

# ENVIRONMENTAL: INFRASTRUCTURE

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## Temple Group

*Acoustic Deterrents as a Bat Mitigation Strategy*

**JOINT WINNER**

Eighteen species of bats are present in the UK. Their sensitive and highly evolved acoustic apparatus, coupled with complex habitat requirements and wide-ranging use of the landscape, means they are vulnerable to disturbance, habitat fragmentation and killing or injury caused by a wide range of development projects. There are emerging approaches to using acoustic output as a mitigation methodology to dissuade bats from sites such as windfarms that pose a risk of killing and injuring them, but little attention has been paid to the use of sound to enhance the effectiveness of mitigation. Instead of simply excluding bats from an area, the consultants determined that acoustic deterrents can be used to deter bats while ensuring normal levels of bat behaviour in the vicinity remain the same. They assessed the sound emitted and adapted the design by changing the configuration of acoustic deterrents to maximise

their effectiveness in eliciting localised and predictable changes in bat flight behaviour. This involved recording changes in bat flight behaviour in response to acoustic stimuli.

This research was carried out to evaluate acoustic deterrents as part of mitigation measures designed for protection of woodland bats present along part of the High Speed 2 (HS2) Phase 1 railway. This could be a new and widely applicable approach.

This was a very different entry than most. It was a practical solution to a problem affecting a major infrastructure project and good to see acoustic consultants helping to satisfy Natural England whose consent was required to enable the project to go ahead. The mixture of ecology with acoustics makes this stand out and it also receives an award for innovation.



## Arup

*Soundbooths for Heathrow's public consultation on Airspace and Future Operations*

**JOINT WINNER**

Information relating to changes in aircraft noise can be challenging for communities to understand. Reading noise contours and decibel levels can have little meaning to those who are directly affected. To communicate the potential noise impact that stakeholders and communities could be facing, Arup developed three fully mobile Soundbooths equipped with a set of virtual reality sound demonstrations for Heathrow Airport's 2019 consultation. The interactive demonstrations allowed people to experience aircraft noise at calibrated levels, enabling the airport to communicate more transparently, meaningfully and effectively with local communities.

For the first time at an airspace public consultation level, the demonstrations

have been made available in an interactive virtual reality environment, offering an immersive experience for consultees. This experience combined a virtual user interface, 360 video footage and 3D planes with detailed spatial audio recordings of aircraft and different background ambient sound recordings. Other demonstrations included the simulation of different sound insulation schemes, a comparison of aircraft and the effects of alternation (runway and airspace) that could be implemented in the future.

This is an excellent example of collaboration and public engagement, which could be the start of a new approach to presenting information at public consultations. It builds on a similar initiative for HS2 and is an innovative approach which helps with understanding what the impact will be of proposed changes.

