

# NOISE

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BULLETIN

## MAPPING

# Tranquillity: defined by cost?

Increasing focus on tranquillity has left Defra and its advisors struggling to work out how to define it. Defra may compile its sites based on affordability rather than noise or tranquillity.

The news emerged at the recent Institute of Acoustics autumn conference held in Oxford. The Environmental Noise Directive requires member states to identify tranquil areas in urban areas by September next year. Defra is running very late with transposition of this directive and is struggling to complete the mapping involved, but the tranquillity deadline is looming and Defra may struggle to meet it.

In a bid to move things along, it commissioned TRL to do a literature review – findings were presented to the IoA conference. TRL identified some 27,000 parks and open spaces – but then set about reducing this to a ‘manageable number’: “The application of filters reduces the potential number of candidate areas until a suitable list containing a manageable number of areas is obtained.”

TRL then recommends (and Defra has yet to adopt the report as policy) that the screened list is sent to local authorities for comment – but it warns that local authorities should be discouraged from suggesting too many additional areas. This mirrors Defra’s reluctance to

allow local authorities any input into recent noise mapping in England (*NB November p7*).

To keep the numbers of tranquil areas down, the proposed “filters” include:

- The areas must be within an agglomeration (250,000 or more);
- Noise level to be less than 55dBA;
- Detailed land type – for instance only those public parks with historical features may be considered ‘tranquil’;
- Minimum area: only parks above 10Ha (ruling out about two thirds of known parks);
- Minimum area of quiet – ensuring only parks with a minimum area of (say) 5Ha be included, enlarging the minimum area if there are too many remaining in the list).

By tightening these filters, says TRL, it will be possible to end up with a list of 100 tranquil areas to hand to the European Commission to meet the shorter term requirements of the directive.

TRL also presents a ‘longer term’ view to identify candidate areas based on consultations with local residents, visitors and stakeholders. The criteria would take into account landscape quality, perceived quietness, degree of public access and enjoyment and use made of the areas.

Watts told the IoA conference: “Once identified, quiet areas need protection

otherwise the identification process is worthless. The long term aim would ideally be to reduce all man made noise.

“Where a new road is proposed, serious consideration should be given to preventing any additional noise. For example at the Twyford Down in Hampshire if the tranquil area designation had been applied to this area and vigorously defended, then the M3 extension may well have been placed in a tunnel rather than in a cutting.

“The economic implications of designation could therefore be very important and the issue will need to be addressed at an early stage by all agencies involved.”

He concluded: “It is recommended that a performance indicator is developed for quiet areas which would encourage local authorities to maintain this valuable asset as part of the Government’s policy on liveability.”

The GLA’s Alan Bloomfield warned that size filters might rule out small, tranquil areas in city centre areas: “Will public accessibility be included? A relatively tranquil (but absolutely ‘noisy’) area may be enjoyed by many in urban areas but not be eligible. Meanwhile a large inaccessible area may be designated tranquil but only enjoyed by a few.”

- See also feature, page 4-5.

## NUISANCE

# Noisy boy racer catches Worthing ASBO

Worthing Borough Council has succeeded in getting an Asbo against a noisy boy racer.

Nicholas Houslop was issued with an interim Asbo as part of a crackdown by the council, police and a local residents action team, against anti-social driving in Worthing. It bans Houslop from parts of Worthing

and from carrying out a range of anti-social conduct in a car. It is claimed to be the first of its kind in the UK.

Residents had complained of night-time wheel spinning, handbrake turns, revving of engines, racing up and down – all accompanied by loud music.

This Asbo is just one method

of enforcement being used by the police and council.

The council says additional new powers, under the Police Reform Act 2002, have enabled the police to issue other anti-social drivers with “section 59” warnings, fines (£80) and to seize vehicles, with hefty recovery costs.

## Buoyant Bulletin

Noise Bulletin is now the only UK newsletter dedicated to providing regular news and information on environmental aspects of noise.



### Now the one and only!

Rival publisher Gee Publishing this month closes its *Noise Management* newsletter – having also closed *Environment Business News Briefing (EBNB)* and *Contaminated Land Management* earlier this year. It is retaining its sole remaining monthly environmental newsletter *Air Quality Management*.

### Publisher’s comment:

*It’s been a difficult and rather confusing year for our readers – here’s what’s happening.*

*Having launched Noise Management and edited Air Quality Management since 1998, it regrettably became clear that their publisher was not committed to their future and closure was likely.*

*Rather than wait for the inevitable, Environmental Management Publishing launched Noise Bulletin, Air Quality Bulletin and Contaminated Land Bulletin earlier this year and these have been well received.*

*At best this offered readers quality, better value, responsive customer service and choice – and at worst confusion! With the closure of Noise Management, that confusion should now ease – we look forward to welcoming any former Noise Management readers into the Noise Bulletin fold.*

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## IN BRIEF

### Stansted setback

Stansted Airport has had its expansion plans refused by Uttlesford District Council, the local planning authority. Airport operator BAA has already appealed.

Noise was one of the key reasons for dismissal. Bureau Veritas's Stephen Turner advised the council on noise – and found that BAA's environmental statement underestimated the impact of the expansion on the local population.

Turner highlighted that BAA was claiming that expansion would shrink the noise contour compared to existing plans. But those plans overestimated noise – so Turner said the real difference between the new expansion plans, and the (quieter than expected) current situation was significant.

