



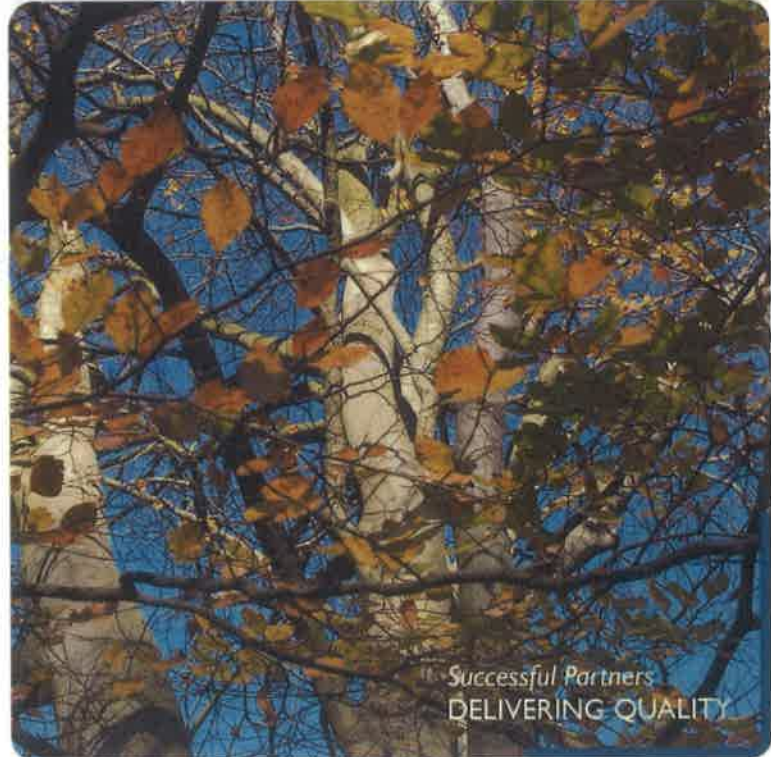
Noise Assessment to Discharge Condition 14

Blossom Fields, Cotefield Farm, Bodicote


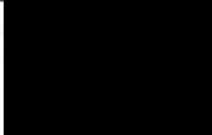
For Crest Nicholson Midlands

Report No. JAE10485-REPT-00-R0

01 August 2018



Quality Management

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Report number:	JAE10485-REPT-00-R0		Date of issue:	01/08/2018
Document file path:	\\BRIG-LW-03\Projects\Jobs_10000-11000\10485e\Rev1\10485e_Blossom Fields_Rev1_20180801.docx			

Revision History				
Rev	Date	Status	Reason for revision	Additional comments
0	04/07/2018			-
1	01/08/2018	Final	Update to masterplan	-

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1 Introduction

- 1.1 The Acoustics Team at RPS Planning and Environment (RPS) has been appointed by Crest Nicholson Midlands to undertake a noise assessment to assist in discharging Planning Condition (PC) 14 of the planning consent for the residential development at Blossom Fields, Cotefield Farm, Bodicote. RPS has previously undertaken an acoustic assessment of the wider site, detailed in RPS report JAE8184_Rev3, dated 16th December 2014. The site is located within the administrative area of Cherwell District Council (CDC).
- 1.2 PC 14 states:
- "Prior to the commencement of the development hereby approved, a noise mitigation scheme in respect of the dwellings falling within the zone "Treatment 1" as shown on Figure 3 in the Noise Assessment submitted with the application, demonstrating that internal noise levels do not exceed the criteria specified in Table 4 of the British Standard BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings', shall be submitted to and approved in writing by the Local Planning Authority. Thereafter, and prior to the first occupation of the dwellings affected by this condition, the dwellings shall be insulated and maintained in accordance with the approved details."*
- 1.3 The assessment has been undertaken based upon appropriate information on the proposed development provided by the client and its project team. RPS is a member of the Association of Noise Consultants (ANC), the representative body for acoustics consultancies, having demonstrated the necessary professional and technical competence. The assessment has been undertaken with integrity, objectivity and honesty in accordance with the Code of Conduct of the Institute of Acoustics (IOA) and ethically, professionally and lawfully in accordance with the Code of Ethics of the ANC.
- 1.4 The technical content of this assessment has been provided by RPS personnel, all of whom are corporate (MIOA) or non-corporate, associate members (AMIOA) of the IOA (the UK's professional body for those working in acoustics, noise and vibration). Personnel and individual qualifications are provided within the Quality Management table at the start of this report. This report has been peer reviewed within the RPS team to ensure that it is technically robust and meets the requirements of our Quality Management System.

