

POLICY

RCEP sidelines urban noise

A high profile report on the urban environment says that noise is “outside the thrust” of its study into the urban environment.

The report was produced by the well-respected Royal Commission on Environmental Pollution. RCEP reports are relatively rare – but are influential.

RCEP chair Sir John Lawton said at the launch: “Commissioners are astonished that, on the eve of the new phase of urban regeneration and expansion, we lack an overarching urban environment policy to coordinate the provision of housing, transport, energy and other vital services. Tinkering with any one of these issues in isolation is bound to fail. We can and must do better if we are to meet environmental challenges and improve the health and wellbeing of our citizens.”

One of the Commission’s key recommendations is that a new urban environmental “contract” be established to forge partnerships between local and central government and the private and voluntary sectors. The contract should specify the

‘high level’ urban environmental targets that government regards as essential, while devolving to local authorities the responsibility for defining and prioritising action on environmental problems of local concern.

But on noise it says: “Noise lies outside the main thrust of this report. However, it is a problem for one in three households in the UK and has a major impact on the wellbeing of one in a hundred people. Environmental noise has been shown to have both direct and indirect health effects.”

It notes that there is a “greater incidence of mental health problems in urban settings” and that “studies have reported adverse effects of aircraft and traffic noise on mental health”. It also says city-dwellers are more likely to be exposed to higher levels of noise than the rural population. “This is an issue of great concern to the general public with complaints rising steadily.”

But despite all these assertions about the importance of noise in the urban setting, and an early intention to include

noise in the study, it has been omitted.

NSCA’s Mary Stevens told *NB*: “We are hugely disappointed that the Royal Commission deems noise to be outside the scope of this major report on the urban environment. Once again the one pollutant that impacts on everyone’s quality of life, and health, is being sidelined. This is yet another missed opportunity to integrate noise into joined up policy thinking, and is particularly galling at a time when noise should be rising up the agenda.”

● www.rcep.org.uk



Kenwood stopper

Kenwood concerts have been cancelled with promoter English Heritage claiming that noise restrictions are too tight.

Kenwood House in North West London holds famous outdoor concerts but noise from the stage and from concert goers has in the past led to complaints. Local authority Camden set conditions for future concerts, including noise limits and a reduction from 10 concerts to eight a year. English Heritage says this would mean a loss and cancelled this year’s event.

It added: “The new licence conditions were imposed in response to a very small number of complaints from local people about noise, parking, litter and traffic. The concerts which have been running for 55 years, have given huge pleasure to hundreds of thousands of people. This is a very sad day for Kenwood. We are firmly committed to exploring a range of options in the hope that we can bring concerts back to Kenwood in 2008.”

Multiple noises

A consortium assembled by Addiscombe Environmental Consultants Ltd, comprising Ken Collins of KC Environmental, Bernard Berry of BEL, Nicole Porter, and Ian Flindell of IHF Associates have been awarded a research contract by Defra on the effects of noise from more than one source.

The objectives of this Defra project are:

- To investigate the technical issues involved in the interpretation of consolidated noise source maps, and
- To develop guidance for those responsible for developing action plans on how to interpret the consolidated noise maps.

The project is due for completion in May 2007.

● Ken Collins, KC Environmental tel 01273 778945

NUISANCE

Wind turbine rejected on appeal

A planning application for a wind turbine in a domestic garden in Aylesbury Vale has been turned down on appeal.

Householder David Green wanted to put a 6m tall 1.5m diameter turbine in his garden but the council refused planning permission.

Planners relied on advice from Aylesbury Vale’s environmental health department which said: “The wind turbine would be the most obvious source of noise apparent to anybody using the neighbouring gardens and the noise would probably constitute an actionable

nuisance.” Environmental health officers added that night time noise would probably disturb neighbours at night if they had their windows open.

On appeal, the inspector agreed that residential amenity – especially noise and to a lesser extent visual impact – were the single main issue.

The inspector accepted that the turbine would probably not disturb neighbours at night, and could be conditioned accordingly as it was 42m distant from the houses. But he was certain that neighbours would be disturbed in their

gardens: “Given the relatively short distances involved, I am unclear as to whether the proposed turbine would be capable of meeting a condition that would adequately safeguard the amenity of those using these rear garden areas.”

He added that in higher speed wind conditions background noise would mask the turbine, but in quieter conditions, the turbine would probably be audible. The householder said the noise would be less than 5dBA above background.

● Planning appeal number AP/J0405/A/06/2016613/NWF

CONTENTS

IN BRIEF

Hounslow wants data

The London Borough of Hounslow has approved its first domestic micro-wind turbine subject to a noise report.

The manufacturer has been contacted to provide a formal noise report, which is not yet complete. Hounslow says that until this is received "it is not possible to state with certainty that the turbine will not cause a noise nuisance. However, based on the information supplied, it is unlikely to."

The council believes this is the first time Windsave will have produced a noise report for planning purposes.

Wind debate

The Institute of Acoustics is organising a one day conference on wind turbine noise.

The debate will be held in Swaffham, Norfolk on 20th March. Talks will include:

- Turbine noise modelling;
- Use of different models;
- Possible review of turbine noise limits;
- Results from last year's low frequency noise study;
- Noise from domestic micro wind turbines;
- Cumulative impact assessment;
- An opportunity to view and ascend a working turbine.

IoA's meetings can be viewed on www.ioa.org.uk

Turbine tests

Researchers are mounting two wind turbines on top of a block of Southwark flats in a bid to find out about their noise disturbance potential.

The two proposed wind turbines will be mounted on the flat roof – the blade of the horizontal axis turbine would have a diameter of 5.57m, and that of the vertical axis turbine 5m.

The two wind turbines are being installed as part of a trial conducted by Southwark Council in collaboration with London South Bank University and their impact will be monitored over a period of 12 to 18 months. It is anticipated that at the end of the trial period the two wind turbines and associated monitoring equipment will be moved elsewhere.

NUISANCE LAW

Courts allowed to ignore EHOs

A judgement has confirmed that courts are entitled *not* to follow the views of professional council officers when deciding whether noise amounts to a statutory nuisance.

Noise complaints were reported to the London Borough of Hackney by a neighbour of a religious school and synagogue in Stamford Hill. EHOs visited and witnessed noise and agreed it was a statutory nuisance.

Consequently, an abatement notice was served on Rabbi Moshe Rottenberg requiring him to "to immediately cease shouting, chanting and jumping on internal floors to the property so as not to cause a nuisance to the occupiers of neighbouring properties".

