

**PROPOSED CHILTERN RAILWAYS (BICESTER TO OXFORD IMPROVEMENTS)
ORDER**

NOTE ON

REFINED NOISE MODELLING AND MONITORING

1 Introduction

- 1.1 This note provides a summary of the letters and other correspondence with Objectors regarding developments in the noise and vibration assessment. It also describes the letters that are being sent by Chiltern Railways to Objectors detailing the results of refined noise modelling for their particular properties.

2 History of Discussions with Objectors

- 2.1 Chiltern Railways has adopted a multi-stage approach to engage with Objectors regarding noise and vibration issues. Initially contact was through leaflet drops and public meetings. Meetings were also held with political representatives such as north Oxford councillors, and correspondence with the local MP. Noise and vibration were both key concerns that were discussed at this stage of the project.
- 2.2 The project website carried all of the information that was available including the Environmental Statement (ES). The ES including the Non-technical Summary was intended to explain fully what the effects of noise and vibration would be as a result of the Scheme.
- 2.3 Since some residents sent in standard objection letters including a standard tick sheet of concerns regarding noise and vibration, these were responded to with standard responses covering the issues raised. Objectors who wrote more specific letters were sent more specific responses. These responses were sent over the summer of 2010. Follow up letters were sent to see if the previous information had answered all of the Objectors' concerns, and whether they still objected to the Scheme.

3 Further Noise Modelling Letters to Objectors

- 3.1 Following the initial round of communication with Objectors in early to mid-summer 2010 and preparation of the draft Noise and Vibration Mitigation Policy, further noise

modelling and monitoring have been carried out. This was completed in late October 2010.

3.2 Letters have or are in the process of being sent to Objectors with the purpose of:

- reporting the noise effects specifically at the properties of objectors based on the noise modelling and monitoring carried out since the ES;
- explaining the noise mitigation that will be provided as a result of the Noise and Vibration Policy being implemented, noting that the final form of mitigation will be determined during detailed design before the Scheme is operational; and
- explaining the residual effect of noise with this mitigation in place.

3.3 Objectors have been divided into three categories depending upon past correspondence and the level of detail requested.

Type A : Those Objectors who did not respond to follow-up letters sent by ERM on behalf of Chiltern Railways following the initial letter of objection.

Type B: Those objectors who did respond to follow-up letters.

Type C: Special cases, who are not included in the above, but who have specifically asked for noise levels at their property and for whom Chiltern Railways can now provide detailed modelling results.

All objectors were sent the *Chiltern Railways (Bicester to Oxford Improvements) TWA Order Noise and Vibration Mitigation Policy (October 2010) [CD/1.29]*, which sets out Chiltern Railways' commitments to control noise and vibration impacts. Modelling results were sent to all Type B and C objectors, and where appropriate, additional information was provided to Type C objectors to address other specific issues. Where proofs of evidence had been submitted, these other issues were not addressed in the letters but instead treated separately in rebuttals.

3.4 The current status of letters to noise and vibration Objectors is summarised below in Table 1. In addition, several objectors have requested noise predictions at their properties following their appearance at the inquiry. Whilst most of these requests have now been dealt with, they have not been included in this document as this is an ongoing process.

Table 1: Letters Sent to Type B Objectors

| Date of letter | Objector | Address of Objector |
|----------------|----------|---|
| 10/11/2010 | OBJ9 | 3 First Turn Upper Wolvercote Oxford OX2 8AG |
| 10/11/2010 | OBJ14 | 15 Quadrangle House St Peters Road Upper Wolvercote Oxford |

