# Agenda

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OXFORD CITY COUNCIL

# West Area Planning Committee

Date: **Tuesday 13 September 2016**

Time: **6.00 pm**

Place: **The Old Library, Town Hall**

For any further information please contact the Democratic Services Officer:

**Catherine Phythian, Committee and Member Services Officer**

Telephone: 01865 252402

Email: democraticservices@oxford.gov.uk

As a matter of courtesy, if you intend to record the meeting please let the Democratic Services Officer know how you wish to do this before the start of the meeting.

# West Area Planning Committee

**Membership**

| | | |
|---|---|---|
| **Chair** | Councillor Louise Upton | North; |
| **Vice-Chair** | Councillor Tom Landell Mills | St. Margaret's; |
| | Councillor Colin Cook | Jericho and Osney; |
| | Councillor Jean Fooks | Summertown; |
| | Councillor Alex Hollingsworth | Carfax; |
| | Councillor Jennifer Pegg | Northfield Brook; |
| | Councillor Bob Price | Hinksey Park; |
| | Councillor John Tanner | Littlemore; |
| | Councillor Marie Tidball | Hinksey Park; |

The quorum for this meeting is five members. Substitutes are permitted

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# AGENDA

Pages

**1 APOLOGIES FOR ABSENCE AND SUBSTITUTIONS**

**2 DECLARATIONS OF INTEREST**

**3 EAST WEST RAIL PHASE 1 - RAIL DAMPING ROUTE SECTIONS H (16/01858/VAR) AND I-1 (16/01861/VAR)** 17 - 78

**Note re appendices**

- Appendix 1 is common to agenda items 3 and 4 (found on page 35)
- Appendices 2 and 3 are common to agenda items 3, 4 and 5 (pages 37 and 39)
- Appendix 4 and 5 a, b, c are specific to this report (pages 53, 63 - 77)

**3a 16/01858/VAR: to remove condition 2 of 15/00956/CND in relation to the use of 'Tata SilentTrack' in Section H.**

**Site address:** Chiltern Railway from Oxford to Bicester **Appendix 1**

**Proposal:** Application under Section 73 of the Town and Country Planning Act 1990 to remove condition 2 of 15/00956/CND in relation to the use of 'Tata SilentTrack' in Section H.

**Officer recommendation:**
West Area Planning Committee is recommended to **refuse** this application 16/01858/VAR (route-section H) for the following reason:

1 It has not been demonstrated to the satisfaction of the Council that the provision of rail damping is not reasonably practicable for route-section H/I-1. While it may be reasonable to expect that rail damping will provide additional noise attenuation, and that safety and safe working conditions would not prevent the installation of rail damping, insufficient regard has been given in the application to local conditions and the financial considerations of installing rail damping. The application is therefore contrary to policies CP6 and CP10 of the adopted Oxford Local Plan 2001-2016, and policies CS13 and CS27 of the adopted Core Strategy 2026.

**3b 16/01861/VAR: to remove condition 2 of 15/03503/CND in relation to the use of 'Tata SilentTrack' in Section I-1**

**Site address:** Chiltern Railway from Oxford to Bicester **Appendix 1**

**Proposal:** Application under Section 73 of the Town and Country Planning Act 1990 to remove condition 2 of 15/03503/CND in relation to the use of 'Tata SilentTrack' in Section I-1.

**Officer recommendation:**

West Area Planning Committee is recommended to **refuse** this application 16/01861/VAR (route-section I-1) for the following reason:

1 It has not been demonstrated to the satisfaction of the Council that the provision of rail damping is not reasonably practicable for route-section H/I-1. While it may be reasonable to expect that rail damping will provide additional noise attenuation, and that safety and safe working conditions would not prevent the installation of rail damping, insufficient regard has been given in the application to local conditions and the financial considerations of installing rail damping. The application is therefore contrary to policies CP6 and CP10 of the adopted Oxford Local Plan 2001-2016, and policies CS13 and CS27 of the adopted Core Strategy 2026.

**4 EAST WEST RAIL PHASE 1 - NOISE MONITORING (2 APPLICATIONS) AND VIBRATION MONITORING ON ROUTE ( 3 APPLICATIONS)** 79 - 88

**Note re appendices**

- Appendix 1 is common to agenda items 3 and 4 (found on page 35)
- Appendices 2 and 3 are common to agenda items 3, 4 and 5 (pages 37 and 39)

**4a 16/01410/VAR: Vibration monitoring on plain line, route section H (re - 13/03202/CND, Condition 3)**

**Site address:** Chiltern Railway From Oxford To Bicester Appendix 1 – route sections H and I-1

**Proposal:** Applications under Section 73 of the Town and Country Planning Act, 1990 to vary conditions in relation to noise and vibration monitoring in route sections H and I-1.

**Officer recommendation:**

West Area Planning Committee is recommended to approve this application 16/01410/VAR for the following reasons and subject to and including:

- the conditions listed below *(conditions are in part dependent on the determination of applications 16/01858/VAR and 16/01861/VAR earlier in this Agenda);* and
- conclusion of a Unilateral Undertaking (to monitor vibration for four days at 3 properties close to the line in route section H) the decision upon which to be delegated to the Head of Planning and Regulatory Services:

**Reasons for Approval**

1 The proposed monitoring makes satisfactory provision to help secure a reasonable level of mitigation of the noise and vibration impacts of the scheme on local residents.

2 Officers have considered carefully all objections to these proposals. Officers have come to the view, for the detailed reasons set out in the officers report, that the objections do not amount, individually or cumulatively, to a reason for refusal and that all the issues that have been raised have been adequately addressed and the relevant bodies consulted.

**Conditions** (to be applied as relevant to the permissions being varied):

1 Development in accordance with application documents

2 *not applicable to this application*

3 Monitoring in accordance with submitted scheme

**4b 16/01411/VAR: Vibration monitoring at switches and crossings, route section H (re - 14/00232/CND, Condition 3)**

**Site address:** Chiltern Railway From Oxford To Bicester Appendix 1 – route sections H and I-1

**Proposal:** Applications under Section 73 of the Town and Country Planning Act, 1990 to vary conditions in relation to noise and vibration monitoring in route sections H and I-1.

**Officer recommendation:**

West Area Planning Committee is recommended to approve this application 16/01411/VAR for the following reasons and subject to and including:

- the conditions listed below *(conditions are in part*

*dependent on the determination of applications 16/01858/VAR and 16/01861/VAR earlier in this Agenda);* and,

- conclusion of a Unilateral Undertaking (to monitor vibration for four days at 3 properties close to the line in route section H) the decision upon which to be delegated to the Head of Planning and Regulatory Services

**Reasons for Approval**

1 The proposed monitoring makes satisfactory provision to help secure a reasonable level of mitigation of the noise and vibration impacts of the scheme on local residents.

2 Officers have considered carefully all objections to these proposals. Officers have come to the view, for the detailed reasons set out in the officers report, that the objections do not amount, individually or cumulatively, to a reason for refusal and that all the issues that have been raised have been adequately addressed and the relevant bodies consulted.

**Conditions** (to be applied as relevant to the permissions being varied):

1 Development in accordance with application documents

2 *not applicable to this application*

3 *not applicable to this application*

## 4c 16/01406/VAR: Noise monitoring route section H (re - 15/00956/CND, Condition 4)

**Site address:** Chiltern Railway From Oxford To Bicester Appendix 1 – route sections H and I-1

**Proposal:** Applications under Section 73 of the Town and Country Planning Act, 1990 to vary conditions in relation to noise and vibration monitoring in route sections H and I-1.

**Officer recommendation:**

West Area Planning Committee is recommended to approve this application 16/01406/VAR for the following reasons and subject to and including:

- the conditions listed below *(conditions are in part dependent on the determination of applications 16/01858/VAR and 16/01861/VAR earlier in this Agenda);* and,
- conclusion of a Unilateral Undertaking (to monitor

vibration for four days at 3 properties close to the line in route section H) the decision upon which to be delegated to the Head of Planning and Regulatory Services

**Reasons for Approval**

1 The proposed monitoring makes satisfactory provision to help secure a reasonable level of mitigation of the noise and vibration impacts of the scheme on local residents.

2 Officers have considered carefully all objections to these proposals. Officers have come to the view, for the detailed reasons set out in the officers report, that the objections do not amount, individually or cumulatively, to a reason for refusal and that all the issues that have been raised have been adequately addressed and the relevant bodies consulted.

**Conditions** (to be applied as relevant to the permissions being varied):

1 Development in accordance with application documents

2 Implementation of SilentTrack

*(dependent on the determination of applications 16/01858/VAR and 16/01861/VAR earlier on this Agenda)*

3 Monitoring in accordance with submitted scheme.

## 4d 16/01412/VAR: Vibration monitoring on plain line, route section I-1(re - 15/03587/CND, Condition 3)

**Site address:** Chiltern Railway From Oxford To Bicester Appendix 1 – route sections H and I-1

**Proposal:** Applications under Section 73 of the Town and Country Planning Act, 1990 to vary conditions in relation to noise and vibration monitoring in route sections H and I-1.

**Officer recommendation:**

West Area Planning Committee is recommended to approve this application 16/01412/VAR for the following reasons and subject to and including:

- the conditions listed below *(conditions are in part dependent on the determination of applications 16/01858/VAR and 16/01861/VAR earlier in this Agenda);* and,
- conclusion of a Unilateral Undertaking (to monitor

vibration for four days at 3 properties close to the line in route section H) the decision upon which to be delegated to the Head of Planning and Regulatory Services

**Reasons for Approval**

1 The proposed monitoring makes satisfactory provision to help secure a reasonable level of mitigation of the noise and vibration impacts of the scheme on local residents.

2 Officers have considered carefully all objections to these proposals. Officers have come to the view, for the detailed reasons set out in the officers report, that the objections do not amount, individually or cumulatively, to a reason for refusal and that all the issues that have been raised have been adequately addressed and the relevant bodies consulted.

**Conditions** (to be applied as relevant to the permissions being varied):

1 Development in accordance with application documents

2 *not applicable to this application*

3 *not applicable to this application*

**4e 16/01409/VAR: Noise monitoring route section I-1 (re-15/03503/CND, Condition 4)**

**Site address:** Chiltern Railway From Oxford To Bicester Appendix 1 – route sections H and I-1

**Proposal:** Applications under Section 73 of the Town and Country Planning Act, 1990 to vary conditions in relation to noise and vibration monitoring in route sections H and I-1.

**Officer recommendation:**

West Area Planning Committee is recommended to approve this application 16/01409/VAR for the following reasons and subject to and including:

- the conditions listed below *(conditions are in part dependent on the determination of applications 16/01858/VAR and 16/01861/VAR earlier in this Agenda);* and,
- conclusion of a Unilateral Undertaking (to monitor vibration for four days at 3 properties close to the line in route section H) the decision upon which to be delegated to the Head of Planning and Regulatory Services

**Reasons for Approval**

1 The proposed monitoring makes satisfactory provision to help secure a reasonable level of mitigation of the noise and vibration impacts of the scheme on local residents.

2 Officers have considered carefully all objections to these proposals. Officers have come to the view, for the detailed reasons set out in the officers report, that the objections do not amount, individually or cumulatively, to a reason for refusal and that all the issues that have been raised have been adequately addressed and the relevant bodies consulted.

**Conditions** (to be applied as relevant to the permissions being varied):

1 Development in accordance with application documents

2 Implementation of SilentTrack

*(dependent on the determination of applications 16/01858/VAR and 16/01861/VAR earlier on this Agenda)*

3 Monitoring in accordance with submitted scheme.

**5 EAST WEST RAIL PHASE 1 - NOISE SCHEME OF ASSESSMENT (16/01634/CND) AND VIBRATION SCHEME OF ASSESSMENT FOR ROUTE I-2 (16/01635/CND)** 89 - 104

**Note re appendices**

- Appendix 1 is specific to this report (page 103)
- Appendices 2 and 3 are common to all reports (pages 37 and 39)

**5a 16/01634/CND: Noise Scheme of Assessment for route section I-2**

**Site address:** Chiltern Railway from Oxford to Bicester – Section I-2

**Proposal:** Details submitted in compliance with condition 1 (Noise and Vibration - route section I/2) of TWA ref: TWA/10/APP/01 (The Chilterns Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990).

**Officer recommendation:**

West Area Planning Committee is recommended to approve this application for the following reasons and subject to the

condition listed:

**Reasons for approval**

1 The submitted Noise and Vibration Schemes of Assessment are considered to be robust and have demonstrated that the required standards of noise mitigation set out in the Policy will be achieved.

2 Officers have considered carefully all objections to these proposals. Officers have come to the view, for the detailed reasons set out in the officers report, that the objections do not amount, individually or cumulatively, to a reason for refusal and that all the issues that have been raised have been adequately addressed and the relevant bodies consulted.

**Conditions**:

1 Development in accordance with application documents

**5b 16/01635/CND: Vibration Scheme of Assessment for route section I-2**

**Site address:** Chiltern Railway from Oxford to Bicester – Section I-2

**Proposal:** Details submitted in compliance with condition 1 (Noise and Vibration - route section I/2) of TWA ref: TWA/10/APP/01 (The Chilterns Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990).

**Officer recommendation:**

West Area Planning Committee is recommended to approve this application for the following reasons and subject to the condition listed:

**Reasons for approval**

1 The submitted Noise and Vibration Schemes of Assessment are considered to be robust and have demonstrated that the required standards of noise mitigation set out in the Policy will be achieved.

2 Officers have considered carefully all objections to these proposals. Officers have come to the view, for the detailed reasons set out in the officers report, that the objections do not amount, individually or cumulatively, to

a reason for refusal and that all the issues that have been raised have been adequately addressed and the relevant bodies consulted.

**Conditions**:
1 Development in accordance with application documents

**6 MINUTES** 105 - 110

Minutes from the meeting of 2 August 2016

**Recommendation:** That the minutes of the meeting held on 2 August 2016 are approved as a true and accurate record.

**7 FORTHCOMING APPLICATIONS**

Items for consideration by the committee at future meetings are listed for information; they are not for discussion at this meeting.

15/01601/FUL: 26 Norham Gardens, Oxford, OX6 6QD

15/03524/FUL: Oxford Spires Four Pillars Hotel, Abingdon Road, Oxford, OX1 4PS

16/00068/FUL 16/00069/LBC: Grove House, 44 Iffley Turn, Oxford, OX4 4DU

16/00391/FUL: 24 Rosamund Road, Oxford, OX2 8NU

16/00791/FUL: 1 Richmond Road, Oxford, OX1 2JJ

16/00882/FUL: 135 - 137 Botley Road, Oxford

16/01352/FUL: 164 Marlborough Road, Oxford, OX1 4LT

16/01046/FUL: 30 Warnborough Road, Oxford, OX2 6JA

16/01220/FUL & 16/01221/FUL: 16 Northmoor Road, Oxford, OX2 6UP

16/01397/FUL: 8 Chadlington Road, Oxford, OX2 6SY

16/01413/FUL: Land Adjacent 279 Abingdon Road, Oxford

16/01495/RES: Westgate Centre And Adjacent Land, OX1 1NX

16/01541/FUL: The Honey Pot, 8 Hollybush Row, OX1 1J

16/01725/FUL and 16/01727/LBC: St Edward's School, Woodstock Road, OX2 7NN

16/01726/FUL: Unit 5, Ashville Way, Oxford, OX4 6TU

16/01896/CT3: 21 to 27 Chatham Road And 10 To 40 Fox Crescent, Oxford

16/01909/FUL: Linton Lodge Hotel, 11-13 Linton Road, OX2 6UJ

16/02216/CT3: Land Fronting 21 To 39 And 8 To 24 St Peter's Road, Oxford

16/02218/CT3: 85A Aldrich Road, Oxford, OX2 7SU

## 8 DATES OF FUTURE MEETINGS

The Committee will meet at 6.00pm on the following dates:

11 Oct 2016
8 Nov 2016
13 Dec 2016
24 Jan 2017
21 Feb 2017
14 Mar 2017
11 Apr 2017
9 May 2017

## COUNCILLORS DECLARING INTERESTS

### General duty

You must declare any disclosable pecuniary interests when the meeting reaches the item on the agenda headed “Declarations of Interest” or as soon as it becomes apparent to you.

### What is a disclosable pecuniary interest?

Disclosable pecuniary interests relate to your* employment; sponsorship (ie payment for expenses incurred by you in carrying out your duties as a councillor or towards your election expenses); contracts; land in the Council’s area; licenses for land in the Council’s area; corporate tenancies; and securities. These declarations must be recorded in each councillor’s Register of Interests which is publicly available on the Council’s website.

### Declaring an interest

Where any matter disclosed in your Register of Interests is being considered at a meeting, you must declare that you have an interest. You should also disclose the nature as well as the existence of the interest.

If you have a disclosable pecuniary interest, after having declared it at the meeting you must not participate in discussion or voting on the item and must withdraw from the meeting whilst the matter is discussed.

### Members’ Code of Conduct and public perception

Even if you do not have a disclosable pecuniary interest in a matter, the Members’ Code of Conduct says that a member “must serve only the public interest and must never improperly confer an advantage or disadvantage on any person including yourself” and that “you must not place yourself in situations where your honesty and integrity may be questioned”. What this means is that the matter of interests must be viewed within the context of the Code as a whole and regard should continue to be paid to the perception of the public.

*Disclosable pecuniary interests that must be declared are not only those of the member her or himself but also those member’s spouse, civil partner or person they are living with as husband or wife or as if they were civil partners.

## CODE OF PRACTICE FOR DEALING WITH PLANNING APPLICATIONS AT AREA PLANNING COMMITTEES AND PLANNING REVIEW COMMITTEE

Planning controls the development and use of land in the public interest. Applications must be determined in accordance with the Council's adopted policies, unless material planning considerations indicate otherwise. The Committee must be conducted in an orderly, fair and impartial manner. Advice on bias, predetermination and declarations of interest is available from the Monitoring Officer.

The following minimum standards of practice will be followed.

### At the meeting

1. All Members will have pre-read the officers' report. Members are also encouraged to view any supporting material and to visit the site if they feel that would be helpful (in accordance with the rules contained in the Planning Code of Practice contained in the Council's Constitution).
2. At the meeting the Chair may draw attention to this code of practice. The Chair will also explain who is entitled to vote.
3. The sequence for each application discussed at Committee shall be as follows:-
   (a) the Planning Officer will introduce it with a short presentation;
   (b) any objectors may speak for up to 5 minutes in total;
   (c) any supporters may speak for up to 5 minutes in total;
   (d) speaking times may be extended by the Chair, provided that equal time is given to both sides. Any non-voting City Councillors and/or Parish and County Councillors who may wish to speak for or against the application will have to do so as part of the two 5-minute slots mentioned above;
   (e) voting members of the Committee may raise questions (which shall be directed via the Chair to the lead officer presenting the application, who may pass them to other relevant Officers and/or other speakers); and
   (f) voting members will debate and determine the application.

### Preparation of Planning Policy documents – Public Meetings

4. At public meetings Councillors should be careful to be neutral and to listen to all points of view. They should take care to express themselves with respect to all present including officers. They should never say anything that could be taken to mean they have already made up their mind before an application is determined.

### Public requests to speak

5. Members of the public wishing to speak must notify the Democratic Services Officer before the meeting starts giving their name, the application/agenda item they wish to speak on and whether they are objecting to or supporting the application. Notifications can be made via e-mail or telephone, to the Democratic Services Officer (whose details are on the front of the Committee agenda) or given in person before the meeting starts.

### Written statements from the public

6. Members of the public and councillors can send the Democratic Services Officer written statements and other material to circulate to committee members, and the

planning officer prior to the meeting. Statements and other material are accepted and circulated by noon, two working days before the start of the meeting.

7. Material received from the public at the meeting will not be accepted or circulated, as Councillors are unable to view give proper consideration to the new information and officers may not be able to check for accuracy or provide considered advice on any material consideration arising. Any such material will not be displayed or shown at the meeting.

**Exhibiting model and displays at the meeting**

8. Applicants or members of the public can exhibit models or displays at the meeting as long as they notify the Democratic Services Officer of their intention by noon, two working days before the start of the meeting so that members can be notified.

**Recording meetings**

9. Members of the public and press can record the proceedings of any public meeting of the Council. If you do wish to record the meeting, please notify the Committee clerk prior to the meeting so that they can inform the Chair and direct you to the best place to record. You are not allowed to disturb the meeting and the chair will stop the meeting if they feel a recording is disruptive.

10. The Council asks those recording the meeting:

- Not to edit the recording in a way that could lead to misinterpretation of the proceedings. This includes not editing an image or views expressed in a way that may ridicule, or show a lack of respect towards those being recorded.
- To avoid recording members of the public present unless they are addressing the meeting.

**Meeting Etiquette**

11. All representations should be heard in silence and without interruption. The Chair will not permit disruptive behaviour. Members of the public are reminded that if the meeting is not allowed to proceed in an orderly manner then the Chair will withdraw the opportunity to address the Committee. The Committee is a meeting held in public, not a public meeting.

12. Members should not:

    (a) rely on considerations which are not material planning considerations in law;

    (b) question the personal integrity or professionalism of officers in public;

    (c) proceed to a vote if minded to determine an application against officer's recommendation until the reasons for that decision have been formulated; or

    (d) seek to re-design, or negotiate amendments to, an application. The Committee must determine applications as they stand and may impose appropriate conditions.

***Code updated to reflect changes in the Constitution agreed at Council on 25 July 2016***

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**WEST AREA PLANNING COMMITTEE** 13th September 2016

**Application Numbers:** 16/01858/VAR (route section H)
16/01861/VAR (route section I-1)

**Decision Due by:** 13th October 2016

**Proposal:** Application under Section 73 of the Town and Country Planning Act 1990 to remove condition 2 of 15/00956/CND in relation to the use of 'Tata SilentTrack' in Section H.

Application under Section 73 of the Town and Country Planning Act 1990 to remove condition 2 of 15/03503/CND in relation to the use of 'Tata SilentTrack' in Section I-1.

**Site Address:** Chiltern Railway From Oxford To Bicester **Appendix 1**

**Ward:** St Margaret's, Summertown, and Wolvercote Wards

**Agent:** ERM **Applicant:** Network Rail

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**Recommendation**

West Area Planning Committee is recommended to **refuse** these applications for the following reason:-

for 16/01858/VAR (route-section H) and 16/01861/VAR (route-section I-1):

1 It has not been demonstrated to the satisfaction of the Council that the provision of rail damping is not reasonably practicable for route-section H/I-1. While it may be reasonable to expect that rail damping will provide additional noise attenuation, and that safety and safe working conditions would not prevent the installation of rail damping, insufficient regard has been given in the application to local conditions and the financial considerations of installing rail damping. The application is therefore contrary to policies CP6 and CP10 of the adopted Oxford Local Plan 2001-2016, and policies CS13 and CS27 of the adopted Core Strategy 2026.

**Principal Planning Policies:**

Oxford Local Plan 2001-2016

**CP6** - Efficient Use of Land & Density
**CP10** - Siting Development to Meet Functional Needs

Core Strategy

**CS13** - Supporting access to new development
**CS27** - Sustainable economy

**Other Material Considerations**

- National Planning Policy Framework (NPPF)
- Planning Policy Guidance (NPPG)
- Environmental Information
- The deemed planning permission of 23 October 2012 and documents related to it including the Noise and Vibration Mitigation Policy (January 2011)

**Relevant Site History**

15/00956/CND - Details submitted in compliance with condition 19 (operational noise and vibration) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990). PERMITTED 30th June 2015.

15/03503/CND - Details submitted in compliance with condition 19(2) (Noise - Section I1) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990). PERMITTED 9th February 2016.

**Public Consultation**

Statutory Consultees

- Oxfordshire County Council – no comment
- Natural England – no comment
- Historic England – consultation not required

Representations

In respect of route section H representations have been received from 38 addresses and in respect of route section I-1 representations have been received from 52 addresses including: Bladon Close, Fairlawn End, Carey Close, Linkside, Portland Road, Rutherway, Merrivale Square, Plater Drive, Woodstock Road, Five Mile Drive, Rosamund Road, Fairlawn Flats, Complins Close, Polstead Road, Kingston Road, Lakeside, Quadrangle House, Upper Close, Blenheim Drive, Lark Hill, Stone Meadow, and Cox's Close. 5 representations had no residential address given. The MP for Oxford West and Abingdon, the Oxford Civic Society and the Waterways Management Company also commented.

