NSW EPA

Our reference: DOC14/161759
Contact: Peter Morrall

Alexander Scott
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Scott,

EPA response to public exhibition – WestConnex M4 Widening EIS (SI 6148)

I refer to your letter dated 11 August 2014 inviting the NSW Environment Protection Authority (EPA) to make a submission regarding the Environmental Impact Statement (EIS) for major civil construction works on the WestConnex M4 widening project.

The EPA has reviewed the EIS and provided comments and recommendations in relation to the conditions of approval for the key issues of air quality, noise and vibration, surface water and groundwater (Attachment 1).

The EPA would appreciate a copy of the submissions received by the Department of Planning and Environment (DP&E) in relation to the exhibition of the EIS. The EPA also requests the opportunity to comment on the draft conditions proposed by DP&E and recommend additional conditions of approval based on the proponent's response to submissions.

If you wish to discuss any of the issues raised in this letter, please contact Peter Morrall, Senior Operations Officer, EPA on 9995 6810.

Yours sincerely

18.09.2014

Mark Hanemann
A/Manager Infrastructure
Environment Protection Authority

Attachment 1: EPA's submission on the Environmental Impact Statement for the WestConnex M4 Widening Project

PO Box 668 Parramatta NSW 2124
Level 13, 10 Valentine Avenue, Parramatta NSW 2150
Tel: (02) 9995 5000 Fax: (02) 9995 6900
ABN 43 692 285 758
www.epa.nsw.gov.au

Attachment 1: EPA's submission on the Environmental Impact Statement for WestConnex M4 widening project.

ENVIRONMENT PROTECTION LICENCE

In accordance with Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act), this project will require an environment protection licence for construction. The proponent will need to make a separate application to the EPA for this licence if project approval is granted.

AIR QUALITY

The EPA has reviewed the air quality assessment completed for the WestConnex M4 Widening project. The review has focussed on those aspects of the assessment that could materially affect ambient air quality at local sensitive receptors.

Todoroski Air Sciences (TAS) Air Quality Assessment (July 2014) has provided insufficient information to assess against the *Approved Methods for Modelling and Assessment of Air Pollution in NSW*. Potential impacts at the nearby receptors as the result of the M4 widening have not been provided in the report.

The EPA advised the Department of Planning and Environment in correspondence dated 30 June 2014 that the assessment did not contain sufficient information to demonstrate compliance with the EPA's impact assessment criteria.

The EPA recommends the presentation of the full screening dispersion modelling results together with the results of a model validation study. The final air quality impact assessment should provide much greater clarity regarding the predicted impacts of the proposal. The results of the dispersion modelling are to be included in the final report - that is the predicted ground level concentrations of the pollutants of concern at various distances from the road. This information should be presented in conjunction with the percentage change in ground level concentrations.

Off Road Diesel Emissions

The environmental impacts associated with off road diesel equipment can be a major source of fine particles. The EPA recommends that the proponent assess the environmental impacts associated with heavy vehicles including off road diesel equipment and plant used in the construction of the project. This should include but is not limited to:

- Compliance with relevant and current emission standards as prescribed in Australian design Rules for heavy duty engines and vehicles.
- Strategies for minimising air emissions from off road diesel equipment including but not limited to graders, bulldozers, loaders etc.
- Confirmation that all off road diesel equipment will meet best available diesel emissions standards or be fitted with an appropriate diesel exhaust treatment device where possible.

WATER QUALITY

The EPA has reviewed the EIS (SMEC, August 2014) and Soils, Water & Waste Technical Study (SMEC July 2014) and provides the following comments:

Surface waters
Standard erosion and sediment controls may not be adequate in areas affected by contamination. It is noted that effective management of risk for these areas would require appropriate remedial measures as well as the preparation of an Environmental Management Plan to manage the contamination.

In these areas, the EPA recommends that an assessment of water quality impacts and mitigation options is required to establish appropriate wastewater controls and treatment systems prior to any discharges to stormwater systems or creeks. This primarily relates to the land based disturbance of contamination.

The proposed mitigation measures for in-channel sediment associated with bridge construction activities within the Duck River channel would be adequate if proposed management measures are implemented including:

- Minimising the area of mangroves to be cleared.
- Installation of temporary coffer dams (sheet piling) around pier
- Use of a silt curtain, subject to consideration of tidal flow velocities.
- Use of sheet piling around pier construction sites to provide a working environment isolated from the surrounding water.
- Where practicable, programming works likely to disturb aquatic sediments to 'slack water' periods.
- Water quality monitoring.

It is recommended that the proponent commit to a combination of the above approaches, for example isolating the works from waters and providing additional silt curtaining to protect water quality.

Groundwater
Appendix G, Section 5.5.1 Groundwater, Construction states that: "*If construction works are to include dewatering, additional investigations should be undertaken to assess potential impacts on surrounding groundwater users and on the Quaternary aquifer resource. Any potentially adverse impacts identified should be managed, mitigated and monitored appropriately.*"

This indicates that there is no proposed groundwater dewatering. If construction works include dewatering then further investigations should be undertaken in relation to treatment and disposal of the dewatered groundwater not just in relation to groundwater users and the aquifer resource.