| Date of letter | Objector | Address of Objector |
|-----------------------|-----------------|---|
| 02/11/2010 | OBJ31 | OX2 8BN Greengage Barn Mill Farm Mill Street Islip Oxon OX5 2SX |
| 02/11/2010 | OBJ32 | 4 Mill Farm Barns Mill Street Islip Oxon OX5 2SX |
| 29/10/2010 | OBJ37 | 33 Lakeside Oxford OX2 8JF |
| 10/11/2010 | OBJ38 | 3 Bladon Close Oxford OX2 8AD |
| 12/11/2010 | OBJ47 | 3 Mill Farm Barns Mill Street Islip Oxfordshire OX5 2SX |
| 10/11/2010 | OBJ48 | Wolvercote Primary School First Turn Wolvercote Oxford OX2 8AQ |
| 12/11/2010 | OBJ68 | High Street Charlton on Otmoor Kidlington Oxford OX5 2UQ |
| 12/11/2010 | OBJ70 | Barndon Farm Oddington Kidlington Oxon OX5 2UW |
| 02/11/2010 | OBJ75 | Cotswold House Mill Street Islip OX5 2SY |
| 10/11/2010 | OBJ80 | 71 Blenheim Drive Oxford OX2 8DL |
| 10/11/2010 | OBJ84 | 68 Ulfgar Road Wolvercote Oxford OX2 8BA |
| 10/11/2010 | OBJ88 | 16 Quadrangle House St Peters Road Oxford OX2 8BN |
| 12/11/2010 | OBJ90 | Curtesy House Mill Street Islip Oxford OX5 2SY |

| Date of letter | Objector | Address of Objector |
|-----------------------|-----------------|---|
| 03/11/2010 | OBJ91 | The Grange Mill Street Islip OX5 2SY |
| 10/11/2010 | OBJ96 | 70 Blenheim Drive Oxford OX2 8DQ |
| 02/11/2010 | OBJ98 | Geoffrey Hubble Cluttons LLP Portman House 2 Portman Street London, W1H 6DU |
| 02/11/2010 | OBJ99 | 22 Mill Street Islip Kidlington OX5 2SY |
| 02/11/2010 | OBJ100 | 23 Mill Street Islip Kidlington OX5 2SY |
| 09/11/2010 | OBJ110 | Merton House 61 Rewley Road Oxford OX1 2RG |
| 10/11/2010 | OBJ115 | 7 St Peters Road Upper Wolvercote Oxford OX2 8AU |
| 29/10/2010 | OBJ132 | 15 Lakeside Oxford OX2 8JF |
| 29/10/2010 | OBJ133 | 19 Lakeside Oxford OX2 8JF |
| 29/10/2010 | OBJ134 | 21 Lakeside Oxford OX2 8JF |
| 29/10/2010 | OBJ143 | 45 Lakeside Oxford OX2 8JQ |
| 29/10/2010 | OBJ144 | 47 Lakeside Oxford OX2 8JQ |
| 29/10/2010 | OBJ147 | 53 Lakeside Oxford OX2 8JQ |
| 29/10/2010 | OBJ150 | 61 Lakeside Oxford OX2 8JQ |
| 02/11/2010 | OBJ216 | Orchard Cottage Mill Street Islip Oxon OX5 2SY |
| 29/10/2010 | OBJ217 | 32 Lakeside Oxford OX2 8JG |
| 12/11/2010 | OBJ225 | F, J and J Shouler |

| Date of letter | Objector | Address of Objector |
|-----------------------|-----------------|--|
| | | Elm Tree Farm Wendlebury Bicester Oxon OX25 2QA |
| 11/11/2010 | OBJ231 | 4 Blenheim Drive Oxford OX2 8DG |
| 09/11/2010 | OBJ232 | 20 Stable Close Oxford OX1 2RF |
| 29/10/2010 | OBJ234 | 37 Lakeside Oxford OX2 8JF |
| 09/11/2010 | OBJ235 | 12 Stable Close Rewley Park Oxford OX1 2RF |
| 09/11/2010 | OBJ237 | Lincoln House 83 Rewley Road Oxford, OX1 2RQ |
| 10/11/2010 | OBJ253 | 10 Quadrangle House St Peters Road OX2 8BN |
| 10/11/2010 | OBJ255 | 110 Linkside Avenue Oxford OX2 8JB |
| 10/11/2010 | OBJ274 | 77 Blenheim Drive Oxford OX2 8DL |
| 29/10/2010 | OBJ275 | 26 Lakeside Oxford OX2 8JG |
| 29/10/2010 | OBJ279 | 38 Lakeside Oxford OX2 8JH |
| 12/11/2010 | OBJ282 | 12 Priory Road Bicester OX26 6BH |
| 02/11/2010 | OBJ283 | 54 Kidlington Road Islip Oxon OX5 2ST |
| 12.11.2010 | OBJ288 | 82 Five Mile Drive Oxford OX2 8HN |
| 10/11/2010 | OBJ290 | 45 Ulfgar Road Wolvercote Oxford OX2 8BA |
| 29/10/2010 | OBJ295 | 35 Lakeside Oxford OX2 8JF |
| 10/11/2010 | OBJ297 | John Gittos Manor Farm House Godstow Road Wolvercote OX2 8AJ |
| 10/11/2010 | OBJ303 | 24 Blenheim Drive |