The main points raised in those representations are:

- the binding nature of the Council's condition that SilentTrack should be installed and the failure of NR to meet that requirement;
- the condition was considered important and necessary at the earlier planning stage and nothing has changed to reduce its importance or necessity for this mitigation measure;
- this is a small cost to Network Rail but will have a huge impact on residents who live near the tracks. Cost cutting to attempt to avoid putting in noise and vibration mitigation over a small section of track is unacceptable. Over the life-time of the revenue generation period for this railway line (10's years), adhering to the original proposals would be an insignificant outlay, but would make a huge difference for all residents over that time period and beyond;
- this is the most cost-effective method of reducing environmental noise and should not be removed;
- Since reducing noise at-source is the fundamental technology recommended in the NVMP and the TWAO for tackling noise nuisance, there is no possible way that its costs were not known or included from the outset;
- Network Rail promised to trial the technology in Section H and must therefore have made provision for this cost;
- there is evidence that NR is exaggerating the costs. They quote a figure of £3.1m for providing SilentTrack 'throughout' Sections H and I/1. This is a distance of approximately 3.3km, implying supply and installation of SilentTrack costs about £950k per km for a double track railway. According to expert advice we have received, previous experience is that a typical price is only about £560k per km. Clearly, NR need to explain in detail why installation in North Oxford would be 80% more expensive than elsewhere;
- The justification for NR's claim that the cost of SilentTrack is 'grossly disproportionate' to the benefit, rests on the particular choices of input data. But these data are open to question. For example, varying the assumptions as suggested by residents in all of questions Q2.2, Q2.4, Q2.5 increases the predicted BCR for Section H from 0.35 to: BCR = 0.35 x 1.14 x 1.25 x 1.59 = 0.79. While this is still less than 1, it is certainly not consistent with the cost being *'grossly disproportionate'* to the benefit, which implies a BCR figure of *much* less than 1
- residents would not expect NR to install SilentTrack throughout Sections H and I/1, since there are parts where the railway is not close to gardens or domestic properties. The inclusion of such parts in the calculation will artificially lower the predicted BCR;
- to remove the condition the Council needs to agree that SilentTrack is not reasonably practicable *and that there is no suitable substitute*. NR needs to list what alternative means of providing at-source noise mitigation are available, and provide a convincing case for why none of them would be suitable for Sections H and I/1;
- NR's prevarication around and delay in submitting these applications;
- Should be rejected for the safety of residents;
- It is unacceptable to remove this condition which will have an adverse effect both physically (house structure) and acoustically (noise) on my property. I plan to independently monitor and take legal action when appropriate;

- The degree of certainty relating to these predicted noise contours, as calculated by the noise impact model, has been kept secret and the claim that the barriers will be effective by up to 15 dB cannot be independently verified. It is therefore false for Network Rail to state that their new predictions for the amount of noise damping that would be achieved without fitting Silent Track are valid;
- Network Rail claimed that the acoustic barriers will provide 12-15dBA Leq reduction in their submission to the Planning Committee meeting in December 2015. However, no actual test data has been provided to verify this and we note that they now state in their evidence of 13 July 2016 that the lower level may in fact be 8dBA Leq. It should also be noted that the installation of the barriers varies markedly across section H, not just in location in relation to the track, but also in composition. For example, in some cases it is mounted on a concrete base, whereas at other sites it rests on soil. In the latter case there is a gravel board, which has not been factored in to any of the testing that has been done (see the information sent to the December Planning Committee stated that testing would not include the gravel board at the base of the barrier). However, we note that at many sites along the top of the cutting (between the Wolvercote Tunnel and First Turn Bridge) the gravel board has been left partly exposed on both sides. Presumably this would lessen its effectiveness and make it even more imperative to install additional mitigation in the form of Silent Track;
- If indeed the Tata Silent track does not produce significant improvements to noise impact that means that, in essence, false representations were made in the planning application with regard to the effectiveness of the proposed noise reduction measures. The answer is not to abandon Silent Track, but rather to do something that fulfils the promises of effectiveness that were made for this action;
- It is more than obvious that mitigations were offered solely and cynically in order to get approval for their scheme. Such violation of public trust and abuse of the planning system is totally unacceptable and this should be made clear by all Councillors responsible and wholly backed by all the officers of Oxford Council, all of whom owe their responsibilities and positions to the residents and voters of Oxfordshire;
- At the public inquiry the applicant proposed mitigation at source as the most cost effective form of mitigation which benefits the most people. This was incorporated into the TWA Order in the form of Condition 19 which refers to the applicant's Noise and Vibration Mitigation Policy (NVMP): *Noise will be reduced at source where it is reasonably practicable to do so;*
- The Inspector concluded that, on the evidence before the public inquiry, there would be few, if any, situations in which the proposed mitigation would not be reasonably practicable and that 'reasonably practicable' should have its everyday meaning;
- Network Rail claim that "*reasonably practicable*' now exclusively means "*cost effective*", in direct contradiction of the findings of the Public Inquiry;
- Before Condition 19 was partially discharged, the applicant offered to install Tata SilentTrack and this offer was accepted by residents and the Council;
- The applicant has had nearly 4 years since the grant of the TWA Order to consider mitigation at source. More than a year ago, it offered to install SilentTrack. This application, made when construction is already at an

advanced stage, reneges on the applicant's commitments to the public inquiry and its promise to local residents and the Council;

- Claire Perry MP, Minister for Rail gave a commitment at a public meeting in 2015 to install Silent Track;
- Andy Milne's (Network Rail's representative's) statement to the Minister for Rail, Claire Perry MP, and to Nicola Blackwell MP at the Public Meeting in Summertown, to "use SilentTrack through the cutting at Wolvercote".
- Neither Network Rail nor the City Council attended the Public Inquiry but are now in charge of determining the mitigation;
- reducing noise at source was laid down by the Inspector to be the very *first* mitigation to be employed. This was endorsed by the Secretary of State for Transport when the Transport and Works Act Order was issued;
- Rail dampers reduce the *generation* of rail noise, and therefore improve the environment for *all residents*, not just those most adversely affected. They reduce the noise in gardens, school environments, street scene, homes a little further away, nearby rooms such as hallways, studies, kitchens etc - excluded by the regulations from receiving noise insulation. Network Rail claim that is not the '*common sense and practical way*" of dealing with noise;
- secondary or enhanced double glazing has only been offered where rooms are not protected by the barrier and, even then, only to specific rooms (for example, kitchens, halls, bathrooms, etc. are excluded). Moreover, the mitigation that enhanced double glazing offers only comes into play when the window is shut, no protection is afforded in hot weather when it is necessary to leave windows open. In our case, none of our bedroom windows are afforded any mitigation by the barrier and are, therefore, deemed eligible for enhanced double glazing, so we may be protected during the winter but certainly not when there is a heat wave! Silent Track would afford us some protection when the other proposed mitigations cannot.
- Network Rail have also singularly failed to consider any *other* method of noise-reduction-at-source (floating slab, under-track mats, pads etc) or any *other* supplier of rail dampeners;
- Because sound waves easily bend over the top of 2.5 metre barriers, they provide no protection to first floors or higher, or to the ground area outside of the sound shadow;
- Rail dampers would even allow more residents to open their windows on hot, stuffy summer nights;
- In comparison with the cost of noise barriers and noise insulation, rail dampers are much cheaper;
- The NVMP dictates the order of consideration and implementation: rail dampeners where reasonably practicable and only then are noise barriers and noise insulation to be considered. The National Planning Policy Framework says the same things, with reducing noise at source listed *first and foremost*, then barriers, and noise insulation last;
- NR took an early *unilateral* decision to ignore rail dampeners in their modelling, and so modelled for the installation of noise barriers *alone* to decide who did, and who did not, received noise insulation. What NR should have done is model the beneficial effects of rail dampeners *first*, *then* decide where the more expensive noise barriers should go, and *finally* decide who still needed individual noise insulation;

- NR is concerned about setting a national precedent for the use of rail damping;
- The Independent Expert for noise should have considered in greater detail whether the noise mitigation hierarchy had been correctly applied rather than simply accepting that NR had discounted the use of rail damping as being of little effect;
- The East West Programme Board has decided *unilaterally* to apply a "value for money" test on SilentTrack, in direct contradiction of the finding of the Public Inquiry and the Transport and Works Act Order. It is pertinent, that the East West Programme Board made no objection to the Inspector at the Public Inquiry about the mitigation hierarchy when given the chance. The Inspector's Report records that their representatives approved the installation of noise reduction at source as the primary methodology;
- we ask that the City Council enforces it's original condition that implementation of the SilentTrack is done BEFORE the train services come into operation. Network Rail has had ample time to test the SilentTrack, and its implementation after the resumption of services would mean that the work would most likely have to be done at night. Having been subjected to noise and vibration levels far exceeding those predicted in the Environmental Statement for almost a year, it would be nice not to have to suffer additional night work that could be completed during the current construction phase when the track is laid;
- the noise barriers have made almost no difference to the noise levels in the garden or ground floor bedrooms from construction works at the bottom of the cutting (probably because the barriers are not close to the noise source) and have made no difference at all to noise levels experienced to the upstairs study/bedrooms especially as in this hot weather we have to open the windows so the additional glazing is of no benefit. This means that rail dampers would be the ONLY effective way to reduce noise at this location in the cutting.

**The Purpose of this Report**

1. This report considers and recommends on the acceptability of Network Rail's (NR) application to remove condition 2 of planning applications: 15/00956/CND and 15/03503/CND, which would remove the requirement for the installation of SilentTrack or alternative rail damping on the grounds that such installation is not reasonably practicable.

**Background**

*The deemed planning consent for EWRP1*

2. The Transport and Works Act Order (TWAO) and deemed planning permission for EWRP1 was granted, subject to conditions, on 17th October 2012.

3. *Sustainability*: in granting deemed planning permission for the scheme, the Secretary of State concluded that there is a compelling case to increase rail capacity between Oxford and London, and that the scheme would bring

substantial transport benefits in terms of reduced travel times, better public transport connectivity, and better rail network capability. In the decision, the Secretary of State weighed these sustainability benefits against the potential adverse impacts that the scheme might cause. Those considerations gave rise to several of the planning conditions dealing with the natural environment and residential amenity.

*The general approach to operational noise and mitigation*

4. **Condition 19** of the deemed planning permission (**Appendix 2**) focusses on operational noise and vibration and was imposed in order to:

   "*ensure that operational noise and vibration are adequately mitigated at residential and other noise sensitive premises*".

5. **Condition 19(1)** states that the monitoring and mitigation of operational noise and vibration associated with the scheme, shall be undertaken in accordance with condition 19 and the Noise and Vibration Mitigation Policy (NVMP, dated January 2011, **Appendix 3**) which was approved by the Secretary of State as part of the deemed planning permission.

6. The NVMP aims to ensure that mitigation is provided on a fair basis for all occupiers and landowners along the route between Bicester and Oxford. In relation to noise it states (in the summary paragraph at the head of the document) that it will:-

   *"ensure that the following are achieved:*

   *(i) Noise will be reduced at source where it is reasonably practicable to do so.*

   *(ii) Where this is not reasonably practicable, noise barriers or noise insulation to properties will be provided, where necessary, in accordance with relevant standards.*

   *(iii) Where predicted noise levels exceed relevant levels set out in the Noise Insulation (Railways and Other Guided Systems) Regulations, noise insulation will be offered to the occupiers of eligible buildings to the standards required by those Regulations and provided at their request.*

   *(iv) At other locations, where statutory noise levels are not exceeded but where significant noise impacts are predicted, noise will be mitigated wherever reasonably practicable. Significant noise impacts include a significant increase in noise in an already noisy area, or the significant exceedance of stringent thresholds in an area where the ambient noise is currently low. Chiltern Railways has chosen to offer this high standard of mitigation. It is not a statutory requirement".*

*'At-source' mitigation*

7. In relation to 'at-source' mitigation, and specifically 'rail damping', the NVMP states that:

> *"2.2. The Promoter is committed to using the Best Practicable Means [(1)] to design the railway so as to avoid significant noise and vibration impacts at existing sensitive receptors (e.g. residential properties, educational buildings and places of worship). The first preference will be to apply necessary noise control measures at source where this is reasonably practicable. These may include rail damping or other infrastructure measures to reduce noise at source. Where this is not reasonably practicable or sufficient to mitigate significant noise impacts, the Promoter will:*
>
> *• where they are effective and reasonably practicable to install, provide noise barriers to mitigate noise between the track and sensitive receptors; and,*
>
> *• after considering all practicable mitigation measures that can be taken at source (i.e. within the railway corridor), including noise barriers, offer noise insulation to properties where residual noise impacts on sensitive receptors remain high.*
>
> *[(1)] Best Practicable Means are defined in Section 72 of the Control of Pollution Act 1974 as those measures which are "reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge, financial considerations and compatibility with safety and safe working conditions"*

8. The provision of 'at-source' noise mitigation, selected "*after considering all practicable mitigation measures that can be taken at source"* is therefore a requirement of the NVMP except where it can be proven that it would not be reasonably practicable to implement it.

*The assessment of operational noise and determination of appropriate mitigation*

9. **Condition 19(2)** requires the submission of Noise Schemes of Assessment (NSoAs) and Vibration Schemes of Assessment (VSoAs) and associated proposals for monitoring and mitigation of the operational noise and vibration of the passenger and freight services on the rail line. The NVMP sets out the 'reasonable planning scenario': the assumptions that are to be used in the Schemes of Assessment for the numbers and timing of train movements.

10. In the NVMP, noise sensitive receptors are defined as "primarily residential properties". The NVMP does not require mitigation of operational rail noise in gardens or other open spaces.

11. The NVMP uses both predicted total noise, and predicted noise change to determine <u>whether</u> noise mitigation is needed and the <u>type</u> of mitigation to be

installed as follows. While not strictly a sequential process, it is simplified as such for easy understanding in the paragraphs below.

12. Firstly, the NVMP lays down noise thresholds to determine whether noise mitigation is needed at noise sensitive receptors:

| | | | |
|---|---|---|---|
| Noise Threshold Levels | Day (0700-2300 hrs)<br><br>55dB LAeq | Night (2300-0700 hrs )<br><br>45dB LAeq | Adopted in NVMP as levels below which noise impacts are not considered to be significant |

13. Secondly, noise insulation commitments are made where noise levels at noise sensitive receptors are still high even after the installation of at source mitigation measures and noise barriers:

| | | | |
|---|---|---|---|
| Noise Insulation Trigger Levels | Day (0600-0000 hrs)<br><br>> LAeq (66dB)<br><br>*where the predicted noise level is 1dB above the ambient level* | Night (0000-0600 hrs)<br><br>> LAeq (61dB)<br><br>*where the predicted noise level is 1dB above the ambient level* | These are the statutory trigger levels which would apply under the Noise Insulation Regulations. |

14. Thirdly where noise levels at noise sensitive receptors do not exceed the Noise Insulation Trigger Levels but are more than 10dB above pre-existing noise levels, non-statutory noise insulation is offered.

15. Finally, the NVMP makes a further commitment to noise insulation where instantaneous peak noise from a train pass-by at night exceeds 82 dB LA max.

16. The NVMP then sets out how predicted total noise, and predicted noise change are used to determine the type of mitigation to be implemented:

- *"exceedances of 3 dB or greater and increases of 3 dB or greater– mitigation at source through rail infrastructure solutions will be implemented where reasonably practicable;*

- *exceedances of greater than 5 and up to 7 dB and increases of greater than 5 dB and up to 7 dB -- at source and/or in the form of noise barriers if reasonably practicable and have no other negative effects;*

- *exceedances of greater than 7dB and increases of greater than 7dB – at source through rail infrastructure solutions and where these cannot be reasonably practicably achieved, noise barriers will be provided, where reasonably practicable".*

*The Council's planning condition referring to "SilentTrack"*

17. **Condition 19(12)** of the deemed permission states that (officer highlighting):

> *"The situation may arise in which Chiltern finds "not reasonably practicable" the provision of mitigation measures that otherwise would be required by the Policy. In such circumstances, the mitigation measure or an equally effective substitute previously approved in writing by the local planning authority shall be installed in the timescale set out in item 1.10 of the Policy,* ***unless the local planning authority has confirmed, in writing, its agreement that the mitigation in question is not reasonably practicable and that there is no suitable substitute****".*

18. The NSoA for Section H of the scheme was approved by West Area Planning Committee (WAPC) on 30th June 2015 (15/00956/CND). The NSoA for route section I-1 was approved by the WAPC on 9th February 2016 (15/03503/CND).

19. When considering these NSoAs, the Council was not satisfied that rail damping as an 'at source' mitigation measure had been shown to be 'not reasonably practicable' in the terms of condition 19(12) of the deemed planning permission. The applicant had relied on the fact that rail damping was not 'type-approved' for this rail project (despite the fact that it had been suggested at the Public Inquiry and was a possible 'first preference' of the NVMP) but had not attempted to secure approval for its use of rail damping. The Council therefore imposed on each permission a condition regarding noise attenuation at source which reads:

> *"2. Within three months of this partial approval under condition 19 of the deemed planning permission, proposals shall be submitted for the written approval of the local planning authority showing how at-source noise attenuation by rail damping to at least the standard achievable by the use of Tata SilentTrack can be incorporated into the scheme. The development to which this approval relates shall not be brought into operation EITHER without that written approval having been obtained and other than in accordance with such approved details OR without the Council having given written confirmation that it is satisfied that the provision of such rail damping is not reasonably practicable.*
>
> *Reason: the local planning authority is not satisfied that rail damping as an at source mitigation measure has been shown to not be reasonably practicable in the absence of any attempt on the part of the applicant to secure approval for the use of such a measure."*

20. Officers are satisfied that this condition was reasonable and necessary in the terms of paragraph 206 of the NPPF – it enabled the construction of the scheme to be commenced with associated noise mitigation provided to meet the noise thresholds and triggers of the NVMP, but in relation to which it had not been demonstrated that at-source noise mitigation measures were not reasonably practicable.

**NR's case for removal of the conditions**

21. The applications before the Committee comprise documents submitted by which provides NR's analysis of:

    i. the scope and requirements of condition 19 and the NVMP;
    ii. the approach taken to 'at source' noise mitigation in the approved NSoAs;
    iii. the meaning of the term 'reasonably practicable';
    iv. the noise attenuation properties of SilentTrack; and,
    v. a cost-benefit analysis of SilentTrack in route sections H and I-1.

22. As a result of this analysis, NR has concluded that the installation of SilentTrack or other rail damping is not reasonably practicable and has requested that the conditions applied by the Council relating to 'at source' mitigation should be removed from their respective consents on the grounds that:

    i. SilentTrack only helps to mitigate noise that is radiated from the rails themselves, not the engine, traction, wheel or other noise from locomotives or other rolling stock. The available evidence is that, installed without barriers, SilentTrack will deliver a noise reduction of around 3dBA Leq which is the level below which there is no discernible difference to most people – the Inquiry Inspector agreed with this;

    ii. the predicted operational noise impact of EWRP1 in sections H and I-1 exceeds the acceptable noise thresholds of condition 19 and the NVMP to such a level that extensive noise barriers and noise insulation (to some properties) are necessary regardless of whether SilentTrack is also installed. The combination of barriers and insulation currently being implemented meets the noise attenuation requirements of condition 19 and the NVMP, in which circumstances, additionally installing SilentTrack while physically possible is not reasonably practicable because it cannot be justified in terms of value for money. Alternative rail damping products are unlikely to cost less than SilentTrack; and,

    iii. while 'at source' mitigation is normally a first preference, the NVMP does not require the installation of SilentTrack if Silent Track alone would not be sufficient to mitigate the predicted noise impacts. The approved NSoAs have therefore correctly interpreted the requirements of condition 19 and the NVMP in relation to the hierarchy of noise mitigation and the role of 'at source' noise mitigation. The imposition by

the Council of condition 2 on the approval of the NSoAs was therefore neither reasonable nor necessary in terms of paragraph 206 of the NPPF that conditions should be: necessary; relevant to planning; relevant to the development; enforceable; precise; and, reasonable in all other respects.

**Officers' assessment**

23. To assist officers in the assessment of these applications, and to respond to residents' concerns, advice was sought from ARUP as they have current expertise and recent experience with rail damping measures. The ARUP report is attached as **Appendix 4**.

*The planning purpose of at source noise mitigation*

24. Local planning authority decisions have to be made for planning purposes. The planning purpose in this case is to enable development of EWRP1, which is regarded as sustainable development provided that the requirements of condition 19 are fulfilled: *that operational noise and vibration are adequately mitigated at residential and other noise sensitive premises.*

25. In pursuit of that aim, condition 19 and the NVMP require the installation of at source noise mitigation where it is reasonably practicable: this is because noise mitigation at source offers particular benefits to noise sensitive receptors (primarily, residential properties). ARUP advises that those benefits are as follows (paragraph 33 ARUP report):

- all else being equal, the benefits of noise reduction measures at source are universal i.e. not limited to particular directions or orientation;
- barriers are limited by physical factors so do not always provide sufficient mitigation;
- the installation of noise insulation is intrusive and its take up cannot be relied upon (the rate of uptake of offers is typically in the order of 50% but can vary significantly from scheme to scheme); and,
- the benefits of noise insulation are time limited and are not permanent and the noise reduction provided by secondary glazing falls diminishes over time.

26. Establishing the reasonable practicability of at source measures, in particular rail damping, is required in order to gain assurance that the particular benefits of at source measures are available to residential properties adjacent to or near the line if at all possible (to fulfil the planning purpose).

*Consideration of all possible 'at-source' rail noise mitigation measures*

27. It was has been established in the foregoing that at source noise mitigation is a first preference for EWRP1 where it is reasonably practicable; and that the type of at-source noise mitigation to be provided should be selected after considering *all practicable mitigation measures* that can be taken at source.

28. ARUP has advised that the following are the recognised train noise mitigation measures for surface running trains (paragraph 7 ARUP report):

| Source of train noise | Source based mitigation | Path based mitigation | Receiver based mitigation |
|---|---|---|---|
| Rolling noise generated by wheel and rail vibrations that are induced at the wheel/rail interface | Maintaining a low level of rail roughness through maintenance such as rail grinding | Noise barriers | Noise insulation |
| | Maintaining a low level of wheel roughness | | |
| | Optimisation of track design parameters such as rail pad stiffness | | |
| | Rail damping | | |
| | Wheel damping | | |
| Curving noise generated by unsteady transverse forces in the wheel/rail interaction during curving | Flange and top-of-rail lubrication | | |
| | Wheel damping | | |
| Aerodynamic noise caused by unsteady airflow over the body of the train | Aerodynamic design of rolling stock | | |
| Traction noise from diesel engines, intake and exhaust, traction motors and fans, gearboxes, turbocharges etc | Rolling stock traction design | | |

*Source: ARUP Report dated 2nd September 2016, Table 1*

*Definition of reasonably practicable*

29. Whether or not it is reasonably practicable to install rail damping as a noise mitigation measure for EWRP1 is determined by the meaning of 'reasonably practicable' as defined in the Control of Pollution Act 1974, reiterated in the NVMP:

> *"reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge, financial considerations and compatibility with safety and safe working conditions"*

*Local conditions and circumstances*

30. It is relevant to the assessment of reasonable practicability that route-sections H and I-1 run through or adjacent to residential properties (noise sensitive receptors) where a high value is placed on the mitigation of noise from rail. NR's application does not include analysis of the full range of source-based

mitigation in these local circumstances. To assist the consideration of this aspect officers obtained some of the necessary relevant information and made it available to ARUP (**Appendix 5**).

*The current state of technical knowledge (effectiveness of rail damping)*

31. ARUP advises (paragraphs 26 and 27 ARUP report). that while reasonable estimates of the noise reduction performance of SilentTrack on EWRP1 can be derived from comparable studies, additional prediction work is required to provide the best estimate of the performance of SilentTrack on EWRP1

32. With that proviso, and on the basis of the information available to them, ARUP states that a reasonable estimate of the noise reduction performance of SilentTrack for EWRP1 is 2.5dB given the type of track and construction method for EWRP1 (NR estimates this to be around 3 dB so there is a measure of agreement on this point). ARUP states that this is likely to be in addition to noise reduction afforded by the noise barriers (paragraph 30 ARUP report). ARUP does not agree with NR's assertion that there will be only marginal noise reduction over and above the installed barriers.

