

NOISE

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BULLETIN

WIND TURBINES

Planning for home turbines

Local authorities are increasingly facing requests from residents to install domestic wind turbines.

Such turbines are being sold by DIY chain B&Q for £1500. Ministers are considering relaxing planning laws to allow installation without planning permission – but for now permission is required. There is concern that relaxation will make it difficult to control any possible noise nuisance.

Some authorities are rejecting domestic turbines on noise grounds. Amber Valley in Derbyshire has had several applications, some of which it has approved, others it has rejected because of noise, saying: “The proposed turbine is only 10m from the two properties either side. The noise levels would exceed guidance, which would be significant enough to be a statutory nuisance to the neighbouring properties and therefore is unacceptable.

“Approval of the wind turbine would set an unfortunate precedent for the submission of similar applications in the future which the council may find difficult to resist to the detriment of residential amenity.”

Local authorities struggle to

word appropriate conditions on domestic turbines which are quiet – but particularly close to neighbours’ bedrooms.

Current guidance was derived with larger turbines in mind, and consultant Mike Stigwood is considering taking his own noise measurements on domestic turbines having heard one and considered it to be “quite noisy”.

South Norfolk is also considering its own research. Adrian Nicholas says: “From the information I’ve seen, the turbine when its operating is going to be a fairly steady noise. We’re just looking for a number of noise levels, measured as L_{eq} over a specified time at a specified distance at various wind speeds.

“Along with that, we are also looking at whether there are any tonal characteristics of the turbines. If it’s a bland white noise, it’s going to be one thing, but if it’s got a tonal characteristic – especially a low frequency noise – we want that identified, as it would be much more irritating. And low frequency noise travels further and it travels much better through the building structure.”

The small scale of the applications also means that it’s difficult for authorities to justify

carrying out noise assessments. Charnwood’s Stuart Moffat told *NB*: “For an individual wind turbine proposal it’s difficult for the authority to justify the expense of getting expert comment. If the government decides turbines can go in without needing planning permission, it strikes me that there will be noise implications because there will be very close neighbours.”

Fears remain that some devices are simply not up to the job. One expert told *Noise Bulletin* that in practice they can produce only enough electricity to run a low energy lightbulb. This is because many imagine they can be sited like TV aerials – at eave level, wind speeds may not be enough to generate useful amounts of power.

● More – see feature, page 4.



Windsave: L_{Aeq} 52 dBA 5m

NUISANCE

Measurement not needed for noise order

A quad bike safari business in Cornwall has lost its appeal against a conviction for breaching an abatement notice.

A landowner continued to use quad bikes on his land after Caradon Council served an abatement notice on him in 2004. But Caradon council EHO Sarah Grattan witnessed three breaches of that order and based on that evidence, the owner was successfully prosecuted and given a ten year anti social behaviour order.

The ASBO contained anti-

harassment terms but also very tight conditions on the use of quad bikes and other motorised vehicles on his land.

The appeal centred on whether the trial was fair. Specifically it was argued that Caradon had failed to carry out any noise measurements of the quad bike activities. With no measurements it was thus impossible to mobilise any expert evidence to dispute the noise nuisance.

The judgement noted that the landowner was free to obtain

his own expert evidence, free to call witnesses as to the noise level, and free to challenge evidence of the council. “It is important to recognise that it is simply not a requirement that before a prosecution can succeed in these noise cases, that measurements of sound should have been recorded.”

The judge cited *Lewisham v. Yvonne Hall (2002)* which came to a similar conclusion that measurement is not needed.

● *Gillbard v Caradon District Council (2006)*

Trust gets ASBI

The Trafford Housing Trust has taken out an ASBI against a noisy tenant.

ASBIs – anti social behaviour injunctions (as opposed to orders) can be obtained by public sector landlords when faced with troublesome tenants.

The trust says its tenant had previously agreed an Acceptable Behaviour Contract but complaints continued so went to court for the two year ASBI banning activities including:

- Playing a radio, television or music loudly;
- Shouting, screaming or swearing;
- Banging on walls/ceilings;
- Slamming doors.

If the injunction is broken he could be convicted of Contempt of Court. Section 13 of the ASB Act 2003 allows social landlords to apply for injunctions to prohibit anti-social behaviour that affects their management of their housing stock.

Moto injunction

A noisy motorcross circuit at Matcham Park near Bournemouth has been at the centre of a planning appeal.

Sporting activities have been going on at the park for decades, however intensification of use (with race events most weekends) led to complaints from neighbours and serving of an abatement notice by East Dorset Council. The council applied to the High Court for an injunction to curtail the motorsport activities and won, with discussion focusing on the merits of BS4142, PPG24 and WHO guidelines for assessing noise.

Dani Fiumicelli of Faber Maunsell commented “The case was interesting as it pitches three different assessment techniques against each other and closely examines the concept of reasonable use of land and how this affects common law and statutory nuisance.”

The park has since closed.

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IN BRIEF

Welsh consult

The Welsh Assembly is consulting on its regulations for extending Noise Act powers to pubs and clubs.

