

Natural England's Advice on the Bat Mitigation Plan (Version 2)



The Chiltern Railways (Bicester to Oxford Improvements) Order
Transport and Works Act 1992

2nd November 2010

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1. Introduction

1.1. Natural England attended a telephone conference with ERM and Chiltern Railways on the 27th October 2010 to discuss the 'Wolvercot Tunnel Bat Mitigation Plan' Version 2, which was sent to us on the 26th October 2010. This submission summarises our advice on the Plan following this discussion.

1.2. In summary, we are concerned by the lack of baseline survey evidence to date which makes it difficult to appraise impacts. The Mitigation Plan as currently written does not give confidence that impacts to the bat population can be sufficiently avoided and mitigated. The key concern is the proposed speed of the trains which will, at best, increase bat mortality and, at worst, render the tunnel roosts unusable.

2. Proposed Mitigation Measures

2.1 Pre-works Preparation and Structural Investigation Works

2.1.1. On the telecall, Geoff Billington stated that during a site visit on the 25th October he inspected the tunnel and was assured that the drain holes, in which bats were found roosting, are to be retained. We understand that structural investigations are ongoing to determine the potential to retain further cracks and crevices used by the bats; therefore this information is not yet available to inform the mitigation plan (paragraphs 2.1.1: 2 and 3). *It is therefore not currently known how many roosting and hibernation sites stand to be lost as a result of the scheme, which makes assessment of impact difficult.*

2.1.2. Paragraph 3 states that a winter hibernation bat count will be undertaken to further inform the EPS licence application. Natural England has advised that this will be necessary. We have further advised ERM that a complete set of baseline data will be necessary for the EPS licence application. In particular, to fully understand the importance of the tunnel as a movement corridor for bats and to separate this from roosting activity, Anabat detectors should be placed at both ends and in the middle of the tunnel during the months May to September 2011. This must then be repeated during and following the completion of both phases in order to monitor impacts on the bats and allow for initiation of further mitigation measures if necessary. Paragraph 17 of the plan also details surveys to be carried out during the operation of phase 1 (for example bat casualty surveys). We have advised the applicants that similar surveys should be carried out before works start (and ideally before an EPS licence application is submitted) in order to provide baseline data. Geoff Billington's experience in highway bat casualty surveys suggests that the risk of casualties starts from 40mph. There may not currently be any casualties therefore, *but this is not currently known and must be confirmed by survey evidence in order to assess the impact of the scheme.*

2.1.3. Paragraph 5 details the installation of 20 Schwegler bat boxes. Natural England advised that these bat boxes should be installed as soon as possible, so that the bats have as long as possible to find these alternative roosts before the disturbance begins. If they are not provided well in advance, the likelihood of use and, therefore, avoidance of impact is decreased.

2.1.4. Paragraph 9 states that 5 new crevices will be installed as an enhancement measure, and that more crevices will be created if any of the existing crevices are to be lost. Natural England asks that 3 new crevices are created for every one that is lost, to ensure a net gain in roosting habitat.

2.2 Piling and Tunnel Repair Work

2.2.1. Paragraph 10 details the timing of work on a daily basis for the piling and tunnel repair work. Natural England would advise that these timings (i.e. works carried out ideally during the day, or if necessary for part of the night only) are used for **all** of the works in the vicinity, including track works (i.e. 50m), rather than solely in relation to Piling and Tunnel Repair Work.

2.3 Track Works

2.3.1. The Mitigation Plan states (paragraph 11 and 14) that works will be differentiated on the basis of whether they are more than 10m from the tunnel entrance, in order to limit disturbance. Natural England raised concerns that, should bright lights be required to conduct night time works outside the tunnel entrance, 10m was not a sufficient distance to ensure that the bats were not disturbed. In order to overcome this issue, Geoff Billington suggested measuring current night time lux (light) levels, and restricting night time work to within these existing levels within 10m of the tunnel entrance. Any works which could not reasonably be conducted within these light levels would be undertaken during the day. Natural England would support this as appropriate to avoid disturbance. Alternatively, the cut off point could be increased to 50m, so that works could in all other respects be conducted in accordance with paragraphs 11 and 14, but without disturbing the bats.

2.4 Operational Stage – Monitoring

2.4.1. Paragraph 17 details the survey work that will be carried out once phase 1 is operational. As stated above (Para 2.1.2.) the surveys carried out during the operational phase should also be carried out before and during works in order for the data to be comparable.

2.4.2. Paragraph 18 explains the overhead white lighting which is to be implemented if the bat casualty surveys find a significant number of bat casualties. No definition of “a significant number” has been put forward. This may be due to a lack of baseline data, which makes it very difficult to determine what “a significant number” might be, however without defining such a number a judgement cannot be reached on Favourable Conservation Status and an EPS licence is unlikely to be granted.

