Resonate Acoustics
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Tom Evans

Associate Director

Qualifications

Bachelor of Mechatronic Engineering (First Class Honours)
Bachelor of Economics

Affiliations

Member of the Australian Acoustical Society
Australian Acoustical Society Victorian Division Committee Member

Awards

2013 Australian Acoustical Society Award for Excellence in Acoustics:
Development of a method for Tonality assessment at a wind farm

Career History

Tom has 11 years of experience in the assessment of noise and vibration on a wide range of projects in the environmental, wind energy, transport and architectural sectors. His strengths are his ability to combine his strong technical understanding with excellent communication skills as well as to understand the different technical, social and environmental constraints on a project. Tom enjoys working on multidisciplinary projects, where specialty disciplines such as acoustics must work closely with the wider team to develop practical solutions.

Specialist Areas of Expertise

Transport infrastructure noise and vibration assessments
Wind farm noise measurement and prediction
Construction noise and vibration assessment
Environmental noise modelling and assessment

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Publications and Technical Papers

‘A New Approach to Implementing Facade Treatments in Context of the South Australian Road Traffic Noise Guidelines’, D. Jurevicius, T. Evans, M. Stead 2016, *Acoustics Australia* ‘Journal, DOI 10.1007/s40857-016-0068-1.

‘Investigation of Additional Insertion Loss from T-profile and Absorptive Noise Barriers’, Acoustics 2015, Hunter Valley, 15–18 November 2015. D. Jurevicius, T. Evans.

‘A Copmarison of Tonal Noise Regulations in Australia’, Acoustics 2015, Hunter Valley, 15–18 November 2015. T. Evans, J. Cooper.

‘Analysis of wind turbine low frequency noise prediction accuracy’, Internoise 2014, Melbourne, November 16-19, T. Evans, J. Cooper and V. Alamshah.

‘Influence of non-standard atmospheric conditions on turbine noise levels near wind farms’ Internoise 2014, Melbourne, November 16-19, J. Cooper and T. Evans.

‘Low frequency noise near wind farms and in other environments’, SA EPA and Resonate Acoustics, April 2013, T. Evans, J. Cooper and V. Lenchine.

‘Infrasound levels near windfarms and in other environments’, SA EPA and Resonate Acoustics, January 2013, T. Evans, J. Cooper and V. Lenchine.

‘Comparison of predicted and measured wind farm noise levels and implications for assessments of new wind farms’, Evans T & Cooper J, 2012, *Acoustics Australia*, Vol. 40, No. 1, pp. 28-36.

‘Comparison of compliance results obtained from the various wind farm standards used in Australia’, Cooper J, Evans T & Najera L, 2012, *Acoustics Australia*, Vol. 40, No. 1, pp. 37-44.

‘Effects of different meteorological conditions on wind turbine noise’, Acoustics 2013, Victor Harbor, November 18-20. T. Evans and J. Cooper.

‘Influence of wind direction on noise emission and propagation from wind turbines’, Proceedings of Acoustics 2012, Fremantle, 21-23 November 2012, T. Evans and J. Cooper.

‘Tonality assessment at a residence near a wind farm’, Proceedings of 5th International Conference on Wind Turbine Noise, Denver, 28-30 August 2013, J. Cooper, T. Evans and D. Petersen.

‘Accuracy of noise predictions for wind farms’, Proceedings of 5th International Conference on Wind Turbine Noise, Denver, 28-30 August 2013, J. Cooper and T. Evans.

Project Experience

Some examples of Tom's wind farm project experience are included below:

Transport – Rail

- Melbourne Metro Rail Project – review of construction and operational noise and vibration impacts on University of Melbourne uses.
- EPA Draft Guidelines for the Assessment of Noise from Rail Operations – development of noise and vibration guidelines for rail operations on behalf of the SA EPA.
- Darlington Transport Study – monitoring, modelling and assessment of proposed duplication and conversion of the Tonsley Passenger Rail Line to a tram–train service.
- Seaford Rail Extension – DPTI's noise and vibration advisor for the extension of passenger rail services to Seaford, including construction and operational phases.
- Northern Connector – modelling and assessment of rail traffic noise and vibration from the proposed Northern Connector project, a 12 km road/rail link west of Port Wakefield Road.
- Glenelg Tram Overpass – measurement, modelling and assessment of rail traffic noise from the tramline overpass of South Road. Monitoring of construction noise and vibration during the construction phase.
- Port River Expressway Stage 3 – noise monitoring, modelling and assessment of rail traffic from the rail bridge over the Port River.
- Northern Lefevre Peninsula Master Plan – modelling and assessment of rail traffic noise as part of the development of the master plan for PAMC.