Faber Maunsell's Dani Fiumicelli picked up the story: "Further complaints were made, more nuisance's witnessed and the council prosecuted the

Rabbi in the Magistrates Court, citing six occasions when it was alleged that without reasonable excuse, he had failed to comply with the abatement notice. The Rabbi appealed in the Crown Court saying his prosecution was a disproportionate interference with his right to freedom of religion under human rights laws."

The Crown Court rejected the evidence of Hackney's EHO's and found that the noise in question had arisen out of the property's permitted use as a synagogue. It said that the noise did not occur frequently enough to be a nuisance and described the impact of the noise as a "mere irritation" and not a statutory nuisance.

Hackney appealed to the High Court, arguing its officers were professional, experienced and independent – but the High Court confirmed that a court is

not obliged to accept the evidence of a witness.

Fiumicelli added: "In this case, the fact that the noise was created infrequently for short periods in the course of religious worship in premises that had planning permission for that use was inevitably a relevant consideration both in relation to whether a nuisance existed and whether there was a reasonable excuse.

"It is a long established principle that the courts are free to make up their own minds. Indeed for it to be otherwise raises the question of what's the point in having Courts." He added that the court confirmed that had the services been a nuisance, the council was not breaching human rights by abating the nuisance.

- London Borough of Hackney Vs Moshe Rottenberg [2007] All ER (D) 174 (Jan)

NUISANCE LAW

Westminster wins street noise case

Westminster City Council has won arguments in court that it had powers to control noise from a shop window.

Westminster had prosecuted a shopkeeper under an offence of using a loudspeaker for advertising purposes (Control of Pollution Act 1974). As the loudspeakers were mounted inside the glass, the shopkeeper claimed there was no offence, and a lower judge agreed.

However Westminster won on appeal. Napier University's Frank McManus commented: "Once it had been established that the window pane itself had been functioning as a loudspeaker, or as part of one, its outer face had been in Regent Street even if its inner face had been in the shop. At common law there was a presumption that a highway which was bounded by fences

or hedges extended right up to the fence or the hedge. The same was true of a highway which was bounded by buildings. The highway was presumed to extend to the face of the building. The outer face of the building therefore formed part of the street."

- Westminster City Council v French Connection Retail Ltd [2005] Env LR 42. (Queens Bench Division).

NUISANCE LAW

Serve abatement notice first, Newcastle told

Newcastle City Council has lost a High Court case and been told it should have first served an abatement notice on a farmer causing a nuisance.

The council felt that an abatement notice would be ignored by a farmer perpetuating a nuisance so instead applied directly to the High Court for an injunction. But the High Court judge ruled that an abatement notice was needed first.

Abatement notices are served under the 1990 Environmental Protection Act, this act also allows local authorities to take

proceedings in the High Court if they believe an abatement notice would not be an adequate remedy. However the High Court appeal judge still believed that the High Court was a last resort.

Nuisance law expert Frank McManus of Napier University comments: "This is an important judgement. The Court held that a local authority must invoke the statutory abatement procedure no matter how futile such action may appear.

"However, I am of the view that the decision is wrong. S81(5) is quite clear. On certain

occasions, the service of abatement notices would be quite useless. An authority has wide discretion, subject to reasonableness, whether to avail itself of, for example an injunction or interdict. If it was necessary that a local authority had to serve an abatement notice before enlisting the aid of the High Court (a requirement which is of fundamental importance) Parliament would have so stipulated."

- The Barns (NE) Ltd v Newcastle Upon Tyne CC [2006] Env LR 25 (Court of Appeal, Civ. Div.)

PUBLICITY

Councils prepare for action

Local authorities across the UK are making plans for this year's Noise Action Week. Many local authorities set up eye-catching media-friendly noise activities for the period.

NSCA coordinates the week – this year, without Defra funding. Two authorities have already decided what they are doing for 2007:

- West Dunbartonshire Council will be running its *Wish You Were Here?* postcard competition – schools are

invited to design a postcard highlighting really good or really bad examples of noise in neighbourhoods.

- South Gloucestershire Council is setting up Operation Torque with Avon and Somerset Police and the Vehicle Operator Service Agency (VOSA) – tackling noisy mopeds and scooters.

NSCA said: "This year's Noise Action Week will take place on 21-25 May and will provide the perfect opportunity

to raise awareness of noise issues, particularly in this eventful year for noise policy developments." (see below). It has also produced new support materials including a 'how to' guide. NSCA urges participants to let it know what is going on about the country and reminds participants that many activities would be suitable for entry into the Institute of Acoustics 'promoting acoustics to the public' award scheme.

- www.noiseactionweek.org.uk

2007: NSCA OUTLINES BUSY YEAR FOR UK NOISE POLICY

Early 2007 <small>(England)</small>	PPS24 – Planning Policy Statement on Noise – Consultation expected	Revision of PPG 24: Planning Policy Guidance on noise
March 2007 <small>(England)</small>	Noise Act Offence for licensed premises – sec. 84, schedule 1 of the Clean Neighbourhoods and Environment Act 2005 come into force	Awaiting expiry of standstill period under the Technical Standards and Regulations Directive 98/34/EC
March 2007 <small>(Wales)</small>	Implementation of noise measures under Clean Neighbourhoods and Environment Act 2005	Alarms and deferral notices
Spring <small>(England)</small>	Noise Action Plan Guidelines - Consultation	Guidance promised to give local authorities time to prepare for July 2008
31 March	Non designated major airports to submit first strategic noise map	
30 June	First round of noise mapping to be complete	For agglomerations over 250,000 population, major roads, railways and airports
Summer	Noise Strategy England Consultation	Covering all noise sources
Summer	Noise Action Planning Guidelines	
30 Sept	Designation of Quiet Areas under END	
By end 2007	Noise Strategy England Published	
By end 2007	PPS24 Published	

TRAFFIC NOISE

Solar noise barriers “not cost effective”

Combined noise barrier and solar panels are unlikely to be cost effective.

Two 54m long photovoltaic solar barriers were mounted on the verge of the M27 motorway near Southampton, one at the

toe and one at the top of the embankment.

6.4MWh of electricity in each of two years of service were exported to the grid. Based on this, installation costs were far greater than energy

generated over their 30 year projected life. Even taking into account the value of the noise barrier effect, electricity prices would have to rise by a factor of at least six before the barriers became cost effective.