*Financial considerations*

33. NR's arguments on financial considerations follow the Treasury WebTAG cost-benefit analysis and conclude that given the low return/value for money of rail damping for route-sections H and I-1, there is insufficient benefit for the proposal to be supported financially by the Government.

34. In the view of officers the WebTAG analysis does not allow the reasonable practicability of rail damping in financial terms to be determined. The WebTAG analysis is indicative only: it uses generic assumptions, it does not take into account local circumstances, and it puts a monetary value on benefits: this 'monetisation' is a concept which is designed for cost-benefit analysis which is different from analysis of 'reasonable practicability'.

35. Further this submission:
    a. does not provide evidence to support NR's assumption that other damping products are unlikely to be cheaper than SilentTrack. ARUP advises that there are potentially significant cost differences between the available types of product (ARUP report paragraph 16);
    b. only examines the costs and benefits of applying rail damping to locations within 100m of all noise sensitive receptors. It does not explore further targeted implementation and how that may reduce costs as suggested by ARUP (ARUP report paragraph 25);

36. Officers consider that the question of reasonable practicability in financial terms is not whether the sponsor is willing to pay for rail damping but rather, whether in financial terms the project could reasonably be expected to include rail damping. An assessment is required of the financial capacity of the overall project to absorb the costs of rail damping: the costs of installing rail damping related to the overall cost of EWRP1 (Bicester to Oxford).

*Compatibility with safety and safe working conditions*

37. NR has stated that rail damping presents no issues in respect of safety and safe working conditions. Officers have no reason to disagree with that.

*The significance of the estimated noise reduction*

38. Given that a reduction of 2.5dB - 3dB in noise level is considered to be achievable, a material issue in planning terms is whether this is significant enough to serve the planning purpose in this case.

39. In their submission NR refer to a general convention on "perceptibility": that a change in noise level of 3 dB is the smallest change discernible to most people. They refer to comments by the Inspector at Inquiry that "*changes in environmental noise levels of less than 2 to 3 dB are not noticeable to most people"* and also to the use of 3 dB in the NVMP which states that "*An increase of 3 dB is generally accepted as the smallest change that is noticeable in ordinary conditions".* Further, within the NVMP, 3 dB is used as the amount by which the predicted noise level must exceed the Noise Thresholds to give rise to a need for mitigation.

40. However, because the NVMP uses a defined numerical threshold, relative change and trigger values, the question of perceptibility is less relevant than the calculated predicted effect of such changes on the need to install noise mitigation. Officers therefore asked ARUP to comment upon the likely changes that a 3 dB reduction at-source would have on noise sensitive receptors in this specific case. Their analysis indicates that a 3 dB change is significant.

41. ARUP considers that were rail damping to be installed with noise barriers in situ, there could be a change in eligibility for non-statutory noise mitigation (noise insulation) at a significant number of properties that are currently eligible as the noise levels would be lower as tabulated below. In accordance with the NVMP such improvement to the noise environment is regarded as beneficial and significant.

| Address of receptor | Eligibility for statutory and non-statutory noise insulation assuming the installation of rail dampers (with noise barriers in situ) and a resulting additional 3dB noise reduction |
|---|---|
| Quadrangle House | Still eligible for statutory and non-statutory noise mitigation because noise levels still in excess of NVMP criteria |
| 7 First Turn,<br>4 Bladon Close,<br>3 Bladon Close,<br>Cedar House | Still eligible for non-statutory noise mitigation because noise levels still in excess of NVMP criteria |
| Peartree Hill Farm<br>8 Carey Close<br>396 Woodstock Rd<br>1 Upper Close<br>15 Sheriffs Drive<br>Wolvercote Primary School | **No longer eligible for non-statutory noise mitigation because noise levels no longer in excess of NVMP criteria** |
| Cox's Ground<br>25 Cox's Ground<br>30-47 Cox's Ground | Still eligible for non-statutory noise mitigation because noise levels still in excess of NVMP criteria |
| 58-92 Stone Meadow<br>94-110 Stone Meadow | **No longer eligible for non-statutory noise mitigation because noise levels no longer in excess of NVMP criteria** |

**Conclusions**

42. All parties conclude that rail damping is practicable to install in route-sections H and I-1. On the basis of the information available to the Council, officers conclude that rail damping has the potential to alter to a significant extent the impact of operational noise on noise sensitive receptors. This level of noise benefit would serve the planning purpose of helping to secure reasonable noise mitigation for residential properties adjacent or near to the new railway.

43. In the view of officers NR's submission does not demonstrate that rail damping is not reasonably practicable because insufficient regard has been given in the application to local conditions and the financial considerations of installing rail damping. Accordingly the application is recommended for refusal.

Human Rights Act 1998

Officers have considered the Human Rights Act 1998 in reaching a recommendation to grant planning permission, subject to conditions. Officers have considered the potential interference with the rights of the owners/occupiers of surrounding properties under Article 8 and/or Article 1 of the First Protocol of the Act and consider that it is proportionate.

Officers have also considered the interference with the human rights of the applicant under Article 8 and/or Article 1 of the First Protocol caused by imposing

conditions. Officers consider that the conditions are necessary to protect the rights and freedoms of others and to control the use of property in accordance with the general interest. The interference is therefore justifiable and proportionate.

Section 17 of the Crime and Disorder Act 1998

Officers have considered, with due regard, the likely effect of the proposal on the need to reduce crime and disorder as part of the determination of this application, in accordance with section 17 of the Crime and Disorder Act 1998. In reaching a recommendation to refuse planning permission, officers consider that the proposal will not undermine crime prevention or the promotion of community safety.

**Background Papers:** 15/00956/CND, 15/03503/CND, 16/01858/VAR, 16/01861/VAR

**Contact Officer:** Fiona Bartholomew
**Extension:** 2774
**Date:** 5th September 2016

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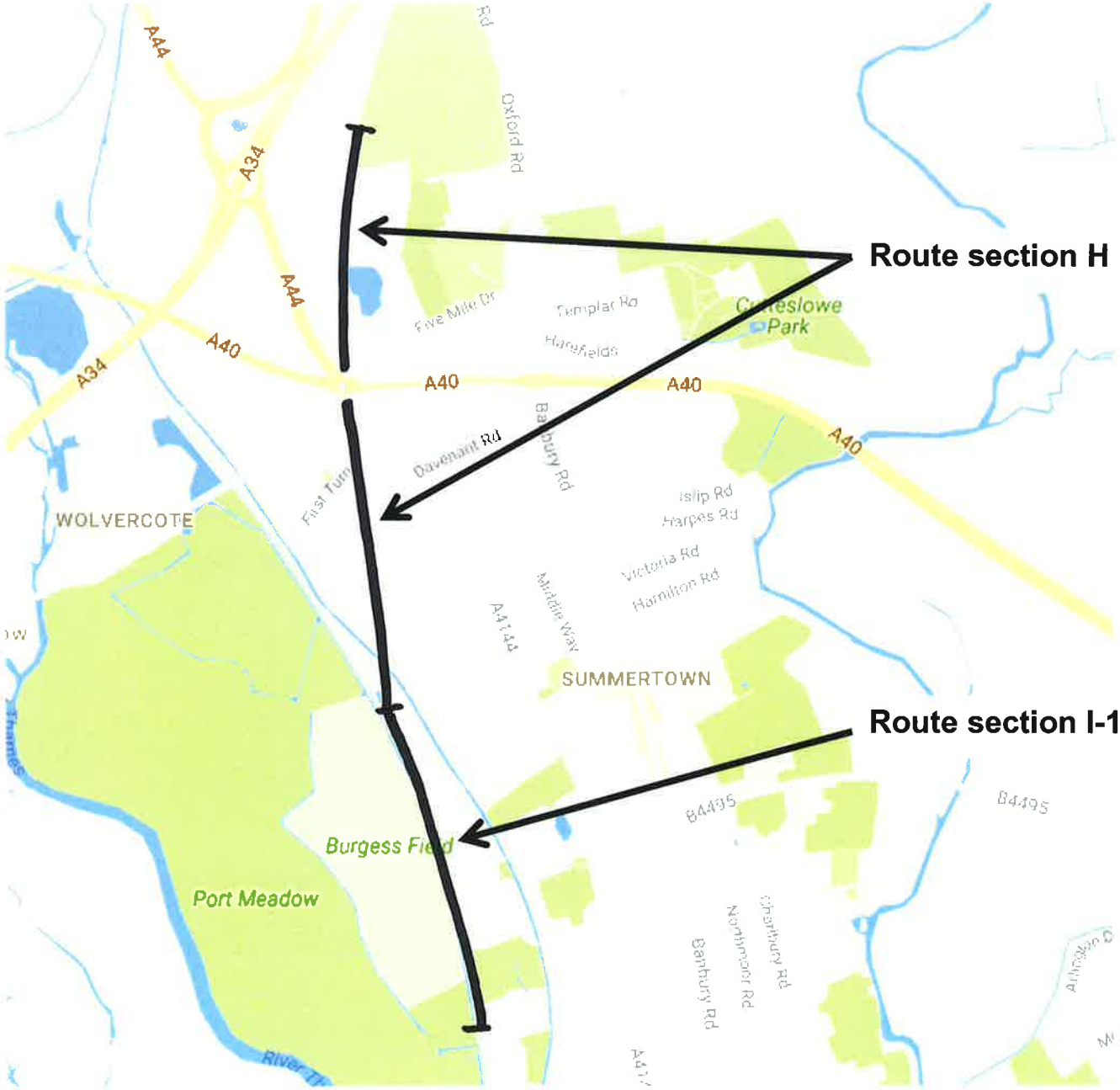
**APPENDIX 1**

**ROUTE SECTIONS H AND I-1**



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19. **Operational noise and vibration monitoring and mitigation**

1. Operational noise and vibration monitoring and mitigation shall be carried out in accordance with the Noise and Vibration Mitigation Policy, January 2011 (Inquiry document CD/1.29/2.1, referred to in this condition as "the Policy") and this condition. In the event of any conflict between the two, this condition shall prevail.

2. Development shall not commence within each Individual Section, until a detailed scheme of assessment of predicted noise impacts during operation of Phase 1 and 2A of the railway works, predicted vibration effects of the railway with Phases 1, 2A and 2B and details of proposed monitoring and mitigation measures, has been submitted to and approved in writing by the local planning authority.

3. The schemes of assessment of the predicted noise impacts of Phase 1 and 2A and of Phase 2B on the Individual Section or Sections that abut Wendlebury Gate Stables shall also identify measures that should be taken to ensure, insofar as reasonably practicable, that the noise caused by individual passing trains, using the railway, does not significantly impede voice communication over a distance of 30 metres within either the "large riding school" or the "small riding school" at those Stables, or within the paddock opposite Bramlow. For direct voice communications (i.e. without electro- acoustic assistance), the term "not significantly impede" shall be taken to mean that the speech intelligibility shall be at least "fair" at an increased (i.e. "loud") vocal effort as defined in BS EN ISO 9921:2003 Ergonomics Assessment of Speech Communications. The assessment method used shall be the Speech Interference Level as described in Annex E to that Standard. The assessment shall be based on a native female speaker facing the rider under instruction and the standard to be achieved will be for alert situations where short known words are used and the wind speed is less than 5 metres per second. A correction factor of -5dB shall be used to convert the standard for male voices to female voices. If personal communications or sound reinforcement systems are proposed, the assessment methodology shall be subject to the approval of the independent expert appointed in accordance with Condition 19.9. This part of the condition shall not apply if, at the time of assessment, the Stables are no longer a licensed riding establishment under the Riding Establishments Act 1964.

4. The schemes of assessment of the predicted noise impacts of Phase 1 and 2A and of Phase 2B on the Individual Section or Sections that abut 45 Lakeside shall also identify measures that shall be taken to ensure that the noise caused by passing trains in the Studio at 45, Lakeside does not exceed 35dB $L_{Aeq,\ 30\ min}$ and 55dB $L_{A1,\ 30\ min}$, the standards to be met by music teaching rooms as defined in Building Bulletin 93, Acoustic Design of Schools (Table 1.1).

5. Where vibration mitigation measures required for Phase 2B can be installed cost-effectively during the Phase 1 and 2A works, this shall be done. All mitigation measures, including those prescribed in the Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1996, required for Phase 1 and 2A shall be installed as soon as possible after commencement of the works and no later than the date on which a passenger rail service is resumed on that section of railway.

6. Any monitoring of noise and vibration shall be undertaken in accordance with the approved scheme of assessment and the Policy.

7. Before the commencement of the laying of the second track between the MoD Depot at Bicester and Islip, a detailed scheme of assessment of the predicted noise impacts arising from the works and from the additional services assessed as likely to operate under Phase 2B in the Environmental Statement and details of proposed mitigation measures, which achieve the standards for noise and vibration attenuation set out in the Policy, shall be submitted to and approved in writing by the local planning authority.

8. Any vibration mitigation measures not already installed during the Phase 1 and 2A works necessary for Phase 2B shall be installed during the Phase 2B works. All mitigation measures, including those prescribed in the Noise Insulation Regulations (Railways and Other Guided Transport Systems) 1996, required for Phase 2B shall be undertaken as soon as possible after commencement of the works and completed no later than the date on which the second track is brought into use.

9. The submitted schemes of assessment shall show how the standards of noise mitigation set out in the Policy will be achieved. Supporting calculations, or printouts of inputs and outputs from recognised computer software, shall be provided. Each scheme shall be accompanied by a report, prepared by an independent expert previously approved in writing by the local planning authority, on the robustness of the noise-related elements of the scheme of assessment. Noise mitigation measures shall be permanently installed as approved.

10. The submitted schemes of assessment shall show how the standards of vibration mitigation set out in the Policy will be achieved. Supporting calculations or empirical data, or a combination of the two, shall be provided. Each scheme shall be accompanied by a report, prepared by an independent expert previously approved in writing by the local planning authority, on the robustness of the vibration-related elements of the scheme of assessment. Vibration mitigation measures shall be permanently installed as approved.

11. The submitted schemes of assessment shall include a list of properties assessed and the results of the assessment at each. By the times that the mitigation measures are due to be brought into use, notice shall be served on the local planning authority of the mitigation measures that have been installed for each property assessed.

12. The situation may arise in which Chiltern finds “not reasonably practicable” the provision of mitigation measures that otherwise would be required by the Policy. In such circumstances, the mitigation measure or an equally effective substitute previously approved in writing by the local planning authority shall be installed in the timescale set out in item 1.10 of the Policy, unless the local planning authority has confirmed, in writing, its agreement that the mitigation in question is not reasonably practicable and that there is no suitable substitute.

13. Where noise barriers are promoted in an approved scheme of assessment, they shall be installed only once the local planning authority has given written approval of their size, appearance and location. Noise barriers shall be maintained in their approved form and may be removed only with the written approval of the local planning authority.
14. Development shall be in accordance with the approved schemes and this condition.

***Reason**: To ensure that operational noise and vibration are adequately mitigated at residential and other noise sensitive premises.*

# NOISE AND VIBRATION MITIGATION POLICY

## THE CHILTERN RAILWAYS (BICESTER TO OXFORD IMPROVEMENTS) ORDER

## TRANSPORT AND WORKS ACT 1992

ERM

Chiltern Railways

**JANUARY 2011**

*SUMMARY OF THE NOISE AND VIBRATION POLICY*

The Noise and Vibration Policy has been adopted by Chiltern Railways to ensure that mitigation of noise and vibration from trains using the railway authorised by the Chiltern Railways (Bicester to Oxford Improvements) Order is provided on a fair basis for all occupiers and landowners along the route between Bicester and Oxford.

The Policy has been based on extensive research and modelling and offers a high standard of mitigation, comparable with other similar railway schemes in Britain.

The Policy will ensure that the following are achieved:

(i) Noise will be reduced at source where it is reasonably practicable to do so.

(ii) Where this is not reasonably practicable, noise barriers or noise insulation to properties will be provided, where necessary, in accordance with relevant standards.

(iii) Where predicted noise levels exceed relevant levels set out in the Noise Insulation (Railways and Other Guided Systems) Regulations, noise insulation will be offered to the occupiers of eligible buildings to the standards required by those Regulations and provided at their request.

(iv) At other locations, where statutory noise levels are not exceeded but where significant noise impacts are predicted, noise will be mitigated wherever reasonably practicable. Significant noise impacts include a significant increase in noise in an already noisy area, or the significant exceedance of stringent thresholds in an area where the ambient noise is currently low. Chiltern Railways has chosen to offer this high standard of mitigation. It is not a statutory requirement.

(v) Vibration from trains will not cause damage to structures, and even without mitigation, will be likely only to give rise to 'adverse comments from occupiers being possible' at a few properties that are located very close to the railway. At these locations, appropriate mitigation measures will be provided.

These commitments and the ways in which the Policy will be implemented are set out in the remainder of this Policy.

The Policy, which has been agreed with Network Rail, applies to any works authorised by the Transport and Works Act Order.

## *1. HOW WILL THE POLICY BE APPLIED?*

### *INTRODUCTION*

1.1. Chiltern Railway has applied for the Chiltern Railways (Bicester to Oxford Improvements) Order. The Order, if made, would allow for the railway works to be carried out in phases. Phase 1 consists of those works required to allow the operation of Chiltern Railways' proposed London Marylebone to Oxford passenger services together with the freight services that currently operate on the Bletchley to Oxford line between Bicester and Oxford. Phase 2A, which is the lowering of the trackbed of the Wolvercot Tunnel , will be undertaken at the same time as the Phase 1 works.

1.2. The Phase 1 and 2A works will be carried out as soon as the Order is approved, so that their passenger services can start no later than May 2013. Further works, in Phase 2B, will take place at a later date and be undertaken either by the East West Rail (EWR) consortium or others on behalf of Network Rail (NR). The Phase 2B works are mainly those to provide double track between the MoD depot at Bicester and Islip and through the Wolvercot Tunnel.

1.3. The Noise and Vibration Mitigation Policy has been prepared by Chiltern Railways and agreed by Network Rail. It will be applied, in the first instance, by Chiltern Railways when designing in detail, building and operating the works in Phase 1 and 2A. EWR, or others on behalf of NR, when they undertake the Phase 2B works, will also apply this policy. Hereafter, in this policy, the organisation which builds the relevant works is called the 'Promoter'.

1.4. The purpose of this policy is to set out the Promoter's commitments to mitigating noise and vibration effects arising from operation of the railway. These are based on the commitments made in the Environmental Statement [(1)].

1.5. The mitigation of noise and vibration effects during construction will be the responsibility of the Contractor, who will have to work within and abide by an approved Code of Construction Practice.

1.6. Chiltern Railways' consultants, Environmental Resources Management, have carried out an assessment of the likely effects of noise and vibration which is reported in the Environmental Statement [(2)] . This has been undertaken by:

- identifying representative noise sensitive receptors (primarily residential properties) along the entire railway route;
- measuring current actual noise levels at these locations;

(1) Chiltern Railways (Bicester to Oxford Improvements) Order, Environmental Statement, ERM, 2009
(2) See chapter six (of volume 2) of the Environmental Statement which accompanies the Transport and Works Act Order Application.

- predicting likely future noise levels, based on noise measurements relating to the actual types of passenger and freight trains that will be used on the railway;
- comparing these predicted levels against noise impact assessment criteria and outlining, where necessary, appropriate mitigation measures.

1.7. The detailed design of the Phase 1 and 2A works will be developed by Chiltern Railways' appointed contractor. This will involve refinement of the mitigation following the principles set out in this policy. This will ensure that the residual noise effects at any location are no worse than those reported in the Environmental Statement.

1.8. The assessment of noise and vibration has been based on two operational patterns of new train services:

- After the implementation of the works in Phases 1 and 2A, operational services will consist of up to two Chiltern Railways passenger trains per hour each way. The passenger trains will replace the existing passenger service operated by First Great Western between Bicester Town and Oxford stations.
- After the implementation of the East West Rail (EWR) link including works in Phase 2B, there are likely to be an additional two passenger trains per hour each way.

Neither Chiltern Railways or EWR will be running passenger trains throughout the night, and services in late evening and early morning will be at a reduced frequency. A small number of passenger trains may arrive in Oxford after midnight or depart from Oxford before 0600.

1.9. In the operation of Phase 1 and 2A, there are likely to be no more freight trains than operate at present, as there will be no new freight destinations that can be served. When the East-West Rail (EWR) link is in operation, there may be more freight trains. For this reason, additional freight services were included in the noise assessment in the Environmental Statement, so that this reflects a reasonable planning scenario. The actual number of freight services will reflect national freight demand, but will be limited to the maximum number of available freight 'paths' (1 per hour in each direction). Experience shows that about half of the available freight train paths are likely to be used on a given day, which would suggest a reasonable planning scenario of 8 freight train movements between 11pm and 7am. Freight trains will not use the 'new' railway line between Oxford North Junction (where the Bicester to Oxford Line meets the Oxford-Banbury main line) and Oxford, but instead will use the existing main line, as at present.

1.10. The noise and vibration mitigation will be designed based on the assumptions in paragraph 1.8 and 1.9 regarding the numbers and timing of train movements.

*INSTALLATION OF NOISE MITIGATION MEASURES*

1.11. Noise mitigation measures in accordance with this policy will be installed during the Phase 1 and 2A works, to be completed before the commencement of Chiltern Railways passenger services. Before the Phase 2B works take place, any additional noise mitigation measures made necessary by those works and the services in the reasonable planning scenario for Phase 2B will be designed. The assessment of noise and vibration for Phase 2B will cover all parts of the route, where service frequencies are expected to increase in Phase 2B. The mitigation measures will be installed before the Phase 2B works are brought into use. After each Phase of works, the effectiveness of the noise insulation measures installed will be monitored, as detailed in para 2.11.

## 2. *HOW IS NOISE ASSESSED TO DETERMINE APPROPRIATE MITIGATION?*

### *PRINCIPLES*

2.1. The Noise and Vibration Policy is intended to ensure that noise and vibration mitigation is provided on a fair basis for all landowners and occupiers affected by the Order Scheme.

2.2. The Promoter is committed to using the Best Practicable Means (1) to design the railway so as to avoid significant noise and vibration impacts at existing sensitive receptors (e.g. residential properties, educational buildings and places of worship). The first preference will be to apply necessary noise control measures at source where this is reasonably practicable. These may include rail damping or other infrastructure measures to reduce noise at source. Where this is not reasonably practicable or sufficient to mitigate significant noise impacts, the Promoter will:

- where they are effective and reasonably practicable to install, provide noise barriers to mitigate noise between the track and sensitive receptors; and

- after considering all practicable mitigation measures that can be taken at source (i.e. within the railway corridor), including noise barriers, offer noise insulation to properties where residual noise impacts on sensitive receptors remain high.

(1) Best Practicable Means are defined in Section 72 of the Control of Pollution Act 1974 as those measures which are "reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge, financial considerations and compatibility with safety and safe working conditions"

2.3. The Promoter will consult with landowners and occupiers who may be affected by noise and vibration to explain the mitigation measures that are proposed.

The assessment of noise uses technical terms, which are described in Annex A. The provision for noise mitigation will be based on two sets of absolute noise levels (1). The first are 'Noise Impact Threshold' levels, below which noise impacts are never significant. The second set of levels are the 'Noise Insulation Trigger' levels. These are the noise levels predicted at the most exposed windows to noise sensitive rooms in noise sensitive buildings, and are free-field (2) noise levels.

*Noise Impact Threshold levels:* *Day - $L_{Aeq,\ (0700\text{-}2300\ hours)}$ 55 dB* (3)
*Night – $L_{Aeq,\ (2300\text{-}0700\ hours)}$ 45 dB*

2.4. Where train noise is predicted to be above either of these threshold levels, but where the level is still less than that set out in the Noise Insulation Regulations requiring noise insulation to be provided, the Promoter will provide mitigation measures to reduce the adverse impact of noise. These will vary according to the extent to which the train noise level exceeds the threshold levels and the extent to which overall noise is increased above the existing or ambient noise level, as follows:

- exceedances of 3 dB or greater and increases of 3 dB or greater – mitigation at source through rail infrastructure solutions will be implemented where reasonably practicable;

- exceedances of greater than 5 and up to 7 dB and increases of greater than 5 dB and up to 7 dB -- at source and/or in the form of noise barriers if reasonably practicable and have no other negative effects;

- exceedances of greater than 7dB and increases of greater than 7dB – at source through rail infrastructure solutions and where these cannot be reasonably practicably achieved, noise barriers will be provided, where reasonably practicable.