Transport – Road

- EastLink – review of reverse sensitivity impacts of multiple proposed developments adjacent to the existing highway.
- RMS expert evidence – provision of expert evidence to RMS with regards to traffic noise impacts as part of partial property acquisitions on multiple projects.
- Foxground and Berry Bypass – road traffic noise and construction noise and vibration assessment for 11 km upgrade of Princes Highway.
- Grafton Bridge Upgrade – operational and construction phase noise modelling for proposed second crossing of Clarence River.
- Torrens Road to River Torrens Project – road and rail traffic noise modelling, construction noise and vibration assessments for 2.5 km upgrade of South Road through mainly residential areas.
- Darlington Upgrade Project – road traffic noise monitoring for upgrade of 3.3 km of Main South Road in South Australia.
- DPTI Noise Mitigation Manual – prepared a Noise Mitigation Manual for DPTI addressing practical methods for mitigating road and rail noise on infrastructure projects. Publically available at http://www.dpti.sa.gov.au/standards/environment
- DPTI Road Network Noise Map – development of a model to predict road traffic noise from roads within the DPTI road network in metropolitan Adelaide. The process has been designed so that data can be input in GIS format from DPTI and output from the noise modelling software such that it can be used in GIS software packages.
- Adelaide Road Traffic Noise Map – modelling of road traffic noise over the Adelaide City Council area, involved coordinating inputs from the Council, DPTI and the EPA.
- South Road Superway – development of construction noise and vibration management frameworks for DPTI addressing road construction activities and operations at the casting yard and concrete batching plants as part of the $900m Superway project.
- Northern Expressway – monitoring, modelling and assessment of road traffic noise for the largest road project in SA for 40 years linking Port Wakefield Road with the Gawler Bypass.

Involved in house inspections, consultation with residents and the development of noise treatments for over 100 properties affected by the project.

- Gallipoli Underpass project – modelling and assessment of road traffic noise and vibration. This project also involved the inspection of affected residences and housing treatments.
- Darlington Transport Study – involved in preparation of the Environmental Report and Supplement Report for the Darlington Transport.

Construction

- Port of Melbourne Port Capacity Upgrade—Noise and vibration advice for operational phases of $600m port upgrade.
- Al Raha Beach Redevelopment (Middle East) – operated two noise monitors and four vibration monitors adjacent to the Al Raha Beach Redevelopment for a period of three years. Prepared monthly monitoring reports and liaised with site-based staff to arrange the swap out of equipment for calibration and maintenance as required.
- Goodwood Rail Junction Grade Separation – currently involved in undertaking noise and vibration monitoring as part of the construction phase of the project. The project is occurring in a residential area with particularly sensitive community issues.
- Adelaide Oval Western Grandstand Redevelopment – installed, operated and maintained seven remote vibration monitors on the heritage-listed walls of the George Giffen Stand during the Western Grandstand Redevelopment. The monitors were located on site continuously for a period of 11 months and provided email notifications when trigger levels were exceeded. Preparation of a monitoring plan and monthly reports.
- Queen's Theatre Vibration Monitoring – installed, operated and maintained three remote vibration monitors on the heritage-listed Queen's Theatre during construction of the neighbouring UNO Apartments. The monitors were located on site for seven months and provided email notifications when trigger levels were exceeded.
- Intersection Upgrade, Nuriootpa – installed a remote, continuous vibration monitor at the heritage-listed chimney in Nuriootpa during an intersection upgrade approximately 20 metres away. The monitor operated for three months, provided email notifications when a pre-determined trigger level was exceeded.
- Gawler Rail Revitalisation Project – set up a remote, continuous vibration monitor that the Contractor could move with them as the rail line upgrade progressed through residential areas and pass heritage-listed structures (including train stations). The monitor provided email notification when a pre-determined trigger level was exceeded.
- Glenelg Tram Overpass project – developed a simple unattended noise logging option for the Contractor to implement during weekend night time construction works. This allowed them to demonstrate compliance with their regulatory requirements.
- Developed Construction/Demolition Noise and Vibration Management Plans/Frameworks for key infrastructure/building projects including:
    - Goodwood Rail Junction Grade Separation
    - Northern Expressway
    - South Road Superway
    - Seaford Rail Extension tender phase
    - Glenelg Tram Extension
    - Adelaide Oval Western Grandstand Redevelopment (demolition phase)
    - Rail Revitalisation Projects
    - Bakewell Underpass
    - University of Adelaide New Engineering Building