- <http://new.wales.gov.uk/consultations/currentconsultation/envandcouncurrcons/1054147/?lang=en>

TRL's toolkit

TRL has produced a traffic noise reduction toolkit. It compares the effectiveness of various measures such as quieter vehicles, roads, noise barriers and combinations of measures as part of work produced for the GLA and TfL.

- *Traffic noise reduction toolkit*, TRL report PPR047, Greg Watts et al is available from TRL 01344 770297

Orchestra noise probe

A professional orchestra piloted guidance for the music and entertainment sector on the Control of Noise at Work Regulations, a Health and Safety Executive report suggests.

The traditional arrangement of the orchestra was changed for a concert with pop musicians in an attempt to reduce the noise exposure of the orchestra musicians.

- More details www.hsnews.com/2006/11/06/orchestra-pilot-of-the-noise-guidance/

Flight noise tool

A tool for the calculation of sound power levels of airplanes during vertical flyover from NPD-SEL data can be downloaded from the Imagine website.

- www.imagine-project.org

Action week dates

Noise Action Week will take place on May 21st—May 25th – although funding problems remain.

NSCA, which coordinates the event, is usually sponsored by Defra, which this year has said that its own funding problems mean it cannot continue with funding. NSCA is looking for sponsors for various activities that make up the campaign.

- Noise Action Week website www.noiseactionweek.org.uk

NUISANCE COMPLAINTS

Persistent moaners: what to do

The Local Government Ombudsman has issued advice on how to deal with persistent complainers.

The move is unusual because the organisation usually concerns itself with investigating and punishing local authorities who ignore or mishandle persistent complaints, many of which concern noise nuisance.

The Ombudsman says: "Unreasonable and unreasonably persistent complainants are those complainants who, because of the frequency or nature of their contacts with an authority, hinder the authority's consideration of their, or other people's, complaints.

"It is important to differentiate between 'persistent' complainants and

'unreasonably persistent' complainants. Arguably, many of the people who submit complaints to the Ombudsmen are 'persistent' on an entirely reasonable basis that they feel the authority has not dealt with their complaint properly and are not prepared to leave the matter there. The fact that approximately 26% of the complaints we investigate conclude either by report or by local settlement indicates that this persistence is frequently justified. And almost all complainants see themselves as pursuing justified complaints.

"Unreasonable and unreasonably persistent complainants may have justified complaints or grievances but be pursuing them in inappropriate ways, or they may be intent on pursuing complaints which

appear to have no substance or which have already been investigated and determined. Their contacts with authorities may be amicable but still place very heavy demands on staff time, or they may be very emotionally charged and distressing for all involved.

"Sometimes the situation between a local authority and a complainant can escalate and the behaviour moves from being unreasonable and unreasonably persistent to behaviour which is unacceptable, for example, abusive, offensive or threatening."

- *Guidance note on 'unreasonably persistent' complainants and 'unreasonable complainant behaviour'* can be viewed on www.lgo.org.uk/worddocs/guidance-note-UP-comps.doc

IMPACT ASSESSMENT

IoA welcomes sustainable homes code

The Institute of Acoustics has welcomed inclusion of sound insulation in the Government's *Code for Sustainable Homes*.

"The inclusion of points/credits for higher levels of sound insulation will assist towards creating more sustainable communities. The increasing density of housing and the advancements in home entertainment sound system technology requires increasing

levels of sound insulation above the regulatory minimum standards. The new code will encourage further innovation into new products and systems which can lead to advanced levels of sound insulation for new build attached homes."

In the code, between one and four points are awarded for achieving higher standards of sound insulation than required by Part E Building Regulations

and demonstrating it by either using post completion testing or robust details.

The code can be viewed on www.planningportal.gov.uk/uploads/code_for_sust_homes.pdf

- The IoA is holding a two-day conference on *The sound of sustainability – going for gold* on 24 and 25 April 2007 at the De Vere University Arms Hotel in Cambridge. website www.ioa.org.uk

NUISANCE

Train horns: curfew fails to please

The Rail Safety and Standards Board (RSSB) is proposing a night time curfew as part of a package to reduce train horn nuisance.

New style train horns have annoyed many lineside residents (*NB5 p1*) leading to campaigns and court action to abate the nuisance. The RSSB has been studying the problem and proposes an upper noise limit and changes that should lead to an 11dB reduction. Many whistle boards should be removed and drivers told not to sound horns between 11pm and 7am.

The Noise Abatement Society has been most vocal in the campaign to quieten the horns and was not happy: "After five years of inflicting this unassessed shrill train horn on the public and spending hundreds of thousands of pounds on trying to accommodate it within the railway infrastructure, the RSSB has come up with recommendations that change virtually nothing.

"We are bitterly disappointed at this long awaited report that clearly has exposed the severe and unacceptable noise from

train horns. The report has done little to address the noise pollution issue created by the rail industry, nothing is mandatory and all recommendations are only being considered, any relief will depend on how assiduously the new recommendations are implemented and a clear commitment of planned changes from train operating companies is eagerly awaited to prevent further decline and impact on the health of noise sufferers."

