the noise limits at Cranmore to the north or Fairlawns to the south west. Even with T1 in this new position the noise limits at these two properties can only be met by running T1 in double noise-reduction mode and T2 and T3 in single noise reduction mode (see Chapter 4).

7.1.2 T1 is now located just 120 metres from the A3079. The turbine will be either 100 m or 99 m tall. The Highways Agency Siting Guidelines require large, commercial turbines to be sited at least '*tip height plus 50 metres*' from trunk roads and a minimum equivalent of '*tip height*' for all other roads. **With the proposed 20 metres micrositing range, T1 could be sited just 100 metres, or tip height, from the A3079. This is the minimum permissible margin and is 10m lower than the '*tip height + 10%*' recommendation usually seen in wind farm applications.**

7.1.3 The A3079 is not a trunk road. A trunk road is one which connects large towns or cities directly and will be either a motorway or an 'A' road with no more than three numbers after the letter, e.g. 'A30 or A386'. On road signs a trunk road will have the number in gold against a green background.

7.1.4 The '*tip height plus 50 metres*' recommendation is to protect road users and Highways Agency workers from debris bouncing and being scattered after a turbine falls over, flaming debris being scattered after a turbine catches fire or ice being thrown by turbines which have no ice detectors fitted, or turbines where the ice detectors have failed to stop the blades rotating.

7.1.5 Such protection is not afforded to users of, or workers on, other 'A', 'B' or minor roads yet the risk of a turbine failure is exactly the same.

7.1.6 In the revised Dunslund Cross wind farm application, the new danger arises as a result of the proximity of Turbine 1 to the point where the Ruby Way Tourist Trail crosses the A3079. To avoid endangering the pedestrians, cyclists and horse-riders who will use this crossing point, drivers will need to be concentrating fully on the road ahead, yet it is at precisely this point that drivers heading north will be distracted by their first clear, close-up view of two of the turbines in the development. The applicant's own photomontages (ES Figures 5.26a (1) & (2)) show how major a distraction this will be, categorised as **significant** in the Environmental Statement text.

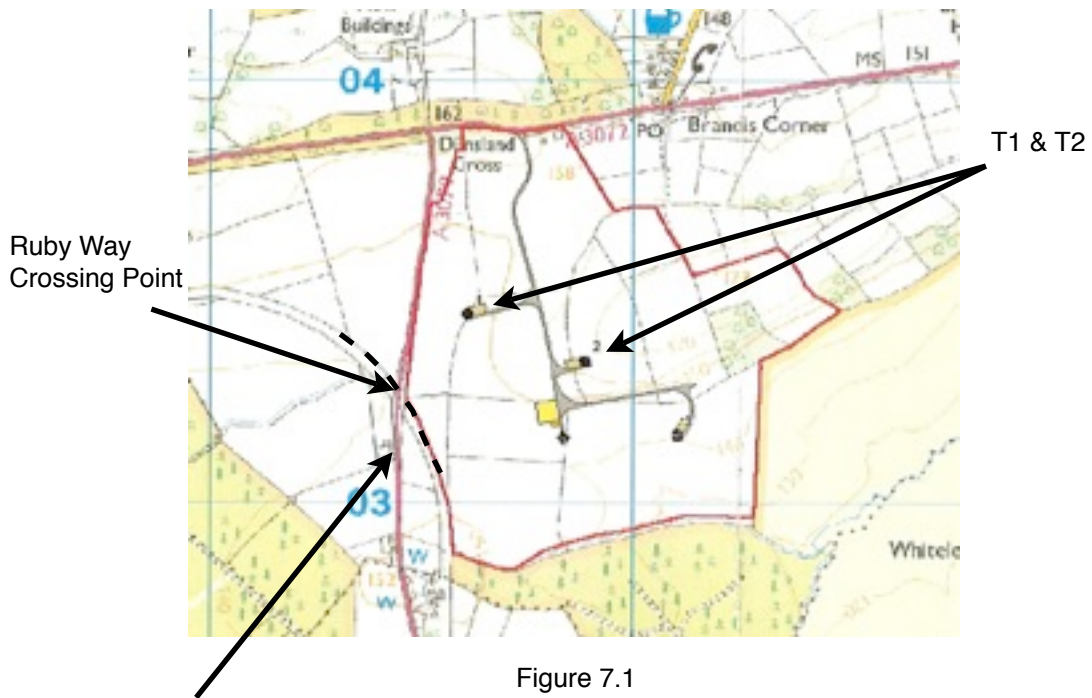
7.2 The Safe Road Design Team Technical Note (May 2007)

7.2.1 This technical note refers to studies by Fauber Maunsell for the Highways Agency dating from 2004 onwards. The basic conclusion from the studies of 'before' and 'after' situations at locations where wind farms were built near roads was that, in statistical terms, there was no significant difference in accident rates.