Environmental

- Noise SEPPs Impact Analysis (VIC) – managed an impact analysis of the Noise SEPPs administered by the EPA and their impact on business, regulators and the community.
- Port of Melbourne Port Capacity Upgrade—Noise and vibration advice for operational phases of $600m port upgrade.
- Angas Zinc Mine, Strathalbyn – Environmental noise modelling for the site during the project approval stage and during subsequent changes to the site during operation. Assistance with noise monitoring at the site, including training for site staff on the use of noise monitoring equipment.
- Holden manufacturing facility, Elizabeth – Assessment of environmental noise emissions from the southern half of the Holden site. The project involved the measurement of key noise sources on site and development of practical noise mitigation measures that could be implemented.
- Lyons Residential Subdivision (Northern Territory) – modelling of environmental noise from Royal Darwin Hospital affecting a proposed residential subdivision.
- Sheridan Site Residential Development, Woodville – modelling and assessment of environmental noise from a neighbouring industrial site, road noise and rail noise affecting a proposed residential subdivision adjacent Torrens Road.
- Northern LeFevre Peninsula Master Plan – Environmental noise modelling from existing and proposed future industry as part of the development of a master plan for PAMC to utilise the available land on the peninsula. Areas were designated for specific types of industry and mitigation options including noise mounds and noise walls were assessed.
- Noise modelling of wind farm sites – environmental noise modelling for over 30 wind farm sites in Australia and South East Asia, assisting a tendering turbine supplier design achieve compliance with the relevant noise criteria.
- SA EPA Wind Farm Infrasound Study – Conducted a study into infrasound levels around wind farms and in other environments with the SA EPA. The study demonstrated that infrasound levels near wind farms were no higher than in other environments where people live, work and sleep, and was published on the EPA website.

Wind Farms

- Macarthur Wind Farm (Vic) – noise modelling of proposed turbine layouts for the Macarthur Wind Farm as part of Vestas Australia's submission. The Wind Farm will comprise 140 3 MW turbines and noise represented a key constraint on the site layout, with the modelling allowing Vestas to optimise their tender design. Vestas were awarded the contract for the wind farm in August 2010 and Tom was also involved in conducting background noise monitoring at 27 properties to establish appropriate noise criteria.
- Oaklands Hill Wind Farm (Vic) – undertook a compliance assessment of the Oaklands Hill Wind Farm once operational. In addition to the standard compliance assessment, we undertook a special audible characteristics assessment, involving measurement and assessment of infrasound, low frequency noise, tonality and amplitude modulation at two locations adjacent to the wind farm. Also determined appropriate assessment criteria for the special audible characteristics in consultation with the Vic EPA.
- Hallett Hill Wind Farm (Hallett 2) (SA) – Measurement of sound power levels and tonality from turbines using IEC 61400-11 to check compliance with guaranteed levels, compliance noise measurements at the residences using the 2009 Wind Farms Noise Guidelines, and detailed assessment of tonality at residences.

- Due diligence reviews – engaged to undertake due diligence reviews for the purchase of two wind farms, identifying acoustic issues that may alter the future value of the site.
- North Brown Hill Wind Farm (SA) – analysis of background noise measurements to determine existing noise levels at nearby residences, and regression analysis to determine environmental noise criteria. Involved in compliance monitoring once the wind farm was operational to assess compliance with the criteria.
- The Bluff Wind Farm (SA) – prediction of environmental noise levels at residential locations surrounding the proposed wind farm site. Conducted a compliance assessment and tonality analysis once the wind farm was operational against the environmental noise criteria.
- Starfish Hill Wind Farm (SA) – provided technical assistance for research being undertaken by the SA EPA, which included the measurement of turbine sound power levels and modelling of resultant environmental noise emissions from the Starfish Hill wind farm using various calculation algorithms, to allow comparison with measured noise levels.
- Wind Farms Noise Guidelines testing (SA) – undertook testing of the compliance measurement section in the last draft (May 2009) of the Wind Farms Noise Guidelines for the SA EPA. This testing involved the analysis of measurement results obtained using alternative compliance measurement methods.