Barriers might be useful if electricity was needed for roadside equipment and there was no local supply.

Noise levels on the opposite side of the motorway to the barrier were found to have risen by 0.3dBA as the panels are more reflective. This was not expected to increase disturbance.

- *M27 trial of highway noise barriers as solar energy generators*, TRL report PPR178, D Carder and K Barker is available from Janet Brown, TRL Publications Unit tel 01344 770297



Solar panels and acoustic barriers: TRL suggests not cost effective

IN BRIEF

RAC wants quiet roads

The RAC Foundation has teamed up with noise campaigners to call on the Government to reinstate funding for its programme to resurface concrete roads for noise prevention reasons.

The call is timed to coincide with a Ten Minute Rule Bill on rural tranquillity.

In 2000, the Government published a Ten Year Plan for transport, promising to resurface 60% of the road network with quieter materials. But two years ago, it emerged that the programme had been abandoned.

The RAC Foundation, together with the UK Noise Association and the CPRE, is calling on the Government to use the debate on the Ten Minute Rule Bill to announce the reinstatement of funding for the programme to resurface all concrete trunk roads by 2011. The RAC said: "Reinstating funding for the strategic programme to resurface our trunk roads with quieter materials by 2011 would be a simple, popular and relatively inexpensive way to cut traffic noise."

Persistent complainers

The Information Commissioner has struck another blow to persistent complainers in a new ruling. The news comes a month after the Local Authority Ombudsman issued guidance on how to deal with persistent complainers (*NB Jan/Feb p2*).

The latest ruling from the Information Commissioner was based on West Midlands public transport authority Centro which had had 13 requests for information from one complainant but refused to answer further questions.

The Commissioner said: "The Commissioner is satisfied that replying to the complainant's last request would have imposed a significant and unreasonable burden on Centro. He has also concluded that the 15th request was tantamount to harassing the public authority and that it was manifestly unreasonable."

- www.ico.gov.uk

IN BRIEF

MVA win at Heathrow

BAA has commissioned MVA Consultancy to design, build, implement, and support a system to manage BAA Heathrow's community noise, blight, and vortex schemes. The key aim of the system is to improve BAA's efficiency in dealing with enquiries from members of the public.

In response to the 2003 Aviation White Paper, BAA Heathrow launched four new schemes, two designed to mitigate current noise impact on residents around the airport, and a further two to mitigate noise and blight impact on residents, should planning permission for the third runway be granted.

For over 10 years, BAA has been running two community noise and vortex schemes at their UK airports. The schemes assess the impact of the airport's operations on the local community and use systems developed by MVA in the mid 1990s.

MVA is developing a new single and integrated solution to manage the BAA community schemes. The system includes management of noise contours using GIS, document management system and telephone enquiry facilities.

● www.mvaconsultancy.com

Belgians win order

Belgian air protesters have won a court battle against local authorities.

Bruxelles Air Libre won a court case against the Belgian State and airport authorities for infringements of local noise standards.

Protesters took the authorities to court claiming they were failing to enforce penalties for noise infringements. Authorities had been reluctant to collect the fines for political reasons.

If the fines are not collected, in three months time, protesters will be eligible to collect 5,000 euros per infringement. At the current rate, that translates to 1 million euros a year.

Protesters say they have no wish to close the airport, rather direct noisy traffic in a different direction.

AVIATION

Warnings on Heathrow routes

The new council 2M grouping fighting the expansion of Heathrow says large areas of north and west London will suffer increased aircraft noise if the third Heathrow runway goes ahead.

The 2M group has published two maps of new flightpaths which it claims shows where new disturbance will be experienced due to the new runway. Aircraft approaching the third runway are likely to use a number of paths over north London before beginning their final descent over Kensington, Chelsea and Hammersmith.

To the west of the airport the South Bucks towns of Burnham, Farnham Common and Stoke Poges could also see an increase in noise. It added: "The maps show just how few



Routes marked in yellow will cause new disturbance, claims 2M

parts of the capital will be able to escape the effects of a new runway. In west London where all the flightpaths come together the consequences could be devastating. The Government has not thought through the environmental consequences of allowing unrestrained growth at

Heathrow.

Wandsworth Council added "The loss of runway alternation would be felt particularly keenly in south and west London. If the Government gets its way there will be no respite during the day."

Heathrow's capacity is capped at 480,000 movements a year. The limit was imposed as part of the Terminal Five planning permission. Ending runway alternation could take this figure up to 515,000 – rising to 650,000 if a third runway were approved.

If both runway alternation were ended and a third runway built, the figure would top 700,000.

● 2M (referring to two million residents) website is on www.wandsworth.gov.uk/Home/MyWandsworth/Newsextra/pr1.htm

HEATHROW NOISE SURCHARGES

The number of airlines fined for noise infringements has been revealed in Parliament.

Airlines who infringe noise limits (which are for departures only) are surcharged by BAA Heathrow, in the form of a 'noise supplement'. Surcharges over the last five years are:

	Number by night	Number by day	Total	Total fines (£)
2001-02	233	139	372	191,500
2002-03	201	77	278	182,500
2003-04	113	82	195	112,500
2004-05	117	15	132	73,500
2005-06	168	42	210	120,000

AVIATION

First shot fired in anti Heathrow battle

As promised, protesters against the further expansion of Heathrow have started direct action to resist the expansion by disrupting a meeting.

West London residents and action group Plane Stupid "stormed" the stage at an aviation industry conference at Chatham House and disrupted an address being made by the transport minister, Douglas Alexander.

Some unfurled a banner reading, "No third runway" while other residents with banners demonstrated outside the conference centre. Local resident Dr John Hunt from Hounslow who went head-to-head with Alexander on the stage, said, "For decades the government has betrayed us



Protesters had warned they would be using direct action

with a catalogue of broken promises. In the 80s we were told Terminal 4 would be the last expansion, then in the 90s we were told Terminal 5 would be the end. Now we're facing yet more noise and more

concrete, and this time they want to wipe our entire community off the map. The time for gentle persuasion is over. Douglas Alexander is warned: the fight back has begun."

NUISANCE COMPLAINTS

'Noisiest city' report annoys

A report ranking cities has concluded that Newcastle upon Tyne is the noisiest urban area in the UK.

The report – produced for hearing aid firm Widex by respected UCL professor of audiology Deepak Prasher – was based on measurements taken with a B&K2260 system. L_{Aeq} measurements were taken in the morning and evening rush hours with 10-20 minutes of readings taken at two or three locations in the 41 cities.