2 Planning Policy and Relevant British Standards

National Planning Policy and Guidance on Noise

- 2.1 Appendix A provides a complete summary of the relevant guidance on national planning policy contained within the Noise Policy Statement for England (NPSE) [1], the National Planning Policy Framework (NPPF) [2] and published Planning Practice Guidance on Noise (PPG-N) [3]. These documents do not contain guidance in terms of numerical noise levels. Guidance is provided descriptively, which may be transposed to numerical noise levels for site-specific situations, using the methods contained within British Standards (BSs).

British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings'

- 2.2 BS 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' [4] provides guideline values for internal ambient noise levels in spaces when they are unoccupied. A summary of the levels recommended in paragraph 7.7.1 of sub clause 7.7 and Table 4 of BS 8233:2014 for rooms used for resting, dining and sleeping is provided in Table 2.1 below. The guideline values in Table 2.1 are annual average values and do not have to be achieved in all circumstances.
- 2.3 The guidance in paragraph 7.7.1 of Section 7.7 of BS 8233:2014 applies to external noise as it affects the internal acoustic environment from sources without a specific character. The paragraph states, including the accompanying note:

"... Occupants are usually more tolerant of noise without a specific character than, for example, that from neighbours which can trigger complex emotional reactions. ..."

"NOTE Noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate."

Table 2.1 BS 8233:2014 Indoor Ambient Noise Levels for Dwellings

Activity	Location	Daytime	Night-time
Resting	Living room	35 dB L _{Aeq,16h}	
Dining	Dining room / area	40 dB L _{Aeq,16h}	
Sleeping (daytime resting)	Bedroom	35 dB L _{Aeq,16h}	30 dB L _{Aeq,8h}

3 Baseline Environment

Site Location & Noise Sensitive Receptors

- 3.1 The application site has previously been in farming use as arable land. There are existing residential areas to the north-west and the south-east of the site, and open fields to the west. Light industrial units forming Cotefield Business Park and Cotefield Nurseries are located directly to the east of the proposed development site with the A4260 'Oxford Road' lying approximately 160 m to the east and the M40 motorway, a further 1 km to the east. The site is located 3.5 km south of Banbury town centre.
- 3.2 The main source of noise affecting the site is road traffic on the A4260 and the more distant M40. The residential development immediately to the north is currently under construction and as such, noise from construction activity is likely to be contributing to the existing noise environment.

Baseline Noise Surveys

2014 Survey

- 3.3 Baseline noise monitoring was carried out in 2014 to inform the RPS assessment of the site for planning purposes. One long term unattended noise survey, LT_1 (2014), was deployed on 18th September 2014 at 07:30 hrs and collected on 24th September 2014 at 14:35 hrs. Additional short-term measurements were carried out across the site during the daytime on 18th September 2014.
- 3.4 Details of the survey methodology and setup procedure are documented in RPS report JAE8184_Rev3, dated 16th December 2014. A summary of the survey results are presented in Table 3.1 and Table 3.2 below. The location of the long term and short-term surveys are shown in Appendix B.

Table 3.1 Baseline Sound Survey Results – 2014 Long Term Survey

Location	Period	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{A10,T} (dB)	Range of L _A F _{max,5min} (dB)
LT_1 2014	Daytime (07:00 – 23:00)	50	44	52	44 – 83
	Night-time (23:00 – 07:00)	43	35	47	31 - 67

Table 3.2 Baseline Sound Survey Results – 2014 Short-Term Surveys

Location	$L_{Aeq,T}$ (dB)	$L_{A90,T}$ (dB)	L_{AFmax} (dB)
ST_1	47	66	44
ST_2	52	64	49
ST_3	48	46	62
ST_4	49	47	71
ST_5	49	47	70
ST_6	49	46	70