- RSSB website www.rssb.co.uk/comrelations.asp

POLICY

2007: year of the strategy?

2007 is "probably the most crucial year for noise reduction" according to the UK Noise Association.

UKNA says it is "bracing itself" for an active year of noise campaigning. "The government has promised to develop the first ever national noise strategy which they say will go out for public consultation in late Summer. This will also tie in with the

European Noise Directive, which requires members states to produce noise maps and then develop action plans to reduce noise by the end of the year.

Val Weedon of UKNA adds: "This coming year is probably the most crucial time for noise reduction, certainly since I started campaigning just over 15 years ago. In the coming year we intend to meet with noise minister Ben Bradshaw on

traffic noise, hold policy seminars on low-frequency noise, tranquil areas and traffic noise; carry out public surveys to find out how the public feel about noise in general and highlight issues such as piped music in the workplace; the problem of loud in-car stereos (known as boom cars); nuisance caused by mobile phones and further improvements to firework regulations.

AVIATION

Progress report prompts battle charge

Protesters have reacted with dismay to Government confirmation that it will support continued expansion of air travel.

The long awaited progress report (required by the 2003 Aviation White Paper) moots continued expansion of many airports across the country including Heathrow and Stansted. The most hotly contested are at Heathrow where proposals include a sixth terminal, a third runway, abandonment of runway alternation and the Cranfield Agreement, all of which have significant implications for noise.

Protesters responded by declaring war – with direct action. Local authorities were more measured, forming the '2M' group, named after the two million people affected by Heathrow expansion.

Membership comprises the London Boroughs of Ealing, Hammersmith and Fulham, Hillingdon, Hounslow, Kensington and Chelsea, Merton, Richmond and Wandsworth, the boroughs of Slough, Spelthorne and Windsor and Maidenhead and South Bucks District Council.

It said: "The year 2007 will see an unprecedented series of proposals for expanding capacity at the airport:

- A new third runway – creating a new flightpath across west London and bringing noisier aircraft across parts of south London;
- New mixed mode operations – where each existing runway is used concurrently for both arrivals and departures;
- Restricting relief from runway alternation during the day – planes currently switch runways at 3pm every day;

- Ending the Cranford agreement which restricts take offs to the east from the northern runway;
- A planning application to lift the 480,000 annual movements limit set as a condition of Terminal Five – this could now go as high as 720,000;
- A new Terminal Six to support the third runway;
- A review of westerly preference – where planes normally descend from the east.

Contained within the update, the DfT pledges to produce noise maps (by mid-2007) and action plans (by mid-2008) for airports in line with the European Directive 2002/49/EC requirements and consult on draft planning policy statement on planning and noise by summer 2007.

- www.wandsworth.gov.uk/Home/MyWandsworth/Newsextra/2mgroup.htm

VEHICLE NOISE

Exhaust noise: study into measurement

The House of Commons has been told that DfT is "considering" research into the growing problem of excessive car exhaust noise.

Transport minister Stephen Ladyman was asked what measures are in place to ensure that car owners do not alter exhaust or silencer systems after an MOT test making their vehicles louder and breaking noise regulations.

Ladyman said static monitors did not give good results, and instead objective assessments were used by the police and

VOSA. "However the Department is considering letting further research into the feasibility of a simple and robust test that might be used in these circumstances."

Ladyman was pressed if he would "further tighten regulations 54 and 97 of the Road Vehicles (Construction and Use) Regulations 1986 to ensure that exhaust and silencer systems remain in good working order and do not make excessive noise".

Ladyman responded that there were no plans for change

and that regulations were "adequate for dealing with noisy vehicles".

In 2004 (latest available) there were 2,048 prosecutions for noise offences under the Road Vehicles (Construction and Use) Regulations 1986, Regs. 54-58, 97-99 combined.

UKNA has set up a traffic and vehicle noise working group to look at the issue of noisy vehicles, including 'boom box' cars. It is currently carrying out an online questionnaire on the subject.

- www.ukna.org.uk

IN BRIEF

Tyre directive pressure

Lobby groups are limbering up to influence the European Commission to tighten the tyre directive.

Lobby group T&E explains: "Tackling the sources of road traffic noise (vehicles, tyres, road surfaces) is seen to be considerably more cost effective than roadside measures such as insulation or noise barriers. Directive 2001/43/EC (relating to tyres for motor vehicles) outlined indicative figures for two subsequent phases of tightening the tyre/road noise limit values. The Directive announced that tightening would be effective from 2007. However, the first tightening is now expected for 2008."

The European Commission is currently reviewing the tyre regulations, including the indicative noise limit reductions.

"As a first step, noise emissions limit values for tyres must at least keep pace with the best technologies currently available. The new values would lead to a decrease of 2.5-4.5dBA for passenger car tyres and of 5.5-6.5dBA for commercial vehicle tyres by 2012.

"The Council should promote the concept of noise labelling for tyres and an associated incentive scheme to accelerate the take-up of quiet tyres."