Prasher said in his report: "Some surprising results in the survey were identified. Some small towns showed higher

levels of noise than expected such as Darlington, Doncaster and Gillingham appearing in the top 10 noisiest places. The Tyne Bridge in Newcastle-upon-Tyne was the number one noise spot exceeding the first action level of the noise at work regulations with levels exceeding 80dB L_{Aeq} . Torquay was the quietest with a level of just over 60dB."

The report annoyed the likes of Newcastle and professionals. One consultant told *NB*: "A difference of 0.1dB between, say Brighton and Carlisle, in measurements of noise exposure as simplistic and rudimentary as these, is not in any way

significant given a typical measurement uncertainty of about 1dB.

"Of course there is also the fact that nobody would notice, in a subjective way, a difference of less than 3dB, but even then, I would not be convinced that Newcastle [80.4] was noisier than Manchester [77.3].

"More simplistically, you could consider an analogy with someone using a thermometer, accurate to 1 degree C, saying that London was warmer than Newcastle by 0.1 degree."

The report is not on Widex's website and the firm was unavailable for comment.

RANKINGS OF 'NOISIEST' UK CITIES

Rank	Location	dB	14	Bournemouth	76	=27	Lincoln	72.4
1 st	Newcastle	80.4	15	Norwich	75.9	29	Bury St.Edmunds	72.3
2	Birmingham	79.1	=16	Bristol	75.8	30	Ipswich	71.9
3	London	78.5	=16	Blackpool	75.8	31	York	71.5
=4	Darlington	78.3	18	Croydon	75.5	32	Eastbourne	70.8
=4	Doncaster	78.3	19	Swindon	75.2	33	Oxford	70.7
=6	Gillingham	77.8	20	Exeter	74.6	34	Chelmsford	70.3
=6	Leeds	77.8	21	Coventry	74.5	=35	Reading	69.8
=8	Leicester	77.5	22	Brighton	74.3	=35	Cambridge	69.8
=8	Liverpool	77.5	23	Carlisle	74.2	37	Colchester	68.1
10	Stoke	77.4	24	Sunderland	73.8	38	Folkestone	66.8
11	Manchester	77.3	25	Plymouth	73.6	39	Scunthorpe	66.4
12	Sheffield	76.3	26	Southampton	72.5	40	Paignton	65.7
13	Nottingham	76.2	=27	Cheltenham	72.4	41	Torquay	60.2

RESEARCH

Quiet areas and vibration reports released

Defra has released two research reports.

One was TRL's study into quiet areas setting out possible ways that tranquil areas could be identified (*Noise Bulletin December 2006 p1*).

A second looks at a methodology for assessing a method by which human exposure to vibration in

residential environments can be assessed. Arup Acoustics and Temple worked together to develop a measurement protocol that would enable the exposure to vibration to be quantified. It also set out a questionnaire to solicit residents' reaction to vibration within their homes caused by sources outside their property. This was then pilot

tested.

● *Research into quiet areas: recommendations for identification*, TRL report PPR158 and *Research into human response to vibration in residential environments (NO01106)* can be viewed on Defra's science pages www2.defra.gov.uk/research/project_data/Default.asp

AVIATION

Slight growth in noise contours for 2005

DfT has released its yearly review of noise contours at the three main London airports.

The average daily aircraft movement rate during the 2005 study period for Heathrow was 1.1% lower than in 2004. However while the 57dBA L_{eq} daytime noise contour shrank by 0.2%, the population within this contour grew by 5%.

This overall 5% rise

comprised a one third cut in those exposed to high (>72dBA) noise levels, and a 6% rise in those exposed to more than 57dBA. The report notes that the sharp rate of decline in the contour area seen in the late 1980s and early 1990s has diminished.

At Gatwick, traffic in 2005 was up 3.2% on 2004. The total area within the 57dBA contour

rose by 2.7% and the population within this contour rose by 4.4%. The area has been increasing every year since 2002.

At Stansted, traffic increased by just 0.8%, the total 57dBA area decreased by 8.4% and the population decreased by 31%.

● www.dft.gov.uk/pgt/aviation/environmentalissues/nec/secnoise05/

IN BRIEF

Tyre directive delay

European transport and environment lobby group T&E is getting increasingly concerned at the failure of the Commission to produce a promised directive on noise from car tyres.

The directive, which is the responsibility of the enterprise directorate, should have been published last summer, but has been delayed on several occasions. Enterprise officials are now refusing to confirm when it will be published, saying there are matters of greater priority in its workload.

T&E said: "This is hardly a low-priority issue for people living near roads who have to deal with high noise levels, much of which could be greatly reduced by a better interface between the surface and tyres. Noise is a serious issue for many people, but help is available through quieter tyres – a helping hand from the Commission would be of great assistance. This cannot be acceptable."

● www.transportenvironment.org

Noise workshop talks

NSCA has released its final line up of speakers for its popular spring noise workshop to be held in Didcot later this month (15th & 16th March). Topics to be covered include:

- Noise action planning;
- Noise and licensing;
- Quiet areas;
- Micro wind generation;
- Mediation in disputes.

The workshop is sponsored by Defra and Arup.

Pipe down again

A ten minute Bill has been introduced into the House of Lords aiming to prohibit piped music and the showing of television programmes in the public areas of hospitals.

The first reading took place in January with the second reading scheduled for April. This is his second attempt to get a Bill passed to curb the playing of piped music. The UK Noise Association and member organisation Pipedown, are supporting Lord Beaumont's Bill.

How and when to use the WHO

The World Health Organisation (WHO) noise guidelines are highly influential but their application often leads to disagreements. Lisa Russell reports.

Consultants and local authorities alike have examples of situations where they feel the other party has misinterpreted the World Health Organisation's Guidelines for community noise.

Sometimes the claim is that they are being applied so rigorously that worthwhile developments are scuppered; the alternative argument is that they are being twisted to force through schemes that should never be allowed.

Community noise is dominated by transportation. Road traffic noise in particular affects a lot of people, while aircraft noise causes high levels of annoyance for those on the flight path. World Health Organisation (WHO) noise guideline values were first published in 1980 in Environmental health criteria 12.

The current guidelines were finalised in 1999 and are based on a 1995 document prepared for WHO by Stockholm University and the Karolinska Institutet. In turn, the guidelines influence key documents, including BS8233 *Sound insulation and noise reduction for buildings – Code of practice* and PPG24 *Planning and noise*. Values from both the 1980 and 1989 documents are also often cited directly in relation to individual cases.