2018 Survey

- 3.5 In order to determine any potential change in the baseline noise environment since RPS undertook noise monitoring in 2014, further surveys were carried out in June 2018. One long term unattended noise monitor, LT_1 (2018), was set up in the same location as the long term monitor in 2014.
- 3.6 Whilst on site, it was observed that the noise environment was dominated by distant road traffic noise. Construction noise from the residential development immediately to the north of the site was noted whilst on site and is considered to have affected the baseline measurements during the survey period. In order to determine a representative background sound level in the absence of construction activity, times of the day when construction was likely taking place (0800 to 1800 hours, Monday to Friday) have been removed from the dataset.
- 3.7 The unattended long term measurements (LT_1 (2018)) were made using a Rion NL-32 sound level meter (SLM), a Type 1 meter with one of the best performing environmental windshields. Data were logged of the A-weighted sound pressure level in 100 ms periods.
- 3.8 All instrumentation was checked for calibration prior to and following the measurements using a Rion NC-74 calibrator and there was no significant drift within the survey period.
- 3.9 Weather conditions during the survey period were measured using a meteorological kit that was deployed along with the noise monitoring equipment. Conditions during the survey period were generally dry and calm with a few periods of light precipitation. It is considered that weather conditions during the survey period were generally favourable to noise monitoring and as such, no data have been removed from the data set.
- 3.10 A summary of the baseline survey results are presented in Table 3.3. Graphical plots of the long term data are provided in Appendix B.

Table 3.3 Baseline Sound Survey Results – 2018 Long Term Survey

Location	Period	$L_{Aeq,T}$ (dB)	$L_{A90,T}$ (dB)	$L_{A10,T}$ (dB)	Range of $L_{AFmax,5min}$ (dB)
LT_1 2018	Daytime (07:00 – 23:00)	48	42	48	45-90
	Night-time (23:00 – 07:00)	45	39	45	42-91

- 3.11 As can be seen from Table 3.1 and Table 3.3 that background L_{Aeq} sound levels during the daytime period were 2 dB lower in 2018 than were measured during the 2014 survey. During the night, measured levels in 2018 were 2 dB higher than those in 2014.
- 3.12 It was observed that the dominant source of noise affecting the site was road traffic, primarily on the A4260. The L_{10} metric is often used to give an indication of the upper limit of fluctuating noise, and, as such, is a good indication of change in noise from road traffic. Measured L_{10} sound levels taken during the 2018 survey are 4 dB and 2 dB lower during the day and night time periods, respectively.
- 3.13 Whilst some differences in noise levels have been measured between the 2014 and 2018 survey data, it is considered that sound levels measured during the 2014 survey are representative of the existing noise environment on site and, as such, have been used for the assessment.

4 Assessment

Assessment of Required Façade Attenuation

- 4.1 It has been determined that the existing sound environment on site has not significantly changed since 2014. As such, the conclusions from RPS report JAE8184_Rev3, dated 16th December 2014 are still considered relevant. The results of that assessment are reproduced below for reference. Figure 1 shows the required façade attenuation for each dwelling, based on the updated masterplan.
- 4.2 It was determined that, based on the measure background sound levels on site, the façades of proposed dwellings would need to provide a minimum of 15 dB of attenuation during the day and 13 dB during the night. Table 4.1 below presents the required façade mitigation based on the measured background sound levels, as presented in the 2014 assessment.

Table 4.1 Required Façade Attenuation

Mitigation Scenario	Details	Total Façade Sound Attenuation $R_w + C_{tr}$ (dB)
Treatment 1	Standard external wall construction (based on BS 8233) providing 45 dB $R_w + C_{tr}$, Standard thermal double glazed window unit (based on BS EN 12758:2011) providing 31 dB $R_w + C_{tr}$, and acoustic trickle ventilator providing at least 27 dB $D_{n,ew}$	26
No Treatment	Attenuation provided by a partially open window (based on Defra report NANR116)	12

