

Project Controls

Master Specification

PC-ENV4 Noise Assessment, Treatment Design, and Implementation

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DEPARTMENT FOR
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PC-ENV4 Noise Assessment, Treatment Design, and Implementation

1 General

- 1.1 This Standard Specification sets out the minimum Noise Assessment requirements for the Works under the Contract.
- 1.2 For the purpose of this Part, the 'Works' can be activities associated with planning, design, supply, construction, maintenance or operation as defined by the Contract.
- 1.3 Where readily available and accessible to the Principal, previous or preliminary assessments will be provided to the Contractor.
- 1.4 Department environmental publications are available from <https://www.dit.sa.gov.au/standards/home>

2 Contractor's Obligations

- 2.1 The Contractor shall undertake noise assessments, design noise mitigation treatments and where included in the project scope implement all necessary noise treatments for the operational phase of the project and demonstrate compliance at all sensitive receivers in accordance with:
 - a) for road traffic noise – the Department's Road Traffic Noise Guidelines (RTNG) (Environment and Heritage Technical Manual – Attachment 7A);
 - b) for rail noise – the EPA's Guidelines for the assessment of noise from railway infrastructure (EPA GANRI) (refer Operational Rail Noise, Environment and Heritage Technical Manual – Attachment 7B); and
 - c) other noise sources – the Environment Protection Act 1993 and Environment Protection Policy requirements.
- 2.2 The Contractor may propose an approach that does not conform to the requirements of this Standard Specification. The Contractor shall obtain the Principal's approval, and where necessary the relevant authority's approval, to adopt the proposed approach, which shall constitute a **Hold Point**.
- 2.3 Where the noise assessment is undertaken in accordance with the EPA GANRI or Environment Protection Policies, the Contractor shall consult with the SA EPA as necessary to determine the application of the guidelines.
- 2.4 Where noise treatment is required, priority shall be given to treating the noise at the source, to applicable standards, over treatment at the receiver. Noise treatment measures shall be approved by the Principal.
- 2.5 Where noise criteria are unable to be achieved with the maximum barrier height specified in the RTNG or as specified in the Contract Documents, the Contractor shall seek approval from the Principal to provide property facade treatments.
- 2.6 All modelling and design works under this Standard Specification shall be undertaken by a suitably qualified Acoustic Specialist.
- 2.7 The Contractor shall review all previous or preliminary assessments provided by the Principal to determine, and undertake, all necessary updates to the assessments (including any changes in geometry, traffic volumes, etc.) or determine if they meet the requirements under this Standard Specification.

3 Applicability Assessment

- 3.1 The Contractor shall identify the applicability, or otherwise, of the RTNG, the EPA GANRI or other relevant guideline based on the scope of the project and the principles of application of the guideline.

The applicability shall be documented in project Environment and Heritage Impact Assessment Report and/or noise assessment/design reports.

- 3.2 Where a guideline is initially deemed not to apply and there is a change in the scope of the project or design modifications, the applicability of the guideline shall be reassessed.
- 3.3 Where a guideline is deemed not to apply, and accepted by the Principal, no further work under this Part is required.

4 Preliminary Noise Assessment

- 4.1 If not completed previously by the Principal, the Contractor shall undertake a Preliminary Noise Assessment and prepare a Preliminary Noise Assessment and Mitigation Report in accordance with:
 - a) For road traffic noise - the Department's Road Traffic Noise Guideline;
 - b) For rail noise - EPA's Guidelines for the assessment of noise from railway infrastructure (EPA GANRI) (refer Operational Rail Noise, Environment and Heritage Technical Manual – Attachment 7B); and/or
 - c) other relevant guideline.
- 4.2 Submission of the Preliminary Noise Assessment Report shall constitute a **Hold Point**.

5 Noise Modelling and Mitigation Design Report

- 5.1 If not completed previously by the Principal, the Contractor shall undertake a Preliminary Noise Assessment and prepare a Preliminary Noise Assessment and Mitigation Report in accordance with:
 - a) For road traffic noise - the Department's Road Traffic Noise Guideline;
 - b) for rail noise - EPA's Guidelines for the assessment of noise from railway infrastructure (EPA GANRI) (refer Environment and Heritage Technical Manual – Attachment 7B) and/or
 - c) other relevant guideline.
- 5.2 GIS spatial data (i.e. shapefiles) shall be provided for all noise treatments including sound reducing pavements, barriers and house treatments per package.
- 5.3 Submission of the Noise Modelling and Mitigation Design Report shall constitute a **Hold Point**.