Environmental Management Measures
The EIS provides no detailed information about the environmental management measures relating to surface water and groundwater for the construction and operational phases of the project.

The EPA recommends that the proponent should provide additional details including:

- A concept erosion and sediment control plan
- The sizing, proposed location and discharge characteristics of the proposed erosion sediment control techniques for both uncontaminated and potentially contaminated soils and sediments;
- The current sizing, proposed sizing and changes to current detention systems for the above ground works;
- The type, location and size of the proposed water sensitive urban design systems; and
- The proposed stormwater management solutions for the support facilities, including the guidelines applied to the proposal, such as the Council Development Control Plans and Water Sensitive Urban Design manuals.

The EPA recommends the conditions of any consent include the following:

Prior to works commencing the proponent must develop a comprehensive Surface Water Management Plan (SWMP) to be developed in consultation with the EPA. The SWMP must include but not be limited to:

- *a) address construction and operation monitoring, management and response arrangements*
- *b) identification and estimation of the quality and quantity of all pollutants that may be introduced into the water cycle by source and discharge point for the construction and operation phases*
- *c) an assessment of the potential impact of discharges on receiving surface waters and human health*
- *d) a Surface Water Quality Monitoring Program (SWQMP)*
- *e) a Soil and Water Management Plan (SWMP) to cover soil erosion and sediment control measures for any areas that may be disturbed.*

The assessment of the potential impact of discharges on receiving waters must include but not be limited to:

- *a) detailed assessment of baseline data on current water quality in any receiving waters that could be affected by the project*
- *b) a statement of the ambient Water Quality Objectives (WQOs) and the environmental values for the receiving waters relevant to the proposal*
- *c) a statement of the indicators and associated trigger values or criteria for the identified environmental values*
- *d) assessment of the significance of any identified impacts on surface waters including consideration of the relevant ambient water quality outcomes. Demonstration of how the proposal will be designed and operated to:*
  - *a. protect the WQOs for receiving waters where they are currently being achieved; and*
  - *b. contribute towards achievement of the WQOs over time where they are not currently being achieved.*
- *e) use of the appropriate level of protection for each contaminant (for example, contaminants that bio-accumulate should have a 99% protection level).*

The SWQMP must be prepared by a suitably qualified and experienced person and include but not be limited to:

- *a) a statement of the ambient Water Quality Objectives and environmental values for the receiving waters relevant to the proposal*
- *b) a statement of the indicators and associated trigger values or criteria for the identified environmental values*
- *c) trigger values for action and associated actions or mitigation measures if trigger values are exceeded*
- *d) a water quality monitoring program with relevant analytes and with a sampling distribution and frequency appropriate to the nature and extent of potential pollution and activities being conducted onsite*
- *e) location of discharge points and monitoring locations.*

The SWMP must be prepared by a suitably qualified and experienced person and include but not be limited to:

- *a) soil erosion and sediment control measures that comply with the practices and principles contained in Managing Urban Stormwater – Soils and Construction, Volume 1 (the Blue Book)*
- *b) design calculations and sizing for all clean water diversion bunds and sediment basin(s) on site*
- *c) plan drawings showing the locations for soil erosion and sediment control practices for the site*
- *d) written text detailing the installation, monitoring and maintenance requirements for all of the soil erosion and sediment control practices*
- e) *drawings of any engineering structures such as sediment basin(s) and clean water diversion structures, including design standards and management regimes to return the system to design capacity following rainfall events.*

NOISE and VIBRATION

The EPA has reviewed the EIS (SMEC, August 2014) and Construction and Operational Road Traffic Noise and Vibration Impact Assessment (CORTNVIA), (SLR July 2014) and provides the following comments:

Criteria Derivation

At most monitoring locations the reported Rating Background Level (RBL) for evening, as reported in the EIS and CORTNVIA was equal to the day RBL, while at one location the difference between the daytime and night time RBL was only 2 dBA (CORTNVIA page 23). The limited diurnal variation in background noise level was explained in the CORTNVIA as being consistent with observed traffic flows on the existing M4 Motorway. This has not been verified during the assessment but considered a reasonable explanation based on professional advice.

Noise Management Levels (NML) derived from measurements near building façades were adjusted in the CORTNVIA by -2.5 dBA to account for façade reflection. This is acceptable.

Some active recreation areas were not assessed for construction or operational noise impacts in the CORTNVIA. However, those areas are either close to more sensitive land uses (residences) or further from the road than other active recreation areas in the vicinity, so are not likely to be the most affected receivers.

The CORTNVIA stated that recommended safe working distances for human response (page 73) were referenced from *Assessing Vibration: a technical guideline* (DEC 2006). The guideline does not recommend safe working distances, and it appears that safe working distances referred to have instead been calculated from the criteria presented in the guideline. However this calculation process was not explained in the CORTNVIA.

The "safe working distance" in the CORTNVIA for human response to vibration induced by a vibratory pile driver was equal to the upper end of the range of safe working distances specified for cosmetic damage. The distance given seems to be an underestimate, because human response thresholds for vibration are typically much lower than cosmetic damage thresholds.