These standards are consistent with those applied in the Environmental Statement, where noise mitigation is considered at source for impacts that are greater than 3 dB and in the form of noise barriers for impacts above a minimum of 5 dB. (Noise impacts in the ES are calculated by considering both the exceedance of the threshold criteria and the increase in overall noise, and taking the lower of the two.) The noise benefits of noise barriers are more likely to outweigh any dis-benefits, where the noise increase is above 7 dB. There are certain locations where because of the topography of the railway

(1) The standards relate to disturbance of building occupants, and do not relate to specific effects such as speech interference.
(2) Free-field means away from reflective surfaces, except the ground.
(3) $L_{Aeq,T}$ is the A-weighted equivalent sound level over the period T. A-weighting is a frequency weighting that replicates the frequency response of the ear. $L_{Aeq,T}$ is a widely used noise parameter that represents a varying noise level by calculating the constant noise level that would have the same energy content over the measurement time period. It is recommended parameter for train noise.

and adjacent properties, safety or visual impact, barriers cannot be installed or will not be effective.

2.5. Noise barriers or other noise attenuating infrastructure solutions will achieve noise reductions in most areas, to near to the existing noise levels. However residual noise impacts may still occur at particular locations. If, after consideration of the effects of noise mitigation measures at source, any of the Noise Insulation Trigger levels is still exceeded, then noise insulation to relevant properties will be offered, provided the corresponding existing or ambient noise level is routinely exceeded by at least 1dB. Noise insulation will be provided in accordance with the Noise Insulation (Railways and Other Guided Systems) Regulations. The noise level thresholds at which this will be offered are shown below in terms of free-field noise levels that are equivalent to the façade levels provided for in the Regulations.

| | |
|---|---|
| *Noise Insulation Trigger Levels* | *Day* $> L_{Aeq,\ (0600\text{-}0000\ hours)}$ *66 dB* (1) |
| | *Night* $> L_{Aeq,\ (0000\text{-}0600\ hours)}$ *61 dB* |

2.6. Even with the mitigation in paragraph 2.5, some of the properties close to the railway may still experience residual noise impacts that may be classed as 'high'. A 'high' impact is the equivalent of a noise impact of greater than +10 dB. If these properties are not already to be provided with insulation under the Noise Insulation Regulations, they will be offered additional mitigation, which is likely to be in the form of noise insulation.

2.7. If maximum pass-by free-field noise ($L_{Amax}$, the instantaneous 'peak' as the train passes) regularly exceeds 82 dB (free-field)at night, this is considered to be a significant impact, based on guidance on the prevention of sleep disturbance, except where ambient maximum noise levels are already above the predicted train noise level. One or two events per night would not be interpreted as regular, but the 8 assumed freight movements each night in Phase 2B are considered to be regular. In those very few locations likely to have such noise effects, additional noise attenuation measures will be taken to include the offer of noise insulation to affected properties. This form of mitigation is particularly effective in addressing night-time noise impacts when noise levels inside buildings are the key factor as regards sleep disturbance. The following additional criterion for noise insulation is therefore being applied.

| | |
|---|---|
| *Significant impact, need for further mitigation likely to be noise insulation:* | *Night* $> L_{Amax}$ *82 dB* (2) |

(1) Day is generally defined as 0700-2300 hours, except in the Noise Insulation Regulations, where it is defined as 0600 hours to midnight. These noise levels are free-field values that are equivalent to the values defined in the Noise Insulation Regulations

(2) $L_{Amax}$ is a measure of the peak noise level, A-weighted.

*MITIGATION OF VIBRATION*

2.8. The levels of vibration resulting from passenger and freight trains operating on the new railway will be far below the levels that might cause structural damage to buildings. However, the additional trains may give rise to perceptible levels of ground vibration in adjacent occupied properties. Vibration Dose Value (VDV) [(1)] is a measure of the accumulated level of ground vibration over a period, and, through the application of BS6472 [(2)] , is a standard metric for predicting the likelihood of adverse comments from building occupants. The standard gives the following threshold VDV levels at or below which the probability of adverse comment is low:

- Day (0700 – 2300 hours) - 0.4 $m/s^{1.75}$
- Night (2300 – 0700 hours) - 0.2 $m/s^{1.75}$

2.9. By comparison, the measured levels from the types of passenger and freight trains that will be used on the new railway, running on standard ballasted track, suggest that even at 8 m from the track the levels will be 0.14 $m/s^{1.75}$ during the day and 0.12 $m/S^{1.75}$ at night which are very much less than the "adverse comment" thresholds set out above. Trackforms will be designed and installed adjacent to occupied vibration sensitive receptor buildings using Best Practicable Means to keep within the thresholds.

2.10. Where existing vibration levels are already above either of the thresholds set out above, mitigation will be considered where the change in VDV is 50% or more as a result of the Phase 1, 2A and 2B works.

*MONITORING AND MAINTENANCE*

***Monitoring***

2.11. A noise and vibration monitoring scheme for the Phase 1 and 2A works will be implemented to ensure that the performance of the mitigation measures that are installed achieve the levels of noise mitigation predicted by the design contractor, whose design instructions will include the requirement to achieve the residual noise levels set out in the Environmental Statement. The monitoring scheme will include the carrying out of surveys, the first being undertaken at around 6 months after the opening of the railway for Chiltern Railways passenger services, at locations agreed with the local planning authorities. A second survey will be undertaken 18 months after opening. If defects in construction or performance are identified in the first survey, these will be corrected in a timely manner by the contractor. If any defects in construction or performance are found in the second survey, these will also be corrected in a timely manner by the contractor. The same procedure for post construction monitoring surveys and the remedy of defects or performance

(1) Vibration Dose Value, VDV, is the vibration metric recommended in BS6472 -1, 2008 for the assessment of annoyance from railway vibration. It is a measure of the overall vibration dose throughout a day or night period. It is highly weighted towards peaks and has the units $m/s^{1.75}$

(2) BS6472: 2008 Guide to Evaluation of human exposure to vibration in buildings (1 Hz to 80 Hz) Part 1 Vibration Sources Other than Blasting.

will be undertaken after the Phase 2B works have been completed and EWR services introduced.

2.12. The results of the Phase 1 and 2A monitoring will be published in an easily accessible format on the Chiltern Railways website and in the project newsletter and will be made available, either in hard copy of in electronic format, to any person requesting the information. Arrangements for publishing the surveys after Phase 2B will be agreed with the local planning authorities.

***Maintenance***

2.13. The railway, and in particular the wheel and rail surfaces, will be maintained so as to minimise noise and vibration at sensitive receivers.

***OTHER NOISE MITIGATION***

***Station Announcements***

2.14. Directional public address systems will be used that minimise the impact on nearby properties whilst maintaining audibility on platforms. The station operator will establish appropriate sound levels for station Public Address systems and will seek to address complaints, if they are received from occupiers of noise sensitive premises, as far as is reasonably practicable within railway safety requirements.

***Train Stabling and Servicing***

2.15. Chiltern Railways trains will not be stabled or serviced in the carriage sidings at the north end of Oxford station. Drivers will be instructed to shut down engines if the train is not to be moved within 5 minutes of arrival at Oxford station, and all Chiltern trains are equipped with automatic systems to shut down the engines if the train has been standing for more than 15 minutes.

***Train Horns***

2.16. Safety regulations require train drivers to sound the train's horn to warn of their approach in certain situations, for example, at certain level crossings or where there is risk of collision. This is essential, but after the Phase 1 works are completed, all of the present level crossings, except London Road, Bicester will be permanently closed and the situations where horns need to be sounded will be much reduced. There will be audible alarms on the crossing at London Road, Bicester and horns will not be used except in emergency. Although it is an inherent feature of the scheme rather than a specific mitigation measure, the reduction in horn noise will reduce noise impacts from this distinctive noise source, and so it has been noted in this section.

## *ANNEX A NOISE TERMINOLOGY*

### *WHAT IS 'NOISE'?*

A.1 The terms "sound" and "noise" tend to be used interchangeably, but noise can be defined as unwanted sound. Your neighbour may enjoy the sound of his music at 2am but you would be disturbed by the noise.

A.2 Sound is a normal and desirable part of life. However, when noise is imposed on people (such as from industry, construction or transportation) it can lead to disturbance, annoyance and other undesirable effects.

A.3 It is relatively straightforward to physically measure sound with a sound level meter, but it is a different matter to quantify the sound in terms of how noisy it is perceived to be and the effects it may cause.

A.4 For this reason we draw on various standards and guidelines that relate a measured noise level to the effect it is likely to have. These guidelines are generally based on large scale social surveys that have produced accepted, all be it approximate, relationships between noise level and effect.

### *AN EXPLANATION OF NOISE LEVELS*

A.5 Noise is measured and quantified using decibels (dB). This scale is logarithmic, which means that noise levels do not add up or change according to simple linear arithmetic. For example, any two equal noise sources added together give only an increase of 3dB higher than the individual levels (e.g. 60 dB + 60 dB = 63 dB, not 120 dB). This represents what happens in practice when two equal sounds coincide; the ear perceives only a slight increase in noise and not a doubling.

The following table provides examples typical of noise levels.

***Examples of Noise Levels on the Decibel Scale***

| **Noise Level dB(A)*** | **Typical noise source / example** |
|---|---|
| 0 | Threshold of hearing (lowest sound an average person could hear) |
| 30 | Quiet bedroom at night |
| 40 | Whispered conversation at 2 metres |
| 50 | Conversational speech at 1 metre |
| 60 | Busy general office |
| 70 | Loud radio indoors |
| 70 – 75 | Existing trains at Lakeside |
| 80 | Lorry at 30 kph at 7 metres |
| 90 | Lawnmower at 1 metre |

*The dB(A) scale is a particular way of measuring the different frequencies in sound designed to match how the human ear works, called 'A'-weighting.

A.6 The way human hearing works is conveniently similar to the logarithmic changes in noise.

- An increase of 1 dB in noise levels cannot usually be heard (except possibly in 'laboratory' conditions).
- An increase of 3 dB is generally accepted as the smallest change that is noticeable in ordinary conditions.
- An increase of 5dB is clearly perceptible.
- An increase of 10dB seems to be twice as loud.

***HOW IS NOISE MEASURED?***

A.7 There is a little more to the measurement of noise than pointing a sound level meter and taking a reading. Because noise tends to vary over time, we need to find a way of measuring it in a manner which represents the variation in noise level that also reflects people's perception of how noisy it is. Over the years a number of different ways to measure noise (metrics or parameters) have been developed as the best ways of representing different types of noise sources (single events, industry, road traffic, railway, aircraft etc). Those relevant to the Chiltern Railways are introduced below.

***NOISE MEASUREMENT PARAMETERS***

A.8 The parameter or metric $\mathbf{L_{Aeq,\,T}}$ is called the continuous equivalent sound level. It is a widely used noise parameter that represents a varying noise level by calculating the constant noise level that would have the same energy content over the measurement time period. The letter 'A' denotes that 'A'-weighting has been used and 'eq' indicates that an equivalent level has been calculated. Hence, $\mathbf{L_{Aeq}}$ is the A-weighted equivalent continuous sound level, measured over time period 'T'.

A.9 Detailed surveys have been carried out into people's responses to different sources of noise and these have been used to define which noise metrics provide good relationships with perceived noisiness. PPG 24 which deals with the assessment of environmental noise from sources for example, advocates $\mathbf{L_{Aeq\ Period}}$ for all types of transportation noise.

A.10 It is important to appreciate that whilst $\mathbf{L_{Aeq}}$ does give a measure of the accumulated noise over a period of time it is not like a conventional (arithmetic) average. It is in fact a logarithmic average. The effect of this is to give a high weighting to high noise levels even if they are relatively short lived or infrequent peaks.

A.11 The difference between arithmetic and logarithmic ($\mathbf{L_{Aeq}}$) averaging can be illustrated by considering the average age of a class of 30 children and their teacher. Suppose the children are 5 years old and the teacher is 40 years old. The arithmetic average age is just 6, whereas the logarithmic ($\mathbf{L_{eq}}$) average is 16. This partly explains why $\mathbf{L_{eq}}$ has been found to be a good indicator of the

effects of noise that comprise a series of varying signals over a period of time, such as railway noise.

A.12 An $\mathbf{L_{Aeq}}$ level can be calculated over different time periods depending on the characteristics of the noise and how people are exposed to it. If the noise is steady, a relatively short measurement period will be sufficient to characterise it. If it fluctuates randomly or has cyclical elements, then a longer measurement period will be required to obtain a representative sample. Some standards specify a measurement period, but 10 to 15 minutes is often adequate to obtain repeatable results. In terms of train noise for Chiltern Railways, the approach that has been taken is to identify the noise levels from individual trains and to use these to calculate the noise levels over suitable day and night periods.

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Subject Advice on rail dampers for Oxford City Council

Date 2 September 2016 Job No/Ref H04-OB

[1] Oxford City Council (OCC) has sought advice from Arup relating to planning Condition 2 of 15/00956/CND which relates to the use of 'Tata SilentTrack' in Section H of the East West Rail Link phase 1 (EWR) scheme and Condition 2 of 15/03503/CND, which relates to its use on Section I.

[2] Tata SilentTrack is a type of 'rail damper' which is a mitigation measure for reducing train noise. Arup have experience of evaluating the performance of this mitigation measure during the planning, design and construction stages of rail projects which include High Speed 2 and the Network Rail Thameslink Programme.

[3] OCC have asked specific questions about the performance of rail dampers and the effect that these measures could have on mitigation and insulation proposals defined in the two Noise Scheme of Assessments (NSoA) for section H and Section I.

[4] Our responses to OCCs specific questions are provided in the following sections of this document.

# 1 What is At Source Mitigation?

**a. Set out measures such as rail damping that could be applied at source in specific circumstances to mitigate noise where it is predicted to be problematic.**

[5] Airborne noise from railways comprises the following sources:

- Rolling noise generated by wheel and rail vibrations that are induced at the wheel/rail interface. Rolling noise is generally the most predominant source of railway noise.
- Curving noise generated by unsteady transverse forces in the wheel/rail interaction during curving. This type of noise is very different in character to rolling noise.
- Aerodynamic noise caused by unsteady airflow over the body of the train. This source of noise becomes important at very high speeds (generally above 300 kph)
- Traction noise from diesel engines, intake and exhaust, traction motors and fans, gearboxes, turbocharges etc. Traction noise is an important source of noise at low speeds and for diesel locomotives on full power.

[6] Across the East West Rail Link phase 1 (EWR) scheme the predominant source of noise is likely to be rolling noise except at those parts of the route where:

- Diesel locomotives are operating on full power where traction noise may be important; or
- On curves of tight radius where curving noise may be important.

[7] When considering mitigation options we often think in terms of the source-path-receiver system. Table 1 summarises recognised mitigation measures and identifies where they lie in the source-path-receiver system. The table also identifies which source of train noise will be reduced by each mitigation measure.

Table 1: Recognised train noise mitigation measures for surface running trains

| Source of train noise | Source based mitigation | Path based mitigation | Receiver based mitigation |
|---|---|---|---|
| Rolling noise generated by wheel and rail vibrations that are induced at the wheel/rail interface | Maintaining a low level of rail roughness through maintenance such as rail grinding | Noise barriers | Noise insulation |
| | Maintaining a low level of wheel roughness | | |
| | Optimisation of track design parameters such as rail pad stiffness | | |
| | Rail damping | | |
| | Wheel damping | | |
| Curving noise generated by unsteady transverse forces in the wheel/rail interaction during curving | Flange and top-of-rail lubrication | | |
| | Wheel damping | | |
| Aerodynamic noise caused by unsteady airflow over the body of the train | Aerodynamic design of rolling stock | | |
| Traction noise from diesel engines, intake and exhaust, traction motors and fans, gearboxes, turbocharges etc | Rolling stock traction design | | |

**b. Advise on measures which as a matter of good modern construction would be expected for the track form specified in Oxford and which mitigate noise compared to existing track**

[8] The most important parameter for limiting rolling noise that is within the control of Network Rail is the rail roughness. As indicated in Table 1 rail roughness can be controlled by rail maintenance. Grinding is a maintenance activity rather than a design activity. Assuming that the existing lines have continuously welded rails (CWR) and are subject to the same procedures as the proposed lines, then rail roughness levels, and hence rolling noise, on the new lines are unlikely to be significantly different to the existing lines. If the existing lines contain welds, repairs and other discontinuities, then the new lines should be quieter than the existing lines.

[9] Ballast track is the most common type of track on lines in the UK. In terms of wayside noise, ballast track is relatively quiet compared to the alternative which is slab track. Track design parameters of ballast track are reasonably well optimised for reducing noise. This means that additional track based mitigation measures are not usually ‘expected’ on new ballast tracks.

[10] One parameter that will affect rolling noise is the rail pad dynamic stiffness. The rail pad is a resilient pad placed directly below the rail. All other parameters remaining equal, a track

with 'soft' rail pads will radiate more noise than a track with 'stiff' rail pads. Considering standard track components available to Network Rail (NR), choice of rail pad could influence noise radiated by the track by a few decibels.

[11] Because of the relatively small effect of rail pads stiffness on noise from ballast track, rail pads are not normally considered as a noise mitigation measure. Choice of rail pad stiffness is usually an operational consideration rather than a noise consideration. The rail pad stiffness will also affect the performance of the rail dampers. The reasons for this are described in more detail in Section 2b below.

# 2 What rail damping products are available?

### a. Compare these with ST in the context of this track

[12] NRs evidence[1] states that they are aware of other damper systems but also states that "*the performance of their systems is unlikely to be significantly better than SilentTrack nor are they likely to be cheaper*".

[13] Regarding the difference in performance of different rail damping products, an International Union of Railways (UIC[2]) report[3] provides a review of rail damping technologies. It acknowledges that the most common dampers in use are those by TATA steel and Schrey and Veith. The report also describes products by Vossloh, STRAIL, CDM, Edilon and Tiflex.

[14] The study states that one difficulty with rail dampers is the large range of effectiveness seen in practice:

"*The problem of rail dampers consists in the quantification of its efficiency. Different trials have shown strong variation in the effects, usually ranging from 0 dB to 3 dB with rare maxima of 7 dB. The effects are dependent on traffic and construction parameters. However, the influence especially of construction has not been quantified satisfactorily*".

[15] The report references experience of dampers in Austria, Czech Republic, Germany, Finland, France, the Netherlands, Norway, Sweden and Switzerland. A summary of the performance of the different damping systems is presented. There is no clear evidence that other damping products will provide benefits which are significantly better than SilentTrack.The UIC study concludes that the maximum noise reduction achieved with dampers is about 3dB.

[16] Regarding the costs of different rail damping products, we note that no evidence is provided to support NRs assumption that other damping products are unlikely to be cheaper than SilentTrack. There are potentially significant cost differences between the available types of product.

[1] Statement Setting out Network Rail's evidence that the installation of silent track in sections H and I/1 in Oxford is not reasonably practicable – 13th July 2016
[2] International Union of Railways (http://www.uic.org/)
[3] Enzo Scossa-Romano and Jakob Oertli. Rail Dampers, Acoustic Rail Grinding, Low Height Noise Barriers – A report on the state of the art. UIC report October 2012
( http://www.uic.org/IMG/pdf/2012_dampers_grinding_lowbarriers.pdf )

**b. Comment on experience of ST (Blackfriar's etc) and Arup's recommendations for HS2**

[17] Arup's main experience of SilentTrack is on the Thameslink project. We measured the performance of rail dampers installed at Blackfriars Station. The report has been included in NRs evidence.

[18] HS2 track is in the very early design stages. No detailed specifications for track have been produced. Rail dampers are being considered as a potential mitigation option. However the benefits that can be achieved from rail dampers and the feasibility of their use depends on the properties of the railway system as a whole (the trains, the track and infrastructure). Given that HS2 is still undergoing extensive design, no firm decision will be made on their use until the later stages of the project.

[19] Based on the available evidence it is clear that the performance of a rail damper is highly dependent on the operating parameters of the railway (rolling stock type, wheel roughness, speed etc) and the design and quality of the track on which they were installed (rail roughness, rail fastener stiffness etc). This is clear from the range of performance data presented in the UIC study. In 9 of the 12 case studies presented a rail damper performance of less than 3dB was measured under some circumstances.

[20] The performance of dampers on the East West Rail project will be highly dependent upon the design of the track. A key parameter is the rail fastening stiffness. It was described above that a track with 'soft' rail pads is likely to radiate more noise than a track with 'stiff' rail pads. This is because the track decay rate (the rate of decay of noise-generating vibration along the rail), will be higher on the track with the stiff pads. This also means that the benefits of rail dampers are likely to be greater for track with soft rail pads (low decay rate) and limited on track with stiff rail pads (track which already has a relatively high decay rate).

[21] NR have advised Oxford City Council[4] that the ballast track to be installed on EWR will incorporate relatively soft 'Type A' pads with a dynamic stiffness of about 120MN/m. This is the same rail pad that was installed at Blackfriars station. However there is a key difference between the track at Blackfriars Station and that proposed for EWR because Blackfriars station is constructed on a bridge. Hence the Blackfriars track incorporated a sleeper soffit pad (an additional pad inserted beneath the sleeper) to help control structure radiated noise from the bridge. It should be noted that it is possible that this additional pad reduced the decay rate of the track (before dampers were installed) so that the rail dampers appeared to give relatively high performance of about 3dB. Further testing or modelling would be needed to confirm this possibility.

# 3 If ST were used where would this be?

[22] The overall cost/benefit ratio of rail dampers could be improved by limiting the use of rail dampers to parts of the route where:

1. There is a residual impact at sensitive properties even with noise barriers installed; and/or

[4] Email from Mike Fraser to David Stevens on 18th August 2016

2. In the vicinity of properties where the trigger levels for statutory noise insulation are exceeded according to the Noise Insulation Regulations for Railways and other guided transport systems (NIRR).

[23] NRs evidence presents the results of a WEBTAG assessment where it was assumed that SilentTrack would be installed across the whole route. In this case the Benefit to Cost Ratio (BCR) was significantly less than 1. Comments received during consultation queried the basis of this assumption given that there are many parts of the routes where noise mitigation is not deemed necessary according to the project's Noise and Vibration Mitigation Policy (NVMP). NR therefore adjusted the costs to assume that SilentTrack was used up to 100m either side of a noise sensitive receptor (Approximately 80% of the route). Even with this change the BCR was still less than 1.

[24] The EWR Noise Scheme of Assessment for Section H[5] presents the predicted noise levels at receptors across route section H. The report presents predictions for 26 noise sensitive receptors. At 16 receptors the residual impact of the scheme with noise barriers ('Predicted Mitigated Impact') is 3 dB or less. We suggest that rail dampers are not considered for the parts of the route near these properties as this will reduce the cost of the mitigation measure and potentially improve the cost to benefit ratio of the measure.

[25] With the exception of Receptor PI 17 (396 Woodstock Road) all properties subject to residual impacts of greater than 3dB and/or in excess of the statutory NIRR trigger criteria are limited to the part of the route between Wolvercote Roundabout and Quadrangle House. This section is approximately 500m in length (12% of the route). If the WEBTAG assessment is limited to this part of the route, and properties affected by this part of the route only, the BCR of the mitigation measure should increase.

# 4 How would Silent Track perform on the track in question with no other mitigation?

[26] A discussion on the performance of rail dampers on at Blackfriars Station was provided in Section 2b above. It was noted that the tracks proposed for EWR will have the same rail pads as were installed at Blackfriars station, however there is a key difference between the tracks because the Blackfriars tracks incorporate a sleeper soffit pads.

[27] NR have also provided a paper[6] which predicts the performance of a Schrey and Veit rail damper on ballast tracks with different rail pad stiffness including 'soft' pads with a dynamic stiffness of 120MN/m and 'stiff' rail pads with a dynamic stiffness of 800MN/m. The overall reduction in noise predicted to occur from installing the dampers was 2.5dB and 0.7dB for 'soft' and 'stiff' rail pads respectively. While it is for a different damping product, the former result is a reasonable estimate of the performance of the SilentTrack dampers on EWR.