6 Noise Barriers

Noise Barrier Minimum Design Requirements

- 6.1 Noise barriers shall be designed in accordance with the Department's Road Traffic Noise Guideline or the EPA's Guidelines for the assessment of noise from railway infrastructure.
- 6.2 The following minimum requirements apply to noise barrier design:
 - a) Noise barriers shall be designed so as to produce a continuous solid construction, without gaps that would permit the passage of sound. Where gaps are required in barriers for other purposes (e.g. access, drainage, etc) this would require an overlap of noise barriers to achieve the equivalent noise reduction as a continuous solid construction
 - b) Barrier panels shall be constructed with a material to achieve a Weighted Sound Reduction Index R_w , when determined in accordance with AS/NZS ISO 717.1, of not less than 26 for normal use and an R_w of not less than 31 where noise reductions of more than 10 dB(A) are required.
- 6.3 The Noise Modelling and Mitigation Design Report shall provide documentary evidence that the materials proposed for wall panels and barriers comply with the above requirements.
- 6.4 Unless specified otherwise, all design and / or documentation must comply with the requirements of this Part and the Urban Design aspects of the Contract Documents. Consideration shall also be given to the Roads and Maritime Services: Noise wall design guideline

(<http://www.rms.nsw.gov.au/documents/projects/planning-principles/urban-design/noise-wall-design-guideline.pdf>).

Noise Barrier Implementation

- 6.5 Where noise barriers are proposed to be located on the property boundary (private, Local Government, etc) the Contractor shall undertake and implement the works in accordance with the Department's Noise Treatment Implementation Guideline (Environment and Heritage Technical Manual – Attachment 7C).
- 6.6 The Contractor shall not undertake property works until the Deed of Consent and Agreement has been executed.

7 Property Treatment

- 7.1 The Contractor shall determine sensitive receivers eligible to receive Noise Mitigation Treatment Packages in accordance with the RTNG and design and install house treatments in accordance with the RTNG, EPA GARNI and / or as specified in this part.
- 7.2 All works must comply with the Building Code of Australia.

Facade Treatment Design and Scope of Works

- 7.3 Noise façade property treatments shall be designed in accordance with the Department's Road Traffic Noise Guideline or the EPA's Guidelines for the assessment of noise from railway infrastructure.
- 7.4 Where noise mitigation façade treatments are to be installed at private properties, the Contractor shall undertake property inspections and consultation with the affected landowners to determine the exact nature of the treatments.
- 7.5 Property inspections shall include attendance by key personnel including an acoustic engineer and community engagement representative. The Contractor shall engage an Architect experienced in acoustic design and installation for design of noise treatments to heritage listed properties and other properties as required.
- 7.6 The Contractor shall prepare a Façade Treatment Scope of Works (FTSW) document for each eligible property in accordance with the RTNG and GANRI.
- 7.7 All Façade Treatments installed shall comply with the Department's - Property Noise Mitigation – Façade Treatment Package Specification (obtain by request from the Principal). Contractor should particularly note Part 1 - Summary and Part 3 - Drawings. The Specification shall supplement the Scope of Works documents and provides further information regarding:
 - a) reference to acoustic performance and specification requirements and suitable proprietary products;
 - b) typical construction drawing details; and
 - c) construction notes regarding practical implications for installation.
- 7.8 Submission of the FTSW shall constitute a **Hold Point**.

Façade and Property Treatment Implementation

- 7.9 The Contractor shall undertake and implement the works in accordance with the Department's Noise Treatment Implementation Guideline (Environment and Heritage Technical Manual – Attachment 7C).
- 7.10 The Contractor shall not undertake property works until the Deed of Consent and Agreement has been executed.
- 7.11 The Contractor shall provide a warranty period of two (2) years (or as otherwise required in the Contract Documents) from the date of co-signing of the Completion of Works certificate by the property owner for all property façade treatments.

8 Noise Treatment Validation

- 8.1 The Contractor shall undertake a validation assessment to confirm that the implemented noise treatment strategy meets the requirements of the applicable guideline(s).
- 8.2 The validation assessment shall be undertaken in accordance with the RTNG / Operation Rail Noise (EPA GARNI)/ Environment Protection Policy.
- 8.3 The Contractor shall be responsible for rectifying the implemented noise treatments if the validation results do not comply with the RTNG and EPA GANRI / Environment Protection Policy at all sensitive receivers.
- 8.4 The Contractor shall provide outcomes of the validation process in a Noise Treatment Validation and Closure Report in accordance with the RTNG and EPA GANRI / Environment Protection Policy.
- 8.5 Submission of the Noise Treatment Validation and Closure Report shall constitute a **Hold Point**.

9 Records

- 9.1 The Contract shall supply all monitoring data, reports and modelling data specified in this Part.
- 9.2 Spatial information of final noise treatments implemented, including but not limited to, barriers and house treatments (noise treatment package specific) shall be provided at Completion.
- 9.3 Spatial information shall be provided in accordance with Part PC – SI4 Geographic Information Systems (GIS).

10 Hold Points

- 10.1 The following is a summary of Hold Points referenced in this Part:

Table PC-ENV4 10-1 Hold Points

| Document Ref. | Hold Point | Response Time |
|---------------|---|-----------------|
| 2.2 | Principal's approval to adopt a proposed approach that does not conform to the requirements of this Standard specification. | 10 Working Days |
| 4.2 | Submission of Preliminary Noise Assessment Report | 10 Working Days |
| 5.3 | Submission of Noise Modelling and Mitigation Design Report | 10 Working Days |
| 7.8 | Submission of Façade Treatment Scope of Works | 10 Working Days |
| 8.5 | Submission of Noise Treatment Validation and Closure Report | 10 Working Days |