

from the staging of the construction of the SSI). In particular, the following environmental performance issues must be addressed in the OEMP -

- (i) air quality,
- (ii) noise and vibration, through preparation of the Operational Noise Management Plan required under condition E34,
- (iii) traffic,
- (iv) climate change and energy use,
- (v) visual amenity and landscaping,
- (vi) groundwater level/pressure, inflows, groundwater contamination, treatment and discharge, soil, and subsidence,
- (vii) groundwater dependent ecosystems, and
- (viii) surface water quality and hydrology, including stormwater management.

The OEMP must be submitted for the approval of the Secretary no later than one month prior to the commencement of operation, or as otherwise agreed by the Secretary. Operation must not commence until written approval of the OEMP has been received from the Secretary.

Note:

- *The approval of an OEMP does not relieve the Proponent of any requirement associated with this SSI approval. If there is an inconsistency with an approved OEMP and the conditions of this SSI approval, the requirements of this SSI approval prevail.*

OPERATIONAL NOISE AND VIBRATION

- E32 The SSI must be designed and operated with the objective of meeting the requirements of the *NSW Road Noise Policy* (DECCW, 2011) and must, where feasible and reasonable, include the provision of at-property architectural treatment to all affected sensitive receivers in multi-level dwellings where the project noise criteria are exceeded, unless otherwise agreed to by the owner of the noise-affected residence.
- E33 The Proponent must design and operate all fixed facilities, including the motorway operations complexes, tunnel portals; ventilation facilities, substations, pumps and water treatment plants, maintenance facility, workshops, car parking and the emergency smoke extraction outlets with the objective of not exceeding the noise requirements of the *NSW Industrial Noise Policy* (EPA, 2000) and the *Sleep Disturbance Application Note to the NSW Industrial Noise Policy*. The Proponent must apply mitigation at existing receivers where the noise requirements cannot be achieved.
- E34 A detailed **Operational Noise Management Plan** must be prepared as part of the Operational Environmental Management Plan required by condition E31 and submitted to the Secretary for approval. The Operational Noise Management Plan must provide details of noise and vibration control measures to be undertaken during the operation stages, and generally in accordance with the *NSW Road Noise Policy* (DECCW, 2011) and the *NSW Industrial Noise Policy* (EPA, 2000).

The Operational Noise Management Plan must include, but not be limited to:

- (a) tests for ascertaining acoustic parameters;
- (b) predicted noise levels;
- (c) noise criteria for operation of the project based on the objectives of the *NSW Road Noise Policy* (DECCW, 2011) and the *NSW Industrial Noise Policy* (EPA, 2000);
- (d) location, type and timing of erection of permanent noise barriers and/or other noise mitigation measures (including details of the barrier to replace the existing noise mound at Beverly Grove Park, consistent with the requirements of condition B62(f) demonstrating best practice including silencers and building treatments for associated plant rooms and enclosures for exposed plant;
- (e) specific physical and managerial measures for controlling noise;
- (f) noise monitoring, reporting and response procedures including the monitoring on surrounding roads which experience significantly increased traffic volumes as a result of the project, and including operational facilities;

- (g) procedures for operational noise and vibration complaints management, including investigation and monitoring (subject to complainant agreement); and
- (h) an **Operational Ancillary Facility Noise Management Sub-Plan** including, but not limited to -
 - (i) identification of the final location of all operational ancillary facilities and plant including the Motorway Complex, ventilation facilities, tunnel jet fans and water treatment plants,
 - (ii) the sound power levels of all chosen equipment and plant to be utilised during operation including spectral sound characteristics and frequency data,
 - (iii) identification and/or confirmation of sensitive receivers and appropriate categorisation of the surrounding area in accordance with the INP,
 - (iv) identification of the applicable noise goals, including spectral frequency, for all sensitive receivers identified as being potentially impacted by any operational ancillary facility,
 - (v) presentation of noise assessment and predicted impacts including the use of mapping and noise contours,
 - (vi) identification and implementation of appropriate mitigation measures including building treatment, site layout, attenuators and demonstration that chosen mitigation measures can adequately achieve the noise goals in the INP, and
 - (vii) details of maintenance and inspection schedules to ensure plant, equipment and other operational ancillary facilities are operating at optimal levels; and
- (i) mechanisms for the monitoring and review of the Operational Noise Management Plan.

- E35 For the purpose of assessment of noise criteria specified in the **Operational Noise Management Plan**, required under condition E34, noise from the development arising from ventilation facilities and plant must be:
- (a) measured at the most affected point on or within the site boundary at the most sensitive locations to determine compliance with $L_{Aeq,T}$ noise limits;
 - (b) measured in the free field at least three to five metres from any vertical reflecting surface in line with the worst-affected dwelling facade to determine compliance with L_{Amax} noise limits; and
 - (c) subject to the modification factors provided in Section 4 of the *NSW Industrial Noise Policy* (EPA, 2000), where applicable.