- www.t-e.nu

Keeping arrivals down

Government and the aviation industry have cooperated to produce a code of practice to reduce noise from arriving aircraft.

The voluntary code, produced by airlines, air traffic control, the CAA and DfT is aimed at reducing noise mainly at the three main London airports mainly through use of the smoother continuous descent approach (CDA) technique.

- *Noise from arriving aircraft* www.info4local.gov.uk/redirect.asp?url=http://www.dft.gov.uk/stellent/groups/dft_aviation/documents/page/dft_aviation_613678.pdf

Keep the home blades turning

Widespread availability of inexpensive domestic wind turbines is increasing demand for data about the noise they produce. Lisa Russell reports.

There has been a flurry of interest from consumers following the well-publicised introduction of electricity-generating wind turbines costing £1,500 or less.

Local authorities around the UK have been faced with an increase in enquiries and applications to gain the planning permission that is generally needed. Dedicated web pages created by hundreds of councils seek to answer common planning queries posed by residents who are tempted by the chance to cut electricity bills or do their bit for the environment. Interest is also boosted by the availability of government grants towards microgeneration.

But council officers increasingly find themselves needing access to noise data which are not yet available in this fast-developing sector. Unlike major wind farms, there are rarely sufficient funds for an individual site assessment. The model and the siting greatly influences factors such as the amount of electricity generated and the sound produced.

Planning permission is currently needed for domestic turbines, although this is expected to change in the near future. Environment secretary David Milliband said in his blog on Defra's website in December 2006 that he expected a new system to be in place by October this year. Scotland announced a planning boost for renewables in July 2006, saying that new housing and other developments should generate at least 10% of their energy on site from renewable sources.

"They don't make much noise because they're small – but of course you are much nearer to them than you are to a big turbine," points out consultant Dr Geoff Leventhall. They are also more likely to cause vibration in the structure.

Some are fixed to chimneys with short poles but others are mounted on a long pole anchored to the side of the house. These poles can vibrate at their resonant frequency in gusts of wind, he says. The vibration from the pole enters the building's structure and is reradiated, creating an intermittent structure-borne vibration sound.

"Some local authorities that I have spoken to take the view that there is potentially a noise problem with domestic turbines," says environmental health consultant Mike Stigwood. "The answer is that we need more information. The manufacturers do not provide sufficient data for one to make a proper assessment."

This is changing. Independent research is currently under way on behalf of manufacturers such as Windsave – whose units are sold through B&Q – and Quiet Revolution, which makes larger models. In

the meantime, Stigwood plans on gathering comprehensive data himself to learn more about the noise from a locally-sited small commercial unit.

South Norfolk Council is also considering conducting its own tests, says senior environmental health officer Adrian Nicholas. "It's amazing the number of communications between environmental health officers online asking if anyone has found one and taken measurements. It's an issue moving so fast and the information just hasn't come through yet. In many cases when I've seen these small turbines my gut feeling is that noise is not a big issue, but we need to quantify that."

He is particularly concerned about any tonal characteristics of the turbines. "It's got a tonal characteristic – especially a low frequency noise – we want that identified, as it would be much more irritating. And low frequency noise travels further and it travels much better through the building structure." He is also concerned about maintenance, lest noise increases as the unit ages. Noise conditions may be necessary to ensure levels do not increase.

"In the past couple of months there has been increasing interest as they are more widely available," says Nicholas. "One of the issues from our point of view is that there is very little detailed noise information available on these units. Sometimes you will get a single figure – sometimes they will tell you how and where it was measured – but the whole problem of getting enough information to do a detailed noise assessment can be very hard."

South Norfolk is trying to put together a package of information to avoid every individual applicant having to start from scratch.

St Albans District Council has taken a direct approach to gathering information on the effectiveness and impact of green technologies. Various systems have been installed at one of its own houses, including a wind turbine which was fitted in September 2006.

Neighbours do not seem to have had any bad experiences from noise, says asset manager Paola Munns, adding that "admittedly, we are now talking about the autumnal and winter months, so they have not been sitting in their gardens. However we've had several open days where we've taken people round the property and everyone has been surprised at how low the noise emanating from it has been." However, there is a reverberation through the structure in gusts of wind. This creates "a deep throbbing noise" – though as a surveyor, Munns is primarily interested in

any resultant structural damage caused by the reverberation.

British Wind Energy Association launched a briefing document in December covering small wind turbines. "One of the big reasons we wanted to do this was because the products are becoming more easily accessible to the public and thankfully there is massive consumer demand," says BWEA director of operations Chris Tomlinson. "We wanted to make sure that we were managing expectations appropriately."

Not every site has the potential to yield a good return in terms of electricity. Wind speeds are a lot lower in suburban landscapes and closer to the ground.

The first householder in London to install a domestic wind turbine was eco-auditor Donnachadh McCarthy. More than a year later, his experience has been mixed. "My view on domestic wind turbines at the moment is that it's very much at the experimental phase." The electricity produced has been minimal, he says, though he is glad to try the technology as he advises others on renewables.