### Engineering award

The Institute of Acoustics (IOA) has awarded its Engineering Medal to Brian Hemsworth for his contribution to the understanding of railway noise and vibration.

The medal was presented by Colin English, President of the Institute of Acoustics, at its recent Autumn Conference in Oxford.

● [www.ioa.org.uk](http://www.ioa.org.uk)

### Scotland guide is draft

Further to our report last month, we've been asked to emphasise that the *Scottish Noise Management Guide* remains in draft form and open to consultation.

The specific aim of the Scottish Executive, supported by Royal Environmental Health Institute of Scotland (REHIS), was to produce a guide that will help local authorities to develop a common approach and consistency towards enforcement of the relevant statutory provisions as these relate to community noise.

● Consultation on the guide remains open until 20th January.

It can be viewed on [www.scotland.gov.uk/Publications/2005/10/2192231/22434](http://www.scotland.gov.uk/Publications/2005/10/2192231/22434)

## NEWS FROM THE INSTITUTE OF ACOUSTICS AUTUMN CONFERENCE

# More flak for single number

Defra's use of a single number for noise disturbance from pubs and clubs has come under criticism at an Institute of Acoustics conference.

That a single number might adequately correlate with nuisance was met with some surprise when first announced (*Noise Bulletin June p1*). The 34 LA<sub>eq</sub> number was derived by BRE from laboratory tests as the threshold for serious annoyance for noise from pubs and clubs.

This number will be used by Defra to support fixed penalty Noise Act enforcement of nuisance noise from pubs and clubs between the hours of 11pm and 7am. The number has

yet to be finally enacted in regulations (see below).

Greg Watts of TRL commented: "Laboratory tests are fine for rating noise disturbance – but not for what's acceptable and not acceptable. It's a bit worrying – this sort of work needs to be done in the field."

Mike Stigwood of MAS Environmental added: "It is not enough to do tests in the lab. This is not measuring the response in the home and the physiological and psychological responses of real life. No one was convalescing, no one was revising before exams or trying to get some sleep for an important meeting in the

morning."

Ian Flindell of ISVR at Southampton also had fears: "This doesn't seem to me to be a fair test between absolute and relative values. I query whether the results should be used to inform government policy."

Other experts have raised fears that as the noise was measured within bedrooms, the issue of windows closed and open should be discussed. Also the high frequencies associated with the metric are easily muted by walls and windows – but low frequency break-out noise is not. *Noise Bulletin* was told: "dBA cannot and does not characterise noise from pubs and clubs!"

# Euro-approval delays number implementation

Defra says that it has agreed that the Noise Act threshold for fixed penalties will be 34dBA – but that there has been a delay in putting it into regulation.

The number (more correctly Part of section 84 and Schedule 1 of the Clean Neighbourhoods and Environment Act 2005) was consulted upon (*NB June p1*) and Defra will "shortly" publish its response to that consultation. The noise criteria is 34dBA where the underlying noise level is less than 24dBA; or 10dBA above the underlying

level, where the underlying level is greater than 24dBA.

But implementation will not now be until next year – the number was due to be implemented in October.

Defra has completed the processes required by Parliament for regulation to come into effect, but it was advised that it should seek, as a precaution, European Commission approval under the Technical Standards and Regulations Directive 98/34/EC for sound measuring devices to

be used for determining an offence under the Noise Act 1996.

In particular, it is seeking approval of the reference in the guidance and directions to the National Physics Laboratory interim guidance relating to the Periodic Testing of IEC 61672 Sound Level Meters in lieu of BS EN 61672-3 which has yet to be published. The process of obtaining approval should take three months. Once completed, the measures will come into force automatically.

## IMPACT ASSESSMENT

# Guidelines due: Waiting for Godot?

The long awaited noise impact assessment guidelines may soon be published. Author Stephen Turner of Bureau Veritas admitted that the process was rather like 'waiting for Godot'.

Work on the joint Institute of Environmental Management and Assessment/Institute of Acoustics guidelines started over ten years ago – and a draft was produced in 2002 but Turner says that delays in responses has led to continued postponement – but hopefully the guidelines will be out soon.

The guidelines are in two parts – the first covers principles of environmental impact assessment and noise rating, the second covers the practice of noise impact assessment.

So for instance for assessing noise impacts emphasised three definitions:

- Noise change: The difference in the acoustic environment before and after the implementation of the proposals;
- Noise impact: The effect of a noise change in terms of annoyance, intrusion or change of character;
- Impact significance: The ranking of noise impact and whether it is significant.

Turner then showed a generic scale of impacts ranging from not-noticeable to physically harmful. "This is one of the most important principles within the guidelines. This contains the familiar descriptor of noticeable, slight, significant

etc, but decibels are not mentioned – a key change from the 2002 draft."

"It is possible that some practitioners will find these guidelines disappointing. The guidelines do *not* state what is or is not an acceptable magnitude of noise change, they do *not* define what decibel change will cause, say, a moderate impact, and they do *not* provide a simple step by step process which is easily followed to provide the result."

"Noise impact assessment is a complex issue. The assessment process is not a black box into which various numbers are put and out of which comes the answer – calculation is a means of estimating the effect."

## MORE NEWS FROM THE INSTITUTE OF ACOUSTICS AUTUMN CONFERENCE

## Maps. Little benefit till 2017

Policy makers will have to wait until 2017 before noise maps are able to yield useful data on the noise climate, Acustica's Simon Shilton has claimed.