England's PPG24 and Scotland's PAN56 makes direct reference to WHO, while BS 8233 presents guidelines for recommended noise levels in various circumstances and sets "reasonable" standards the same as the 1980 WHO levels and "good" as the 1999 ones. The values are commonly used by local authorities in setting their targets, says Faber Maunsell's Dani Fiumicelli, with a trend for more local authorities to adopt the "good" levels.

The value in the 1999 guidelines is specified as 30dB LA_{eq} for continuous noise for an eight hour time period "if negative effects on sleep are to be avoided". In 1980, a value of 35dB LA_{eq} was given for bedrooms and this was aimed at avoiding "interference with the restorative process of sleep" by continuous noise.

The 1999 guidelines also give an additional LA_{max} guideline of 45dB to cater for the situation where there are individual noise events. Different external values are also given in the two documents.

The 1980 statement was that "daytime noise levels of less than 50dB LA_{eq} cause little or no serious annoyance in the community". The 1999 document says that "the threshold of annoyance for steady-state, continuous noise is around 50dB

LA_{eq}. Few people are seriously annoyed during the day time at noise levels below around 55dB LA_{eq}."

"WHO guidelines are often 'misinterpreted' but it is completely understandable that people do misinterpret them," says Ian Flindell of the University of Southampton. "It works both ways. Noise problems do not suddenly cut-off below 55 or 50dB LA_{eq} and neither are there necessarily any problems at higher sound levels. This is because whether there is a problem or not always depends on many other factors additional to sound levels and in some cases sound level can be almost completely irrelevant.

"The most common misuse of the WHO guideline values is to apply them to source-specific noise immissions, for example, road-traffic noise exposure alone," said Professor Birgitta Berglund of Stockholm University and the Karolinska Institutet in paper last year to the Institute of Acoustics. In the paper Berglund stressed that guideline values refer to the immissions from all noises, background noise inclusive.

"There is a serious problem of people taking the guidelines out of context," says MAS Environmental environmental health consultant Mike Stigwood. "They only really apply to overall general environmental noise that is cumulative and relatively steady." BS8233, which uses the WHO numbers, is very careful to include a number of caveats, he points out. "The WHO guidelines do provide a general principle that above those levels you are going to have an increase in adverse effects in the population," he says.

Berry Environmental director Bernard Berry recalls a noise level that was included as an example in the first British Standard on construction noise. "Because that was the only number in there, everyone who wrote anything in their own codes or requirements said 'let's use that number'."

The WHO situation is very similar, he believes. "You can understand why. Not many people have the time to work out what it really means or how it relates to anything else that's around." He sees this in major developments worldwide, such as airport runway planning, where he finds that "either side in a case is bound to jump on it for one reason or another.

People feel the need to go to something that is global and international". Like any document, it can be read in a number of ways, he says. People who know the guidelines thoroughly will argue over the

minutiae. "There is also the other level of use of people latching on to it for want of anything else."

The WHO guidelines identify adverse health effects arising from community noise which people might be subjected to in specific environments and at specific times. "The rationale for this is that the same exposure of community noise will not affect a person the same in all types of environments," explained Berglund in the IoA paper.

Bedrooms for instance need to be quiet enough to allow sleep. The guidelines identify 14 different community noise environments, such as outdoor living areas, bedrooms in dwellings, hospitals inside ward rooms and outdoor playgrounds at schools. They also identify both direct risks – including annoyance, sleep disturbance and impaired performance – and indirect risks, including hearing impairment, cardiovascular and stress effects.

WHO guidelines are very important in planning terms as they help to underpin PPG24, and are part of the toolkit used in assessment for planning purposes, says Temple Group's Colin Cobbing. "If you do go beyond the guideline values then it is clear that you will begin to get serious effects, and then it's a question of degree in terms of how acceptable or unacceptable a situation is."

The test for nuisance is not the same as the WHO guidelines, emphasises Stigwood. The guidelines talk about nuisance in the community sense, rather than interfering with the use and enjoyment of property. The character of the noise and the area are very important.

He refers to a case that is shortly due to come before the High Court, following a Crown Court judgement in 2005. It concerns complaints against noise from the Alton Towers theme park. "The argument was put on behalf of Alton Towers that it cannot be a nuisance because the levels were below the WHO guideline values," says Stigwood. "We said that a noise can be so low as to be virtually unmeasurable and still be a nuisance. Effectively, the court sided with us."

Local authorities often put forward the argument that a new development must meet WHO levels, says Hamilton & McGregor partner Dr Bernadette McKell.

The noise level in the area may however already be exceeded. "Sometimes what they are asking for is not practicable," she says. "I sometimes wonder whether local

authorities fully appreciate the precautionary nature of the WHO guideline values – that’s all they are, guidelines. Local authorities don’t necessarily take into account the noise level in the area that the development is going into.”

In particular, existing houses may already be exposed to higher levels, she points out.

Ealing Council sets its own design criteria: 50dB LA_{eq 1hr} for gardens; 35dB LA_{eq 1hr} for living rooms (which is half way between BS 8233’s “good” and “reasonable”); and 30dB LA_{eq 1hr} and 45dB LA_{max 1hr} for bedrooms. This guidance is not over-strict in the context of the other advice available, feels Cyril Pennington, a senior environmental health officer with a specialist role in noise and nuisance in relation to planning.

The use of a one hour time period goes beyond WHO’s use of eight or 16 hours. The reason for adopting one hour is to build a safety factor into the calculations, explains Pennington. The intention is that, in practice, 16 hour and eight hour values will be achieved. “We come across many inaccuracies in practice with theoretical calculations,” he says.

Stigwood finds that local authorities are facing considerable pressure from developers who are saying that the authority cannot object if the levels are below the WHO guidelines.

“The guidelines can be used by consultants to meet their own ends,” says South Northamptonshire environmental protection officer John Penny. He recalls a case involving a grain drying unit where WHO values would be inappropriate.

A consultant was trying to get the development to go ahead, using arguments and a report based on assessment against the WHO guidelines. “I was saying that it needed to be tested in accordance with BS 4142.”

Some local authorities do not have the expertise or resources to push noise issues, Pennington adds. Developers are using guidelines and ambiguity to their own ends, he says. “This may sound cynical, but developers are in it for the money and not the good of the new residents,” he says.

