



Noise & Vibration

Construction and operational noise, receptors and limits.

How to use this handbook

This volume is the practitioner (site and technical) reference for the Noise & Vibration factor. It sets out what Noise & Vibration governs, every assessment element with its own process and controls, the Queensland and Commonwealth instruments that apply, and the primary metric for each element. It is decision support, not legal advice or a substitute for a site-specific assessment — confirm every regulatory point against the current instrument and, where a threshold is close or a critical exception applies, obtain specialist and legal review.

FIELD	DETAIL
Volume	08 of 17 — Environmental Knowledge Handbooks
Factor	Noise & Vibration
Jurisdiction	Queensland, Australia
Edition	2026 · current at issue
Prepared by	QTEN — Queensland Technical Excellence Network
Review	SME, spatial and legal review before reliance

Executive overview

Noise and vibration determine working hours, plant selection and neighbour relations, and are among the most enforced site conditions in Queensland. The framework is the Environmental Protection Act 1994 — its general environmental duty, noise standards and nuisance provisions — supported by planning conditions and, for transport projects, TMR and rail noise criteria. The site-manager task is to establish the acoustic baseline and receptor limits, control noise and vibration at source and by scheduling, and monitor and respond to exceedances and complaints.

Scope

Noise & Vibration resolves into four secondary factors — Environmental Noise; Construction and Operational Sources; Receptors and Assessment; Management and Improvement — and twenty assessment elements. Every element is set out below with its own process and controls and its primary decision metric; identifiers are shared with the companion Knowledge System workbook and the platform calculators.

Assessment elements & process

Each assessment element below carries what it governs and its key pressures, the appropriate site process and controls, and the primary metric that measures it. Work every element that your project engages.

ASSESSMENT ELEMENT	WHAT IT GOVERNS & KEY PRESSURES	PROCESS & CONTROLS
Ambient Acoustic Environment <i>Baseline acoustic completeness</i>	The ambient acoustic baseline and its completeness. Pressures: unrepresentative or missing baseline.	Establish a representative acoustic baseline; derive receptor criteria; use to set project limits.
Road Traffic Noise <i>Road traffic noise level and change</i>	Road-traffic noise level and change. Pressures: traffic volume, speed, road works.	Assess road-traffic noise and change; apply mitigation (surface, barriers, alignment); monitor against criteria.
Rail Noise and Vibration <i>Rail noise and vibration compliance</i>	Rail noise and vibration compliance. Pressures: rail operations, track works.	Assess rail noise and vibration; apply track and receptor mitigation; monitor compliance.