The EPA recommends that safe working distances for human response should be justified, by explaining how the distances provided in the CORTNVIA were derived.

Construction Noise and Vibration

Exceedences of Noise Management Levels (NML) by up to 49 dBA (standard hours) / 60 dBA (outside standard hours) were predicted in the CORTNVIA for residential sensitive receivers, with 96 residential receivers across eight receiver groups expected to receive road traffic noise above the 'highly noise affected' level in the *Interim Construction Noise Guideline* (ICNG, DECC 2009).

The EPA recommends that the predicted level of construction noise impact warrants consideration in requiring respite periods or alternative accommodation for receivers expected to be affected above the 'highly noise affected' level.

The CORTNVIA (pages 67-68) predicted that construction traffic would result in temporary increases to daily road traffic noise of greater than 2 dB on local roads, with no increase to L_{Amax} levels. It is unclear what period this increase was predicted over, for example whether it applies to the L_{Aeq} over the peak hour, daytime, night time or 24 hours.

The CORTNVIA recommended that access to construction compounds via local roads should be restricted to daytime hours where practicable, and that access to construction compounds via arterial roads should be favoured.

A number of mitigation measures were proposed in the CORTNVIA for construction noise and vibration, including the early installation of operational barriers and architectural treatments where practicable. These measures should be included in a Construction Noise and Vibration Management Plan for the project.

The EPA recommends that a Construction Noise and Vibration Management Plan (CNVMP) should be developed to manage construction noise impacts on sensitive receivers, including impacts from construction road traffic noise.

Operational Noise and Vibration

The CORTNVIA generally predicted a decrease in road traffic noise levels, because of a decrease in traffic volume due to the re-introduction of tolls on the M4 motorway. This was predicted to lead to additional traffic on Parramatta Road, increasing road traffic noise levels at some receivers. The EIS provided some information on the expected impact of tolling on traffic flow (based on previous experience on the M4), but did not directly relate those predictions to noise impacts.

The 'build' scenario in the CORTNVIA was based on the assumption that the entire WestConnex scheme will be built as presently planned.

The EPA recommends that further information should be provided on the impact of the wider WestConnex scheme on the road traffic noise predictions presented in the CORTNVIA, compared to the M4 widening project alone.

Vehicle speeds in the 2017 and 2027 'no build' scenarios were assumed to be at the speed limit (90km/h), rather than as measured and used in the 2013 'existing situation' model (CORTNVIA page 33). This may have artificially increased the predicted 'no build' road traffic noise levels.

Calculation of Road Traffic Noise (UK Department of Transport 1988) indicates that about 1 dBA difference in source noise level results from a 10km/h change in speed. Therefore a change from speed limit (90km/h) to measured speed (average 76-89km/h, 85th percentile 84-97km/h) for the calculations related to the future 'no build' scenarios is unlikely to change predicted road noise levels by more than 2 dBA.

Main carriageway pavement conditions in the 'no build' 2017 and 2027 scenarios were assumed in the CORTNVIA (pages 32-33) to be the same as current conditions (including degraded sections), not repaired or maintained. The 'build' scenarios were modelled with repaired and extended Open Grade Asphalt (OGA). This may have resulted in noise levels from the 'no build' scenarios being over-predicted by 1 to 2 dBA (based on the correction factor used in the CORTNVIA).

The EPA recommends that Justification should be provided for not including repaired and maintained asphalt in the future 'no build' scenarios.

The barrier assessment in Appendix G of the CORTNVIA states that modifications to the existing barrier referred to as NW.A02.EB04 are not feasible due to the design of the road viaduct at this location.

The EPA recommends that further information should be provided on the feasibility and reasonableness of modifying barrier NW.A02.EB04, for example by estimating the cost of modifying the viaduct to support an enlarged barrier.

The EIS and CORTNVIA stated that RMS believe it is unreasonable to consider noise mitigation above the ground and first floor of individual residential receivers, but indicated that all floors of multi-unit residential buildings will be considered (EIS page 8-46, CORTN page 46).

The EPA recommends that once the need for architectural treatment of any residential building has been established by modelling the road traffic noise impact on the most affected floors, all floors of that building should be considered for architectural treatment.

The CORTNVIA predicted that 186 sensitive receivers will be eligible for consideration of property treatment, including 179 residential receivers (page 75). An increase of 1 dB over the predicted result would mean an additional 83 receivers are eligible for consideration of property treatment.

Actual noise impacts, and consideration of required property treatments, should be verified by monitoring at suitable times following opening of the project. This has been adopted in the EIS by including the undertaking of an "operational noise review" within 12 months of the commencement of operation.

The CORTNVIA predicted an increase to the magnitude and number of maximum noise events at some receivers, and refers to ongoing RMS strategies to reduce road noise across the greater network. Those strategies do not appear to form part of this project, but are expected to reduce impacts over time.

Specific measures to reduce maximum noise events for the project (for example, minimising exhaust braking by modifying grades on the main carriageway and ramps) have not been explicitly discussed in the CORTNVIA. However the proposed mitigation measures, for operational noise more generally, will have some impact on maximum noise events.