Newham wouldn’t prohibit building on noisy NEC category D sites, says lead environmental health officer Robin Whitehouse, but it would require a noise report prior to construction to show that a reasonable development could be made there.

Whitehouse points out that insulation has improved since the C and D bands were

defined. People would be asked to produce “good” under BS8223, but the policy is flexible. As a fallback, they would certainly have to achieve reasonable, he says.

Parts of the borough near London City Airport could have an L_{max} problem using the criteria, perhaps failing to meet the “good” standard in BS8233 because of one or two early flights. “We adopt a flexible approach and will look at the whole development. There may be a situation where two or three buildings out of a whole development might just fail to meet ‘good’.” In a large development, at least some of the amenity areas should meet the standard, says Whitehouse, and some of the noisier spaces might have other attractions, such as good views of the airport runway.

A rigid and inflexible application of the

“There is a serious problem of people taking the guidelines out of context”
Mike Stigwood, MAS

WHO guidelines can present significant problems in achieving the objectives of sustainable residential re-development of brownfield land, believes Fiumicelli. He and colleague Nigel Triner presented a paper to the Institute of Acoustics, exploring whether the guidelines were a help or hindrance to sustainable development.

Noise is an inevitable consequence of a thriving and flourishing economy, they said. “It should be possible to permit some noise-sensitive development on a case by case judgment of the merits of each proposal, provided the final noise conditions are controlled so that significant negative impacts are unlikely.”

Fiumicelli refers to a case concerning planning permission for a site categorised as NEC D under PPG 24. Noise issues were to the fore though planning permission was eventually refused on appeal on other grounds. The inspector’s report did however discuss the noise issues. Some external noise levels would have exceeded the 50dB LA_{eq 1hr} set by the local authority’s policy, but the inspector felt there would be some justification in considering instead the higher figures from PPG24.

Internally, no habitable rooms or windows would overlook the busy dual carriageway and the inspector felt that acceptable levels could be obtained with windows closed at night. The development would also have reduced the noise for some existing residents, by providing screening.

Ealing’s Pennington regrets that there has been a focus in meetings and seminars about local authorities being wrong in setting what they feel are rightful and good standards for their residents. There has, he says, been very little talk, if any, about the known inaccuracy of calculations and models and how to put this right.

“There is widescale abuse of objective noise rating procedures,” believes Cobbing – and this is not restricted to WHO. Cobbing encounters situations where objective procedures are used far too slavishly. “A lot of noise consultants think that you can only make objective judgements about noise nuisance if you use objective criteria, more often to the exclusion of all of the other tools which are available.”

“People get so absorbed in the maths, the readings and the technology that they often lose sight of what they are trying to do, which is to use numbers to represent the noise in as accurate and objective a manner as possible,” is the personal view of Telford & Wrekin Council environmental health team manager Tony Higgins. A number or series of numbers will not necessarily describe the nature of the noise or where the readings were taken and arguments often start because the numbers can be interpreted a hundred different ways, he believes. He is also concerned by an increasing use of predictive noise modelling programs, which produce results that cannot readily be checked. “A potentially disastrous noise problem can appear on paper to be acceptable because of an inconsistent use of a model. Conversely, developments that should go ahead may be quashed.”

“I wish somebody would do a sting-type operation on some noise consultants to see what they are prepared to say on their clients’ behalf,” says Stigwood.

Some spurious results are permitting developments to go ahead. “A lot of local authorities simply don’t have the expertise and only spend limited time on noise.” They will permit a development when presented with a noise impact assessment that says it is acceptable. “It’s only after it’s developed that the EHO ends up having to pick up the pieces.”

Pro -bono aid Sanctum style

Questioning the decisions of authorities and the courts can be a minefield – Sanctum provides an interesting way through, finds Lis Stedman

Environmental Health Officers sometimes have a hard time of it, what with ear-bendings from angry council taxpayers who don't understand what they do. But when an informed ex-council environmental health officer is also on the case, who does understand very well and is able to chase and question judgements, defending internal decisions becomes something of a challenge.

The archetypal man on the Clapham omnibus might say, and why not? Answering that question is environmental health consultancy Sanctum, which has been providing low-cost advice and has now gone further, with a pro bono service to help ordinary people suffering from noise problems who can't afford the cost of professional help. It all sounds too good to be true – surely there must be a catch?

Sanctum environmental health professional Nargis Kayani says otherwise. The company undertakes the whole range of environmental health work, from immigration and housing to food safety, licensing and health and safety as well as noise, she explains. Clients vary in size from big corporations to individuals, and the acoustic side of the business covers the whole range of issues.

Increasingly, she says, the company was finding private individuals or small businesses such as cafés were coming to them with problems, but didn't have the funds to pay the sort of fees a big acoustic consultancy would normally charge. "There was a need, so we first developed a Section 82 advice pack for people wanting to take their own action under the Environment Protection Act."

Some council websites offer do-it-yourself advice, but Kayani counters bluntly: "Council websites can be hopeless. They cover it in a couple of paragraphs and make it sound far too simple. It is, but they don't explain the nitty-gritty questions – no one says that Section 82 is subject to criminal procedure rules, that the client is acting in place of the Crown Prosecutor and has got to prove their case beyond reasonable doubt, that the defendant does not have to present their case until the day, the papers have got to be served on the right person ... there are a million things."

More important than the advice pack is the half hour of advice that comes with it, Kayani says. "It's a session in which we talk people through it. We are committed to it – if it takes longer, two to three hours, it's not a problem. We're there to help people."

What the consultancy then found was that people needed them to go further, and actively help by, for instance, writing letters. "We were finding more of a need for

basic practical advice and from that came Noisedirect, a basic, practical advice line."

This, she says, deals with cases such as businesses needing planning permission that have to find out basic preliminary details – if, for instance, they need airborne or impact noise assessment studies undertaken. "We don't mind if people ask silly questions – they need to know. They need somewhere to go to get an answer." From the point of view of a cynical outsider, altruism never put food on anyone's table. Can the firm make a profit?

The answer seems to be yes. Noisedirect provides half an hour of advice for a very reasonable £36, inclusive of VAT. Nargis points out that noise law is a very complex area, which means the service is needed. "I know one solicitor that has done a number of cases but ringing round, I have yet to find another solicitor that can give practical, technical and legal advice. Few know how the Noise Act works, how the council should be investigating, what the Defra guidelines are – how the system actually works."