[5] Noise Scheme of Assessment for Route Section H. Report for Chiltern Railways/Network Rail by ERM. February 2014.
[6] M. G. R. Toward et al. Estimating the performance of rail dampers using laboratory methods and software predictions. Proceedings of the 11th International Workshop on Railway Noise, 9-13 September 2013 at Uddevalla in Sweden

[28] Further prediction work, undertaken according to the methodology defined in [6], would be required to provide the best estimate of the performance of SilentTrack on EWR.

# 5 How would Silent Track perform on the track in question given that barriers are being used?

[29] NRs Evidence states that:

"*If SilentTrack were installed as well as the other measures, the additional noise reduction achieved would be marginal and less than the 3 dBA $L_{eq}$ that likely to be obtained without barriers, because of the interaction with the screening already being provided by the noise barriers and noise insulation.*"

[30] We would expect any noise reduction at source to be seen in addition to the performance of a noise barrier. We are not aware of any published evidence to suggest that the benefit of rail dampers is reduced in conjunction with noise barriers. The Blackfriars rail damper study referenced in NRs evidence did show a reduction in performance of rail dampers installed on the southbound track because the rails/wheels were screened from the microphone in the tests. This meant traction noise was likely to become the important component of noise. This is however a very different situation to EWR. At Blackfriars trains were pulling away from stationary when they passed the microphone. At very low speeds traction noise is relatively high compared to rolling noise.

[31] We therefore consider that it is incorrect to assume that the performance of rail dampers would be 'marginal' when used in conjunction with noise barriers.

# 6 What difference would 3. And 4. make to noise sensitive receptors?

[32] The quantitative criteria for determining the requirements for mitigation according to the NVMP is summarised in the NSOA as follows:

"*[2.3] The assessment of noise uses technical terms, which are described in Annex A (of The Policy). The provision for noise mitigation will be based on two sets of absolute noise levels. The first are 'Noise Impact Threshold' levels, below which noise impacts are never significant. The second set of levels are the 'Noise Insulation Trigger' levels. These are the noise levels predicted at the most exposed windows to noise sensitive rooms in noise sensitive buildings, and are free-field noise levels.*

*Noise Impact Threshold Levels:* *Day - LAeq, (0700-2300 hours) 55 dB*

*Night - LAeq, (2300-0700 hours) 45 dB*

*[2.4] Where train noise is predicted to be above either of these threshold levels, but where the level is still less than that set out in the Noise Insulation Regulations requiring noise insulation to be provided, the Promoter will provide mitigation measures to reduce the adverse impact of noise. These will vary according to the extent to which the train noise level exceeds the threshold levels and the extent to which overall noise is increased above the existing or ambient noise level, as follows:*

- *exceedances of 3 dB or greater and increases of 3 dB or greater – mitigation at source through rail infrastructure solutions will be implemented where reasonably practicable;*
- *exceedances of greater than 5 and up to 7 dB and increases of greater than 5 dB and up to 7 dB - at source and/or in the form of noise barriers if reasonably practicable and have no other negative effects; and*
- *exceedances of greater than 7dB and increases of greater than 7dB – at source through rail infrastructure solutions and where these cannot be reasonably practicably achieved, noise barriers will be provided, where reasonably practicable.*

*[2.5] Noise barriers or other noise attenuating infrastructure solutions will achieve noise reductions in most areas, to near to the existing noise levels. However residual noise impacts may still occur at particular locations. If, after consideration of the effects of noise mitigation measures at source, any of the Noise Insulation Trigger levels is still exceeded, then noise insulation to relevant properties will be offered, provided the corresponding existing or ambient noise level is routinely exceeded by at least 1dB. Noise insulation will be provided in accordance with the Noise Insulation (Railways and Other Guided Systems) Regulations. The noise level thresholds at which this will be offered are shown below in terms of free-field noise levels that are equivalent to the façade levels provided for in the Regulations.*

*Noise Insulation Trigger Levels Day > LAeq, (0600-0000 hours) 66 dB (1)*

*Night > LAeq, (0000-0600 hours) 61 dB*

*[2.6] Even with the mitigation in paragraph 2.5, some of the properties close to the railway may still experience residual noise impacts that may be classed as 'high'. A 'high' impact is the equivalent of a noise impact of greater than +10 dB. If these properties are not already to be provided with insulation under the Noise Insulation Regulations, they will be offered additional mitigation, which is likely to be in the form of noise insulation.*

*[2.7] If maximum pass-by free-field noise (LAmax, the instantaneous 'peak' as the train passes) regularly exceeds 82 dB (free-field)at night, this is considered to be a significant impact, based on guidance on the prevention of sleep disturbance, except where ambient maximum noise levels are already above the predicted train noise level. One or two events per night would not be interpreted as regular, but the 8 assumed freight movements each night in Phase 2B are considered to be regular. In those very few locations likely to have such noise effects, additional noise attenuation measures will be taken to include the offer of noise insulation to affected properties. This form of mitigation is particularly effective in addressing night-time noise impacts when noise levels inside buildings are the key factor as regards sleep disturbance. The following additional criterion for noise insulation is therefore being applied.*

*Significant impact, need for further mitigation likely to be noise insulation: Night > LAmax 82 dB*"

[33] The wording of the NVMP is similar to other mitigation hierarchies that have been adopted for other schemes where source based measures are preferred to transmission based measures and that source based and transmission based measures are preferable to sound insulation. In other words, sound insulation measures should be regarded as measures of last resort. The underlying reasons for this order of preference commonly include that:

- All else being equal, the benefits of noise reduction measures at source are universal i.e. not limited to particular directions or orientation;

- Barriers are limited by physical factors so don't always provide sufficient mitigation.
- The installation of noise insulation is intrusive and its take up cannot be relied upon (the rate of uptake of offers is typically in the order of 50% but can vary significantly from scheme to scheme);
- The benefits of noise insulation are time limited and are not permanent and the noise reduction provided by secondary glazing diminishes over time.

[34] In terms of the outcome for properties along route H, the application of the NVMP has resulted in:

- The provision of noise barriers where properties are expected to be exposed to train noise impacts of between 3 and 7dB above the Noise Impact Threshold Levels without mitigation (Paragraphs 2.3 and 2.4 of the NVMP).
- The provision of noise insulation for properties predicted to be exposed to noise levels (once noise barriers are provided) in excess of the statutory NIRR criteria defined in paragraph 2.5, the non-statutory noise insulation criteria defined in paragraph 2.6 and the maximum criteria defined in paragraph 2.7.

[35] According to Table 5.3 of the NSOA for Section H, noise insulation (in addition to noise barriers) is proposed at 12 receptors (two statutory and 10 non-statutory). Assuming that SilentTrack would provide a benefit of 3dB at all receptors, the effect on the mitigation proposals would be as follows:

- The two Quadrangle House receptors, where statutory and non-statutory noise insulation is proposed, would still qualify for statutory and non-statutory noise mitigation with rail dampers installed, because noise levels would still be in excess of the criteria defined in paragraphs 2.5, 2.6 and 2.7 of the NVMP.
- The following four receptors where non-statutory noise insulation is proposed would still qualify for non-statutory noise mitigation with rail dampers installed: PI 18 (7 First Turn), SoA 11 (4 Bladon Close), PI 19 (3 Bladon Close), SoA 12 (Cedar House, Bladon Close). This is because noise levels would still be in excess of the criteria defined in paragraphs 2.6 and/or 2.7 of the NVMP.
- The following six receptors where non-statutory noise mitigation is proposed would *no longer* qualify for non-statutory noise mitigation with rail dampers installed: SoA 1 (Peartree Hill Farm), SoA 7 (8 Carey Close), PI 17 (396 Woodstock Road), SoA 9 (1 Upper Close), SoA 10 (15 Sheriffs Drive), ES 14 (Wolvercote Primary School). This is because noise levels would *no longer* be in excess of the criteria defined in paragraphs 2.6 and/or 2.7 of the NVMP

[36] According to Table 5.3 of the NSOA for Section I, non-statutory noise insulation (in addition to noise barriers) is proposed at five receptors. Again assuming that SilentTrack would provide a benefit of 3dB at all receptors, the effect on the mitigation proposals would be as follows:

- The following three receptors where non-statutory noise insulation is proposed would still qualify for non-statutory noise mitigation with rail dampers installed: ES 16 (Cox's Ground), SoA 21 (25 Cox's Ground) and SoA 22 (30-47 Cox's Ground). This is because noise levels would still be in excess of the criteria defined in paragraphs 2.7 of the NVMP.

- The following two receptors where non-statutory noise insulation is proposed would *no longer* qualify for non-statutory noise mitigation with rail dampers installed: SoA 23 (58 to 92 Stone Meadow) and SoA 25 (94 to 110 Stone Meadow). This is because noise levels would *no longer* be in excess of the criteria defined in paragraphs 2.7 of the NVMP.

Rail dampers could therefore have the beneficial effect of removing the need to provide non-statutory noise insulation, according to the NVMP, at six receptors in Section H and two receptors in Section I.

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**APPENDIX 5**

Silent Track: Information Required for Review.

David,

Following our conversation earlier we understand you need the following information:

- Rail cross section
- Rail pad dynamic stiffness
- Type of sleeper
- Type and dynamic stiffness of under sleeper pad (if applicable)

I am awaiting a check of the rail cross section, but have attached a photograph (Appendix 5c) from sections A to G which shows the arrangement of the track.

The rail pads are Pandrol 6650 rail pads which are relatively soft 'Type A' pads with a dynamic stiffness of about 120MN/m (Pandrol quote static stiffness of 89 MN/m using an earlier test method). I have attached the brochure for these (Appendix 5 a).

Concrete Sleepers are being used.

The attached paper (Appendix 5b) describes the STARDAMP model (essentially a simplified TWINS model) for prediction of rail damper performance, including the use of measured decay rates. The example predictions (section 3.2) seem to largely match the EWR scenario – typical regional train at 120km/h – and considers soft and hard rail pads, although it looks as though the dampers are Schrey & Veit rather than Tata. Results suggest a 2.5dB benefit due to rail dampers for soft pads, 0.7dB for hard pads.

The relative contribution of traction sources will obviously depend on train speed and type of rolling stock, but traction sources are only likely to become more significant if wayside barriers are present. The contribution of traction and other auxiliary noise sources will be highly dependent upon the type of rolling stock. To carry out a detailed assessment including dampers, barriers and traction noise would probably involve a substantial amount of work, and would probably end up with results which broadly agree with assuming a reduction which is slightly lower than 3 dB(A) under screened conditions.

I will follow up with additional information when I have confirmed it. Please let me know if this is sufficient for the current purposes.

Regards

Mike

Mike Fraser
Principal Consultant

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PANDROL TRACK SYSTEMS

## Concrete and Steel Sleeper Assemblies

| Sleeper Types(s) | Clip | Insulators | Pad | Design Track Gauge |
|---|---|---|---|---|
| **Current CONCRETE sleepers** | | | | |
| **G44, EG47 for 56E1 rails** | FC1504 with 8494 toe | FIELD side: 8582 (Blue)<br>GAUGE side: 8690 (Black) | Pad 6650, except:<br>• Curves less than 400m radius, fit EVA type 8531<br>• Low line speed, fit EVA type 8531 | 1436mm |
| **G44, EG47 for 60E1/2 rails** | FC1504 with 8494 toe | Both sides: 7751 (White) | Pad 8854, except:<br>• Curves less than 400m radius, fit EVA type 9970<br>• Low line speed, fit EVA type 9970 | 1438mm |
| **Current STEEL sleepers** | | | | |
| **560H for 56E1 rails**<br>Note: This sleeper is fitted with hook-in shoulder type 9482 | FC1504 with 8494 toe | FIELD side: 8582 (Blue)<br>GAUGE side: 8690 (Black) | Pad 8531 | 1436mm |
| **560H for 60E1/2 rails**<br>Note: This sleeper is fitted with hook-in shoulder type 9482 | FC1504 with 8494 toe | Both sides: 7751 (White) | Pad 9970 | 1438mm |
| **Discontinued / serviceable older CONCRETE sleeper types** | | | | |
| **EG49 for 56E1 rails** | e2007 | FIELD side: 10274 (Red)<br>GAUGE side: 10275 (Yellow) | Pad 5197 | 1436mm |
| **EG49 for 60E1/2** | e2007 | Both sides: 5720 (Green) | Pad 5197 | 1438mm |
| **F41 & EF36** | FC1501 with 8494 toe | Both sides: 7751 (White) | Pad 6650, except:<br>• Curves less than 400m radius, fit EVA type 8531<br>• Low line speed, fit EVA type 8531 | 1435mm |
| **F40** | e1809 or | Both sides: 4452 (Blue), no separate | Pad 4548 or | 1432mm |
| **5F40** | Re1801-16 | insulator needed for 'RE' system | Composite 'RE' system pad type 15946 | 1435mm |
| **Alternative assemblies for F23 to F27, EF28, EF29, EF33 sleepers** | | | | |
| **1. Standard toe-loads** | PR401A or e1809 | 56E1 rail:<br>Both sides: 724a (Orange)<br>98lb or 109lb rails:<br>Both sides: 724a (Blue) | Pad 5mm rubber, or 7.5mm rubber maintenance pad, | 1432mm |
| **2. Increased toe-loads** | e2001 | 56E1 rails:<br>Both sides: 2433 (GRN/White) or 6924 (HVN/White) | or EVA Pandrol type 2061/3<br>Pad 5mm rubber or EVA pad type 2061/3 | 1432mm |
| **3. e-PLUS system** | eP20127 | 56E1 rails:<br>Both sides: 9132 | Pad 9286 | 1432mm |
| **4. Pandrol 'Re' system** | Re1609-re-railing only<br>Re1801-7 loose sleeper | 56E1 rails: No separate insulator | Composite pad type 14229 | 1432mm |
| **Discontinued / serviceable older STEEL sleeper types** | | | | |
| **HH10 (Mk 2), HH12, for 56E1 rails**<br>**Shoulder types:**<br>**• HH10 = shoulder 9922**<br>**• HH12 = shoulder 9482** | FC1504 with 8494 toe | FIELD side: 8582 (Blue)<br>GAUGE side: 8690 (Black) | Pad 8531 | 1436mm |
| **HH10 (Mk 2), HH12, for 60E1/2 rails**<br>**• HH10 = shoulder 9922**<br>**• HH12 = shoulder 9482** | FC1504 with 8494 toe | Both sides: 7751 (White) | Pad 9970 | 1438mm |
| **500 Series** | FC1501 with 8494 toe | Both sides: 7751 (White) | Pad 8531 | 1435mm |
| **W402 Series** | PR401A | 56E1 rail: | | 1435mm |
| **HH10 (Mk1) for 56E1 rail** | or e1809 | Both sides: 724a (Orange) | Pad 5mm EVA | |
| **Alternative assembly converting HH10 (Mk1) to FASTCLIP system using shoulder type 9922** | FC1504 with 8494 toe | Both sides: 8277 (Yellow) | Pandrol type 2061/3<br>Pad 8531 | 1435mm |
| **Conversion of obsolete fastenings on very old concrete sleepers** | | | | |
| **The following obsolete sleepers may be converted to Pandrol 'e' clip assemblies:**<br>**• F10 using BJB fastenings**<br>**• RNB6 also known as KENITRA sleepers**<br>**• HEYBACK sleepers** | Whilst conversions have been available and undertaken in large volumes in the past, the components are no longer readily available, generally regarded as uneconomic and anyone attempting this process should contact Pandrol directly for advice. | | | |

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TRACK SYSTEMS
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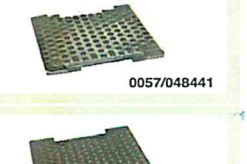
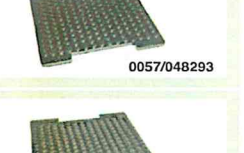
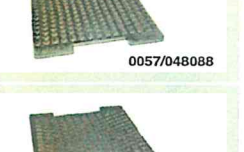
# Insulator and Rail Pad Applications with Colour Coding

| Type | Catalogue Number |
|---|---|
| **Yellow (HVN) Type 10275**<br>**Insulator for 56E1on GAUGE side of:**<br>1. NRS1/NRS2/Combi baseplates.<br>2. EG49 concrete sleepers. |  <br>0057/048081 |
| **Green (HVN) Type 5720**<br>**Insulator for use with 60E1 rail using:**<br>1. NRS1/NRS2/Combi baseplates with 60E1 rail.<br>2. 6 Hole IBJ's on NR60 S&C, EG49 Concrete sleepers. |  <br>0057/048060 |
| **Composite**<br>**(Nylon with cast iron cover plate) for:**<br>1. Concrete S&C bearers.<br>2. As a substitute for ORANGE (Nylon) insulators where the wear rate is unacceptable. **NOTE:** This insulator is not commonly available, and can be replaced with Pandrol type 6924 provided this is used with clip type e2001. |  <br>0057/048427 |
| **Composite (Black) Type 2786/1**<br>6mm sidepost thicknesses. |  <br>0057/048166 |
| **Composite (Blue) Type 2786/2**<br>7.5mm sidepost thicknesses. |  <br>0057/048167 |
| **Composite (Red) Type 2786/3**<br>9mm sidepost thicknesses. |  <br>0057/048168 |
| **Composite Cover Plates**<br>Composite cover plates Type 2787, to provide 4, 8 and 12mm blade thicknesses. |  <br>**4mm = 0057/048169**<br>**8mm = 0057/048170**<br>**12mm = 0057/048171** |
| **Composite Insulators**<br>**For level and gauge adjustment on slab track installations.**<br>Plastic insulators and metal cover plates are combined to give a variety of blade and sidepost thicknesses. |  <br>**Catalogue Number depends upon insulator sand cover plates selected** |
| **Pad No. 14229**<br>Studded EVA rail pad 8mm thick bonded to HVN side insulators of 5.5mm thick. Used with 'Re1609' or 'Re1801-7' clips on older sleeper types, F23 to F27, EF28, 5EF28, W402, HH10 (Mk1). |  <br>0057/048470 |

| Type | Catalogue Number |
|---|---|
| **Pad No. 15946**<br>Used as part of the 'Re' system on F40 or 5F40 sleepers for re-railing or loose sleeper relaying. 10 mm studded and curved rubber pad which is permanently bonded to side insulators. The insulators allow the pads to be stacked and 'nested' for easy packing and handling. |  <br>not allocated |
| **Pad No. 2061/3**<br>Thickness: 5mm<br>Material: Flat EVA Used with W402 sleepers and PANbaseplates.<br>Can also be used with concrete sleeper types: F23, F24 ,EF25, F27, EF28, EF32, EF33, F34, F35. |  <br>0057/048521 |
| **Pad No. 9970**<br>Thickness: 10mm<br>Material: Studded EVA<br>Used on FASTCLIP steel sleepers with 60E1 rail.<br>Supersedes / interchangeable with 7850. |  <br>0057/048077 |
| **Pad No. 8531**<br>Thickness: 10mm<br>Material: Studded EVA<br>Used on FASTCLIP steel sleepers 56E1 rail. |  <br>0057/048278 |
| **Pad No. 4548**<br>Thickness: 10mm<br>Material: Studded Rubber<br>Used on F40 and 5F40 sleepers. |  <br>0057/048028 |
| **Pad No. 6650**<br>Thickness: 10mm<br>Material: Studded Rubber<br>Used on FASTCLIP concrete sleepers with 56E1 rail. |  <br>0057/048271 |
| **Pad No. 8854**<br>Thickness: 10mm<br>Material: Studded Rubber<br>Used on FASTCLIP concrete sleepers with 60E1 rail. |  <br>0057/048254 |
| **Pad No. 9286**<br>Thickness: 8mm<br>Material: Studded Rubber<br>Used on F27 and EF28 sleepers when fitting the e-Plus system. |  <br>0057/048441 |
| **Pad No. 9328**<br>Thickness: 10mm<br>Material: Studded Rubber<br>Used on e-Plus RT60 and NR60 layouts. |  <br>0057/048293 |
| **Pad No. 5197**<br>Thickness: 10mm<br>Material: Studded Rubber<br>Used on EG49 sleepers with either 56E1 or 60E1 rails. |  <br>0057/048088 |
| **Pad No. 7031**<br>Thickness: 10mm<br>Material: Studded Rubber<br>Used on NRS1, NRS2,and Combi baseplates. |  <br>0057/048613 |

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*This is an author-created version of a paper given at the **11th International Workshop on Railway Noise**, 9-13 September 2013 at Uddevalla in Sweden.*
*In accordance with the Consent to Publish we include the following text:*
*"The original publication is available at www.springerlink.com".*
*The paper will be published there in due course, but is not available yet.*

# Estimating the performance of rail dampers using laboratory methods and software predictions

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## Summary

Rail dampers are designed to reduce the rail component of rolling noise by increasing the attenuation with distance along the rail (decay rate, DR). There is no standardized method to assess the performance of rail dampers. The method described here, developed during the Franco-German STARDAMP project, uses laboratory tests and computer simulation to avoid the need for expensive and time-consuming field trials. The premise of the method is that the DRs of a damped track can be found from summing the DRs of a short-section of damped 'freely supported' rail and the DRs of an undamped track. Reasonable predictions of the decay rates of a test track have been made using this method. Software has been produced that implements TWINS-like predictions of rolling noise with and without rail dampers to predict the damper effect. The effect of rail pad stiffness on the effectiveness of rail dampers has been considered for track constructions typical in the UK and a regional train travelling at 120 km/h. For track fitted with 'soft' 120 MN/m rail pads, the dampers are predicted to reduce the total level by 2.5 dB(A) while with the 'stiff' 800 MN/m pads a 0.7 dB(A) reduction is expected.

## 1 Introduction

The noise radiated by the rail is usually the dominant source of rolling noise between 0.5 and 2 kHz and often in terms of overall level [1]. Rail dampers are

now commercially available that are designed to reduce the rail component of noise by increasing the attenuation with distance along the rail (decay rate, DR) and hence reduce the radiating length. These dampers, tend to be bolted or clipped onto the rail between sleepers and work on the principle of tuned mass dampers [2-4]. There is no standardized method to assess the performance of rail dampers. Railways are often obliged to undertake line testing which can be expensive and may lead to results which are ambiguous or difficult to generalise.

Two methods for determining damped track DRs were tested in the STARDAMP project. With both methods, the damped track DRs are found by summing the DRs of an undamped track on which the dampers are intended to be fitted and the DRs of a section of freely supported damped rail [5]. With the first method, the damped free-rail DRs are determined for either a 4 m or 6 m length of damped rail at low frequency from the modal properties of the rail, and at high frequencies directly from point and transfer frequency response functions (FRFs) at either end of the rail [2,5]. In the second method, the damped free-rail DRs are determined from FRFs measured at intervals along a longer (e.g. 32 m) rail using a method similar to the track decay rate measurement standard EN15461:2008 [6]. The two methods for determining DRs of damped 'freely supported' rails showed reasonable agreement between 300 Hz and 5 kHz. The modal method for determining DRs on the 'short' rail was restricted to low frequencies (< 300 Hz) and resulted in much lower rates than those measured on the 'long' 32 m rail. With dampers designed for conventional track, below 400 Hz the damper DRs are relatively low and tend to have little influence on overall track DRs. Consequently, the direct short-rail method, yielding plausible measurements down to 300 Hz, was considered to be sufficient for many applications. The method is summarized in Section 2; further details can be found in [5,7].

The in-situ performance of dampers will depend not only on their effect on the track DRs but also on the relative contributions of the wheels and individual track components to the radiated noise. These contributions might be predicted (e.g. using TWINS [8]), however currently available software require a large number of input parameters and considerable expertise of the user. An aim of the Franco-German STARDAMP project was to develop a more user-friendly method to predict the acoustic performance of rail and wheel dampers. The method described in Section 3 uses laboratory tests and computer simulation and avoids the need for expensive and time-consuming field trials. The application to wheel dampers is described in a comparison paper [9]

## 2 Decay rate measurements

The premise of the 6 m rail method developed within STARDAMP is that the DRs of a damped track can be found by summing the DRs of a damped 'freely supported rail and the DRs of an undamped track. The damped free-rail DRs are derived from the attenuation measured along a 6 m length of rail.