| Date of letter | Objector | Address of Objector |
|----------------|----------|---|
| | | Oxford OX2 8DG |
| 12.11.2010 | OBJ304 | 34 Stone Meadow Oxford OX2 6TQ |
| 02.11.2010 | OBJ50/93 | Prospect House, Mill Street, Islip OX5 2SY |
| | OBJ309 | Work address provided. Residential address being confirmed. |

4 Further Noise Modelling Following the Publication of the Environmental Statement (ES)

- 4.1 Although the ES included a robust assessment of existing noise levels and demonstrated the likely effects of the Order Scheme, further work has been undertaken to refine knowledge of the spatial scope of the noise impacts that will result from the Order Scheme and to help design the required mitigation. This is an entirely standard approach to scheme development and the refinement of the mitigation of impacts has progressed since the ES was submitted. This work has involved further noise monitoring and modelling which are discussed in Michael Frasers proof of evidence **[CRCL/P/9/B]**, section 4.
- 4.2 The modelling has been carried out using a computer modelling package 'SoundPlan', designed specifically to model railway noise in accordance with 'Calculation of Railway Noise' (CRN) and employs detailed topographical data. This has allowed the predicted effects of the Scheme to be computed at individual properties. Individual letters are in the process of being sent out to objectors (as outlined in section 2), informing them of the predicted effects of the Scheme at their property.
- 4.3 Table 2 compares the results of the further modelling with those presented in the ES for the representative receptors set out in the ES. The reported residual impact in the ES was the worse of the day or night values. The further modelling indicates that the assessment at representative locations reported in the ES generally overestimated the effects, although, for the reasons stated, there were discrepancies in the amendments reported at five locations.
- 4.4 Table 3 sets out the individual noise predictions sent recently to Objectors who have requested individual noise predictions. The results of this further modelling are broadly consistent with those reported for the nearest representative locations in the ES.

Table 2 Comparison of Further Noise Modelling Results with the ES

| ES Receptor number | Objector number | Receptor Description | Existing Baseline dB(A) | | Further modelling Unmitigated Impact dB | | Further modelling Residual Impact dB | | ES Reported Residual Impact (worse of the day or night impact) | Comment |
|--------------------|-----------------|---|-------------------------|-------|---|-------|--------------------------------------|-------|--|---------|
| | | | Day | Night | Day | Night | Day | Night | | |
| 1 | | Bicester, Gavray Drive (east) | 45 | 40 | 0 | 0 | 0 | 0 | 0 | |
| 2 | | Bicester, Gavray Drive (west) | 45 | 40 | 0 | 6 | 0 | 0 | 0 | |
| 3 | | Bicester, Whimbrel Close | 45 | 40 | 9 | 17 | 8 | 16 | 16 | |
| 4 | | Bicester, Langford Village | 45 | 40 | 6 | 14 | 0 | 0 | 2 | |
| 5 | | Bicester, Closest properties on London Road | 50 | 48 | 7 | 11 | 0 | 4 | 7 | |