This service has been running for 18 months, and, Kayani explains wryly: "It's one of those things that takes on a life of its own. We found there are people that simply can't afford the £36 – the elderly, those in social housing, the vulnerable. When you have got someone crying hysterically, who has a three-month old baby, their husband has walked out, you have to have a heart of stone to say 'go away, you don't have £36'. But paint Sanctum (or Kayani herself) as saints, and they'd clearly be uncomfortable. The ability to access the pro bono service, Kayani explains, does not have hard and fast criteria. "We have people who are working and have equity in their house, but something in their circumstances means they can't pay £36. We think it's wrong to do it on income – if someone is £1 above the threshold, does it mean they are more or less worthy? We have found there is a need for this service."

Surely this has to be too good to be true? But Kayani is adamant. It's a niche the company has found, clearly, where it is more comfortable than with the ostensibly profitable corporate contracts. And where there is a need for someone effective, with both knowledge and (metaphorical) teeth.

Certainly, ignorance can be expensive. If councils fail to help and people have to use solicitors, she explains, the costs can be astronomical. She instances one case where a client had started a S82 procedure but decided to enlist a solicitor's help. This cost £11,000 in legal fees for one court appearance, Sanctum having undertaken all of the relevant noise-related work.

NoiseAid is a very different approach, Kayani says. "As a business, we choose to absorb the costs. It's something we believe in. Okay, we have not become millionaires, but if we can do this and still make a fair amount of profit, that's the way to operate. It's for noise cases where there is nowhere for people to go." One gets the impression of a background of profound irritation at the ineptitude and indifference sometimes displayed by council staff, rather than any desire to pack a pair of wings and a harp (hopefully).

There's certainly evidence. She cites instances where councils have refused to investigate, and says the company has cases at various stages with the ombudsman, including one that has been rejected. "There is no formal mechanism to have the ombudsman's decision reviewed. The only way is a judicial review. If someone says to the ombudsman, this is what the council should be doing, it gives them more basis to make their decision."

"I have had cases where the council never visited a complainant's home – just wrote and either didn't visit or just visited the general area, and said there was no statutory nuisance. I can't believe some of the letters. And the other day, an ombudsman said you couldn't expect a council to visit. Why not? It's in the Act. It's them not knowing noise law or how to assess nuisance. Even when we intervene, they resist. They say the council has made a professional decision. How, when they did not follow the guidance and practice, or visited? On what basis did they come to a decision that there was no nuisance, or that it was not likely to recur? It leaves you nowhere to go other than to mount a judicial review, which is not something you do lightly. Most solicitors would say you wouldn't win."

She adds: "One of the issues that we feel quite strongly about at Noisedirect/Sanctum is that money given to local authorities by government for noise should be ring fenced and there should be a clear penalty system – like fixed penalty notices – for every time a council fails to even visit for complaints of nuisance. This would ensure better accountability and confidence from members of the public."

What people need (until that happy day), she explains, is an honest, impartial, professional service where they can talk through the issues. Because Sanctum isn't a solicitor, with an eye on the lucrative process of litigation, its consultants will provide the truth even if that means advising people that they don't have a case. Kayani adds: "Or we might say you've got a case, but not the evidence and they can decide whether to go away and gather it."

It's empowering people. During the process of complaining people become disempowered, depressed and disillusioned with the system. This way, they are empowered, even if they decide not to go ahead. One of the worst things you can do is fob people off and give them half an answer."

Sanctum at least has the ammunition – everyone that works for the consultancy has worked for a local authority in some capacity, and some still do – they undertake evening and weekend work for the consultancy, with permission from their daytime employers. So they know the answer well.

Kayani herself used to work within the local authority system and has no illusions about the services most provide. She says. "I'm an environmental health professional. It gives me no joy that people ring time and time again and say it's down to corruption. It's not a good thing for people to be thinking their local government is corrupt, but that's what they say 97% of the time."

Scary stuff. She adds that people have a lack of confidence in what officials tell them, and when the consultancy starts investigating they find that often their clients are right to feel that way. "For instance, someone complaining about noise nuisance from a pub nearby was told the council couldn't do anything about it whereas if it had been a barking dog, they could. Conversely, in another complaint about barking dogs, that council said they couldn't do anything, whereas if it had been a pub or a club it would have been different. You don't have to be a trained professional to see that that's inequitable."

Barmy, more like, but why? Kayani feels that partly it's a training issue and partly that noise is the Cinderella service. "Even in the profession its place is not properly recognised. The complexities that surround it are based on the common law test of what is reasonable and often people use accepted wisdom and make snap judgments."



Sanctum's Kayani (left) with noise sufferer

She cites a recent case where a council visited outside the time when they had been told a noise was occurring, and wrote to say they thought there was no nuisance.

"You need to take account of criteria including the nature of the noise, its frequency and duration. You listen to noise subjectively but also objectively, from the point of view of the ordinary person on the Clapham omnibus. Statutory nuisance is a subjective test of noise done objectively under the common law test of what's reasonable.

"I would be assessing all of these criteria, and only then would I say that there was a nuisance, or not. Officers forget that when they give a negative answer they have to be able to explain it against the criteria. Too often their decisions can't be held up to scrutiny because they do not do a systematic test. People tell me the council has called their case a borderline nuisance, which I've never heard of. They should go back to the law and see what that says."

One key problem is that although EHOs and technical officers have to be suitably qualified, the reality is that these people are often focused on areas that demand such qualifications – for instance, food hygiene inspections. Kayani has heard of councils recruiting people to noise teams from their admin section, or hiring cab drivers. "They have no expertise, they get no support on the case, they go along and see what they think – I say in law it's a bit more complex than that."

Yes, there is a shortage of EHOs and the staff on noise teams are overworked, she agrees, and noise cases are difficult to deal with, hard to witness and not speedily dealt with. On-call night staff may contribute notes that case officers don't see and therefore don't follow up. The worst thing is to have five officers make ten different visits, of which a couple probably recorded a nuisance but because the notes did not get properly written up, no action is taken.

Kayani says: "My preferred option would be a notebook system where you would have a triplicate of all the notes. EHOs are supposed to have a PACE [police and criminal evidence] notebook, and I think if you had a notebook in triplicate if there was a statutory nuisance, minor disturbance or no noise it would be clear, you would not have this ambiguity." One copy would go to the complainant, one to the case officer, and one remain on file. There is also a

worrying degree of obfuscation – Sanctum has recently come across two cases of complaints about low frequency noise where the investigating EHOs, in different parts of the country, said the noise did not meet the limit. "Well, which limit? I have to guess they are talking about the WHO guidelines, but just because something falls out of this does not mean there is not a nuisance."