2.4.3. Regardless of the vague wording currently put forward, Natural England has serious concerns about this system because, although proposed as a mitigation measure, it would introduce a new element of disturbance to the bat population. Furthermore, the system is untested and, as a high tech solution, prone to failure. Natural England would suggest that it is more appropriate to introduce a mitigation measure with greater certainty of avoiding impacts on the bats, namely the slowing of train speeds through the tunnel. Stephen Barker of Chiltern Railways has summarised the various operational restrictions which result in a very tight timetable for the trains. We are aware that this is not a preferred option for the applicants; however they have acknowledged that there is potential flexibility in the timetable very early in the morning and late at night. This would suggest an obvious solution, as bat casualties are likely to occur late in the evening, when they are most

active (between May and October). Natural England suggests that restricting the speed of trains to 40mph (the speed at which Geoff Billington indicates significant bat casualties begin to occur, see Para 2.1.2. above), for trains running between 9pm and 1am during the months of May to October is a practically feasible solution. This represents an alteration to the timetable for a very small proportion (less than 7%) of the passenger trains scheduled to run over the course of any one year. Nonetheless, this solution gives certainty that the risk of bat strike as a result of train speed is not increased above the current level (accepting of course that there will be an increased number of trains as a result of the proposals) and also provides confidence that bat roosts within the tunnel will remain operational. At higher speeds Natural England believes that there can be little certainty that the bats will continue to use roosts within the tunnel. This is due to the alteration of air flow through the tunnel (known as the piston effect) as a result of increased speed, which will certainly cause turbulence and whose effect on the bats has not been investigated, but could include barotrauma.

2.4.4. The 6th bullet point in paragraph 19 states that ‘passenger trains will be timetabled so that they are not scheduled to pass in the tunnel’, however in discussion with Chilterns Railways, it emerged that although this has been put forward as a mitigation measure in the Plan, it has not yet been agreed by the necessary parties. Until such time as this measure is secured, Natural England must assume that trains may pass in the tunnel (and indeed have been informed by the applicants that even if agreement is reached, trains may still pass in the tunnel on occasion if they are running late) and this would greatly increase the risk of bat casualties.

2.4.5. Natural England notes that survey work proposed after completion varies in the length of time it is scheduled for. We would suggest that for consistency and to ensure that the mitigation is sufficient to protect the population, that all monitoring work is conducted for 3 years after completion of phase II.

2.4.6. The last bullet point of paragraph 19 states that if the proposed lighting is not successful in eliminating bat casualties (if they should occur), then an acoustic deterrent will be introduced. Natural England is concerned by this for two reasons, firstly because it indicates that the applicants, just like ourselves, are not convinced that either first stage mitigation measures or the lighting option will be sufficient to avoid bat casualties and secondly because the technology for this option does not currently exist. Assuming that the technology is available in time for usage, Natural England cannot give any indication of the likelihood of success, in fact, we would be concerned that it could impact bats already roosting in the tunnel, rendering all tunnel roosts unsuitable.

2.5 Table 2.2

2.5.1. NE acknowledges that many of the measures (e.g. no trains between 0100-0500, trains passing along one side rather than through the middle of the tunnel, increase in clearance) are not specifically designed to reduce impacts on bats roosting or commuting through the tunnel, rather they result from the operational needs of the scheme, but they may have the effect of reducing some of the impacts and are therefore welcomed.

2.5.2. The retention of bat boxes and creation of crevices in the tunnel wall can only be considered enhancements if the existing roosts inside the tunnel remain viable into the future. There is

currently little certainty that the tunnel roosts will remain usable if the scheme progresses as planned. If the scheme is approved and licensed, and the tunnel becomes inhospitable to bats, then additional boxes will need to be provided for permanent loss of roosting habitat.

3. Draft Construction Methodology for Tunnel Works (Annex A)

3.1. The 6th bullet point on page A1 of this document states that there will be repairs to the drainage system. Natural England raised concerns about changes in the humidity inside the tunnel. Stephen Barker assured us that the drainage works will purely be to replace the existing drainage once the floor has been lowered. He assured us that this new drainage would not change the current conditions. We would suggest that this is both monitored and conditioned, as any change could fundamentally alter the tunnels suitability for roosting bats.

4. Further Concerns

4.1. Natural England is concerned that there has been no assessment of air disturbance caused by trains moving through the tunnel and how this will change with increased train speeds. Natural England feels that this evidence would be essential to be able to predict the effects of train speed upon the bats. Although there will be 1.2m of clearance above the trains, it is unclear if this will be enough to allow bats to fly or roost from the ceiling without any impact from a passing train. If there is no capacity to decrease the proposed train speeds to 40mph through the tunnel, more certainty of avoiding impacts to the bat roost could be achieved by introducing a greater clearance. However, we understand that engineering constraints mean it is unlikely that there will be much scope to increase the clearance above 1.2m (by further reducing the level of the floor). In light of this, we remain unconvinced that the current Bat Mitigation Plan will be successful in avoiding impacts to the bat population.

5. Summary

5.1. Natural England has two major concerns in relation to impacts on bats: preserving the roosting opportunities within the tunnel (including the ability of the bats to reach the roost) and preventing bat mortality. We are not in a position to withdraw our objection to the scheme on the basis of the current Bat Mitigation Plan without evidence that the increased train speed will not result in either bat mortality or the effective removal of the roosting opportunity, unless the train speed through the tunnel is reduced to a speed at which we can be confident that bats and their potential to roost has not been impacted. Geoff Billington's assertion is that 40mph is the point at which mortality is likely to increase.