- 4.3 Treatment 1 assumes windows are closed in order to achieve the required internal noise levels in accordance with BS 8233. An alternative means of ventilation, either passive or mechanical, will therefore be required which does not compromise the acoustic performance of the building envelope. Notwithstanding the above, there is no reason why windows should not be openable, **at the residents' discretion, in order to provide rapid natural ventilation as long as the openable windows, when closed, provide the required attenuation.**
- 4.4 Ventilation can be in the form of trickle ventilation or mechanical ventilation systems. It should also be noted that these requirements are for habitable rooms only (i.e. kitchens (unless part of a lounge/diner/living room), bathrooms, hallways, landings, utility rooms etc. have no specific requirements with respect to internal noise levels).
- 4.5 It should also be noted that noise levels going into the development, beyond the first row of houses, will be reduced due to the attenuation provided by those properties closer to the road. Noise levels may be up to 10 dB lower as a result and, therefore, in these cases, partially open windows will be suitable to provide the ventilation requirements. It is therefore recommended that those dwellings adjacent to the north western, north eastern and south eastern boundaries be

provided with an alternative means of ventilation to negate the need to open windows. All treatment requirements are identified in Figure 1.

5 Summary and Conclusion

- 5.1 The Acoustics Team at RPS Planning and Environment (RPS) has been appointed by Crest Nicholson Midlands to undertake a noise assessment to discharge Planning Condition (PC) 14 of the planning consent for the residential development at Blossom Fields, Cotefield Farm, Bodicote. RPS has previously undertaken an acoustic assessment of the wider site, detailed in RPS report JAE8184_Rev3, dated 16th December 2014. The site is located within the administrative area of Cherwell District Council (CDC).
- 5.2 Environmental sound levels were determined from noise surveys undertaken in 2014 and re-validated in 2018. It was determined that there was no significant change in background sound levels, and as such, the façade mitigation requirements as given in the RPS report JAE8184_Rev3 have not changed.
- 5.3 The required façade mitigation for each façade based on the updated masterplan has been confirmed.
- 5.4 Based on the above, the proposed development has demonstrated to be in accordance with PC 14 of the planning permission and hence this condition can be discharged.

Figures



Treatment 1 Required
 No Treatment Required

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Notes

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Figure 1: Façade mitigation requirements

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Appendices

Appendix A: National Planning Policy & Guidance on Noise

National Planning Policy

National Planning Policy Framework

A.1 The National Planning Policy Framework (NPPF) [1], published in March 2012, sets out the Government's planning policies for England. The document does not contain any specific noise policy, or noise limits but it provides a framework for local people and local authorities to produce their own local and neighbourhood plans, which reflect the needs and priorities of their communities.

A.2 In Section 11, 'Conserving and enhancing the natural environment', paragraph 123 relates to noise and states:

'123. Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts²⁷ on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts²⁷ on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established,²⁸ and*
- *identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.'*

27 See Explanatory Note to the Noise Policy Statement for England (Department for the Environment, Food and Rural Affairs).

28 Subject to the provisions of the Environmental Protection Act 1990 and other relevant law.'

A.3 The first bullet point refers to 'significant adverse impacts' which relates to the 'significant observed adverse effect level' (SOAEL) in the Noise Policy Statement for England (NPSE) [2], though the term 'effect' is used instead of the term 'impact' although these have been deemed to be interchangeable in this context. Therefore, given the comments above on the NPSE with regard to assessment methods and criteria, the current content of the NPPF does not require any change in previously adopted approaches.

Noise Policy Statement for England

A.4 The NPSE, published in March 2010 by Defra, aims to provide clarity regarding current policies and practices to enable noise management decisions to be made within the wider context, at the most appropriate level, in a cost-effective manner and in a timely fashion.

A.5 Paragraph 1.6 of the NPSE sets out the long-term vision and aims of Government noise policy:

"Noise Policy Vision

Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development."

"Noise Policy Aims

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life."*

A.6 The aims require that all reasonable steps should be taken to avoid, mitigate and minimise adverse effects on health and quality of life whilst also taking into account the guiding principles of sustainable development, which include social, economic, environmental and health considerations.

A.7 With regard to the terms 'significant adverse' and 'adverse' included in the 'Noise Policy Aims', these are explained further in the 'Explanatory Note' as relating to established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation which are:

'NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on human health and quality of life due to noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.'