ASSESSMENT ELEMENT	WHAT IT GOVERNS & KEY PRESSURES	PROCESS & CONTROLS
Aircraft, Port and Maritime Noise <i>Transport hub noise exposure</i>	Aircraft, port and maritime noise exposure. Pressures: transport-hub operations.	Assess transport-hub noise exposure; coordinate mitigation; manage receptor compatibility.
Industrial and Commercial Noise <i>Industrial noise compliance</i>	Industrial and commercial noise compliance. Pressures: fixed plant, operations.	Assess industrial noise; apply plant selection, enclosure and hours; monitor compliance.
Construction Noise <i>Construction noise impact and control</i>	Construction noise impact and control. Pressures: plant, out-of-hours work, cumulative site noise.	Predict construction noise; select quieter methods; use barriers and hours; notify community; monitor and reschedule on exceedance.
Construction Vibration <i>Construction vibration exposure</i>	Construction vibration exposure. Pressures: piling, compaction, rock breaking.	Predict vibration; set exclusion distances and methods; run dilapidation surveys; monitor with real-time triggers.
Blasting Noise and Vibration <i>Blast overpressure and PPV compliance</i>	Blasting noise and vibration (overpressure and PPV). Pressures: blasting near receptors and structures.	Design blasts to airblast and PPV limits; monitor each blast; adjust design; manage structures with dilapidation.
Ground-borne Noise <i>Ground-borne indoor noise</i>	Ground-borne noise indoors. Pressures: vibration re-radiated as noise in buildings.	Predict ground-borne noise; apply isolation and method controls; verify indoor levels.
Low-frequency, Tonal and Impulsive Noise <i>Character-adjusted noise level</i>	Low-frequency, tonal and impulsive noise character. Pressures: character-adjusted annoyance.	Assess character adjustments; control tonal/impulsive sources; apply adjusted limits; monitor.
Sensitive Receptors and Land-use Compatibility <i>Receptor exposure and compatibility</i>	Sensitive receptors and land-use compatibility. Pressures: proximity of homes, schools, hospitals.	Identify and classify receptors; assign criteria; assess compatibility and exposure; set protective limits.
Noise and Vibration Monitoring <i>Monitoring valid data capture</i>	Noise and vibration monitoring and valid data capture. Pressures: instrument faults, poor siting.	Site and calibrate instruments; assure valid capture; review data; act on triggers.
Noise Prediction and Modelling <i>Prediction accuracy and receptor result</i>	Noise prediction and modelling accuracy. Pressures: model error, wrong inputs.	Model with representative inputs; predict receptor results; validate against monitoring; refine.
Human Response, Sleep and Health <i>Human exposure and sleep-risk score</i>	Human response, sleep and health. Pressures: night-time noise, sleep disturbance.	Assess human exposure and sleep risk; apply night-time controls and respite; monitor and respond.
Building, Structure and Equipment Vibration <i>Structural and equipment vibration compliance</i>	Building, structure and equipment vibration compliance. Pressures: damage and equipment thresholds.	Assess structural and equipment criteria; set exclusion and method controls; monitor PPV; manage with dilapidation.
Noise and Vibration Impact Assessment <i>Residual noise and vibration significance</i>	Noise and vibration impact assessment and residual significance. Pressures: unassessed impact.	Assess against criteria; apply mitigation; determine residual significance; document.
Noise and Vibration Management Plans <i>NVMP implementation compliance</i>	Noise and vibration management plans and implementation. Pressures: plan not implemented.	Prepare and implement the NVMP; assign responsibilities; verify implementation compliance.
Engineering and Operational Controls <i>Critical acoustic control effectiveness</i>	Engineering and operational controls effectiveness. Pressures: control failure, inadequate maintenance.	Implement and maintain critical acoustic controls; verify effectiveness; escalate on failure.

ASSESSMENT ELEMENT	WHAT IT GOVERNS & KEY PRESSURES	PROCESS & CONTROLS
Incident, Exceedance and Complaint Management <i>Response and closure timeliness</i>	Incident, exceedance and complaint management. Pressures: slow response, unresolved complaints.	Log exceedances and complaints; investigate; correct and reschedule; close out within target.
Performance Reporting and Adaptive Management <i>Reporting completeness and improvement</i>	Performance reporting and adaptive management. Pressures: incomplete reporting, no improvement.	Report performance against criteria; review; correct and improve; adapt controls.

Regulatory mapping

The instruments most often engaged for Noise & Vibration. Confirm currency and application to the specific site and activity before relying on any entry.

INSTRUMENT	JURIS.	WHAT IT DOES	TYPICAL TRIGGER
Environmental Protection Act 1994	Qld	General environmental duty; noise standards; noise nuisance; environmental authorities.	Activity emitting noise or vibration to receptors.
Environmental Protection Regulation 2019	Qld	Noise standards and administration for relevant activities.	Carrying out a relevant activity emitting noise.
Planning Act 2016	Qld	Development assessment and conditions for noise and vibration.	Assessable development near sensitive receptors.
Transport noise criteria (TMR / rail)	Qld	Road and rail noise criteria for transport projects.	Transport infrastructure affecting receptors.

Assurance & evidence

- **Source currency.** Confirm the instruments, criteria and trigger values cited are current and correctly applied to the site and activity.
- **Records.** For each element engaged, retain the assessment, the controls applied, monitoring against the metric, and any statutory notifications — the evidence that the process was followed.
- **Independent review.** Interpretations, threshold decisions and critical exceptions are reviewed by a suitably qualified person before reliance.

TALK TO QTEN

Managing noise & vibration on a live project? QTEN helps Queensland clients turn this handbook into a defensible, evidence-backed position — scoping, assessment, controls, approvals and review. Bring us your site and we will help you get it right, and prove it.
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