7.2.2 However, the note also refers to a particular study by The Netherlands Agency for Energy and the Environment which commissioned The Netherlands National Road Safety Research Institute (SWOV) to study the influence of wind farms on road safety. When considering distraction effects SWOV concluded that:

*'under normal conditions wind turbines are unlikely to attract drivers' attention and that if this should happen it will have little impact on road safety. However, SWOV state that **wind turbines should not be sited "where the road user must devote particular attention to the driving task".'***

7.2.3 This is exactly the situation which arises at the Ruby Way crossing point at Dunslund Cross. The map below in Figure 7.1 shows the point of concern:



Position from where Applicant's photomontage Fig. 5.26a (1) & (2) was taken. (240432E 103113N)



7.2.4 It is not possible in this A4-size report to reproduce accurately the applicant's ES Photomontage Figures 5.26a (1) & (2) as they extend across two full A3 sheets. The reader must, however, view the actual photomontages, rather than rely on the thumbnails above, to gain a true understanding of the magnitude of the distraction awaiting drivers travelling North at this point. It is approximately 150 metres further on to the Ruby Way crossing point, or just over 6 seconds for a vehicle travelling at the typical 50 mph road speed for this stretch of the A3079.

7.2.5 Thus drivers will be seriously distracted just 6 seconds ahead of a point in the road where they must avoid pedestrians, cyclists and horses crossing in front of them.

7.2.6 Paragraph 7.1.5 above points out that turbine failures are not related to the type of road running alongside any particular development. The Highways Agency guidelines, 'Network Services. Spatial Planning Advice Note: SP 12/09. Planning Applications for Wind Turbines Sited Near to Trunk Roads.' although specifically targeted at trunk roads, include criteria which should be taken into consideration for all other roads.

7.2.7 The following are extracts from the Guidelines. Paragraph numbers are shown. The emphases are by DTOG:

7. Cases of wind turbines collapsing or blades coming off are very rare but not totally unknown. No formal advice exists within the UK to define where wind turbines can be located in relation to roads. PPS22 states that, "Although a wind turbine erected in accordance with best engineering practice should be a stable structure, it may be advisable to achieve a set-back from roads and railways of at least fall over distance (height measured to blade tip) to achieve maximum safety."

8. However, given the potential consequences were debris to fall on a busy motorway or trunk road, an additional allowance for debris scatter is necessary in order to truly maximize safety.

9. A further factor that must be considered is the phenomenon of ice being thrown from the turbine blades ("icing"). 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.

10. Warming or fragmentation may then lead to ice being shed from the rotating blades. Large fragments may be thrown a considerable distance.

*11. Again, this is a very rare event and the frequency of occurrence does decrease markedly with distance. **Nevertheless, the consequences of an ice projectile hitting a moving vehicle could be severe. Not only would the occupants be at risk but a multivehicle accident could result.***

*12. Most modern wind turbines will have vibration and/or climate sensitive technology that will shut down the turbine if there is the potential for icing. Where this technology is present there should be no need to consider this issue further. **Evidence of this technology on the proposed turbines should be provided.***

*13. **Consideration of the risks associated with structural failure and 'icing' identifies the clear need to incorporate a safety margin in the offset between the trunk road boundary and the siting of a wind turbine.** Therefore, it is appropriate to achieve a setback from the nearest highway boundary equal in distance to their height + 10% for micro and small turbines. **Commercial turbines should be set back a distance equal to their height + 50 metres.***

*14. However, in certain circumstances relaxations to the above set-back may be considered, subject to the findings of a site-specific assessment. **The proposer would be expected to demonstrate that any relaxation on the suggested set-back distance poses no unacceptable risk. The burden of proof will lie with the proposer.***

7.2.8 In light of all that has been written above, it is simply inconceivable that the applicant can **prove** to the Highways Agency that siting a 100m tall commercial turbine 100-120m from an 'A' class road poses no unacceptable risk, as required in paragraph 14 of the HA guidelines.

7.2.9 The safety record of modern wind turbines has been called into question on a number of occasions in recent times. In the UK, turbines have collapsed, shed blades, caught fire or thrown ice. Ice sensors on turbines have not worked (or were never fitted by the developer/operator in the first place - they are an expensive optional extra) and the turbines have continued spinning despite the blades being unbalanced and at risk of failure or throwing ice as a result. Turbine rotor disc brakes have failed on a number of occasions causing the blades to spin ever faster until the nacelle ignites and the whole assembly spectacularly self-destructs.