### 2.1 Damper decay rate test procedure

The proposed damped free rail test procedure is outlined below. To demonstrate the method, example results are given for Schrey and Veit (S&V) rail dampers mounted on UIC 60 rail. Each S&V damper consists of two 7.0 kg laminated rubber and steel construction absorber masses bolted on to the rail web via a solid steel base plate (2.8 kg). The total mass of each damper assembly is 18.6 kg. Test conditions specific to this example are given in parentheses. Other dampers were tested within the project with broadly similar results [7].

With the method, dampers are installed symmetrically over the whole length of a 6 m rail (UIC 60) at a centre-to-centre spacing representative of the intended track installation (see Fig. 1). The rail should be 'freely suspended' at either end on a foundation that is soft enough so that the bounce mode has a natural frequency less than 30 Hz (12 rubber rail pads were used at either end of the rail, giving a bounce mode ≈ 20 Hz). Miniature accelerometers are rigidly attached (using a thin layer of beeswax) as close as possible to either end of the rail (5 mm), attached either at the centre of the rail head for vertical measurements or on the side of the rail head for lateral measurements. A small instrumented hammer, with a hard (titanium) tip, is used to excite the rail with a force of approximately 400 N. This was adequate to ensure that the force spectrum is flat up to high frequencies, dropping by less than 20 dB by 7 kHz.

For both lateral and vertical measurements, a point FRF at one end and a transfer FRF to the other end is measured. The rail temperature should be controlled between 18 and 25°C during the tests. Further measurements are recommended at temperatures encompassing the in-situ temperature range. It is also recommended to measure more than one sample of rail fitted with a given type of rail damper in order to check variability.

In each one-third octave band, the DR is determined as the decibel difference of the transfer FRF to the point FRF divided by the rail length. With low DRs, the % error in the DR for a given dB error in the FRFs is large and therefore in practice the lower threshold for reliable measurements is found to be ~1.0 dB/m.

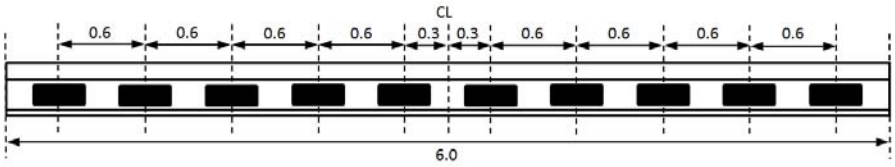


**Fig. 1.** Example of damper installation with 0.6 m spacing. Dimensions in metres.

### 2.2 Track decay rates measurements

To demonstrate the method, track DRs of an undamped track were measured on a 32 m test track at the University of Southampton using a procedure based on EN 15461:2008 [6]. In practice these measurements would be made on a circulated track. The test track has UIC 60 rail, 51 concrete monobloc sleepers with a mean spacing of 0.63 m (s.d. = 0.03 m), Pandrol Fastclips, Pandrol 10 mm studded

natural rubber pads (effective stiffness approx. 120 MN/m), and granite ballast to depth of 0.3 m.

For the prediction of the damped track DRs, measurements were made of the DRs of the undamped test track. Additionally, for validation, damped track DRs were measured directly using the same EN 15461:2008 procedure, with the dampers bolted on at mid span along the full length of the rail, except at inter-sleeper positions 18 and 37 where rail welds prevented their attachment.

Vertical and lateral DRs were measured with the method. A measurement grid was marked up from a reference point 10 sleeper spans (5.96 m) from the rail end. Measurements were made at ¼-sleeper intervals from this point up to the 16th sleeper span, then at mid-span positions 17, 18, 20, 22, 26, 30, 34, 38, 42 and 46.

An instrumented hammer was used to excite the rail at each of the measurement points in turn. The response was measured with an accelerometer mounted at the reference point.

DRs in each ⅓ octave band up to 5 kHz were calculated in dB/m from the point frequency response function (FRF) at the reference point, $A(x_0)$, and the transfer FRFs, $A(x_n)$, between the reference position and the other points on the measurement grid, $x_n$, using:

$$DR = 4.343 \Big/ \sum_{x=0}^{x_{\max}} \frac{|A(x_n)|^2}{|A(x_0)|^2} \Delta x_n \tag{2.1}$$

The derivation of this equation can be found in [5].

### 2.3 Decay rate results

Vertical DRs for the undamped track, a free 6 m rail fitted with the dampers and the damped track are shown in Fig 2. For the undamped track, at low frequencies, there is high attenuation because of the stiffness of the foundation. At around 250 Hz there is a broad peak associated with the sleeper and rail pad acting as a ‘dynamic absorber’. Above around 500 Hz, waves begin to propagate freely in the rail and the DR decreases, before increasing again to a peak at around 5 kHz, caused by a flapping mode of the rail foot [1]. Measurements in the lateral direction showed similar trends (Fig. 3). One difference was that the undamped lateral track DRs were, at most frequencies, much lower than in the vertical direction. The lower lateral rates explain why, while the excitation is generally lower in the lateral direction, its contribution to overall noise levels can be of significance. In both directions, the damped ‘free’ rail DRs show that the dampers introduced high attenuation in the region 0.5 to 3 kHz.

Damped track DRs have been predicted by summing the damped ‘free’ rail DRs with those of the undamped track. These show reasonable agreement with the directly measured DRs of the damped track. Some of the inaccuracies in the predicted DRs are likely to have been caused by temperature variations between

conditions affecting the pad and damper properties and end effects due to the finite rail lengths e.g. [5,7,10].

The expected reduction in noise from the rail in each ⅓ octave band, from installing dampers, $\Delta L$, can be calculated from the undamped track decay rate, $DR_u$ and the damped track decay rate, $DR_d$ according to

$$\Delta L = 10\log_{10}(DR_u / DR_d) \tag{2.2}$$

To calculate improvements to the overall sound level, predictions are required of the contributions of the individual track components, with and without the dampers, for which the software described in the next section is intended.

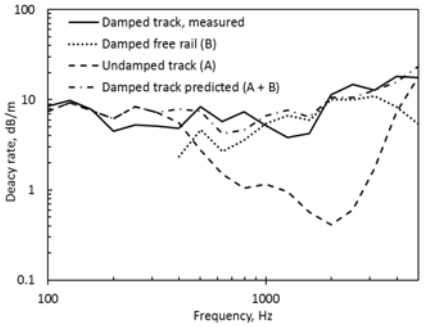


**Fig. 2.** Vertical decay rates

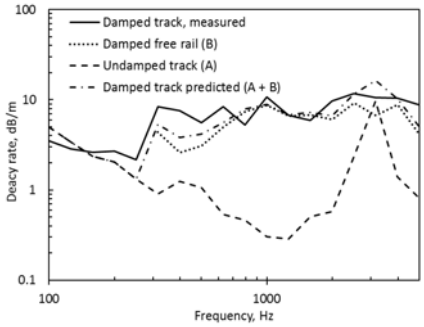


**Fig. 3.** Lateral decay rates

# 3 Stardamp software

## 3.1 Description of software

The software tool, developed within the STARDAMP project, is based on the same theoretical models used in the TWINS software [8]. It implements an analytical description of the wheel-rail interaction where the contact forces are calculated as the ratio between the wheel-rail roughness spectrum and the sum of rail, wheel and contact mobilities. Both vertical and lateral degrees of freedom at the contact are considered. From the contact forces, wheel, rail and sleeper responses are calculated and the sound power levels estimated through radiation efficiencies. If rail dampers are to be included their effect is accounted by replacing analytically calculated rail wavenumbers with measured DRs. Finally a simple model for acoustic propagation above a partially absorptive flat ground gives the sound pressure levels at specific field positions.

Vertical and lateral rail mobilities are calculated by a model of a Timoshenko beam [11] on a double layer continuous elastic support, which accounts for pads, sleepers and ballast. Coupling between vertical and lateral motion is empirically modelled by a constant factor (normally between -7 dB and -12 dB). To define the track, several combinations of track types, sleeper types, rail types and pad stiffness and damping values can be selected. Most importantly, the track can be ballasted or slab-track, in this second case the continuous elastic support has a single layer only. For ballasted track the sleeper can be monobloc (concrete or

wooden) which are modelled as beams or bibloc which are modelled as masses. The software can determine DRs analytically from the track response or use measured values. When measured DRs are used, all the other wheel and track-related quantities (e.g. mobilities and contact forces) are retained from analytical calculations and are assumed not to be modified by the presence of dampers.

The wheel is described in terms of a Finite Element (FE) model. This is used to compute natural frequencies and mode shapes at the contact point and at a limited number of positions on the external face. This information is stored in an external text file (modal parameters file) which is loaded in the software; wheel mobilities are then calculated through modal summation and modal damping ratios can be added either adopting standard values or after measurements. Modal models of three typical undamped wheels of freight, regional and high-speed trains are implemented in the software. The user can also include their own.

Typical roughness spectra corresponding to wheels with cast-iron brake blocks, K-block brakes and disc brakes are supplied; again measured values can be loaded by the user. Generally, the number of accessible options is reduced with respect to TWINS in order to permit the use by non-expert users through a simple Graphical User Interface. Lastly, to increase reliability, the final results shown are an average over three contact positions: the nominal one (70 mm from flange back) and ± 10 mm from this.

The software permits the direct assessment of rail dampers, wheel dampers, or a combination of both. In this paper only the application of rail dampers is discussed; wheel dampers are discussed in [9]. When the software is used for assessing dampers, it first computes pass-by noise levels for a baseline model without dampers then it estimates noise levels considering the dampers. The effectiveness can be then visualised by comparing damped versus non-damped sound pressure spectra and overall levels.

### 3.2 Example predictions

To illustrate the Stardamp software, the effect of dampers on noise from a train pass-by has been predicted for two different track conditions typical in the UK. For the first case, ‘soft’ 120 MN/m rail pads are assumed, while in the second case, stiffer 800 MN/m pads are assumed. Other track parameters were selected to be consistent with the test track (see Section 2.2). For both cases, a regional train travelling at 120 km/h with roughness representative for disc brakes has been assumed. The decay rates measured on the short rail (Figs 2 and 3) have been used as input to the software, along with measured track decay rates applicable to each pad stiffness.

Fig. 4 gives the predicted noise levels for a receiver at 7.5 m from the centre of the track fitted with soft rail pads. It can be seen that the noise contribution of the rail is dominant in the mid frequency region, wheel noise is the main source at high frequency while the contribution of the sleepers is at a much lower level. There is a substantial reduction in the rail contribution after introducing the rail

dampers (solid lines), giving an overall reduction of 6 dB(A) in this component. There is also some reduction in the sleeper noise but this component is relatively low compared to the others and has minimal effect on the overall level. There is no reduction predicted in the wheel component of noise. This is a consequence of the fact that the contact forces in the model are not modified by the introduction of dampers on the track. The overall noise is reduced by about 2.5 dB(A).

Fig. 5 gives the predicted noise levels for the track fitted with stiff pads. The higher stiffness of the rail pads decreases the rail component of rolling noise but conversely increases the noise radiated from the sleeper due to the increased coupling (compare Fig. 4 and Fig. 5). As the decay rates are initially higher, the damper only reduces the rail component by about 3.5 dB(A). As a result of the lower rail contribution, the wheel noise dominates the overall noise level and hence the effect of the damper on the overall noise is relatively small at 0.7 dB(A).

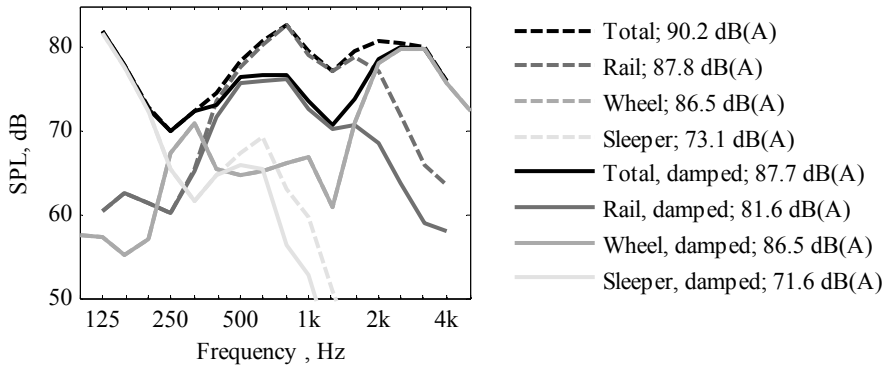


**Fig. 4.** Sound pressure levels determined at 7.5 m from track fitted with soft rail pads.

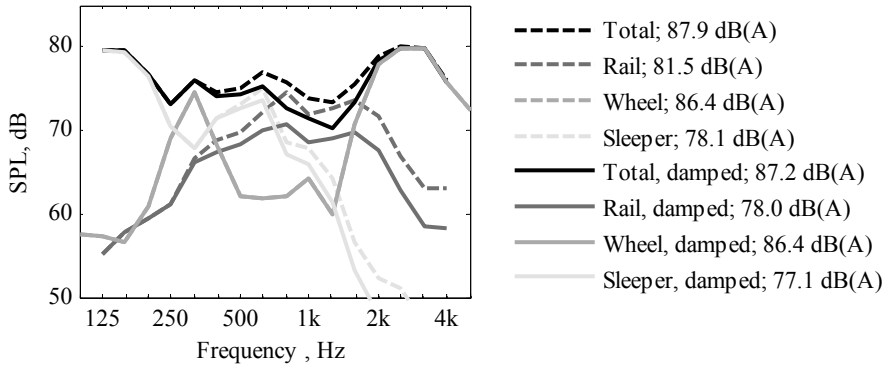


**Fig. 5.** Sound pressure levels determined at 7.5 m from track fitted with stiff rail pads

# 4 Conclusions

A combined experimental-numerical procedure for determining rail damper effectiveness without the need to mount them on the track has been proposed and demonstrated. The method consists of measuring the DRs of a short section of freely supported rail equipped with dampers and the DRs of the real track where the dampers are intended to be fitted. The DRs are then used as inputs in rolling noise prediction software which compares noise radiated from the wheel and track, with and without rail dampers. Reasonable predictions of the damped track DRs of a test track have been obtained using the method. Predictions demonstrate that fitting dampers to track with soft pads is likely to be more effective at controlling noise than fitting them on a track with stiff pads.

# Acknowledgments

The authors would like to acknowledge the assistance of the STARDAMP partners: Alstom, Deutsche Bahn, GHH-Valdunes, SNCF, Schrey&Veit, Tata Steel, TU Berlin and Vibratec and the funding from the Deufrako cooperation (German funding FKZ 19U10012 A-D; French funding FUI 092906631).

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**WEST AREA PLANNING COMMITTEE** 13th September 2016

| | |
|---|---|
| **Application Numbers:** | 16/01410/VAR: Vibration monitoring on plain line, route section H (re - 13/03202/CND, Condition 3)<br><br>16/01411/VAR: Vibration monitoring at switches and crossings, route section H (re - 14/00232/CND, Condition 3)<br><br>16/01406/VAR: Noise monitoring route section H (re - 15/00956/CND, Condition 4)<br><br>16/01412/VAR: Vibration monitoring on plain line, route section I-1(re - 15/03587/CND, Condition 3)<br><br>16/01409/VAR: Noise monitoring route section I-1 (re - 15/03503/CND, Condition 4) |
| **Decision Due by:** | 22nd August 2016 |
| **Proposal:** | Applications under Section 73 of the Town and Country Planning Act, 1990 to vary conditions in relation to noise and vibration monitoring in route sections H and I-1. |
| **Site Address:** | Chiltern Railway From Oxford To Bicester **Appendix 1** |
| **Ward:** | St Margaret's, Summertown, and Wolvercote Wards |

**Agent:** ERM **Applicant:** Network Rail

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**Recommendation**

West Area Planning Committee is recommended to approve these applications for the following reasons and subject to and including:

- the conditions listed below *(conditions are in part dependent on the determination of applications 16/01858/VAR and 16/01861/VAR earlier in this Agenda);* and,
- conclusion of a Unilateral Undertaking (to monitor vibration for four days at 3 properties close to the line in route section H) the decision upon which to be delegated to the Head of Planning and Regulatory Services:

16/01410/VAR: approve subject to conditions 1 and 3 below and conclude a Unilateral Undertaking

16/01411/VAR: approve subject to condition 1 below

16/01406/VAR: approve subject to conditions 1, 2, and 3 below

16/01412/VAR: approve subject to condition 1

16/01409/VAR: approve subject to conditions 1, 2, and 3 below

**Reasons for Approval**

1 The proposed monitoring makes satisfactory provision to help secure a reasonable level of mitigation of the noise and vibration impacts of the scheme on local residents.

2 Officers have considered carefully all objections to these proposals. Officers have come to the view, for the detailed reasons set out in the officers report, that the objections do not amount, individually or cumulatively, to a reason for refusal and that all the issues that have been raised have been adequately addressed and the relevant bodies consulted.

**Conditions** (to be applied as relevant to the permissions being varied):

1 Development in accordance with application documents

2 Implementation of SilentTrack
*(dependent on the determination of applications 16/01858/VAR and 16/01861/VAR earlier on this Agenda)*

3 Monitoring in accordance with submitted scheme

**Note about additional condition previously imposed by the Committee**

The Committee will recall that when approving the original applications to which these variations refer, a condition was applied restricting train movements in accordance with condition 19 of deemed permission. The condition read:

> *"Passenger train movements on Section H between 0700 hours and 2300 hours shall not be in excess of 8 movements per hour. Freight train movements between 2300 hours 0700 hours on the following day shall not exceed 8.*
>
> *Reason - to ensure compliance with condition 19 of the planning permission deemed to have been granted (ref TWA/10/APP/01)"*

The Committee was advised by officers at the time that in their opinion this form of condition would not meet the legal or policy tests of the NPPF. Officers remain of that view and are not recommending its re-imposition.

**Principal Planning Policies**

Oxford Local Plan 2001-2016

**CP6** - Efficient Use of Land & Density
**CP10** - Siting Development to Meet Functional Needs

Core Strategy 2026
**CS13_** - Supporting access to new development
**CS27_** - Sustainable economy

**Other Main Material Considerations**

- National Planning Policy Framework
- National Planning Policy Guidance
- Environmental Information
- The deemed planning permission of 23rd October 2012 and documents related to it including the Noise and Vibration Mitigation Policy (January 2011)

**Relevant Site History**

13/03202/CND - Details submitted in compliance with condition 19 (operational noise and vibration) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990). 13/03202/CND – vibration: plain line, section H. PERMITTED 30th June 2015.

14/00232/CND - Details submitted in compliance with condition 19 (operational noise and vibration) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990). 14/00232/CND – vibration: switches + crossings, section H. PERMITTED 30th June 2015.

15/00956/CND - Details submitted in compliance with condition 19 (operational noise and vibration) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990). PERMITTED 30th June 2015.

15/03587/CND - Details submitted in compliance with condition 19(2) (Vibration - Section I1) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990). PERMITTED 9th February 2016.

15/03503/CND - Details submitted in compliance with condition 19(2) (Noise - Section I1) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990). PERMITTED 9th February 2016.

**Consultations**

Statutory Consultees

- Natural England – no comment
- Historic England – no heritage assets affected therefore no comment
- Highways Authority – no comment
- Thames Water Utilities Limited – no comments received
- Environment Agency Thames Region – no comments received
- Oxfordshire County Council – no comment

Representations

Representations have been received from 33 addresses including: Stone Meadow, Blenheim Drive, Lakeside, Bladon Close, Linkside Avenue, First Turn, Carey Close, Fairlawn Flats, Quadrangle House, Upper Close, Cyprus Terrace, and First Turn. 5 representations had no residential address given. The MP for Oxford West and Abingdon also commented.

The main points relevant to monitoring raised in those representations are:

- The additional monitoring required by condition 4 was inserted by the planning committee specifically to compensate for the uncertainty about Phase 2 of East West Rail
- Future noise monitoring is one of the few realistic protections we have to help gain the best protection at the outset
- The original requirement for four episodes of monitoring as specified in the Noise and Vibration Mitigation Policy should be adhered to
- Verification of the achievement of residual noise levels set out in the Environmental Statement requires monitoring to be done after the introduction of Phase 2 of East West Rail - it would be unreasonable and inconsistent with the TWAO for residents affected to be denied this verification
- The 72 month monitoring period should be maintained
- The purpose of monitoring is to check that the noise mitigation measures satisfied the requirements specified in the original approval
- It is not the case that network rail is simply seeking to reinstate the original monitoring conditions
- There must be a second program of monitoring in order to gauge the actual impact of noise levels after commencement services on East West Rail Phase 2
- The noise predictions are unreliable therefore the second phase of monitoring is required - there is a need to check actual not predicted noise level after the full range of East-West rail passenger and freight trains have been introduced
- The City Council does not have the power to amend the planning permission;
- some especially vulnerable properties very close to the railway are omitted from the monitoring scheme: the City Council's own properties in Sheriff's Drive, Wolvercote Primary School, and properties in both St Peters Road and Ulfgar Road. Network rail are seeking to save costs at the expense of residents reasonable expectation of the quiet enjoyment of their homes;
- The requirements of the TWA order should not be watered down in favour of the short-term budget consideration of Network Rail;
- The application is made purely so that Network Rail can avoid the risk of having to compensate local householders.

## The Purpose of this Report

1. The purpose of this report is to consider and recommend on the acceptability of NR's proposals to vary the conditions for monitoring operational noise and vibration on East West Rail Phase 1 which were applied by the Council and were additional to the monitoring requirements laid down by the Secretary of State in the deemed planning permission.

## Background

*The deemed planning consent for EWRP1*

2. The Transport and Works Act Order (TWAO) and deemed planning permission for East West Rail Phase 1 (EWRP1) ("the scheme") was granted, subject to conditions, on 17th October 2012. The original permission was described in terms of Phases 1, 2A and 2B – these phases are all now encompassed in the term East West Rail Phase 1 (EWRP1) which covers the line from Bicester to Oxford.

3. *Sustainability*: in granting deemed planning permission for the scheme, the Secretary of State concluded that there is a compelling case to increase rail capacity between Oxford and London, and that the scheme would bring substantial transport benefits in terms of reduced travel times, better public transport connectivity, and better rail network capability. In the decision, the Secretary of State weighed these sustainability benefits against the potential adverse impacts that the scheme might cause. Those considerations gave rise to several of the planning conditions dealing with the natural environment and residential amenity.

*The prescribed approach to monitoring operational noise and vibration*

4. Condition 19 of the deemed planning permission (**Appendix 2**) focusses on operational noise and vibration and was imposed in order to:

> "*ensure that operational noise and vibration are adequately mitigated at residential and other noise sensitive premises*".

5. Condition 19(2) of the deemed permission for the scheme requires the submission of Noise Schemes of Assessment (NSoAs) and Vibration Schemes of Assessment (VSoAs) and associated proposals for monitoring and mitigation of the operational noise and vibration of the passenger and freight services on the rail line.

6. Condition 19(6) states that monitoring of noise and vibration shall be undertaken in accordance with the approved schemes of assessment and the Noise and Vibration Mitigation Policy (NVMP) which was approved by the Secretary of State as part of the deemed planning permission (**Appendix 3**).

7. In respect of monitoring the operation of the scheme the NVMP states that (with officer highlighting):

*"1.11 After each Phase of works, **the effectiveness of the noise insulation measures installed will be monitored**, as detailed in para 2.11"*

8. The NVMP prescribes the form of the monitoring scheme in the following terms:

*"2.11 A noise and vibration monitoring scheme for the Phase 1 and 2A works will be implemented to ensure that the performance of the mitigation measures that are installed achieve the levels of noise mitigation predicted by the design contractor, whose design instructions will include the requirement to achieve the residual noise levels set out in the Environmental Statement. The monitoring scheme will include the carrying out of surveys, the first being undertaken at around 6 months after the opening of the railway for Chiltern Railways passenger services, at locations agreed with the local planning authorities. A second survey will be undertaken 18 months after opening. If defects in construction or performance are identified in the first survey, these will be corrected in a timely manner by the contractor. If any defects in construction or performance are found in the second survey, these will also be corrected in a timely manner by the contractor. The same procedure for post construction monitoring surveys and the remedy of defects or performance will be undertaken after the Phase 2B works have been completed and EWR services introduced.*

*2.12. The results of the Phase 1 and 2A monitoring will be published in an easily accessible format on the Chiltern Railways website and in the project newsletter and will be made available, either in hard copy of in electronic format, to any person requesting the information. Arrangements for publishing the surveys after Phase 2B will be agreed with the local planning authorities".*

9. In summary, condition 19 of the deemed permission and the NVMP require monitoring to be undertaken only of the performance of any installed noise and vibration mitigation; this to be achieved through surveys at 6 and 18 months after the opening of the line from Bicester to Oxford. **This monitoring will have to be undertaken by NR regardless of the Committee's decision on the current applications – the local planning authority cannot change the Secratey of State's decision.** The only involvement of the local planning authority in the monitoring scheme prescribed by the NVMP is to agree the monitoring survey locations – in practice, this is achieved through approval of the NSoAs and VSoAs.