It took him several years to identify the equipment to use – he chose a turbine by Eclectic Energy, a company with a background in the well-established field of turbines for yachts. Noise was a prime factor in the decision. "Noise-wise, it's been absolutely perfect for my neighbours – no matter how high the wind is, there is no noise whatsoever. The bad news is that there is a slight vibration problem internally."

Rather than feeling the vibration, he hears it. He finds it unpleasant and now turns the system off at night, though the manufacturer is attempting to address the problem.

Bureau Veritas senior consultant Gwyn Mapp has carried out research entitled *An investigation of the potential for noise and vibration issues from micro wind turbines for domestic use*. The study ran between May and November 2006 as part of his studies for an MSc at North East Surrey College of Technology and involved simultaneous noise and vibration measurements of an "off the shelf" micro wind turbine at an urban end-of-terrace house.

One of his conclusions was that the location and installation has as much bearing upon the potential noise and vibration levels as the selection of the model in the first place. The results found that the airborne noise from the rotor and the machinery appeared to be inaudible under all the conditions encountered when measured at the boundary of the nearest



Windsave turbines are claimed to generate up to 1kw

neighbouring dwelling.

However, the vibration imparted into the building structure was greater than 1mm/s (peak particle velocity) under certain conditions when measured at the contact point between the mounting bracket and the wall to which it was attached. This was despite the presence of anti-vibration mounts installed by the manufacturer. There was no evidence of the vibration being perceptible within the building. However, it was felt that the vibration did lead to structure-borne noise being audible indoors.

The source of the vibration was not from the normal operation of the turbine itself, but appeared to be an indirect result of turbulent wind conditions that caused the mounting to vibrate.

There is a lack of national guidance about noise, says Stigwood. In particular, small wind turbines are not covered by the document ETSU-R-97, The assessment and rating of noise from wind farms. He is often approached for advice by local authority officers "My advice to them up to now is to say that they have to be firm about asking for the noise data and – if they are not sure – then to approve it for a limited period – say three years."

One of the newer entrants to the sector is Quiet Revolution. The first commercial installation is due this month [January 2007] in east London, although the final prototype has been spinning since June 2006. The company's first model, the £25,000 qr5 is targeted at situations such as blocks of flats, where there are advantages of height and potentially accelerated air flow over the building.

"We haven't had any enquiries yet about supplying a collection of houses but it would be possible and I'm sure we'll see some of those soon," says Quiet Revolution chief technology officer Richard Cochrane.

The wind turbine was designed from the outset to be suitable for installations on or near buildings. "Ours is a vertical axis turbine rather than a conventional horizontal axis," explains Cochrane. "You get quite different noise characteristics. The key generator of noise on a horizontal axis

turbine is the vorticity shed off the tips. If you think of them as the lever arm of a long straight blade, they are moving quite fast compared to ours. For any given power, we operate at a lower tip speed ratio and a lower tip velocity compared to with a horizontal axis turbine with an equal output."

The level of detail required for planning applications has varied

enormously from council to council, Cochrane has found. "Some require data that we haven't got yet, with measurements in all sorts of different conditions," he says. "Local authorities are certainly still learning how to assess this and it is reflected in the very different responses that we get." Research will generate a package of information.

"We're trying to standardise our response to environmental health officers," says Cochrane. He envisages that there will however always be the need for a section tailored to individual sites, with reference to local conditions and background sound levels.

WSP is currently undertaking an independent noise audit for Quiet Revolution of the qr5 turbine, with results due shortly. The research will produce higher resolution data with a frequency breakdown of the noise from the turbine. "We just had dbA measurements before," says Cochrane. These do not pick up the full characteristics of the noise and the current study will help councils in the assessment of applications, he says.

Windsave says that customer feedback for its units is positive, with the sound often being described as a swishing. When free-spinning – giving the loudest noise potential – there is a recorded LA_{eq} of 33dB measured 5m behind blades in wind gusting to 5m/s. This rises to 52dB at 7m/s.

Providing local authorities with more detailed noise reports for planning purposes is a key issue at present for Windsave, whose turbines are available through B&Q. "That's something that Windsave is entirely focused on at the moment, as a lot of people are finding that they won't get their planning permission until the noise report is complete," says a spokesperson.

NEL is currently carrying out independent testing, with results due shortly. Windsave also sent an information pack out to local authorities just before Christmas, including design, specification and noise details. "It is going to continue to be an issue until the planning permission situation is resolved by central government."

"We've only had a small handful of applications but are anticipating more," says Charnwood Borough Council head of development control Stuart Moffat. He looks forward to the forthcoming data about the Windsave product. "For someone's individual wind turbine proposal it's difficult for the authority to justify the expense of getting an expert comment."

South Staffordshire Council development control officer Matthew Watkiss has first-hand experience of the amount of research involved in assessing noise and other issues in an application. The model in question was larger than is typical for domestic applications – an Iskra AT5-1 5kW. The application was turned down by committee this month. A detailed seven page report to committee had recommended accepting the application, subject to conditions including one relating to noise. This proposed setting a maximum $LA_{eq,15min}$ of 38 dBA at any time, as measured at the facade of any noise sensitive premises in a specified manner.