Speaking to the recent Institute of Acoustics Autumn conference, held in Oxford, Shilton blamed the five yearly intervals required under EU directives – and a planned change in methodology.

European states must produce noise maps every five years

from 2007. The UK is hoping to complete its maps next year (*Noise Bulletin November p1*) and then update them by 2012 – but using a different methodology as EU map standardisation was not agreed in time for the 2007 mapping run.

Shilton said: "The 2012 results may not show any reduction in noise levels or exposure as the basis for calculations is likely to have

changed so radically. We will potentially have to wait until 2017 to assess the effectiveness of European noise policy by making any like-for-like comparisons of changes in the noise climate."

The standardised methodology that member states will use in 2012 will be based on the results of the pan-European Imagine noise mapping project website [www.imagine-project.org](http://www.imagine-project.org).

### AVIATION

## Cranford abandonment: doubles annoyance?

Abandonment of the Heathrow 'Cranford Agreement' could have huge implications for the population living underneath the flightpath.

The agreement is under threat with BAA keen to introduce mixed mode runway alternation to squeeze more planes into Heathrow. The Cranford Agreement reduces the impact of plane noise on Cranford residents.

The GLA's Alan Bloomfield told the IoA audience that runway alternation and the Cranford Agreement may have little impact on the headline noise contours produced by BAA – but may heavily affect some residents who value the respite offered by the current arrangements.

The findings were contained within the GLA-commissioned West London noise study which

aimed to fill gaps left in the National Noise Incidence Study (NIS) commissioned by Defra. The West London study allowed Bloomfield to test the impacts of different airport operational modes with and without the Cranford Agreement as impacts can easily be hidden within 24hour metrics.

For some boroughs, such as Hillingdon and Hounslow, the percentage of residents exposed to 55dBA or more remained unchanged (at about 42% and 80% respectively) whatever modes were chosen. But for Ealing, for some modes only 38% of the population were affected – but with the abolition of the Cranford Agreement, over 64% were affected.

Bloomfield concluded: "The impact of the airport on the noise environment of Hounslow

can be clearly seen. The percentage of area and population exposed to 55dBA or more during the daytime and evening is almost double for most operational modes."

Meanwhile by coincidence, BAA Heathrow had to suspend runway alternation from mid September to mid November due to runway repairs at the airport. Hounslow Council reports a 100-fold increase in the number of complaints it received in October.

The council says: "The suspension lead to a 3dBA increase in the  $LA_{eq,16hr}$  which BAA is saying is almost unnoticeable. But since the suspension we have had a hundredfold increase in complaints which shows that people will tolerate noise for a short period but then complain."

### GUIDELINES

## WHO switches emphasis to soundscapes

A key architect of World Health Organisation guidelines on noise has suggested that WHO guidelines are not likely to be met – and that a move towards looking to improving 'soundscapes' is needed to improve health.

Stockholm University's Birgitta Berglund told the IoA conference: "Noise destroys environments which otherwise could have been quiet and restorative, such as courtyards, gardens and parks. Wide gaps exist between current sound levels and those adopted in the WHO guidelines for community

noise, there is also a wide gap between current long-term goals and good sound environments.

"To date, noise has been viewed as a pure engineering problem, not a health problem. Noise maps and remedial actions against noise are concerned with sound levels of a specific noise source. It is not enough to protect and prevent

against the predominant noise."

She added: "The current mapping of large agglomeration in Europe, with its focus on specific noise sources, will not be enough but has to be supplemented by yet unknown methods of soundscaping."

She elaborated that improvement in health cannot be measured simply by the change in sound level (as indicated by noise maps) rather the quality of the sound and consequent improvement in health may be more due to consideration of the quality of sound (soundscapes).

### Conference proceedings

Proceedings from the Autumn Conference are available from Linda Canty, Institute of Acoustics 01727 848195 [www.ioa.org.uk](http://www.ioa.org.uk)

### IN BRIEF

#### MPs study motorbikes

The House of Commons Transport Committee is to conduct an inquiry into the Government's Motorcycling Strategy, with oral evidence sessions being held in early 2007.

It includes issues such as encouraging riders to keep their bikes to legal noise levels and what action the Government might take to reduce the risk posed by mini-motos, go-peds and other motorised two-wheelers which are not legal for road use.

#### Classroom deafness

One in five children struggle to distinguish speech in the classroom says RNID.

It found that under 14s can often find it difficult to distinguish speech in noisy environments, a skill which develops as they grow older. The surprise findings were discovered when analysing the results drawn from RNID's *Breaking the sound barrier* telephone hearing check, which was launched in December 2005 to reach out to people who may be losing their hearing but doing nothing about it.

So far, nearly 300,000 people have taken RNID's hearing check and, although the check was aimed at adults, around 2,500 callers have been children.

Of the 2,000 children aged 10-14, one in five are unable to distinguish speech in noise at the normal level expected of adults. These children register as having hearing levels below normal, not because of problems with their ears, but due to a cognitive inability to distinguish sounds clearly in noisy environments.

● RNID's specially developed hearing check can be taken over the telephone by calling 0845 600 5555. It is part of *Breaking the sound barrier*, ([www.breakingthesoundbarrier.org.uk](http://www.breakingthesoundbarrier.org.uk))

#### AES accreditation

AES has been granted accreditation for its sound insulation testing service by the United Kingdom Accreditation Service.

● [www.aes-labs.co.uk](http://www.aes-labs.co.uk)

# Seeking out tranquillity

Quiet havens in urban areas will be protected under the European Noise Directive – but first they must be chosen reports Lisa Russell.