A.8 Defra has then extended these concepts for the purpose of the NPSE to introduce the concept of:

'SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.'

A.9 The accompanying explanation states:

'It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available'.

Planning Practice Guidance - Noise (PPGN)

A.10 The Government has published Planning Practice Guidance on a range of subjects including noise [3]. The guidance forms part of the NPPF and provides advice on how to deliver its policies. The PPGN reiterates general guidance on noise policy and assessment methods provided in the NPPF, NPSE and British Standards (BSs) and contains examples of acoustic environments commensurate with various effect levels. Paragraph 006 of the PPGN explains that:

'The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation.'

A.11 According to the PPGN, factors that can influence whether noise could be of concern include:

- the source and absolute level of the noise together with the time of day it occurs;
- for non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;
- the spectral content and the general character of the noise;
- the local topology and topography along with the existing and, where appropriate, the planned character of the area.
- where applicable, the cumulative impacts of more than one source should be taken into account along with the extent to which the source of noise is intermittent and of limited duration;
- whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time;
- in cases where existing noise sensitive locations already experience high noise levels, a development that is expected to cause even a small increase in the overall noise level may result in a significant adverse effect occurring even though little to no change in behaviour would be likely to occur;
- where relevant, Noise Action Plans, and, in particular the Important Areas identified through the process associated with the Environmental Noise Directive and corresponding regulations;
- the effect of noise on wildlife;
- if external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces; and
- the potential effect of a new residential development being located close to an existing business that gives rise to noise should be carefully considered. This is because existing noise levels from the business even if intermittent (for example, a live music venue) may be regarded as unacceptable by the new residents and subject to enforcement action. To help

avoid such instances, appropriate mitigation should be considered, including optimising the sound insulation provided by the new development's building envelope. In the case of an established business, the policy set out in the third bullet of paragraph 123 of the NPPF should be followed.

- A.12 The PPGN provides a relationship between various perceptions of noise, effect level and required action in accordance with the NPPF. This is reproduced in Table 1, below.

Table 1: Noise Exposure Hierarchy Based On the Likely Average Response

Perception	Increasing Effect Level	Action
Not noticeable	No Observed Effect	No specific measures required
Noticeable and not intrusive	No Observed Adverse Effect	No specific measures required
LOAEL		
Noticeable and intrusive	Observed Adverse Effect	Mitigate and reduce to a minimum
SOAEL		
Noticeable and disruptive	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Unacceptable Adverse Effect	Prevent