Before this application came in, Watkiss had encountered domestic pole-mounted wind turbines while on holiday in Scotland. "I was struck by the noise that was coming off some of them," he says. With that in mind, he realised the need for a proper noise assessment when the application was received.

As well as working with the council's environmental health officers, he did his own background research. It was hard to find appropriate information, though he found the BWEA website to be very useful. Further information was requested and the manufacturer supplied details of an earlier installation. "As it turns out, it looks like there probably wouldn't be a problem with noise on this one," he says.

Some things work in favour of small turbines and some against, says Quiet Revolution's Cochrane. "We are looking at sites with generally much higher background sound levels than for conventional turbines, but then we are also looking considerably closer to dwellings and sensitive locations."

Web resources

- www.quietrevolution.co.uk
- www.windsave.com
- www.masenv.co.uk
- www.3acorns.co.uk
- www.bwea.com
- www.bureauveritas.co.uk
- www.stalbans.gov.uk/living/housing/public/eco_house.htm
- www.south-norfolk.gov.uk/planning/2136.asp
- www.charnwood.gov.uk/environment/windturbines.html
- www.sstaffs.gov.uk

Guides, BS's and codes: a maze

Lis Stedman looks at all the myriad of standards, guides and codes aimed at helping practitioners (but in danger of confusing because there are so many!)

At the Institute of Acoustics' October meeting last year Bernard Berry, one of the industry's well-known personalities, provided a much-needed update on progress with the guide to assessment methods for environmental noise, BS9142.

Of course, delays in environmental impact assessment legislation are nothing new – the joint Institute of Environmental Management/Institute of Acoustics guidelines are due soon, having started on their track towards publication over ten years ago (*Noise Bulletin* December 2006).

As author Stephen Turner noted in that news story, noise impact assessment is a complex issue, and not just a black box into which numbers can be put and an answer comes out.

In terms of black boxes, Berry is able at least to reveal what has been going on inside BS 9142. It was due to appear shortly after the conference, though the deadline has slipped and it is still in progress – but then the gestation of this particular guidance has been lengthy. The need for the guide was identified in early 2001, with the consultants' brief and application for

funding in July of the same year. Berry chairs both the BSI's main acoustics committee and the sub-committee responsible for BS 4142 and 9142, and which drafted the outline guidance for the document, so is ideally placed to give an update.

The 2001 consultants' brief, which he played a major part in producing, noted a background system that lacked consistent standards, where there were variations in individual responses, a possible over-reliance on relative noise data, and general confusion and uncertainty about which standards should be applied in particular cases.

In fact, he notes, the genesis of BS 9142 was even earlier – dating back to a revision of the international ISO 1996, which many members of that committee felt should take this sort of framework approach and be rewritten from scratch with that in mind. However, it was a view that was not accepted by the committee chair, and out of that disappointment came the idea for 9142.

The basic aims for this standard, set at the time of its conception, were simple: to

improve the standard of environmental noise assessment in the UK and create transparency in the decision-making process. The overall requirements and constraints are also informative: BS's are not intended to innovate or be experimental, but to reflect current best practice. The idea was to complement BS4142, not replace it, and the guidelines are to be helpful rather than mandatory, encouraging 'informed flexibility' – that is, not a text book. The intention was not to replace professional expertise.

Berry notes that the BS was "misinterpreted in the early days as a guide, which we considered, but moved away from. We felt there was a need for a framework document to link together the various standards and guides and create an overall structure and approach to how environmental noise assessment should be undertaken. The intention was not to impose but to make people doing assessments think about what they are doing. Many take an approach based on their past experience but they need to think objectively about what is required, not just which approach but why".

Such a challenge, of course, was bound to take time. The timeline of the process to date goes somewhat like this: in December 2002, a decision was taken to proceed, and in May the following year the tender process for the writing of the document took place. From June that year, when the contract was awarded to a consortium led by Ken Collins, then of RPS, with Ian Flindell, Nicole Porter and the English Cogger Partnership, there was a 10-month project to take the BS to first draft stage.

Berry perceives a flaw in the process here: 'In the old days no-one worried about who pays for what, but now the BSI/DtI funding only pays for the first draft. The committee can take it from there but it is a big failing in the system – there is a lot more to be done and a need to keep the momentum going.'

Three IoA workshops in late 2003 came next. Berry emphasises the importance of this process: "We had got all these things that people were using, and we were trying to take a step back and look at all the things that were floating around to see if we could categorise them and put them into some kind of sensible structure. I feel we have."

This stage was followed by a committee draft in May 2004, where further modifications took place. Berry notes: "The committee is in the interesting situation where the other members may have bid for the work. The chair has to know this and interpret comments and objections."