Notwithstanding, should direct measurement of noise from the fixed facilities be impractical, the Proponent may employ an alternative noise assessment method deemed acceptable by the EPA (refer to Section 11 of the *NSW Industrial Noise Policy* (EPA, 2000)). Details of such an alternative noise assessment method accepted by the EPA must be submitted to the Secretary prior to the implementation of the assessment method.

- E36 The Proponent must design and operate the SSI with the objective, where feasible and reasonable, of not exceeding the vibration goals for human exposure for existing receivers, as presented in *Assessing vibration: a technical guideline* (DECC, 2006).
- E37 The Proponent must prepare an **Operational Noise and Vibration Review (ONVR)** to confirm noise and vibration control measures that would be implemented for the project. The ONVR must be prepared in consultation with the Department, relevant councils, other relevant stakeholders and the community and must:
- (a) confirm the appropriate operational noise and vibration objectives and levels for adjoining development, including existing sensitive receivers;
 - (b) confirm the operational noise predictions of the project based on the final design. Confirmation must be based on an appropriately calibrated noise model (which has incorporated additional noise monitoring, and concurrent traffic counting, where necessary for calibration purposes). The assessment must specifically include verification of noise levels at all fixed facilities, based on additional noise monitoring undertaken at appropriately identified noise catchment areas surrounding the facilities;
 - (c) confirm the operational noise and vibration impacts at adjoining development based on the final design of the project, including operational daytime $L_{Aeq\ 15\ hour}$ and night-time $L_{Aeq\ 9\ hour}$ traffic noise contours;

- (d) review the suitability of the operational noise mitigation measures identified in the documents referred to at conditions A2(b) and A2(c) and, where necessary, investigate and identify additional feasible and reasonable noise and vibration mitigation measures required to achieve the noise criteria outlined in the *NSW Road Noise Policy* (DECCW, 2011) and *NSW Industrial Noise Policy* (EPA, 2000), including the timing of implementation;
- (e) include a consultation strategy to seek feedback from directly affected property owners (including educational institutions) on the noise and vibration mitigation measures; and
- (f) procedures for the management of operational noise and vibration complaints.

The ONVR is to be verified by a suitably qualified and experienced noise and vibration expert. The ONVR is to be undertaken at the Proponent's expense and submitted to the Secretary for approval prior to the commencement of construction of physical noise mitigation structures, unless otherwise agreed by the Secretary.

The Proponent must implement the identified noise and vibration control measures and make the ONVR publicly available.

- E38 Within 12 months of the commencement of the operation of the SSI, or as otherwise agreed by the Secretary, the Proponent must undertake operational noise and vibration monitoring to compare the actual noise and vibration performance of the SSI against the noise performance predicted in the Operational Noise and Vibration Review required by condition E37 and the documents referred to in conditions A2(b) and A2(c). The monitoring program must be documented in an **Operational Noise and Vibration Compliance Report**. The Operational Noise and Vibration Compliance Report must include, but not be limited to:
- (a) details of the noise and vibration monitoring program including methodology, location and frequency of noise monitoring;
 - (b) results of the monitoring program and an assessment of these against the operational noise criteria specified in the Operational Noise Management Plan required by condition E34 and noise levels predicted in the Operational Noise Review required by condition E37 and the documents referred to in conditions A2(b) and A2(c);
 - (c) details of any complaints received relating to operational noise and vibration impacts;
 - (d) any required recalibration of the noise and vibration model taking account considerations such as traffic numbers and land use change (if applicable);
 - (e) an assessment of the performance and effectiveness of the applied noise and vibration mitigation measures with regard to the operational noise criteria specified in the Operational Noise Management Plan required by condition E34; and
 - (f) identification of any further feasible and reasonable noise and vibration mitigation measures required to meet the noise criteria specified in the Operational Noise Management Plan, where the criteria are exceeded, including timing and responsibilities for implementation.

The Proponent must provide the Secretary and the EPA with a copy of the Operational Noise and Vibration Compliance Report within 60 days of completing the operational noise monitoring, or as otherwise agreed by the Secretary.

- E39 The Proponent must implement further feasible and reasonable mitigation measures (where required) as identified in the Operational Noise and Vibration Compliance Report in consultation with affected property owners.

TRANSPORT AND ACCESS

- E40 At both 12 months and 5 years after the commencement of operation of the SSI, or as otherwise agreed to by the Secretary, the Proponent must prepare a **Road Network Performance Review Plan** in consultation with Transport for NSW and the relevant councils that includes:
- (a) an updated analysis, including modelling of traffic impacts to the adjoining road network (including impacts on local roads and rat-running), as a consequence of the SSI. This must include a review of new information available about potential land use changes, and any traffic changes as a result of other major road projects within the project area;