They are the hidden gems in every city – quiet areas such as parks and churchyards, where people can escape the urban hubbub. In many cases, increased development is gradually eroding their tranquillity – more traffic on the adjacent road, a lively new bar facing the edge of the park, office blocks that crowd in on the natural features.

The UK, like other member states, has less than a year to decide which quiet areas in its major agglomerations should benefit from protection arising from the European Noise Directive (END). But how to choose them? By existing noise levels – or the potential for reduction? By size? By how much they are valued by the local community? By how vulnerable they are?

Defra commissioned TRL to carry out a review of existing knowledge and to develop the appropriate methodologies for criteria to identify quiet areas. The work considers both agglomerations and open country, although initial legislative deadlines apply purely to urban settings. Countryside campaigner CPRE is however calling for action now (box, facing page).

A paper presented by TRL's Greg Watts to the IoA autumn conference outlines proposals submitted to Defra for identifying quiet areas in accordance with the END. Watts said that there are 27,000 parks and open spaces in urban areas and that these must be reduced to a manageable level for protection. When asked how many this would be, he replied: "We're talking in terms of hundreds not tens of thousands."

If Defra adopts TRL's recommendations, listing – and hence protection – is likely to be afforded in the short-term only to the largest urban parks, particularly those of historic interest.

A number of filters are proposed to cut the number down from 27,000 to meet the short term goal of identifying quiet areas in the major agglomerations. The filters include factors based on location, land type, size and the existing sound level. The current mapping only shows areas above 55dB L<sub>den</sub> – what isn't mapped could therefore be used as a default start point.

Scientifically "conjuring up a national list seems almost bizarre" says City & County of Swansea pollution control officer Huw Morgan. He criticises the approach the consultants had been asked to adopt, with a lack of involvement by the local authorities that know the areas. Instead, he would prefer to see local environmental health officers sitting down with planners and local strategic plans to identify important areas that need protection. Inevitably, they would also need to examine what was

feasible, he acknowledges.

The TRL paper proposes two different types of definition of quiet places – one based on an absolute maximum noise level for the short term and a more subjective approach for the long-term. "We conclude that setting a noise limit is just a start for tranquil areas," said Watts.

Drawing up a list is not intended as an end in itself: once identified, the areas will need protection, stressed Watts. "The long term aim would be to reduce all man-made noise."

A growth in road traffic might mean mitigation measures such as low-noise surfacings, lorry restrictions or noise barriers. Shuttle buses could be set up to bring people to the centre of the quiet area from its fringes. A new road might have to be placed in tunnel.

Morgan believes that, for protection to have any real effect, "a whole community of planners and local politicians will have to be convinced that it is worth doing". "Ultimately, a planning committee is going to have to refuse permission on those grounds and sustain that argument on appeal," he says.

He has experienced how difficult this can be, having lost an appeal on air quality grounds despite strong evidence and despite assurances that planning inspectors had been fully briefed on the issues. It would be essential for everyone involved to be fully aware of the aims, says Morgan. Simply writing it up in a circular would not be enough.

Regulations have been published across the UK to enact the European Noise Directive's (END) requirements for noise mapping, action plans, public participation and quiet places (*Noise Bulletin November p8*). In terms of quiet places, the most pressing deadline comes in less than a year and much work remains to achieve it.

Quiet areas in "first round agglomerations" – those of more than 250,000 people – must be identified by 30 September 2007, while those in agglomerations of 100,000 people must be listed by 30 September 2012.

Another key deadline is 18 July 2008, by which date member states have to draw up the first round of action plans for the biggest agglomerations and the areas affected by the busiest airports, railways and roads. Plans for the agglomerations are also aimed at protecting their quiet areas against an increase in noise.

Protection of quiet areas in open country is outside the current regulations, as the initial tasks and deadlines imposed by the END relate purely to agglomerations and

areas affected by major transport.

However, quiet areas in open country do fall within the stated general scope of the END and the directive leaves the way open for subsequent protection. The supposition is that action to protect these areas will follow in due course. In particular, the END states that the Commission has to submit a report by 18 July 2009 on the implementation of the directive.

The report is to "assess the need for further Community actions on environmental noise and, if appropriate, propose implementing strategies on aspects such as the protection of quiet areas in open country".

Difficulties in developing a precise, widely-applicable definition for quiet areas in agglomerations or open country emerged from the TRL research. A short-term approach would provide an immediate list of candidate areas based on noise levels to comply with the 2007 and 2008 deadlines for "first round" agglomerations. The alternative, preferred, approach is more suited to a wider-scale identification of quiet areas.

Two words tend to crop up in any discussion of the topic: tranquil and quiet – but they are not interchangeable. A study by Northumbria University and the Landscape Research Group asked people "what is tranquillity?"

The responses highlighted factors such as a perceived link with nature and natural features, and the importance of wildlife as well as peace, calm and quiet. Quiet is therefore just one aspect of what makes somewhere seem tranquil.

Tranquillity is a more subjective description than quiet, says the TRL paper, involving both aural and visual cues.

Researchers from the University of Bradford are examining this combination of factors with a view to producing an overall descriptor. The first stage involved asking subjects to rank 100 photographs according to perceived tranquillity. The photographs were also analysed objectively – the most tranquil picture, a view of the north Cornish coast, was made up of 100% natural features.

The current stage introduces noise to the assessment. Subjects are presented with audio only, video only and a combined stream of both and asked to assess loudness and tranquillity, including breaking the sound into categories.