Quick guide to what's what in noise paperwork

BS 8233	A code of practice explaining how to insulate buildings to reduce sound, and general noise reduction advice for buildings.	issued 1999
BS 5228	Code of practice that explains how to control noise and vibration on construction sites	1997
BS 9142	Overall framework guide on choosing noise impact assessment methods for projects	2007
BS 4142	Standard explaining how to gauge the level of industrial noise affecting residential areas	1997
IEMA/loA guidelines	Guidelines that cover the principles of environmental impact assessment and noise rating, and how to assess noise impact	"soon"
The Noise Management Guide	Lots of detail on how to create a neighbourhood noise management policy for council EHOs	September 2006
loA pubs and clubs guide	Good practice guide on the control of noise from pubs and clubs	January 2007
DMRB (design manual for roads and bridges)	Highways Agency guidance on noise impacts of roads	1992
PPG 24	Sets out planning policy on noise	September 1994
WHO guidelines for community noise	Sets out what 'rights' residents have on noise	1999
1990 Environmental Protection Act (EPA)	Part III deals with noise as a statutory nuisance defined as "noise emitted from premises so as to be prejudicial to health or a nuisance"	1990
Control of Pollution Act (COPA)	Noise associated with construction and demolition sites. Also covers noise in the street.	1974
NSNA (Noise and Statutory Nuisance Act)	Amends the EPA to include noise from vehicles, machinery or equipment used in the street by industry, trade or businesses as a statutory nuisance.	1993

KEY GUIDELINES AND DOCUMENTS IN MORE DETAIL

With this in mind, it is perhaps not surprising that it took until June 2005 for a draft to appear for public comment. Berry notes: "We are on an almost endless loop of modifications. Public comment can take a couple of years – it is an inherently slow process."

The committee then had a final look at the text, and the completed version was pencilled in for August 2006 but is still awaited, which is perhaps unsurprising given the extended process to this point. Berry says: "We were almost ready to publish but we decided it needed a bit more work. It is not possible to sit round in committee and do this."

Because of this, the document has gone back to one of the original authors, Ian Flindell, to provide the sort of focus and tidying that one person, hopefully, can bring. The BSI is keen for it to be produced, Berry adds. "They know it is financially potentially very useful so they are keen to move on." That there will be a balance struck between the commercial interests and the quality of the document is not in doubt.

So, as it stands, the document is in the hands of Flindell and one of the BSI's professional editors, who will act as a link between the author and the parent organisation and impose the standard BS "look and feel" on it.

However long the process, Berry feels the path taken was the right one. "There were demands to make it much more like a text book, but it would have been such an enormous project that it couldn't be done. A lot relies on the experience of the person running the project. To attempt to extract information for some incoming person is more difficult than it seems. BS 9142 is an attempt at the middle ground. There is a difference between writing something that all can agree on, that is economic to produce, and something which has far too much detail."

BS9142: Framework guidance to help practitioners decide which guidelines they should use when assessing the impact of noise

The existence of so many guidelines, based on a mixture of criteria, has led to inconsistent assessments, decision-making, management and control, and ultimately to disputes. BS 9142 is intended to complement the plethora of other documents. Rather than recommending a particular type of approach, it encourages selection of the most appropriate method or methods, indeed of assessment that depends on the circumstances in which the noise assessment is occurring. Projects are broken down into possible use categories, such as complaints, strategic management and so on.

BS 4142: Standard for assessing the impact of industrial noise on housing

Published in 1990 and revised in 1997, this BS is the one most often used by environmental health officers to determine the degree of nuisance from industrial premises. The source is measured (or predicted) and adjusted for annoying features such as tonality or intermittency. This adjusted level is then compared with the background noise level and a sliding scale from "positively justified complaints" to "positively no justified complaints" is then used.

BS 4142 is the main tool for planning assessments where industrial noise is the key issue.

PPG 24: Government guidance note that tells local authorities how to use planning rules to reduce the effects of noise

This planning and policy guidance note provides advice for local authorities in England on how to use their planning powers to minimise the adverse impact of noise. The PPG outlines the issues that need to be taken into account in determining planning applications from two different perspectives: for noise-sensitive developments and for activities that generate noise. PPG24 is set to become PPS24 and a consultation is due later this year.

The document explains the idea of noise exposure categories for residential development and provides recommendations on appropriate levels for exposure to various noise sources.

It also advises on how to use planning conditions to minimise noise impact. There are six annexes with noise exposure categories for dwellings, explanations of noise levels, detailed guidance on the assessment of noise from different sources, examples of planning conditions, noise limits and advice on insulating buildings to keep out external noise.

One anomaly is that although PPG24 refers to the BS5228 in respect of construction noise, BS5228 Pt. 1 does not specify suitable daytime noise levels from construction.

Environmental Protection Act 1990: Defines what a statutory nuisance is – including noise

Part III of this important and wide-ranging piece of legislation deals with noise as one of a range of statutory nuisances, which the Act was intended to redefine. Specifically, it speaks of 'noise emitted from premises so as to be

prejudicial to health or a nuisance'. It also notes that noise includes vibration.

The EPA 1990 was amended by the Noise and Statutory Nuisance Act to encompass equipment used in the street as a statutory nuisance, a concept that has been widely interpreted to include musical instruments, loudhailers, radios, car alarms or radios, car repairs and the chiller units of parked refrigerated vehicles, among others.

