NSW GOVERNMENT | Health
Northern Sydney
Local Health District

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Dear Ms Scott,

RE: Northern Sydney Public Health Unit (NSPHU) comments on Beaches link and Gore Freeway Connection (project SSI-8862)

Thank you for the opportunity to comment on the above project. Although project SSI-8862 is for the Beaches Link and Gore Hill Freeway (BL), it is understood that the intention is to construct the project to connect with the Western Harbour Tunnel and Warringah Freeway Upgrade project (SSI-8863), which obtained planning approval on 21 January 2021. Therefore the most appropriate scenario to assess for health impacts is the "Do Something Cumulative (DSC)" scenario which includes all developments. The following comments focus on health impacts associated with operational ambient and tunnel air quality and assume that the methods and modelling of traffic scenarios and air quality presented in the Environmental Impact Statement (EIS) are appropriate.

Ambient Air Quality Impacts

Although National Environment Protection (Ambient Air) Measures (NEPM) have been set for regional air quality, it should be emphasised that applying these to the assessment of an individual project is not necessarily appropriate and that evaluating the impact of incremental changes in air quality should be undertaken when assessing health impacts of projects such as SSI-8862.

The modelling based on expected traffic flows predicts an improvement in air quality in some areas and a deterioration in some others. The assessment of changes in air quality should be considered in the context that current air quality in some parts of the project region do not currently comply with the NEPM goals and that pollutants such as particulate matter do not have a threshold below which exposure is without health effects.

The largest predicted decrease in annual $PM_{2.5}$ concentration presented in the EIS for DSC scenario is 2.12 $\mu g/m^3$ in 2027 and 2.28 $\mu g/m^3$ in 2037. The largest predicted increase in annual $PM_{2.5}$ concentration presented in the EIS for DSC scenario is 0.86 $\mu g/m^3$ in 2027 and 0.71 $\mu g/m^3$ in 2037. Notwithstanding, the predicted decreases for some areas, the increases predicted in others indicate that all reasonable and feasible measures need to be undertaken to reduce community exposure to pollutants.

Although Table I-48 (Appendix H Technical working paper – Air Quality annexure I) lists the 10 most effected Residential, Workplace & Recreational (RWR) receptors, it is unclear where these receptors are geographically located and the population they would represent. When comparing Figures I-48

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Although Table I-48 (Appendix H Technical working paper – Air Quality annexure I) lists the 10 most effected Residential, Workplace & Recreational (RWR) receptors, it is unclear where these receptors are geographically located and the population they would represent. When comparing Figures I-48 (DS-BL - 2037) and I-50 (DSC -2037) it appears that the areas are likely to be different dependent upon whether the assessment is being done for DS-BL or DSC projects. Unfortunately the scale of these figures does not allow the above information to be obtained.

Traffic Flows

A sensitivity analysis using a "worst case scenario" and a "sensitivity analysis scenario" has been presented around each of the project's ventilation outlets.

Figure 8-99 describes the levels for annual average $PM_{2.5}$ for expected traffic, sensitivity and regulatory worst case scenarios. Although not clearly stated it is presumed that the data presented relates to the DSC scenario. It contains data labelled according to individual outlets with the levels presented for Outlets G & H appearing to be identical. This would suggest that the data labelled G & H are actually data for the two outlets combined and the labelling is incorrect. Also it is unclear whether the data labelled Outlet F are actually a combination of data for Outlets C, D & F and mislabelled Outlet F. This should be clarified by the proponents and appropriate changes made to the presentation of the data to allow a full assessment of the data presented.

Assuming the data in Figure 8-100 is correct, the "worst case scenario" predicts a maximum increase in annual $PM_{2.5}$ around ventilation outlet H of approximately 0.65 $\mu g/m^3$ with the "Sensitivity analysis scenario" predicting a maximum increase of approximately 0.34 $\mu g/m^3$ (expected levels are below 0.1 $\mu g/m^3$) The above sensitivity analysis has demonstrated that underestimating traffic flows has the potential to substantially underestimate the levels of $PM_{2.5}$ that local residents will be exposed to and hence their risk of developing health effects. As the use of stacks has the potential to improve dispersion of pollutants from motor vehicle emissions it logically follows that parameters such as exit velocity and ventilation rates should be maximised where practical to mitigate local impacts on air quality around stacks. Given the local air quality in some parts of the project area is already above the NEPM goal for some pollutants, ensuring the project can minimise local air quality impacts to levels described for the expected traffic flow is desirable as the traffic flow described in the sensitivity analysis scenario may conceivably eventuate. This may well require the project to have the capacity to achieve higher ventilation and exit velocity rates than those used in the "sensitivity analysis scenario" assessment.

Co-location of Ventilation Outlets

In the NSW Department of Planning, Industry and Environment assessment report for the Western Harbour Tunnel and Freeway Upgrade (SSI8863) on p83 DPIE considered the issue of co-location of ventilation outlets such Outlets G & H. The DPIE stated that the cumulative air quality impacts of the co-location must be considered in the final design of the outlets. It would be prudent to consider how these cumulative impacts could be minimised in the current assessment for the Northern Beaches Link project.

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Ventilation Outlet Height

Table 8-68 p246 of the technical working paper: Air quality demonstrates that increasing the height of the stack can substantially reduce ground level impacts at sensitive receptors around the Warringah freeway outlet (by up to 26% for annual $PM_{2.5}$). Consequently, increasing the height of some stacks above the current proposed height should be considered as a mitigation strategy to aid dispersion of pollutants.

In tunnel Air Quality

The modelled in tunnel pollutant levels appear to comply with current recommendations made by the NSW Advisory Committee on Tunnel Air Quality (ACTAQ) under expected traffic operations. However, the worst-case design traffic flow scenario traffic operations presented in section 8 of Appendix H (Annexure K): Ventilation report predicts average NO_2 levels over 0.45 ppm for some sections of the tunnel at both 20 & 40 km/hr with DS-BL scenario. Furthermore, section 9 worst-case scenario (breakdown) traffic operations predicts average NO_2 of 0.403 ppm southbound for the DSC scenario in some sections of the tunnel. Hence there is very limited excess capacity should the modelling have underestimated pollutant level. Therefore, consideration should be given to ensuring additional tunnel ventilation capacity is available during exceptional traffic situations.

There is limited information about the short term health effects associated with Particulate Matter exposure although some studies have suggested adverse impacts when people are exposed to periods of 60 to 120 minutes at levels likely to be experienced in the tunnel (Jefferson Vieira et al., 2016). This may be of particular relevance for motorists that travel multiple tunnels during their journeys. As highlighted in the HHRA, closing windows and placing cabin vents onto recirculate can substantially reduce pollutant levels inside vehicles for transits through motorway tunnels. Consequently a robust process that ensures regular communication and reminders to motorist to employ this simple mitigation strategy needs to be implemented by the proponent.

Yours sincerely,

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Director
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Dated: 24th February, 2021.

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