Not all sound is unwelcome and not all natural sound is quiet. Natural sounds can rack up high readings on a sound level meter but still have a positive effect on the sense of tranquillity. Coming up with a

definitive measurement is hampered by the need to take account of this difference between the welcome sounds of an exuberant bird or a particularly vigorous waterfall and the man-made cacophony from, say, a fun fair or a noisy factory.

Watts felt that, in many rural situations, even dBA readings as low as the 30 were unacceptable, for instance because of the chopping noise of a wind turbine: "Low level man-made sources can seriously disturb tranquillity," he said.

Relative expectations also count. An urban park can be valued as a tranquil place even if traffic can be heard, whereas the same sound levels could well be considered unacceptably noisy in a rural idyll.

For urban areas, the default starting point could be taken as places below 55dBA – shown on the noise maps being produced – pending more refined methods. But this would not take account of considerations such as the quality of the landscape, the perceived quietness and the public access to the area says TRL.

The researchers suggest applying a series of filters to the 27,000 candidate places in the initial data set to bring it down in steps. The recommendation is that this final list should be distributed to the relevant local authorities, who could supplement it with – ideally only a small number of – overlooked areas. Equally some could be removed for planning or other reasons.

TRL's paper also suggests that there may be scope for using the process to reduce the noise in some areas that are currently blighted by noise but have good landscape quality and easy access.

Approximately one third of the Urban Parks Forum database's parks within agglomerations are 10ha or bigger. If the park is square, about 50% of it is likely to be below 55dBA, even with a busy road along one side.

Protection is also important for the valuable small areas such as churchyards in urban areas, believes Morgan. Data from noise meters can be quite surprising, he finds. "There are all sorts of complications that result in certain urban spaces being very quiet, and people really do appreciate them."

Three filters should certainly applied to test the suitability of candidate areas, suggests the TRL report:

- Geographical – must be within a 250,000+ agglomeration;
- Land type – perhaps only designated public parks would "pass" this filter;
- Noise level – a designated band, initially recommended as less than 55dB<sub>Lday</sub>, though other indicators may suit particular situations.

If the list is still too long, more filters could cut it down further:

- Detailed land type – perhaps only public parks of historic interest;

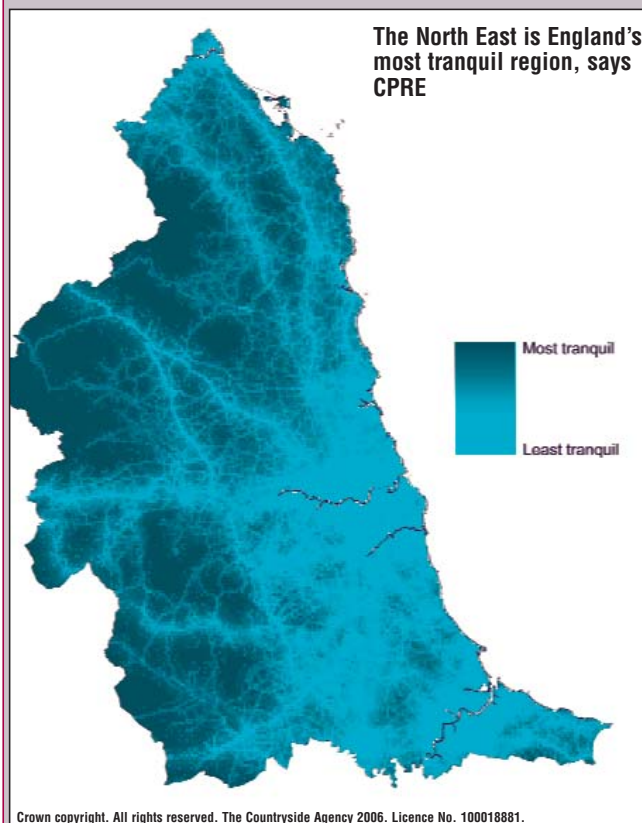
- Minimum area – for instance 10ha;
- Minimum area of quiet;
- Enlarged minimum area – to achieve a final manageable list.

TRL does propose a much more subjective and locally-focussed procedure involving consultation for long-term identification of candidate quiet areas.

Relevant local authorities would be responsible for prioritising the order in which candidate quiet areas should be protected, suggests TRL.

Developing a performance indicator for quiet areas would encourage local authorities to maintain what are valuable assets, suggests the TRL team.

## CPRE LAUNCHES NEW TRANQUILLITY MAPS



Tranquillity is one of the most sought after, hard to pin down ingredients of a good quality of life, says countryside campaign group CPRE. CPRE – which has considerable political influence – has mapped England's tranquillity and is calling for action to make sure that tranquillity is not lost.

The detailed map shows how likely local surroundings are to make someone feel tranquil. Deep reds in towns and cities give way to green in the most unspoilt country areas. England's most tranquil region is the north east, with London and the south east at the opposite end of the list.

CPRE plans to use the maps as part of a campaign to persuade

national and local government, planners, developers, businesses and public bodies to start using it in order to safeguard tranquil areas and even enhance them. It also hope people will use the maps to campaign for tranquillity in their local countryside.

Researchers carried out consultation to find out what it was in their surroundings that would make them feel tranquil. Answers revolved around three themes: landscape qualities, the impact of man-made noises and the presence or absence of lots of people. The measurement methods take account of positives such as sweeping views of open country and negatives such as busy roads and large man-made structures. Computer-based techniques and geographical databases were used to show the likely tranquillity in every part of England. The land mass was divided into 500m by 500m squares, each given a tranquillity score and colour coded.