7.2.10 The component parts likely to be detached from the towers in any accident are substantial pieces of equipment. The whole assembly is well over 100 tonnes. The nacelle/gearbox/generator alone, perched on top of the tower, is approximately 70 tonnes and each blade attached to it is typically 7 tonnes.

7.2.11 The Caithness Windfarm Information Forum has recorded details of hundreds of wind farm accidents up to 31st December, 2011. Detailed analyses of each incident or report can be read and downloaded from <http://www.caithnesswindfarms.co.uk>.

7.3 The British Horse Society Recommendation

7.3.1 In a front page headline article in the Holsworthy edition of *The North Devon Journal* on Thursday 26th January, 2012, the journalist notes:

'An unbroken Ruby Way would form the longest traffic-free walking, cycling and horse-riding route in the UK. It ultimately hopes to link with the Tarka Trail at its eastern end and Bude on the coast in the west.'

7.3.2 T1 will be only 200 metres from the Ruby Way. The British Horse Society (BHS) publishes its own guidance on wind farms and recommended minimum distances between turbines and bridleways. This guidance can be seen at http://www.bhs.org.uk/Riding/Riding_Off_Road/Latest_Information/Wind_Farms/Wind_farms.aspx where it states:

'BHS Guidance on wind farms is:

*That, as a starting point when assessing a site and its potential layout, a **separation distance of four times the overall height should be the target for National Trails and Ride UK routes**, as these are likely to be used by equestrians unfamiliar with turbines, and a distance of three times overall height from all other routes, including roads, with the 200m recommended in the Technical Guidance to PPS22 being seen as the minimum, where it is shown in a particular case that this would be acceptable. The negotiation process recommended in PPS22 should indicate whether, in the particular circumstance of each site, these guidelines can be relaxed or need strengthening to minimise or eliminate the potential difficulties.'*

7.3.3 The applicant has given no indication in the ES that any negotiation process has been entered into with the BHS. Since **the BHS recommendation is for a separation of 400m** to the Ruby Way and **the applicant has set T1 just 200m** from this National Trail, the implication must be that the applicant has not discussed the site with the BHS at all and is simply ignoring the BHS recommendation in much the same way as he has ignored a multitude of other recommendations highlighted throughout this DTOG report.

7.3.4 The Highways Agency and TDC should recommend that T1 is sited further away from the A3079. This will, of course, require a revised Landscape and Visual Impact Assessment (LVIA), Residential Amenity Survey (RAS) and Noise assessment to be submitted as well, to take into consideration the new turbine position.

7.4 Recent Turbine Failures in the UK

7.4.1 The pictures below tell their own story:



Campbelltown, November, 2007



Louth, Lincolnshire, January 4th, 2009. The blades hit the Ecotricity Enercon turbine tower and one was thrown clear.



SAFETY FIRST: Pease Loke, in Morton, is closed off following the recent gale force winds
Exclusion zone around wind farm after gales

By NATALIE CHAPPELLE
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A New exclusion zone is in place around a Furness wind farm after gale force winds battered Cumbria.
Pease Loke in Morton has been closed off since Monday evening as engineers work to fix a mechanical failure on a turbine at Askham and Drith Wind Farm.
Power Generation PLC requested that a section of the area be a safety precaution before the scheduled high winds arrived.
Peter a spokesman for E.ON said: "Because of the weather we are engineering our turbines to be able to carry out the work."
E.ON said the road block may be in place until Friday.
The spokesman said: "It's a safety precaution."



TURBINES: The wind farm near Morton

Askham, Cumbria, March 2008



December 2008: Mr. Tyson Clark with some of the ice which fell off the 125m Vestas V90 turbine at Whittlesey.



December 2011: Blazing debris is scattered from a turbine on fire at the Ardrossan Wind Farm in Ayrshire.

7.5 Summary of this Chapter and Recommendation

This chapter has shown that the siting of Turbine 1 just 120 m from the A3079 poses an unacceptable risk to users of that road.

TDC Policy: DVT18: Impact of Development on Traffic, states:

*'(1) All development must take into account its **impact on the highway network in terms of traffic generated, highway safety, access ...**'*

It is clear from this chapter that the location of Turbine 1 has the potential to adversely affect highway safety, so the application is in conflict with Policy DVT18.

Recommendation: REFUSAL

The applicant has failed to demonstrate that the siting of Turbine 1 just 120 m from the A3079 does not pose an unacceptable risk to road users. The application is, therefore, contrary to TDC Policy DVT18 and must be refused.