| ES Receptor number | Objector number | Receptor Description | Existing Baseline dB(A) | | Further modelling Unmitigated Impact dB | | Further modelling Residual Impact dB | | ES Reported Residual Impact (worse of the day or night impact) | Comment |
|--------------------|-----------------|--|-------------------------|-------|---|-------|--------------------------------------|-------|---|---|
| | | | Day | Night | Day | Night | Day | Night | | |
| 6 | | Langford Lane crossing house | 49 | 48 | 12 | 16 | 0 | 4 | 5 | |
| 7 | | Holts Farm | 47 | 43 | 9 | 16 | 0 | 2 | 2 | |
| 8 | | Oddington Crossing station house | 54 | 50 | 15 | 16 | 7 | 9 | 13 | |
| 9 | | Islip, station house | 49 | 43 | 6 | 13 | 6 | 13 | 11 | The railway runs in a cutting at this location. The predictions have now been refined using 3D computer modelling software and detailed topographical data. |
| 10 | | Islip, Closest properties on Kidlington Road | 45 | 38 | 11 | 17 | 5 | 11 | 8 | The railway runs in a cutting at this location. The predictions have now been refined using 3D computer modelling software and detailed topographical data. |

| ES Receptor number | Objector number | Receptor Description | Existing Baseline dB(A) | | Further modelling Unmitigated Impact dB | | Further modelling Residual Impact dB | | ES Reported Residual Impact (worse of the day or night impact) | Comment |
|--------------------|-----------------|--|-------------------------|-------|---|-------|--------------------------------------|-------|---|--|
| | | | Day | Night | Day | Night | Day | Night | | |
| 11 | 125 | Islip, Kareol (level crossing masters house) | 56 | 53 | 16 | 16 | 0 | 0 | 16 | ES incorrectly assessed at 1st floor (property is ground floor only) |
| 12 | 98 | Islip, Mill Farm | 46 | 38 | 4 | 10 | 0 | 1 | 15 | Insulation was suggested for these properties instead of barrier in ES because of the visually intrusive nature of a long barrier for a relatively small number of properties. Following consultation with the residents in this area, a 1m barrier is currently proposed. |
| 13 | | Northfield Cottages | 47 | 40 | 4 | 11 | 4 | 11 | 12 | |
| 14 | | Lakeside | 54 | 50 | 8 | 11 | 0 | 0 | 2 | |
| 15 | 48 | Wolvercote Primary School | 46 | n/a | 0 | n/a | 0 | n/a | 0 | |

| ES Receptor number | Objector number | Receptor Description | Existing Baseline dB(A) | | Further modelling Unmitigated Impact dB | | Further modelling Residual Impact dB | | ES Reported Residual Impact (worse of the day or night impact) | Comment |
|--------------------|-----------------|--|-------------------------|-------|---|-------|--------------------------------------|-------|--|--|
| | | | Day | Night | Day | Night | Day | Night | | |
| 16 | 14/88 | Quadrangle House 2nd Floor Wolvercote, St. Peters Road | 52 | 46 | 8 | 13 | 4 | 9 | 8 | Window heights have now been measured and replace the assumptions used in the ES assessment. |
| 17 | | Oxford, Cox's Ground | 55 | 48 | 5 | 7 | 0 | 0 | 4 | |
| 18 | | Oxford, Merrivale Square | 55 | 48 | 7 | 9 | 0 | 0 | 6 | |
| 19 | | Oxford, William Lucy Way | 54 | 54 | 1 | 1 | 0 | 0 | 0 | |
| 20 | 237 | Oxford, Northern end of Rewley Rd | 61 | 59 | 0 | 0 | 0 | 0 | 0 | |
| 21 | 110 | Oxford, Southern end | 61 | 59 | 0 | 0 | 0 | 0 | 0 | |

| ES Receptor number | Objector number | Receptor Description | Existing Baseline dB(A) | | Further modelling Unmitigated Impact dB | | Further modelling Residual Impact dB | | ES Reported Residual Impact (worse of the day or night impact) | Comment |
|--------------------|-----------------|----------------------|-------------------------|-------|---|-------|--------------------------------------|-------|---|---------|
| | | | Day | Night | Day | Night | Day | Night | | |
| | | of Rewley Rd | | | | | | | | |
| 22 | | Oxford, Stable Close | 50 | 45 | 0 | 0 | 0 | 0 | 0 | |