People don't need to have degrees to apply the test of whether something is a nuisance, she argues. It should be clear that (for instance) fan noise disturbing residents' sleep all night long is unreasonable. "There might be a cost to the company involved, but would it be so great that they should not provide an answer? It is not acceptable. And why do councils have to go away for six months to mull over cases? The powers given to council officers are very strong, like those of a traffic warden. I've worked for councils specifically on noise nuisance and if I found a nuisance I could go to my car, draft a noise abatement notice and get the police if I needed them, then serve the notice. Why is this power not being used? Why spend months or years investigating then months or years before acting, which leads to the problem that it goes to court and they say it's taken too long to get there, and people have to start again."

She cites a case where a facility was lending its grounds for *after*-hours and weekend activities including motorcycle training. Residents complained, and an EHO duly came round – *during* working hours, and did some monitoring from his car. Kayani undertook some monitoring to prove the case, but said the council's attitude was "how dare I question a decision the officers had made". She adds: "If you question them, rather than someone sane coming along they are rather like sheep, all defending the indefensible. It's much better to admit to human error and stop and try to rectify things rather than push all the way. It's a siege mentality."

Sanctum's staff, having worked inside the system, have very good siege-breaking equipment. Kayani chuckles over the many hoary old chestnuts that clients have been told by council staff, such as they aren't obliged to investigate noise that happens at 2am, or that tenants have to complain to their housing office, not the council. "What are they saying – if you are poor and in social housing, you get a lesser service, whereas if you are in a private house, you get a better level of service? How can that be just? How can that be equitable?"

Good questions – and with NoiseAid, a good answer. Love them (as clients undoubtedly will) or loathe them (as more than a few EHOs must by now) Sanctum is on the case.

Regular readers will know of a long running gripe within this column about how long it takes for research commissioned by Government to become publicly available (usually sufficiently long to make it worthless).

DfT has excelled itself this month – in its latest ‘what’s new’ section it flags up minutes about Crossrail noise that are well over a year old. And Defra has seen fit to release research on calculation of rail noise. Now the glossy cover is dated January 2007. The researchers signed off their research in April 2004. Goodness, that near-three year delay in release ensured outsiders could remain blissfully ignorant while the European directive rail noise maps were produced.

To add insult to injury, Defra describes the publication as ‘value added’ – well it might have had value had it been released on time!

Noise professionals have been tut-tutting about the ‘survey’ of UK towns and cities that saw Newcastle ranked as the noisiest.

Now this survey was carried out by top hearing professor Deepak Prasher of UCL who probably now wished he hadn’t! One suspects hearing firm Widex asked him to put his name to a light hearted survey of

UK cities to support a press release about its hearing aids, and thought little more of it.

But the British press love ‘surveys’, especially if they rank competing cities against each other as they always generate much controversy.

And so it did, not just among Newcastle’s bemused EHO’s but also among observers who wondered how on earth you could sensibly compare noise levels in one city against another based on a few days readings with a noise meter. After all, if it was that easy, then why bother spending millions on noise maps?

Mind you Prasher might get the last laugh if the late running noise maps do come out and show Newcastle is the noisiest. Some might quip that shoving endless centrally-compiled data into various noise programmes might be just as shaky science as a holding a noise meter up to the traffic.

Now Lydd airport In Kent can’t be accused of relying on dodgy science.

It wanted to show locals what the noise from jets would really be like, and presumably could have done some modelling and present a series of L_{eq} contours that bear little relation to reality

as BAA does.

Lydd hired a Boeing 737 jet for a few hours to do a few take off and landing trials at the airport – and even chose a 300-series which is one of the noisiest marques.

It said: “We have deliberately chosen the 737 with the noisiest engines so that people really understand this is the worst possible case for Lydd.”

They deserve congratulations – if you’re going to have objections, then presumably its better for all concerned to know exactly what you’re dealing with rather than waiting until it’s too late.

But maybe airport bosses can never win.

Just as Brussels campaigners have won a court action against authorities for failing to collect noise fines, Norwich airport operators are being criticised for collecting too many of them.

Objectors say the fines – five times the standard landing fee – act as an incentive for the operator to land planes in the night.

How odd that the Royal Commission report considered noise to be ‘outside the scope’ of its study. Especially given that two years ago former Defra noise chief Jo Bray joined the RCEP secretariat and was involved with the project.

NOISE EVENTS 2007

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, NSCA, 01273 878770

March 20th

WIND FARM NOISE

To be held at the Ecotech Centre, Swaffham, Norfolk including trip up a wind turbine. IoA, 01727 848195

March 27th

CADNAA USER GROUP SESSION

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

April 3rd

APPROPRIATE NOISE LEVELS INSIDE NEW DWELLINGS

for external noise – WHO Knows? A discussion workshop to be held at the NHBC Milton Keynes contact Linda Canty, Institute of Acoustics, 01727 848195

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

June 25th-27th

AAAF/AIAA AIRCRAFT NOISE AND EMISSIONS REDUCTION SYMPOSIUM

(ANERS 2007) to be held in La Baule, France www.win.tue.nl/ceas-asc

SUBSCRIPTIONS

1yr sub
£207

2yr sub
£369

3yr sub
£533

Concessions available for individuals, charities and non-consultant academics

Name Position

Organisation

Address.....

.....

Postcode signed

E-mail

.....

Please invoice me: order number:

Cheque enclosed (payable to Environmental Management Publishing)

BACS payments: a/c no 42070079 sort code 09-06-66

(Please include company name in payment reference) VAT no 869 8809 41

CREDITS



Editor: Jack Pease

tel 01737 642283 (fax 0871 253 2904)

email jackpease@empublishing.org.uk

Website: www.noise-bulletin.org.uk

Address for correspondence:

PO Box 592 Redhill RH1 3WN

Associate editors:

Lis Stedman tel 01245 440169 email lis.stedman@empublishing.org.uk

Lisa Russell tel 020 8552 7464 email lisa.russell@empublishing.org.uk

Printed and published by Environmental Management Publishing Ltd

Copyright 2007 ISSN 1751-1518

OUR OTHER TITLES



Why not try our other newsletters on air and contaminated land?

Send your details for a no-obligation free three month trial.

Jack Pease