The work builds on an analysis of the earlier (1993-95) CPRE and Countryside Commission tranquil areas maps which lead to the North east pilot study published as *Mapping tranquillity* in 2005.

CPRE's Graeme Willis told NB: "There may well be synergies with the Defra quiet areas work in response to the European Noise Directive, but clearly that is focused on agglomerations, major roads and railways and specifically noise. Our work maps a composite of factors related to sight and sound and both positive and negative features. We are already in touch with Defra and there may be interesting possibilities especially if the END is extended to cover rural areas."

- The link for downloading the CPRE maps is: [www.cpre.org.uk/news-releases/media-resources/tranquillity](http://www.cpre.org.uk/news-releases/media-resources/tranquillity)

# Sound and sustainability

Lis Stedman attends a builders conference that looks at how sound insulation is being adopted by the construction industry

With sustainability the hot topic that it is, the Association of Noise Consultants-sponsored sustainable new homes and sound insulation conference last month was a sure-fire winner.

The conference was organised by Dr Sean Smith, the deputy director of Napier University's Building Performance Centre and one of the authors of the Scottish Housing and Sound Insulation guide (*Noise Bulletin April*). His introductory contention that sound insulation and environmental noise are changing and dictating design and regulations set the tone for an interesting meeting.

Kicking off the presentations Ed Clarke, of Alan Saunders Associates and ANC chair, looked at the evolving partnership between home builders and acoustic experts. He suggested that both sides have developed closer and more efficient working relationships, and that early collaboration during the preliminary stages of construction allows more efficient and elegant design solutions.

He also looked at how computer modelling helps develop practical solutions, and the difficulty of communicating to lay clients. Real life construction was a theme: one rather jolly illustration of transmission through different wall constructions – concrete and dense cavity blockwork – consisted of comparative audio samples of a large German chap sitting in the bath singing (mercifully there were no visuals).

The Robust Detail (RD) blockwork wall muffled the tonsil-twisting cacophony somewhat, though a subsequent sample of sound reduction in a laboratory situation proved significantly quieter – significantly, because of the lack of flanking transmission paths.

Clarke concluded by noting: "Acousticians don't really practice black magic – it's just science and maths, and it's all about managing expectations." Familiarity shouldn't breed contempt, he noted – the field has a lot more to offer than just sound insulation testing. "Acoustic consultancy is a science – explaining the results is an art," he concluded.

Dave Poole, a technical director of Taylor Woodrow, followed with a look at meeting the requirements for pre-completion testing and the thorny question of how to ensure that RD-accredited homes pass the tests that a percentage still have to undergo.

He began by exploring the history of the current system and the drawbacks that led to the genesis of robust details, which he referred to rather positively as 'the second coming'. He added: "It seems like a good option to me – there is an emphasis on getting the building correct; basically robust

construction."

But, he pointed out, "what if your supervision is not where it should be?" There is, he added, a lot of scope for error. "There are issues that we have got to contend with and keep on top of. There are situations where we have got no guidance in the robust detail documentation."

However, despite the caveats, he viewed robust details as "a great vehicle for innovation". But there is a need to move beyond compliance. On this subject, there has been recent consultation on a programme of early testing to minimise the risk of failure.

Failure, he noted, is something that house builders don't accept, but to achieve success it is necessary to address the trades themselves. "I doubt there is anyone here from the critical trades," he observed. "We can do a lot to educate our own staff in the requirements, but we can't train the whole industry."

Taylor Woodrow, he said, is working actively with its supply chain on programmes that focus on these issues – for instance, providing training courses for subcontractors that they have to sign up to in order to work for the firm. "The industry must pull together training programmes. Until we do we are always left wide open to risk," he concluded.

Peter Hepworth, managing director of Hepworth Acoustics, looked at the topical issue of noise maps and their potential influence on future planning and design.

He was highly critical of Defra's mapping data, provided to authorities as part of the project, noting that for traffic flows this was "15% accurate and 85% default values whether the roads are cul-de-sacs or estate roads."

As far as the timetable goes, consolidated noise maps are due at the beginning of October next year. Noise action plans are due less than a year later and must involve public participation, causing Hepworth to warn: "In my view the timescale is very short to produce these in the first place, then to have public participation, then to produce a plan."

In terms of usefulness to the general public or house builders, the amount of default data means that obtaining precise levels may not happen in this initial round, with mapping intended to identify areas for further consideration and "not meant to be definitive at this stage".

The maps will, despite the caveats, be useful to local authorities for strategic planning, he explained, allowing them to look at general noise levels when planning applications are received, to see when a more detailed noise assessment is needed.

Hepworth also suggested that noise maps might affect house buying behaviour, with potential buyers examining them before deciding to look in a particular area.

In the Q&A session that followed, he emphasised that expectations for the maps had to be managed, because people would not be able to work out the noise level in their back garden, just obtain a perspective on what the figures mean in reality.

Professor Robin Mackenzie, of the Robin Mackenzie Partnership and director of Napier's Building Performance Centre, discussed planning and design of homes and environmental noise issues. Focusing on brownfield sites, where industrial and transport noise can make development difficult, he began by noting the universal truth that one person's pleasant sound is another's noise.

He raised some good points about how developers should approach site noise issues – checking for night noise and seasonal or irregular activities, for example.