Table 3 Summary of Further Noise Modelling Results Sent to Objectors

| Objector number | Receptor Description | Existing Baseline | | Unmitigated Impact | | Residual Impact | |
|-----------------|-----------------------------------|--|-------|--------------------|-------|-----------------|-------|
| | | Day | Night | Day | Night | Day | Night |
| 282 | 12 Priory Road, Bicester. | Assumed to be low and therefore has no influence on the impact assessment. | | 0 | 0 | 0 | 0 |
| 225 | Elm Tree Farm, Wendlebury | 40 | 44 | 0 | 0 | 0 | 0 |
| 68 | High Street, Charlton on Otmoor | Assumed to be low and therefore has no influence on the impact assessment. | | 0 | 0 | 0 | 0 |
| 70 | Barndon Farm, Oddington | Assumed to be low and therefore has no influence on the impact assessment. | | 0 | 0 | 0 | 0 |
| 283 | 54 Kidlington Road, Islip | 45 | 38 | 0 | 0 | 0 | 0 |
| 216 | Orchard Cottage Mill Street Islip | 45 | 38 | 0 | 0 | 0 | 0 |

| Objector number | Receptor Description | Existing Baseline | | Unmitigated Impact | | Residual Impact | |
|-----------------|------------------------------------|--|-------|--------------------|-------|-----------------|-------|
| | | Day | Night | Day | Night | Day | Night |
| 50/93 | Prospect House, Mill Street, Islip | 45 | 39 | 0 | 0 | 0 | 0 |
| 75 | Cotswold House, Mill Street, Islip | 45 | 38 | 0 | 0 | 0 | 0 |
| 99 | 22 Mill Street, Islip | 45 | 39 | 0 | 0 | 0 | 0 |
| 100 | 23 Mill Street, Islip | 45 | 39 | 0 | 0 | 0 | 0 |
| 91 | The Grange, Mill Street, Islip | 47 | 41 | 0 | 4 | 0 | 1 |
| 31 | Greengage Barn, Mill Street, Islip | 47 | 42 | 0 | 5 | 0 | 0 |
| 32 | 4 Mill Barn, Islip | 49 | 43 | 9 | 15 | 0 | 3 |
| 47 | 3 Mill Barn, Islip | 48 | 41 | 7 | 14 | 0 | 3 |
| 98 | Islip, Mill Farm | 46 | 38 | 4 | 10 | 0 | 1 |
| 90 | Curtesy House, Islip | 45 | 39 | 0 | 0 | 0 | 0 |
| 279 | 38 Lakeside, Oxford | Assumed to be low and therefore has no influence on the impact assessment. | | 0 | 0 | 0 | 0 |
| 132 | 15 Lakeside | 54 | 50 | 8 | 10 | 0 | 0 |

| Objector number | Receptor Description | Existing Baseline | | Unmitigated Impact | | Residual Impact | |
|-----------------|------------------------------------|--|-------|--------------------|-------|-----------------|-------|
| | | Day | Night | Day | Night | Day | Night |
| 133a | 19 Lakeside (1 storey outbuilding) | 55 | 50 | 9 | 11 | 0 | 0 |
| 133b | 19 Lakeside (main building) | 54 | 50 | 7 | 10 | 0 | 0 |
| 134 | 21 Lakeside | 55 | 51 | 7 | 9 | 0 | 0 |
| 144 | 47 Lakeside | 54 | 50 | 8 | 11 | 0 | 0 |
| 147 | 53 Lakeside | 54 | 50 | 9 | 11 | 0 | 0 |
| 150 | 61 Lakeside | 53 | 49 | 8 | 11 | 0 | 0 |
| 217 | 32 Lakeside | Assumed to be low and therefore has no influence on the impact assessment. | | 0 | 0 | 0 | 0 |
| 234 | 37 Lakeside | 53 | 50 | 6 | 9 | 0 | 0 |
| 275 | 26 Lakeside | Assumed to be low and therefore has no influence on the impact assessment. | | 0 | 0 | 0 | 0 |
| 37a | 33 Lakeside, 1 storey extension | 53 | 50 | 7 | 10 | 0 | 0 |
| 37b | 33 Lakeside, main building | 53 | 50 | 4 | 7 | 0 | 0 |