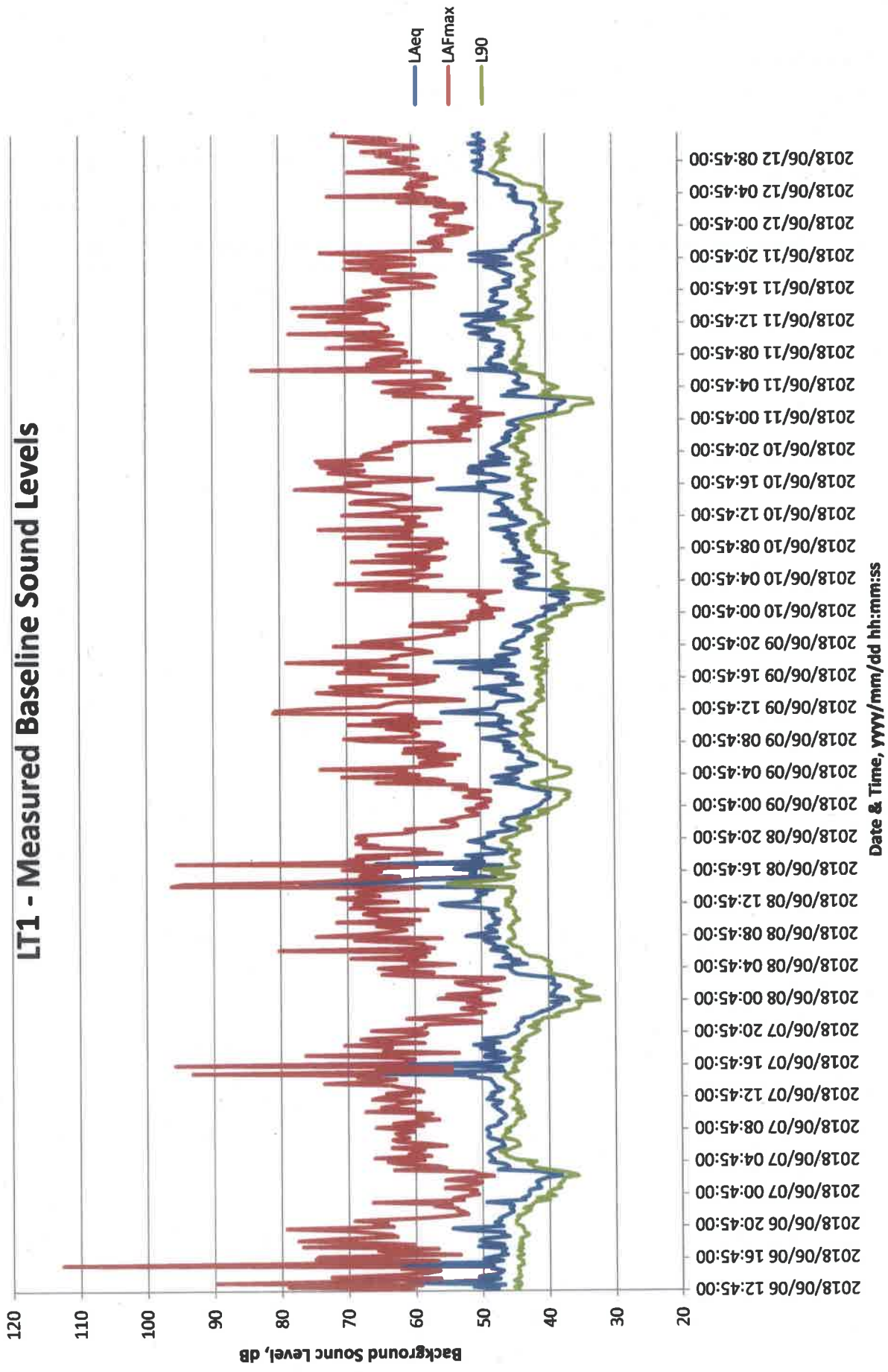
- A.13 The PPGN describes sound that is not noticeable to be at levels below the NOEL. It describes exposures that are noticeable but not to the extent there is a perceived change in quality of life as below the LOAEL and need no mitigation. With reference to the definition of noise in the NPSE, such immissions are 'sound' and not 'noise'. On this basis, the audibility of sound from a development is not, in itself, a criterion to judge noise effects that is commensurate with national planning policy.
- A.14 The PPGN suggests that noise exposures above the LOAEL cause small changes in behaviour. Examples of noise exposures above the LOAEL provided in the PPGN is having to turn up the volume on the television; needing to speak more loudly to be heard; where there is no alternative ventilation, closing windows for some of the time because of the noise; or, a potential for some reported sleep disturbance. In line with the NPPF and NPSE, the PPGN states that consideration needs to be given to mitigating and minimising effects above the LOAEL but taking account of the economic and social benefits being derived from the activity causing the noise.
- A.15 The PPGN suggests that noise exposures above the SOAEL cause material changes in behaviour. Examples of noise exposures above the SOAEL provided in the PPGN are, where there is no alternative ventilation, keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present; and/or there is a potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. In line with the NPPF and NPSE, the PPGN states that effects above the SOAEL should be avoided and that whilst the economic and social benefits being derived from the activity causing the noise must be taken into account, such exposures are undesirable.

Appendix B: References

- 1 Department for Communities and Local Government. National Planning Policy Framework: HMSO. March 2012.
- 2 Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. Defra. 2010.
- 3 Department for Communities and Local Government. National Planning Practice Guidance

Appendix B: Baseline Survey Information

LT1 - Measured Baseline Sound Levels



References

- 1 Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. Defra. 2010.
- 2 Department for Communities and Local Government. National Planning Policy Framework: HMSO. March 2012.
- 3 Department for Communities and Local Government. National Planning Practice Guidance.
- 4 British Standards Institution. British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings.



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