Planning policy guidance PPG 24 has a revision under consideration (and will become a PPS), and Professor Mackenzie suggested the building industry would do well to have representation "because it could have serious implications for development potential".

Criteria for measuring industrial and entertainment noise vary wildly from authority to authority, was another message. He also provided examples of good practice where intelligent interventions early in the planning and design process had enabled developers to achieve satisfactory solutions despite proximity to noise-sensitive developments.

Andrew Bullimore, of Hoare Lea Consulting, followed with an examination of environmental noise assessments, and the impact of measurements and predictions on house building.

He focused on the often significant variability in noise levels experienced at any one point – noise, he noted, is inherently variable, yet sound-related standards specify precise decibel levels for pass/fail criteria.

Bullimore took a look at the complex issue of averaging noise, and the factors that need to be understood such as variations in sources, propagation paths and local effects at the receiver. Inevitably, when using averaged criteria such as  $L_{Aeq}$ , noise levels will in reality sometimes be higher and sometimes lower.

The uncertainties lead to problems in using noise data, which is only accurate at a precise point in space and time. This may mean that money is ploughed into ineffective noise mitigation measures, he

pointed out, or cause site blight because measurements on the day were atypically high.

Any noise assessment has to focus on risk, he added, and when talking about the accuracy of noise measurement, it needs to be defined in the context of the problem it is informing. Supporting non-acoustic data is often as important as the noise data itself, he suggested.

Bullimore suggested that increased uncertainty did not mean increased risk, or vice versa. "The range of uncertainty can be huge but if you are still under pass/fail criteria it does not matter." Strategies need to be tailored to the criticality of the assessment, he added, not to minimise uncertainty at all costs.

Tim Johnson of the Aviation Environment Federation then looked at the contentious topic of future airport expansions and possible impacts on new homes development.

He spoke of much-discussed issues such as the increase in annoyance despite quieter aircraft, night noise issues, and air space management and how it is handled. There is a fundamental redesign at the moment, he explained, looking at where flight paths should be located.

Speaking ahead of Uttlesford Council's decision to refuse Stansted's application to increase the allowed number of passengers, he noted the fear that any restrictions on operations would drive trade to other airports.

If Stansted gets a second runway, he added, the number of people exposed to aircraft noise jumps. The focus is on trying to manage routes to minimise the number of people affected, which means a fairly large increase in the area affected.

Local authorities have to look at the noise impact areas and reject noise-sensitive developments within specific zones. In the subsequent Q&A session an audience member pointed out the illogicality of having airport expansion focused on the South East, where the greatest amount of new development is also planned.

Dr Les Fothergill, of the Department of Communities and Local Government (ODPM as was) took a peek at the Code for Sustainable Homes, warning that as this is not yet finalised anything he said could be subject to change.

With this lawyerly aside, he outlined the idea of the Code, which is to provide a simple, non-technical rating system that a buyer can glance at and get an idea of the sustainability of their prospective purchase.

The Code headlines on energy, water and waste management. Some items are

mandatory and some optional – sound insulation (what a surprise) being among the latter.

He explained: "If builders do all the essential works they get one star. To get more, they have to do more than that minimum, either concentrating on the essentials and doing more or adopting non-essentials, or a pick and mix. To get three stars you need an extra 30 points and for five stars, 50 points, which is quite challenging."

It is in trying for these higher standards that sound insulation and other non-essentials will come to the fore, he predicted. And any house built with government funding will have to be of three-star standard.

The Code has been developed from BRE's Eco-Homes standard, and if anything will be more stringent, Dr Fothergill suggested, given the feedback from the consultation process.

One problem raised in the consultation was that if, like the Eco-Homes standard, the new Code focuses on sound insulation meeting Part E standards through an increasingly stringent testing process, the costs of the testing may deter developers. Going down the Robust Details route, with the details vigorously enforced, "would be helpful", he suggested.

By happy coincidence, next onto the stage was Dave Baker, the cheery CEO of Robust Details. He outlined the success of RD thus far, and stressed that there is a lot of testing going on: "The chances are if you are building in England and Wales you will get visits from RD. There is a one in four chance – we are covering a lot of sites, and some are quite big."

There is now a lot of "very good" data on what works and what doesn't, he notes – hence the recent removal of a masonry floor system that didn't make the grade. Later, during the Q&A session, he suggested that this might be because the other, similar systems were proprietary and therefore had champions to oversee their use and workers' training, whereas the failed system was generic and "went a bit wrong in the wild".

Baker dismissed the Part L (energy saving) amendments, which came into force in April. Part L is assessed by calculation or 'reasoned thinking' but not tested, he noted. "With no third party monitoring, no central database, no feedback and improvement loop, who knows if it will work? I am tempted to say 'who cares?'. If the regulation makers really cared about compliance with their new, higher standards, surely, based on the Part E experience, they would have built in

these features? Without them, it seems to me very unlikely that high levels of compliance with the new Part L will be secured."

RD has submitted the case for including Robust Details in the new Code, he added. The best thing in general would be to focus on using RDs, and "let the industry worry about how to build," he concluded.

Adrian James, co-chairman of the ANC pre-completion testing committee followed on to review the pre-completion testing scheme. The ANC, in the three years since pre completion testing became mandatory, has dealt with more than 40,000 such tests, generating an impressively-vast database.

He spoke about the complexities of testing, and with the solid backing of the vast databank gave floating floors the thumbs down for conversions. "We've tested them lots of times, and they ain't passed." There's "no way" RDs can be applied to conversions, he observed.