WHO guidelines for community noise: Global guidance on noise, its clinical effects and guideline maximum levels for many different situations

This wide-ranging guidance deals with noise emitted from all sources except noise at industrial workplaces. The main sources listed as road, rail and air traffic; industry, construction and public works, and the neighbourhood. Indoor sources are listed as ventilation systems, office machines, home appliances and neighbours. The guideline prefers LA_{max} as a measure of disturbance to sleep and the A-weighted sound exposure as a more consistent measure of single noise events. $LA_{eq,T}$ is recommended for more-or-less continuous events.

The guidelines provide comprehensive advice and explore the effects of exposure to excessive noise. Chapter four provides guideline (absolute, not relative) values for specific health effects of noise and for specific environments (including schools and hospitals).

CIEH neighbourhood noise management guide

This is seen as the ultimate 'how to' guide for local authorities on how to set up and run a noise management service.

Concerns within government about the very different approaches and provision of noise services among local authorities led to the CIEH and Defra planning to revise the 1997 guidance on how to create and maintain an effective noise management policy and practice.

In reviewing the guide, the opportunity was taken to extend its scope to the wider field of neighbourhood noise, including neighbour noise. The advice encompasses noise produced by neighbours; noise in the street, including from vehicles, machinery and equipment (but excluding noise from traffic and people); noise from pubs, clubs and other recreational or leisure sources; and commercial, local industrial and construction sites.

The guide does not address transportation noise in detail, partly because it will soon be controlled by action plans prepared under the Environmental Noise Directive but mainly because local authorities generally lack powers (other than under the planning system) to deal with transportation noise.

What it does do is go through in considerable detail the various pieces of legislation that affect the EHO's task, and the nuts and bolts of how to create a successful noise management strategy and what is best practice across a range of activities. It lists the various agencies (such as landlords, courts and mineral planning authorities) and their responsibilities, including the relevant legislation, and provides examples of good practice to illustrate each section.

Asbo crazy

ASBOs are much in the news, love 'em or loathe them, they do offer a quick fix in sticky situations.

As well as the usual suspects (jobs and drunks) receiving them, we have reports of local authority environmental health officers using them to plug gaps in their noise powers. So we've heard the likes of Southwark considering the legality of slapping an Asbo on a noisy dog, while Pendle councillors thought about imposing an asbo on a noisy factory.

Could an Asbo help residents living near Devon's singing bridge? We hear that the Shaldon Bridge across the Teign in Devon is nicknamed the 'singing' bridge because of curious wailing at certain wind speeds. It turns out these are protruding pipes that end up behaving as organ pipes.

Wind ups

Are domestic wind turbines set to become the latest 'squarials'?

Small scale turbines are being sold at B&Q for £1500 and have very obvious noise and visual issues. Just as the satellite revolution led to large quantities of satellite dishes (with Squarials

becoming obsolete) on urban housing, so domestic wind turbines could go the same way.

Some say that there is simply not enough wind to produce meaningful amounts of electricity (although enough to cause a noise nuisance). Why not avoid noise problems and splash out £30 and buy a one watt toy turbine from ebay? Enough to light one LED.

Howling mad

Check this out from motorcycle lobby group the Auto Cycle Union. You may recall we quoted the ACU's Dave Luscombe who defended loud bikes on the basis that the noise was part of the "fun".

Motorcycle bodies have in the past described noise complainers as 'obsessive compulsives' – in the light of current heightened religious and racial sensitivities one might very well question the sanity of the ACU based on arguments it makes on its website: "Discrimination, in every sense of the word, is not acceptable today. We strive to cater for every social, ethnic, religious and other minority group within our multicultural society. We build mosques, we have public buildings with prayer

rooms, and we spend thousands on bowling greens and many minority interest activities. And so we should. Yet, here we are discriminating against those who choose to legally buy a mini bike or off road bike. Is this really acceptable today?
Errr – yes!

Deadline blues

It seems Defra is poised to receive a letter for failing to transpose the environmental noise directive on time.

Since the deadline, Defra has transposed the directive, although it remains to be seen quite how it can get the noise mapping and action plans done in time. Things aren't being helped by Defra's moratorium on spending which is holding back some research that might feed into the strategy.

Given that European knuckle-raps start with the Government receiving a warning letter – followed by fines if the UK's response is not satisfactory, things may get interesting.

Like would any fines come out of the noise team's meagre budget? Perhaps they could plead with the Commission to be means tested.

NOISE EVENTS 2007

February 6th

NOR-121AR USER GROUP SESSION

to be held in Glasgow. More details email Joanna@campbell-associates.co.uk

February 21st

BASTIAN TRAINING

to be held in London. More details email Joanna@campbell-associates.co.uk

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 Abingdon (not Reading as in previous entries), NSCA, 01273 878770

March 27th

CADNA USER GROUP SESSION

to be held in London. More details email Joanna@campbell-associates.co.uk

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

April 25th

INTERNATIONAL NOISE AWARENESS DAY

May 21st - May 25th

NOISE ACTION WEEK

Coordinated by NSCA, Mary Stevens 01273 878781

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