| Objector number | Receptor Description | Existing Baseline | | Unmitigated Impact | | Residual Impact | |
|-----------------|--|-------------------|-------|--------------------|-------|-----------------|-------|
| | | Day | Night | Day | Night | Day | Night |
| 143 | 45 Lakeside | 54 | 50 | 8 | 10 | 0 | 0 |
| 295 | 35 Lakeside | 53 | 50 | 6 | 9 | 0 | 0 |
| 255 | 110 Linkside Avenue, Oxford | 49 | 45 | 0 | 5 | 0 | 0 |
| 288 | 82 Five Mile Drive, Oxford | 48 | 45 | 0 | 0 | 0 | 0 |
| 297 | Manor Farm House, Godstow Road, Oxford | 48 | 36 | 0 | 0 | 0 | 0 |
| 9 | 3 First Turn, Oxford | 49 | 39 | 0 | 2 | 0 | 1 |
| 48 | Wolvercote Primary School, First Turn | 46 | n/a | 0 | n/a | 0 | n/a |
| 253 | First floor, Quadrangle House, St. Peters Road, Oxford | 53 | 46 | 10 | 15 | 3 | 7 |
| 14 | Quadrangle House 2nd Floor Wolvercote, St. Peters Road | 52 | 46 | 8 | 13 | 4 | 9 |
| 88 | Quadrangle House 2nd Floor Wolvercote, St. Peters Road | 52 | 46 | 8 | 13 | 4 | 9 |

| Objector number | Receptor Description | Existing Baseline | | Unmitigated Impact | | Residual Impact | |
|-----------------|-------------------------------------|-------------------|-------|--------------------|-------|-----------------|-------|
| | | Day | Night | Day | Night | Day | Night |
| 115 | 7 St Peters Road, | 49 | 42 | 2 | 8 | 0 | 0 |
| 290 | 45 Ulfgar Road, Oxford | 49 | 42 | 2 | 7 | 0 | 0 |
| 84 | 68 Ulfgar Road | 48 | 37 | 0 | 0 | 0 | 0 |
| 38 | 3 Bladon Close, Oxford | 52 | 47 | 9 | 13 | 0 | 1 |
| 274 | 77 Blenheim Drive, Oxford | 51 | 48 | 5 | 9 | 0 | 0 |
| 231 | 4 Blenheim Drive | 48 | 45 | 0 | 0 | 0 | 0 |
| 303 | 24 Blenheim Drive | 48 | 45 | 0 | 0 | 0 | 0 |
| 80 | 71 Blenheim Drive | 49 | 46 | 0 | 6 | 0 | 0 |
| 96 | 70 Blenheim Drive | 48 | 46 | 0 | 3 | 0 | 0 |
| 304 | 34 Stone Meadow, Oxford | 55 | 48 | 5 | 7 | 0 | 0 |
| 237 | Lincoln House, Rewley Rd, Oxford | 61 | 59 | 0 | 0 | 0 | 0 |
| 110 | Merton House, Rewley Rd | 61 | 59 | 0 | 0 | 0 | 0 |
| 232 | 20 Stable Close | 50 | 45 | 0 | 0 | 0 | 0 |

| Objector number | Receptor Description | Existing Baseline | | Unmitigated Impact | | Residual Impact | |
|-----------------|----------------------|-------------------|-------|--------------------|-------|-----------------|-------|
| | | Day | Night | Day | Night | Day | Night |
| 235 | 12 Stable Close | 50 | 45 | 0 | 0 | 0 | 0 |

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24 November 2010