*The monitoring schemes in the approved NSoAs and VSoAs*

10. The NSoA and VSoAs for Section H of the scheme were approved by West Area Planning Committee (WAPC) on 30th June 2015 (13/03202/CND 14/00232/CND and 15/00956/CND). The NSoA and VSoA for route section I-1 of the scheme were approved by the WAPC on 9th February 2016 (15/03587/CND and 15/03503/CND).

11. The approved NSoAs include noise monitoring in accordance with the scheme prescribed in the NVMP. One noise monitoring programme is proposed (because EWRP1 is being implemented in one phase rather than two phases) undertaken at approximately 6 and 18 months after the opening of the railway for passenger services. It consists of noise measurements taken at key receptors where mitigation has been installed, the locations to be agreed with the Council. It also includes modelled predictions of the impact of freight movements from EWRP2. Measurements will also be made at an open location where no mitigation is required to ensure that the unmitigated train noise levels are consistent with the assumptions made in the modelling.

12. The approved VSoAs do not include proposals for monitoring because the NVMP requires monitoring only of the performance of the mitigation that is installed. Given that no vibration mitigation is proposed, no vibration monitoring is proposed.

*The Council's planning condition requiring additional monitoring*

13. When approving these NSOAs and VSoAs, the City Council imposed on each permission a condition regarding additional monitoring respectively of noise and vibration which reads:

> *"Section H/I1 shall not be made available for use by trains until provision for continuous monitoring of noise/vibration has been effected for noise sensitive properties throughout section H/I1 in accordance with a scheme previously approved in writing by the Council. The results of such monitoring shall be provided to the Council on each of six months, eighteen months, thirty months, forty-two months, fifty-four months, sixty-six months and seventy-eight months from the date on which Section H is first made available for use for trains. In the event that the monitoring results provided to the Council exceed the noise thresholds in the Noise and Vibration Mitigation Policy then additional mitigation measures shall be effected within six months in order to ensure that those levels are not again exceeded.*
>
> *Reason: to ensure compliance with condition 19 of the planning permission deemed to have been granted (ref TWA/10/APP/01)"*

14. The West Area Planning Committee imposed this condition because it was concerned to know not just how the mitigation was performing but also what the actual noise and vibration levels of the operating service would be (passenger and freight and including East West Rail Phase 2 – Bicester to Bletchley). The Committee wanted to be in a position to assess the impacts of those levels on residential and other amenity and to determine whether any additional noise or vibration mitigation would be required. They came to this view because of what they regarded as uncertainties in the assumptions used to predict operational noise and vibration, and uncertainties about the patterns of services into the future and the types and quality of rolling stock. The Committee decided that additional noise and vibration monitoring, over and

above the requirements of the deemed planning permission and the Noise and Vibration Mitigation Policy should be required.

15. The Committee was advised by officers at the time that in their opinion this form of condition would not meet the legal or policy tests of the NPPF.

**NR's revised proposals for monitoring**

16. NR's proposals for monitoring are summarised in the table below:

| | Current planning ref: | Subject | Proposal |
|---|---|---|---|
| **1** | **16/01410/VAR** relating to 13/03202/CND Condition 3 | Vibration monitoring on plain line, route section H | Remove condition 3 but in view of previous written undertaking to carry out vibration monitoring in this section, conclude a Unilateral Undertaking to monitor vibration for four days at 3 properties close to the line (1 in Quadrangle House and 2 in Bladon Close) |
| **2** | **16/01411/VAR** relating to 14/00232/CND Condition 3 | Vibration monitoring at switches and crossings, route section H | Remove condition 3 because there are no properties near enough to be affected by vibration (70m away) (Notwithstanding previous written undertaking to carry out vibration monitoring in this section) |
| **3** | **16/01406/VAR** relating to 15/00956/CND Condition 4 | Noise monitoring route section H | Vary condition 4 to require monitoring at 6 and 18 months in line with the original deemed permission condition 19(1, 6). This to be at 5 locations: Lakeside; Five Mile Drive; Bladon Close; Quadrangle House; and Blenheim Drive. |
| **4** | **16/01412/VAR** relating to 15/03587/CND Condition 3 | Vibration monitoring on plain line, route section I-1 | Remove condition 3 because no vibration mitigation is proposed and the NVMP only requires the performance of installed mitigation to be monitored |
| **5** | **16/01409/VAR** relating to 15/03503/CND Condition 4 | Noise monitoring route section I-1 | Vary condition 4 to require monitoring at 6 and 18 months in line with the original deemed permission condition 19(1, 6). This to be at 3 locations: Cox's Ground, Stone Meadow and Navigation Way. |

17. Bearing in mind the reasons why the Committee imposed these conditions, officers asked NR to consider amending proposals 3 and 5 in the table above, effectively to extend the assessment of measured noise within each scheme so as to report on the residual mitigated and unmitigated noise levels at each receptor, comparing these to the baseline levels in the Environmental Statement and stating whether the residual unscreened and screened levels were above or below predicted. While accepting that this did not go as far as the Committee wanted as set out in the condition, the suggestion was made because in the view of officers this would be a relatively straightforward exercise which would go some way to achieving the Committee's aim – it

would be a similar commitment to that made for proposal 1 above in respect of vibration in the form of a Unilateral Undertaking.

18. NR considered this proposed amendment but has declined to pursue it on the grounds that:

    i. the vibration standards are simply expressed as absolute VDV values in the NVMP and the locations at risk have been very clearly identified as the 'worst cases'. With noise there isn't an equivalent situation – there are several parameters and trigger values and no "worst case" locations have been identified, thus it will not be feasible to formulate similar parameters for noise;

    ii. in practice, monitoring will compare the measured/extrapolated noise levels at the receptors with those predicted at the same location using the model, as part of the analysis of barrier performance and this information will be published; and,

    iii. it is an unreasonable expectation that NR should have to provide additional mitigation for differences that arise, for example, from the Calculation of Railway Noise methodology or from differences in operating conditions (for example train speeds) from those modelled.

19. NR's proposals are therefore to be considered by the Committee in their original form (table above).

20. Members might wish to note that the data generated from NR's noise monitoring proposals will include measurements at unscreened locations. Such data could be considered to represent relevant post-scheme residual unmitigated noise levels and thereby will enable comparison with the pre-scheme base levels as envisaged in paragraph 17 above.

**Officers Assessment**

21. At the West Area Planning Committee in June 2015 in relation to route section H, officers advised against the imposition of conditions requiring monitoring additional to that prescribed by the Secretary of State. Officers remain of that view.

22. The monitoring proposals before the Committee go beyond what was prescribed in the deemed permission but not as far as the additional monitoring that the Committee required in the condition it applied to approval of the NSoAs and VSoAs. In the view of officers therefore, the proposals should be approved.

**Conclusions**

23. It is concluded that the proposals are acceptable and may be approved as making satisfactory provision to help secure a reasonable level of mitigation of the noise and vibration impacts of the scheme on local residents.

Human Rights Act 1998

Officers have considered the Human Rights Act 1998 in reaching a recommendation to grant planning permission, subject to conditions. Officers have considered the potential interference with the rights of the owners/occupiers of surrounding properties under Article 8 and/or Article 1 of the First Protocol of the Act and consider that it is proportionate.

Officers have also considered the interference with the human rights of the applicant under Article 8 and/or Article 1 of the First Protocol caused by imposing conditions. Officers consider that the conditions are necessary to protect the rights and freedoms of others and to control the use of property in accordance with the general interest. The interference is therefore justifiable and proportionate.

Section 17 of the Crime and Disorder Act 1998

Officers have considered, with due regard, the likely effect of the proposal on the need to reduce crime and disorder as part of the determination of this application, in accordance with section 17 of the Crime and Disorder Act 1998. In reaching a recommendation to grant planning permission, officers consider that the proposal will not undermine crime prevention or the promotion of community safety.

**Background Papers:** 13/03202/CND, 14/00232/CND, 15/00956/CND, 15/03587/CND, 15/03503/CND, 16/01410/VAR, 16/01411/VAR, 16/01406/VAR, 16/01412/VAR, 16/01409/VAR

**Contact Officer:** Fiona Bartholomew
**Extension:** 2774
**Date:** 5th September 2016

**WEST AREA PLANNING COMMITTEE** 13th September 2016

**Application Numbers:** 16/01634/CND: Noise Scheme of Assessment for route section I-2

16/01635/CND: Vibration Scheme of Assessment for route section I-2

**Decision Due by:** 17th August 2016

**Proposals:** Details submitted in compliance with condition 1 (Noise and Vibration - route section I/2) of TWA ref: TWA/10/APP/01 (The Chilterns Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990).

**Site Address:** Chiltern Railway From Oxford To Bicester **Appendix 1**

**Ward:** North, and Jericho and Osney Wards

**Agent:** ERM **Applicant:** Network Rail

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**Recommendation**

West Area Planning Committee is recommended to approve these applications for the following reasons:

**Reasons for approval**

1 The submitted Noise and Vibration Schemes of Assessment are considered to be robust and have demonstrated that the required standards of noise mitigation set out in the Policy will be achieved.

2 Officers have considered carefully all objections to these proposals. Officers have come to the view, for the detailed reasons set out in the officers report, that the objections do not amount, individually or cumulatively, to a reason for refusal and that all the issues that have been raised have been adequately addressed and the relevant bodies consulted.

**Conditions**:

1 Development in accordance with application documents

**Note about additional conditions previously imposed by the Committee**

The Committee will recall that when approving the NSoAs and VSoAs for route sections H and I1, conditions were applied restricting (i) train movements in

accordance with condition 19 of deemed permission, and (ii) requesting continuous monitoring. The conditions read:

- *"Passenger train movements on Section H/I1 between 0700 hours and 2300 hours shall not be in excess of 8 movements per hour. Freight train movements between 2300 hours 0700 hours on the following day shall not exceed 8.*

  *Reason - to ensure compliance with condition 19 of the planning permission deemed to have been granted (ref TWA/10/APP/01)"*

- *"Section H/I1 shall not be made available for use by trains until provision for continuous monitoring of vibration for vibration sensitive properties throughout section H/I1 has been affected in accordance with a scheme previously approved in writing by the Council. The results of such monitoring shall be provided to the Council on each of six months, eighteen months, thirty months, forty-two months, fifty-four months, sixty-six months and seventy-eight months from the date on which Section H/I1 is first made available for use for trains. In the event that the monitoring results provided to the Council exceed the vibration thresholds in the Noise and Vibration Mitigation Policy then additional mitigation measures shall be affected within six months in order to ensure that those levels are not again exceeded.*

  *Reason: to ensure compliance with condition 19 of the planning permission deemed to have been granted (ref TWA/10/APP/01)"*

The Committee was advised by officers at the time that in their opinion these conditions would not meet the legal or policy tests of the NPPF. Officers remain of that view and are not recommending their re-imposition.

**Main Local Plan Policies**

Oxford Local Plan 2001-2016

**CP6** - Efficient Use of Land & Density
**CP10** - Siting Development to Meet Functional Needs

Core Strategy

**CS13** - Supporting access to new development
**CS27** - Sustainable economy

**Other Main Material Considerations**

- National Planning Policy Framework
- National Planning Policy Guidance
- Environmental Information
- The deemed planning permission of 23 October 2012 and documents related to it including the Noise and Vibration Mitigation Policy (January 2011)

**Relevant Site History**

13/00918/CND - Details submitted in compliance with condition 3 (development sections) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990).. PER 7th May 2013.

15/01978/CND - Details submitted in compliance with condition 3 (Individual Section schemes) of TWA ref: TWA/10/APP/01 (The Chiltern Railways (Bicester to Oxford Improvements) Order - deemed planning permission granted under section 90(2A) of the Town and Country Planning Act 1990).. PER 5th November 2015.

**Representations Received:**

Representations have been received from 17 addresses including Merrivale Square, Rutherway, Plater Drive, The Crescent, Woodstock Road. 3 representations had no residential address given. The Rewley Park Management Company also commented.

The main points raised were:

- NR is going back on its promise to lay new track - new track is essential for this part of the line;
- properties in this area suffer considerable noise and vibration from trains;
- this area needs noise and vibration mitigation given the large and increasing amount of rail traffic;
- need speed limits on trains;
- support the rail improvements but must be sensitive to the needs of nearby residents;
- the condition was imposed because mitigation is needed – nothing has changed to lessen those needs;
- NR gets planning permission and then changes the planning conditions.

**The Purpose of this Report**

1. The purpose of this report is to consider and recommend on the acceptability of the Noise Scheme of Assessment (NSoA) and Vibration Scheme of assessment (VSoA) for route section I-2, submitted by NR in accordance with condition 1 to planning reference 15/01978/CND.

2. The report examines:

    - the background to the application
    - the requirements of condition 19 in relation to noise and vibration;
    - why noise and vibration are considered separately;
    - the requirements of the NVMP in relation to noise;
    - what is an NSoA and how is it judged?;
    - the requirements of the NVMP in relation to vibration;

- what is a VSoA and how is it judged?; and,
- the requirements of the NVMP in relation to monitoring.

3. The report then looks at the details of the NSoA and VSoA submitted for route section I-2 and recommends as to the acceptability of the conclusions drawn.

**Background**

*The deemed planning consent for EWRP1*

4. The Transport and Works Act Order (TWAO) and deemed planning permission for East West Rail Phase 1 (EWRP1) ("the scheme") was granted, subject to conditions, on 17th October 2012.

5. *Sustainability*: in granting deemed planning permission for the scheme, the Secretary of State concluded that there is a compelling case to increase rail capacity between Oxford and London, and that the scheme would bring substantial transport benefits in terms of reduced travel times, better public transport connectivity, and better rail network capability. In the decision, the Secretary of State weighed these sustainability benefits against the potential adverse impacts that the scheme might cause. Those considerations gave rise to several of the planning conditions dealing with the natural environment and residential amenity.

6. The original permission was described in terms of Phases 1, 2A and 2B – these phases are all now encompassed in the term East West Rail Phase 1 (EWRP1). The scheme involves:

    i. replacing the existing Bicester/Oxford track for its length within the city up to a point opposite Stone Meadow where it deviates west of the existing line and joins the main line near the existing Aristotle Lane crossing; and,

    ii. constructing a new line to the west of the existing line which also joins the main line opposite Stone Meadow.

7. Some proposals which were in the original permission are not now being implemented, namely:

    - a new track from opposite Stone Meadow into the Oxford Station close to the eastern side of the exiting extent of railway land;

    - a new short spur from that track into the station (together with a new platform) which commenced just north of the Rewley Road Swing Bridge; and,

    - a shorter link which was to have joined the new line (ii above) to the main line in the vicinity of Stone Meadow.

*Agreement of the route sections*

8. Condition 3 of the deemed permission required proposals to be approved to divide the scheme into individual development sections. Network Rail's (NR) proposals for route sections within Oxford were approved under delegated powers on 7th May 2013 (reference 13/00918/CND). Under those proposals route sections H, I and J are located in Oxford (with route sections A to G in Cherwell District).

*Splitting route section I into I-1 and I-2*

9. The revised proposals for EWRP1, omitting certain elements as described in paragraph 7 above, meant that the remaining track replacement work being undertaken at the southern part of route section I and in route section J (from Aristotle Lane Footbridge southwards to just north of Oxford Station) no longer formed part of the works to be implemented under the TWAO. NR is relying permitted development rights to implement these works. The effect of this was that the conditions attached to the TWAO and deemed planning permission would no longer apply to the line south of Aristotle Lane Footbridge.

10. In order to facilitate this change to the scheme, NR was obliged to split route section I into two parts (planning application reference 15/01978/CND):
    - I-1 (north of Aristotle Lane Footbridge where the TWAO and planning conditions still applied); and,
    - I-2 (south of Aristotle Lane Footbridge to the point where it abuts route section J, where the TWAO and planning conditions no longer applied).

11. On 5th May 2015 WAPC agreed to splitting route section I into those two sections subject to a condition that a Noise Scheme of Assessment (NSoA) and Vibration Scheme of Assessment (VSoA) and associated proposals for monitoring and mitigation of the operational noise and vibration of the passenger and freight services on the rail line be submitted and approved for route section I-2. This was effectively re-imposing condition 19 of the deemed permission for EWRP1 which had been imposed in order to "*ensure that operational noise and vibration are adequately mitigated at residential and other noise sensitive premises"* (**Appendix 2**).

12. The condition imposed on 15/01978/CND by WAPC reads:

> *"The development facilitating the passage of EWRP1 trains in Section I/2 shall not be used for the passage of passenger rail traffic until Noise and Vibration Schemes of Assessment (SoAs) for Section I/2 have been submitted which accord with the requirements of condition 19 of deemed planning permission TWA/10/APP/01 and approved in writing by the local planning authority AND all noise and vibration mitigation required under the approved SoAs for section I/2 has been installed. So far as not inconsistent with this condition, the requirements of condition 19 of deemed planning permission TWA/10/APP/01 shall apply to the development facilitating the passage of EWRP1 trains in Section I/2 as if that development was "Development" as defined in*

*deemed planning permission TWA/10/APP/01.*

*Reason: To ensure that operational noise and vibration are adequately mitigated at residential and other noise sensitive premises".*

**The Requirements of Condition 19 - noise and vibration**

13. Condition 19 is entitled "Operational noise and vibration monitoring and mitigation" and is a relatively complex condition with a number of components. Its core requirements are that:

    - operational noise and vibration monitoring and mitigation are to be carried out in accordance with the Noise and Vibration Mitigation Policy, **Appendix 3**, which was approved by the Secretary of State; and,

    - development within each section of the scheme is not to commence until noise and vibration schemes of assessment have been approved by the Council.

14. Schemes of Assessment are to be submitted to show how the standards set out in the Noise and Vibration Mitigation Policy (the Policy) will be achieved. The Schemes of Assessment are to be accompanied by a report prepared by an Independent Expert (who has been approved in advance by the Council) commenting on their robustness. The appointment of the Independent Experts: one for noise (Brian Hemsworth) and one for vibration (Dr. Chris Jones), were agreed by Oxford City Council on 2nd May 2013 under delegated powers and planning application reference 13/00907/CND.

**Noise and vibration being considered separately**

15. Condition 19 requirements apply both to operational noise and vibration aspects of the scheme. There are similarities and links between these two aspects, since both are generated by the same rolling stock; and a person's perception of railway noise might be affected by structure-borne vibration and vice versa[1].

16. However, the way in which sound and ground-borne vibration are generated, transmitted and perceived are different, as are the resulting methodologies for their measurement and prediction. These differences are reflected in the way that noise and vibration has been treated in the environmental impact assessment, application, public inquiry and resulting deemed permission. In effect condition 19 requires noise and vibration to be treated separately, though in the same context and using similar processes.

[1] British Standard BS6472-1:2008 "guide to evaluation of human exposure to vibration in buildings" includes advice on this interaction.

**The Noise and Vibration Mitigation Policy – in relation to noise**

17. The purpose of the Noise and Vibration Mitigation Policy (set out in part (v) of the summary on page 1) is to ensure that:

> *"(i) Noise will be reduced at source where it is reasonably practicable to do so.*
>
> *(ii) Where this is not reasonably practicable, noise barriers or noise insulation to properties will be provided, where necessary, in accordance with relevant standards.*
>
> *(iii) Where predicted noise levels exceed relevant levels set out in the Noise Insulation (Railways and Other Guided Systems) Regulations, noise insulation will be offered to the occupiers of eligible buildings to the standards required by those Regulations and provided at their request.*
>
> *(iv) At other locations, where statutory noise levels are not exceeded but where significant noise impacts are predicted, noise will be mitigated wherever reasonably practicable. Significant noise impacts include a significant increase in noise in an already noisy area, or the significant exceedence of stringent thresholds in an area where the ambient noise is currently low. Chiltern Railways has chosen to offer this high standard of mitigation. It is not a statutory requirement".*

18. **Condition 19(2)** requires the submission of Noise Schemes of Assessment (NSoAs) and Vibration Schemes of Assessment (VSoAs) and associated proposals for monitoring and mitigation of the operational noise and vibration of the passenger and freight services on the rail line. The NVMP sets out the 'reasonable planning scenario': the assumptions that are to be used in the Schemes of Assessment for the numbers and timing of train movements which are as follows (set out in full for ease of reference):

> *"1.8 The assessment of noise and vibration has been based on two operational patterns of new train services:*
>
> *• After the implementation of the works in Phases 1 and 2A, operational services will consist of up to two Chiltern Railways passenger trains per hour each way. The passenger trains will replace the existing passenger service operated by First Great Western between Bicester Town and Oxford stations.*
>
> *• After the implementation of the East West Rail (EWR) link including works in Phase 2B, there are likely to be an additional two passenger trains per hour each way.*
>
> *Neither Chiltern Railways or EWR will be running passenger trains throughout the night, and services in late evening and early morning will be at a reduced frequency. A small number of passenger trains may arrive in Oxford after midnight or depart from Oxford before 0600.*

*1.9. In the operation of Phase 1 and 2A, there are likely to be no more freight trains than operate at present, as there will be no new freight destinations that can be served. When the East-West Rail (EWR) link is in operation, there may be more freight trains. For this reason, additional freight services were included in the noise assessment in the Environmental Statement, so that this reflects a reasonable planning scenario. The actual number of freight services will reflect national freight demand, but will be limited to the maximum number of available freight 'paths' (1 per hour in each direction). Experience shows that about half of the available freight train paths are likely to be used on a given day, which would suggest a reasonable planning scenario of 8 freight train movements between 11pm and 7am. Freight trains will not use the 'new' railway line between Oxford North Junction (where the Bicester to Oxford Line meets the Oxford-Banbury main line) and Oxford, but instead will use the existing main line, as at present.*

*1.10 The noise and vibration mitigation will be designed based on the assumptions in paragraph 1.8 and 1.9 regarding the numbers and timing of train movements."* [Underlining added]

19. In the NVMP, noise sensitive receptors are defined as primarily residential properties. The NVMP does not require mitigation of operational rail noise in gardens or other open spaces.

20. The NVMP uses both predicted total noise, and predicted noise change to determine whether noise mitigation is needed and the type of mitigation to be installed. While not strictly a sequential process, it is simplified as such for easy understanding in the paragraphs below.

21. Firstly, the NVMP lays down noise thresholds to determine whether noise mitigation is needed at noise sensitive receptors:

| Noise Threshold Levels | Day (0700-2300 hrs) 55dB LAeq | Night (2300-0700 hrs ) 45dB LAeq | Adopted in NVMP as levels below which noise impacts are not considered to be significant |
|---|---|---|---|

22. Secondly, noise insulation commitments are made where noise levels at noise sensitive receptors are still high even after the installation of at source mitigation measures and noise barriers:

| | Day (0600-0000 hrs) | Night (0000-0600 hrs) | |
|---|---|---|---|
| Noise Insulation Trigger Levels | > LAeq (66dB) *where the predicted noise level is 1dB above the ambient level* | > LAeq (61dB) *where the predicted noise level is 1dB above the ambient level* | These are the statutory trigger levels which would apply under the Noise Insulation Regulations. |

23. Thirdly where noise levels at noise sensitive receptors do not exceed the Noise Insulation Trigger Levels but are more than 10dB above pre-existing levels, non-statutory noise insulation is offered.

24. Finally, the NVMP makes a further commitment to noise insulation where instantaneous peak noise from a train pass-by at night exceeds 82 dB LA max.