James also explained the ANC's registration scheme, and the considerable success it has had in reducing the number of testing failures.

Sean Smith concluded the day with a run through some of sound insulation issues that need to be considered at design stage, providing a useful hands-on presentation based on the considerable practical experience garnered from co-authoring Scotland's Housing and sound insulation guide. The "rogues' gallery" of construction faults, and the run-down on the evils of laminate flooring, was much appreciated by the audience.

Smith also provided an interesting view on the recently-begun airtightness and pressure testing for houses, and the possible influence on sound testing, noting: "We may have introduced another variable." Airtightness increases the influence of forced motion, he explained.

Sound insulation measurements involve the recording of a sound pressure level within the adjacent rooms of attached homes. Improved air tightness may mean that there is less chance of air pressure release within each room. "It may be worthwhile to research the possible influence of incremental changes to air tightness and if this influences the resultant sound pressure level difference and effective sound insulation values," he suggested.

Dr Smith noted that the introduction of RDs in England and Wales had produced "tremendous improvements", and praised the idea of pre-conversion testing, which features significantly in the guide. "If done correctly, it reduces costs and waste," he concluded.

## London rocks

A talk by the Greater London Authority's noise team is always worth waiting for.

The GLA's Max Dixon and Alan Bloomfield reliably deliver interesting and thought provoking talks and appear to be at the vanguard of noise policy.

Shame its just for London and they don't run Defra – if just half of what they propose became national policy we might well catch up with the likes of The Netherlands in having a noise policy to be proud of.

But perhaps that is being a little unfair to the team at Defra. Dixon and Bloomfield are both acousticians *and* policy makers, and are given the opportunity by the GLA to do something interesting and then to talk about it.

By contrast Defra's team are non-acousticians (albeit heavily advised by acousticians and seemingly paralysed by endless budget cuts, delays, reorganisations and ministerial indifference.

They do well to remain so cheerful in the circumstances.

## Little and large

Talking of Bloomfield and cheerful....

At the risk of being accused of being 'shortist' – we must share Bloomfield's opening comments about the perils of following Stephen 'tall guy' Turner, a Defra advisor.

Bloomfield said: "The tall man gets all the interesting things to say. I'm just the warm-up guy with short hairy legs".

Don't know about the legs – but he does have a sense of humour. Here's another Bloomfield nugget for those that know and love the Heathrow Cranford Agreement: "The Cranford Agreement is the aeronautical equivalent of the offside rule".

We don't have space to explain the agreement here.

## Animal Asbo

Anti social behaviour orders often make good newspaper stories – there seems to be an unspoken race among the authorities to produce the most bizarre Asbo. There's even an 'asbowatch' website listing the weirdest ones.

But this one tickled us. A newspaper reported a story about an Asbo and a

noisy cockerel, with the owner being obliged to do something about the noise.

The owner is quoted as saying: "I've had Charlie since he was an egg. I also had his mum and dad. We go back generations."

Bless. But no defence to nuisance!

## Scottish noise hotspot?

The wags were out in force at the John Connell awards event in Parliament last month.

Shetland, one of the winners, jested that it wasn't renowned as a noise problem area. Why? Because it did its job so well of course!

Meanwhile Huntingdon's acceptance speech started like this: "We are delighted to be making our maiden speech in the House of Commons..."

## Night noise nuisance

Another newspaper story.

It appears men using Viagra may well find they keep their partners awake all night as they are too noisy.

Apparently the sex pill can make them snore, aggravating sleep apnea so prompting the snoring.

But what are they doing sleeping?

## NOISE EVENTS 2007

### 2007:

#### January 24th

##### VIBRATION AND RE-RADIATED NOISE FROM TRAINS

To be held at the Royal Society, London. Organised jointly by the Building Acoustics and Noise and Vibration Engineering Group, Institute of Acoustics, 01727 848195

#### March 6th

##### THE ART OF BEING A CONSULTANT

To be held at The Town Hall, Manchester. Meeting aimed at young consultants, those new to the profession and students who are considering a career in acoustics. IoA, 01727 848195

#### March 13th

##### RUMBLE IN THE (URBAN) JUNGLE? THE MEASUREMENT AND ASSESSMENT OF ENVIRONMENTAL VIBRATION IMPACT

Institute of Acoustics conference to be held the Society for the Chemical Industry in London, contact Linda Canty, Institute of Acoustics, 01727 848195

#### March 15-16th

##### NSCA NOISE SPRING WORKSHOP 2006

Spring workshop to be held in Reading, NSCA, 01273 878770

#### April 24th-25th

##### THE SOUND OF SUSTAINABILITY – GOING FOR GOLD

Institute of Acoustics spring conference to be held in Cambridge focussing on the 2012 Olympics, contact Linda Canty, Institute of Acoustics, 01727 848195

#### July 11th

##### ITS PRACTICALLY A QUALITY MEASUREMENT!

Are your acoustic measurements fit for purpose? Organised by the IOA's Measurement and Instrumentation Group contact Linda Canty, Institute of Acoustics, 01727 848195

#### August 26-27

##### INTERNOISE 2007

The 2007 international congress and exposition on noise control engineering to be held in Istanbul, Turkey. E-mail: [contact@internoise2007.org.tr](mailto:contact@internoise2007.org.tr) or [www.internoise2007.org.tr](http://www.internoise2007.org.tr)

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