25. The NVMP then sets out how predicted total noise, and predicted noise change are used to determine the type of mitigation to be implemented:

- *"exceedances of 3 dB or greater and increases of 3 dB or greater– mitigation at source through rail infrastructure solutions will be implemented where reasonably practicable;*
- *exceedances of greater than 5 and up to 7 dB and increases of greater than 5 dB and up to 7 dB -- at source and/or in the form of noise barriers if reasonably practicable and have no other negative effects;*
- *exceedances of greater than 7dB and increases of greater than 7dB – at source through rail infrastructure solutions and where these cannot be reasonably practicably achieved, noise barriers will be provided, where reasonably practicable".*

**What is a Noise Scheme of Assessment and how is it judged?**

26. The purpose of a Noise Scheme of Assessment is to predict the impact of noise on properties and, if pre-agreed thresholds are exceeded, set out mitigation measures and monitoring arrangements. A Scheme of Assessment would therefore be expected to comprise measurements, methodology, modelled predictions and resulting proposals (which might include mitigation and monitoring).

27. Considering this and the requirements of condition 19, the key tests for the submitted Noise Scheme of Assessment therefore are as follows:

- Is the Noise Scheme of Assessment sufficient – being a detailed scheme of assessment of vibration effects, with details of proposed monitoring and mitigation measures?
- Does the Noise Scheme of Assessment contain measurements, methodology, modelled predictions and resulting proposals (which include mitigation and monitoring if applicable)?
- Does the Noise Scheme of Assessment show how the standards of vibration mitigation set out in the Noise and Vibration Mitigation Policy will be achieved?
- Does the Noise Scheme of Assessment contain supporting calculations or empirical data, or a combination of the two?

28. In each of these tests there is an implication that as well as the Noise Scheme of Assessment containing the relevant elements, these have been treated correctly. This leads to the overall test:
    - Are the noise-related elements of the Noise Scheme of Assessment considered to be sufficiently robust?

29. If any of these tests were not met, the Noise Scheme of Assessment would need to be rejected. It is the role of the Independent Expert to comment on the robustness of the Scheme of Assessment.

30. However, it is the Local Planning Authority and not the Independent Expert which must decide upon the adequacy of the Noise Scheme of Assessment. Provided that the submitted Noise Scheme of Assessment is considered to be robust then its predictions may be relied upon, as may the mitigation and monitoring measures contained within it.

**The Noise and Vibration Mitigation Policy – in relation to vibration**

31. The Noise and Vibration Mitigation Policy was approved by the Secretary of State in granting deemed planning permission: its sets out the parameters for the analysis contained in the Vibration Schemes of Assessment. Its purpose is to ensure that:

> *"Vibration from trains will not cause damage to structures, and even without mitigation, will be likely only to give rise to 'adverse comments from occupiers being possible' at a few properties that are located very close to the railway. At these locations, appropriate mitigation measures will be provided".*

32. The Noise and Vibration Mitigation Policy uses principles contained in British Standard BS647-1:2008 "guide to evaluation of human exposure to vibration in buildings". This sets numerical ranges, expressed as Vibration Dose Values to predict the "likelihood of adverse comment" as a result of "feelable" vibration. The Noise and Vibration Mitigation Policy sets down thresholds for Vibration Dose Values which this scheme must not exceed: these thresholds are located between the lower and middle of three Vibration Dose Values ranges, below which the British Standard predicts a "low probability of adverse comment".

33. Thus the threshold Vibration Dose Values which must not be exceeded in this scheme are:

- Day (0700 – 2300 hours): 0.4 m/s1.75
- Night (2300 – 0700 hours): 0.2 m/s1.75

34. The Noise and Vibration Mitigation Policy requires that trackforms be designed and installed adjacent to occupied vibration sensitive buildings using best practicable means to keep within the thresholds. Where mitigation measures that the Noise and Vibration Mitigation Policy would otherwise require are "not reasonably practicable" the condition allows for an equally effective substitute (previously approved in writing by the Council) unless the Council has agreed in writing that the mitigation measure is not reasonably practicable and that there is no suitable substitute. In the event that the thresholds could not be met, the condition would allow for alternative mitigation or potentially insufficient mitigation to meet those thresholds.

35. The Noise and Vibration Mitigation Policy sets out the assumptions that are to be used in the Schemes of Assessment for the numbers and timing of train movements which are as follows (set out in full for ease of reference):

*"1.8 The assessment of noise and vibration has been based on two operational patterns of new train services:*

- *After the implementation of the works in Phases 1 and 2A, operational services will consist of up to two Chiltern Railways passenger trains per hour each way. The passenger trains will replace the existing passenger service operated by First Great Western between Bicester Town and Oxford stations.*
- *After the implementation of the East West Rail (EWR) link including works in Phase 2B, there are likely to be an additional two passenger trains per hour each way.*

*Neither Chiltern Railways or EWR will be running passenger trains throughout the night, and services in late evening and early morning will be at a reduced frequency. A small number of passenger trains may arrive in Oxford after midnight or depart from Oxford before 0600.*

*1.9 In the operation of Phase 1 and 2A, there are likely to be no more freight trains than operate at present, as there will be no new freight destinations that can be served. When the East-West Rail (EWR) link is in operation, there may be more freight trains. For this reason, additional freight services were included in the noise assessment in the Environmental Statement, so that this reflects a reasonable planning scenario. The actual number of freight services will reflect national freight demand, but will be limited to the maximum number of available freight 'paths' (1 per hour in each direction). Experience shows that about half of the available freight train paths are likely to be used on a given day, which would suggest a reasonable planning scenario of 8 freight train movements between 11pm and 7am. Freight*

*trains will not use the 'new' railway line between Oxford North Junction (where the Bicester to Oxford Line meets the Oxford-Banbury main line) and Oxford, but instead will use the existing main line, as at present.*

*1.10 The noise and vibration mitigation will be designed based on the assumptions in paragraph 1.8 and 1.9 regarding the numbers and timing of train movements."* [Underlining added]

**What is a Vibration Scheme of Assessment and how is it judged?**

36. The purpose of a Vibration Scheme of Assessment is to predict the impact of vibration on properties and, if pre-agreed thresholds are exceeded, set out mitigation measures and monitoring arrangements. A Scheme of Assessment would therefore be expected to comprise measurements, methodology, modelled predictions and resulting proposals (which might include mitigation and monitoring).

37. Considering this and the requirements of condition 19, the key tests for the submitted Vibration Scheme of Assessment therefore are as follows:
    - Is the Vibration Scheme of Assessment sufficient – being a detailed scheme of assessment of vibration effects, with details of proposed monitoring and mitigation measures?
    - Does the Vibration Scheme of Assessment contain measurements, methodology, modelled predictions and resulting proposals (which include mitigation and monitoring if applicable)?
    - Does the Vibration Scheme of Assessment show how the standards of vibration mitigation set out in the Noise and Vibration Mitigation Policy will be achieved?
    - Does the Vibration Scheme of Assessment contain supporting calculations or empirical data, or a combination of the two?

38. In each of these tests there is an implication that as well as the Vibration Scheme of Assessment containing the relevant elements, these have been treated correctly. This leads to the overall test:
    - Are the vibration-related elements of the Vibration Scheme of Assessment considered to be sufficiently robust?

39. If any of these tests were not met, the Vibration Scheme of Assessment would need to be rejected. It is the role of the Independent Expert to comment on the robustness of the Scheme of Assessment.

40. However, it is the Local Planning Authority and not the Independent Expert which must decide upon the acceptability of the Vibration Scheme of Assessment. Provided that the submitted Vibration Scheme of Assessment is considered to be robust then its predictions may be relied upon, as may the mitigation and monitoring measures contained within it.

**Monitoring**

41. The Noise and Vibration Mitigation Policy does not require the monitoring of operational noise and vibration as a continuous exercise: it requires only the monitoring of any mitigation measures that are installed as a result of the findings of the Noise and Vibration Scheme of Assessment (see paragraph 2.11 of the NVMP, **Appendix 3**).

**The Submitted Schemes of Assessment in this case**

*The NSoA for Route Section I-2*

42. The submitted NSoA for route section I-2 was accompanied by a report by the Independent Expert for noise, Brian Hemsworth. This meets the 'content' tests set out in paragraph 26 above.

43. The Scheme of Assessment predicts that the NVMP noise thresholds will not be exceeded at any locations by EWRP1, and asserts that mitigation measures are not, therefore, required. In route section I-2 the existing noise levels are high due to the operation of trains on the mainline adjacent to the proposed new line. As a result the relative increase triggers are not exceeded by EWRP1 at any noise sensitive receptors.

44. The Independent Expert's report comments on the methodology used, the results obtained and the NSoA outcomes and concludes that the noise predictions are accurate. Officers concur with this conclusion.

*The VSoA for Route Section I-2*

45. The VSoA for route section I-2 comprises the re-submission of the relevant parts of the approved VSoAs for route-sections H and I-1, including the report of the Independent Expert and the approved methodology. A Technical Note has also been submitted as part of the VSOA for route section I-2, dealing with properties within route section I-2 that are less than 15 metres from the tracks: it confirms that those properties would not be exposed to vibration exceeding the VDV levels set out in the NVMP. NR concludes that because there are no exceedances, no vibration mitigation measures are required.

**The Determining Issues**

46. The determining issues are:

- whether the submitted NSoA and VSoA for route section I-2 are robust; and,

- whether they have demonstrated that the required standards of noise mitigation set out in the NVMP will be achieved subject to the installation of any specified mitigation measures.

**47.** Local residents have expressed concerns that *"this area needs noise and*

*vibration mitigation given the large and increasing amount of rail traffic"*. While there is much anecdotal evidence of operational rail noise and vibration experienced locally, this derives from the existing location of tracks and pattern of train movements. EWRP1 is only required to mitigate the noise and vibration impacts that this particular project will create. EWRP1 is not obliged to address current noise and vibration issues not related to its operations.

**Conclusion in respect to the NSoA for route-section I-2**

48. The NSoA for route section I-2 has been shown to meet the tests set out in paragraphs 26 to 28 of this report, including the overall test of whether it is sufficiently robust. It has been demonstrated that the required standards set out in the Noise and Vibration Mitigation Policy will be achieved in route section I-2. Accordingly, it is recommended that the application be approved.

**Conclusion in respect to the VSoA for route-section I-2**

49. The VSoA for route section I-2 has been shown to meet the tests set out in paragraphs 36 and 38 of this report, including the overall test of whether it is sufficiently robust. It has been demonstrated that the required standards set out in the Noise and Vibration Mitigation Policy will be achieved in route section I-2. Accordingly, it is recommended that the application be approved.

Human Rights Act 1998
Officers have considered the Human Rights Act 1998 in reaching a recommendation to grant planning permission, subject to conditions. Officers have considered the potential interference with the rights of the owners/occupiers of surrounding properties under Article 8 and/or Article 1 of the First Protocol of the Act and consider that it is proportionate.

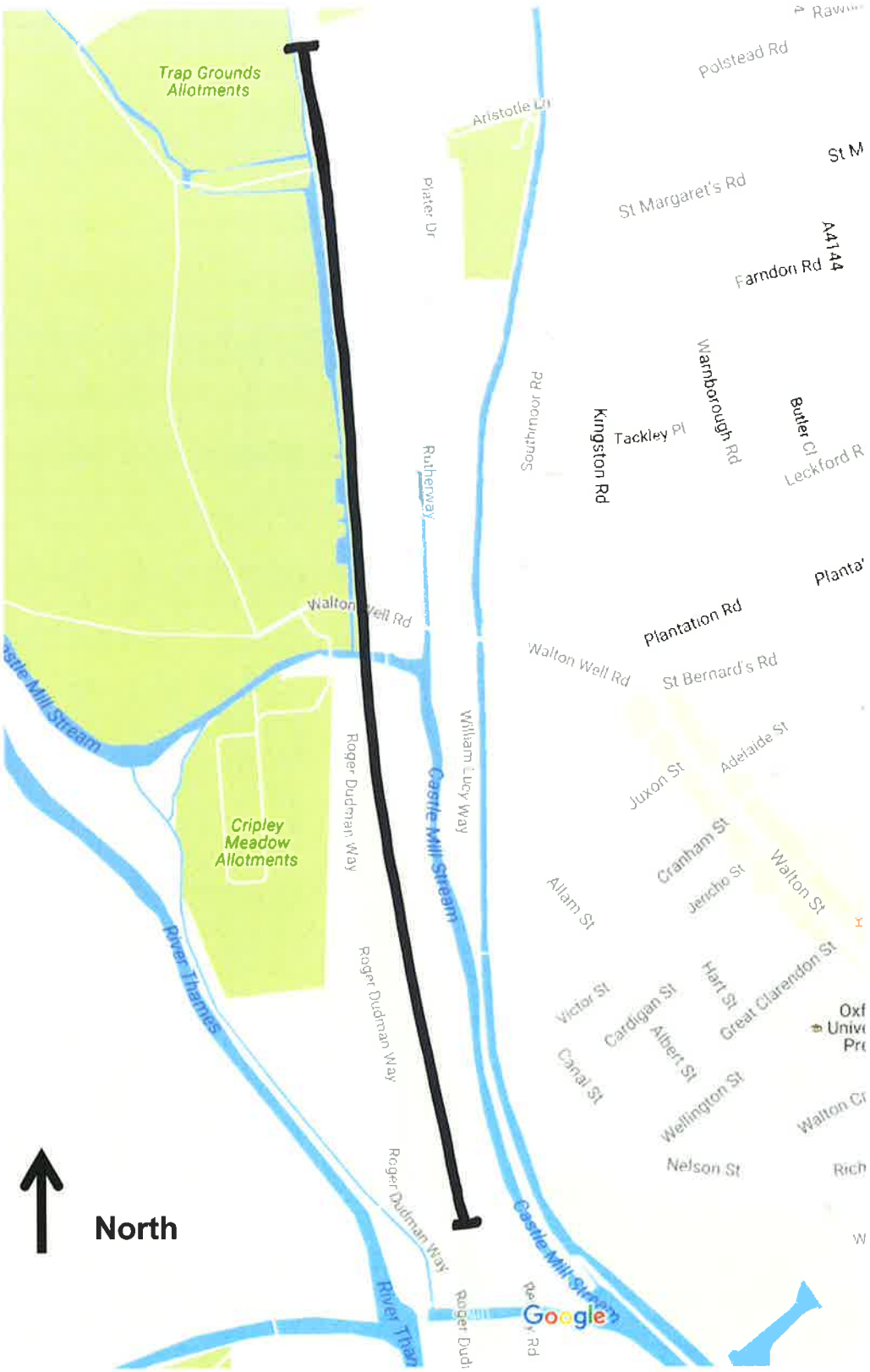
Officers have also considered the interference with the human rights of the applicant under Article 8 and/or Article 1 of the First Protocol caused by imposing conditions. Officers consider that the conditions are necessary to protect the rights and freedoms of others and to control the use of property in accordance with the general interest. The interference is therefore justifiable and proportionate.

Section 17 of the Crime and Disorder Act 1998
Officers have considered, with due regard, the likely effect of the proposal on the need to reduce crime and disorder as part of the determination of this application, in accordance with section 17 of the Crime and Disorder Act 1998. In reaching a recommendation to grant planning permission, officers consider that the proposal will not undermine crime prevention or the promotion of community safety.

**Background Papers:**
**Contact Officer:** Fiona Bartholomew
**Extension:** 2774
**Date:** 5th September 2016

**APPENDIX 1**

**ROUTE-SECTION I-2**



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# MINUTES OF THE WEST AREA PLANNING COMMITTEE

## Tuesday 2 August 2016

**COUNCILLORS PRESENT:** Councillors Upton (Chair), Landell Mills (Vice-Chair), Cook, Fooks, Pegg, Tidball, Coulter and Henwood.

**OFFICERS PRESENT:** Michael Morgan (Lawyer), Sarah Stevens (Planning Service Transformation Consultant), Mehdi Rezaie (Planning Team Leader), Robert Fowler (Principal Planner) and Catherine Phythian (Committee Services Officer)

### 33. APOLOGIES FOR ABSENCE AND SUBSTITUTIONS

Apologies for absence were received from Cllr Price, Cllr Hollingsworth (substitute Cllr Henwood) and Cllr Tanner (substitute Cllr Coulter).

### 34. DECLARATIONS OF INTEREST

There were no declarations of interest.

### 35. 16/01290/FUL: NORTH OXFORD GARAGE LTD, WOLVERCOTE ROUNDABOUT, WOODSTOCK ROAD, OX2 8JP

The Committee considered a report detailing an application for planning permission for refurbishment to existing BMW dealership including the construction of a new Motorrad entrance on the East elevation, a new construction to the North of the site to comprise of new wash bay and valeting facilities at the North Oxford Garage Limited, Wolvercote Roundabout, Woodstock Road, Oxford.

The Planning Officer presented the report and referred the Committee to the recommendation in paragraph 11 of the report to include a condition for a detailed landscaping scheme.

The Committee agreed to add further conditions to require a detailed landscaping scheme and to provide customer/staff cycle parking.

On being put to the vote the Committee agreed with the officer recommendation.

The Committee resolved to **approve** planning application 16/01290/FUL at the North Oxford Garage Limited, Wolvercote Roundabout, Woodstock Road, Oxford subject to the following conditions, as amended below, and legal

agreement for CIL contribution:

1. Development begun within time limit
2. Develop in accordance with approved plans
3. Materials
4. Surface Water Drainage
5. No external lighting
6. Construction Traffic Management Plan
7. Landscaping – detailed scheme prior to commencement
8. Cycle parking

**Legal Agreement:** A CIL contribution will be required.

## 36. 77-83 IFFLEY ROAD 85 AND 87 IFFLEY ROAD AND STOCKMORE HOUSE STOCKMORE STREET OXFORD OXFORDSHIRE OX4 1EG (16/01468/FUL)

The Committee considered a report detailing an application for planning permission for alterations to existing buildings on Iffley Road frontage and improvements to provide main entrance to student accommodation, rear extensions and staircases; alterations and extension to Stockmore House to provide additional study/bedrooms; alterations to existing access to Stockmore Street, parking space for disabled persons and servicing; alterations to bin storage area and cycle parking at 77-83 Iffley Road 85 and 87 Iffley Road and Stockmore House, Stockmore Street, Oxford, OX4 1EG.

The Planning Officer presented the report. He advised the Committee that he proposed to include a third reason for refusal in that the proposed development would fail to preserve or enhance the character or appearance of the Conservation Area and although the harm would be less than substantial the public benefits of the proposal do not outweigh the harm identified.

Mr Nick Lyzba (Agent) and Mr Paul Cooper (Architect) spoke in support of the application.

On being put to the vote the Committee agreed with the officer recommendation.

The Committee resolved to **refuse** application 16/01468/FUL at 77-83 Iffley Road 85 And 87 Iffley Road And Stockmore House Stockmore Street Oxford Oxfordshire OX4 1EG for the following reasons:

1. The proposed extension at the rear of the 77-83 and 85-87 Iffley Road would, by virtue of its visual prominence and unsympathetic design have a detrimental impact on the character and appearance of Stockmore Street and Iffley Road. The proposed development's bulky design and flat roof would introduce a discordant feature at the rear of the terrace. The development fails to preserve or enhance the St Clement's and Iffley

Road Conservation Area and would be harmful to the character, appearance and special significance of the Conservation Area. The development is therefore contrary to Policy CP1, CP8, CP10 and HE7 of the Oxford Local Plan 2001-2016 and Policy CS18 of the Core Strategy (2011).

2. The proposed development would result in the loss of vegetation on the site; notably an existing magnolia tree. There are no proposals to provide replacement planting which would otherwise maintain the verdant appearance of the site. The leafy appearance of the St Clement's and Iffley Road Conservation Area is an important aspect of the area's character, appearance and special significance. The failure to provide adequate landscaping whilst removing trees on the site would mean that the development would have a negative impact on the character, appearance and special significance and the development is therefore contrary to Policy CP1, HE7 and NE16 of the Oxford Local Plan 2001-2016 and Policy CS18 of the Core Strategy (2011).
3. The proposed development would amount to less than substantial harm to the St Clement's and Iffley Road Conservation Area but there is insufficient public benefits arising from the proposals to justify the harm that would arise to the character, appearance and special significance of this designated heritage asset. The development is therefore contrary to Policy HE7 of the Oxford Local Plan 2001-2016 and the National Planning Policy Framework (NPPF).

## 37. 18 HAWKSWELL GARDENS: 15/02352/FUL

The Committee considered a report detailing an application for planning permission for the erection of 3 x 6 bedrooms dwellinghouses (Use Class C3); provision of car parking spaces, private amenity space, bins and cycle stores at 18 Hawkswell Gardens, Oxford, OX2 7EX.

The application had been called in by Cllrs Gant, Gotch, Wade and Fooks.

The Planning Officer presented the report and briefed the Committee on the three additional consultation responses, received on the amended plans, which re-iterated objections already received and listed in the report.

Mr Tim Del Nevo, a local resident representing the Hawkswell House Residents Association, spoke against the application.

On being put to the vote the Committee agreed with the officer recommendation.

The Committee resolved to **refuse** application 15/12352/FUL at 18 Hawkswell Gardens, Oxford, OX2 7EX for the following reasons:

1. The application site area exceeds 0.25ha; on sites of this size it is a requirement to provide 50% of dwellings as affordable housing or in some circumstances to make a contribution towards the provision of affordable

housing unless a lack of viability can be successfully demonstrated. These proposals fail to provide on-site affordable housing and there is no agreement in place to make a financial contribution towards the provision of affordable housing. There has also been no evidence to suggest that if a contribution (either financial or on-site provision) were made that the site would not be viable. As a result, the development fails to meet the requirements of Policy CS24 of the Oxford Local Plan 2001-2016 and Policy HP3 of the Sites and Housing Plan (2013).

2. The development fails to provide the most efficient use of land; having taken into account the density of development proposed and the capacity of the site. The development is therefore contrary to Policy CP6 of the Oxford Local Plan 2001-2016.

## 38. LAND ADJACENT TO 30A UNION ST: 15/03633/FUL

The Committee considered a report detailing an amendment for the planning consent for the development of the land Adjacent 30A Union Street, Oxford.

The Planning Officer presented the report and explained that the requirement for a legal agreement for a contribution towards affordable housing does not meet the tests in national planning policy for the seeking of developer contributions due to the provisions of Policy HP4 of the Sites and Housing not applying to the proposed development.

On being put to the vote the Committee agreed with the officer recommendation.

The Committee resolved to remove the requirement for an affordable housing contribution for the planning consent for the development of the land Adjacent 30A Union Street, Oxford.

**Site address:** Land Adjacent 30A Union Street, Oxford;

**Proposal:** Erection of 2 storey side extension to No. 30A Union Street to create 1 x 3-bed semi-detached dwellinghouse (Use Class C3). Provision of private amenity space, bin and cycle store;

## 39. 55 SUNNINGWELL ROAD OXFORD OXFORDSHIRE OX1 4SZ (16/00746/FUL)

The Committee considered a report detailing an application for planning permission for the erection of single storey rear extension and formation of decking area and steps at the rear at 55 Sunningwell Road, Oxford, OX1 4SZ.

On being put to the vote the Committee agreed with the officer recommendation.

The Committee resolved to **approve** application 16/00746/FUL at 55 Sunningwell Road, Oxford, OX1 4SZ with the following conditions:

1. Development begun within time limit
2. Develop in accordance with approved plans
3. Materials as specified
4. Flooding

## 40. 118 SOUTHFIELD ROAD: 16/01026/FUL

The Committee considered a report detailing an application for Change of use from dwellinghouse (Use Class C3) to House in Multiple Occupation (Use class C4) for 5 persons at 118 Southfield Road, Oxford, OX4 1PA.

The application had been called in by Cllr Azad, supported by Cllrs Rowley, Clarkson and Fry.

The Planning Officer presented the report and addressed the main objections raised by local residents concerning parking pressure.

On being put to the vote the Committee agreed with the officer recommendation but requested the inclusion of an additional condition relating to the introduction of a limit on the number of visitor parking permits.

The Committee resolved to **approve** application 16/01026/FUL at 118 Southfield Road, Oxford, OX4 1PA subject to the following conditions as amended below:

1. Development begun within time limit.
2. Develop in accordance with approved plans.
3. Bin and bike stores.
4. Condition requiring the variation of the local traffic order prior to the commencement of change of use to remove the eligibility of occupiers for more than 2 visitor's permits per six months.

## 41. MINUTES

The Committee resolved to approve the minutes of the meeting held on 12 July 2016 as a true and accurate record.

## 42. FORTHCOMING APPLICATIONS

The Committee noted the list of forthcoming applications.

## 43. DATES OF FUTURE MEETINGS

The Committee noted the dates of future meetings.

**The meeting started at 6.00 pm and ended at 7.20 pm**