Stantec

Memo

Project:	NSW Rugby Union Centre for Excellence	**Project No:**	46005
To:	Chris Chau	**Date:**	19 September 2022
From:	James Ashpole		

RE: Noise Impact Assessment (NIA) Addendum Letter

1. Introduction

This Addendum Letter details the noise impact assessment from the proposed public game events and associated patron noise. As part of the DA documentation process, Stantec have been engaged by Kane to provide an Addendum Letter addressing the impact from proposed events to be held at the David Phillips Sport Field in association with the proposed NSW Rugby Union Centre of Excellence development.

This letter is to be acknowledged as a modification and addition to the existing noise and vibration impact assessment for the proposed redevelopment of the NSW Rugby Union Centre of Excellence located at 32 Banks Ave, Daceyville NSW 2031. This letter should be read in conjunction with the Acoustic Report for Development Application prepared by Stantec dated, 21st August 2020, and the Acoustic Report for S4.55 prepared by Stantec, dated 10th March 2022.

This assessment has been prepared considering the following documentation:

- Botany Bay Development Control Plan (DCP) 2013;
- NSW Environment Protection Authority (EPA) Noise Policy for Industry, 2017 (NPI 2017)
- Department of Planning (DoP) – Development near Rail Corridors and Busy Roads – Interim Guideline;
- NSW Road Noise Policy (RNP)
- Bureau of Meteorology, Daily rainfall report.
- Acoustic Report for Development Application (AC-RE-DA_003), prepared by Stantec, dated 21 August 2020.
- Acoustic Report for Development Application S4.55 (AC-RE-S4.55_002), prepared by Stantec, dated 10 March 2022.
- Aconex Correspondence detailing Schedule of Existing and Proposed Events provided by Kane Constructions

This report is based on our understanding of the proposed project, application of the relevant state guidelines and professional experience within the acoustic field. Therefore, this report shall not be relied upon as providing any warranties or guarantees.

2. Acoustic Criteria

2.1 Noise Emissions

The Acoustic noise emission criteria has been determined in the Acoustic Report for Development Application (AC-RE-DA_003), prepared by Stantec, dated 21 August 2020 and the Acoustic Report for Development Application S4.55 (AC-RE-S4.55_002), prepared by Stantec, dated 10 March 2022. The criteria has been established with the NSW EPA Noise Policy for Industry (NPI)

In summary, Table 1 presents the project noise trigger levels for noise sources from the proposed development. These have been extracted. The noise levels presented are considered assessed at the boundary of the residential receiver.

Table 1: Project noise trigger levels for industrial noise emissions

Period	Descriptor	Project Specific Noise Emission Levels dB(A)
Residential Receivers		
Day (7:00am to 6:00pm)	$L_{Aeq,15min}$	45
Evening (6:00pm to 10:00pm)	$L_{Aeq,15min}$	43
Night (10:00pm to 7:00am)	$L_{Aeq,15min}$	38
	L_{AFmax}	52

2.2 Traffic Noise Criteria

The L_{Aeq} noise level or the "equivalent continuous noise level" correlates best with the human perception of annoyance associated with traffic noise. Road traffic noise impact is assessed in accordance with the NSW Road Noise Policy (RNP, Office of Environment and Heritage 2011). The criterion (Table 3 – Road Traffic Noise Assessment Criteria for Residential Land Uses) divides land use developments into different categories and lists the respective criteria for each case. The category that is relevant to the proposed use of the site is shown in Table 2.

Table 2: NSW Road Noise Policy – Traffic Noise Assessment Criteria

Road Category	Type of project/land use	Assessment Criteria – dB(A) (external)	
		Day (7am – 10pm)	Night (10pm – 7am)
Local Roads	1. Existing residences affected by noise from new local road corridors	$L_{Aeq, (1\ hour)}$ 55	$L_{Aeq, (1\ hour)}$ 50
	2. Existing residences affected by noise from redevelopment of existing local road corridors		
	3. Existing residences affected by additional traffic on existing local road corridors generated by land use developments		

In the event that the traffic noise at the site is already in excess of the criteria noted above, the NSW RNP states that the primary objective is to reduce the existing level through feasible and reasonable measures to meet the criteria above.

If this is not achievable, *Section 3.4.1 Process for applying the criteria – Step 4* states that for existing residences affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise should be limited to 2 dB above that of the corresponding 'no build option'. The inherent quality of noise from vehicles on public roads arriving to and departing from the site would be indistinguishable from other traffic noise on public roads.

3. Traffic and Crowd Noise Assessment

3.1 Proposed Event Schedule

The schedule of existing and proposed events has been provided by Kane Constructions as of the 1st September 2022. For the most part, these events are as per existing and previously held events and are not expected to introduce any additional attendance or vehicle movements associated with the proposed development. The events are proposed to take place over the course of a day, of which attendees will fluctuate over the course of the day as people come and go from the sports field. As such, the NSW Rugby Schedule shown in Table 3 below details the expected maximum attendees (Spectators and Participants) at any given time across the course of the day.

Table 3: Proposed Rugby NSW schedule at DPSG (extract from Stantec Traffic Report)

Event	Indicative Month	Indicative Day	Estimated Participants (at any one time)	Estimated Spectators (at any one time)	Estimated Total Attendees (at any one time)
Previously Held Events					
Waratahs Academy v Brumbies Academy	1x game in the month of February Saturday	Weekend	46	100	146
Waratahs Academy v Rebels Academy	1x game in the month of March Saturday	Weekend	46	100	146
NSW School Championships (3 Days)	3x games per day over 3 days in a row in the month of June Thursday – Saturday	Mid-week / Weekend	46	138	184
Jack Scott Cup Women's 7s	1 day in the month of April Sunday	Weekend	200	50	250
Subbies Finals	3x weekends in the month of August Sunday	Weekend	46	250	296 – games have happened for the past 20 years
NSW U19 Match	3x games in the month of October or November Sunday	Weekend	46	276	322
NSW U18 Match	1x game in the month of July / 2x games in the month of September Varies YoY from Tuesday to a Sunday	Weekend	46	322	368

Event	Indicative Month	Indicative Day	Estimated Participants (at any one time)	Estimated Spectators (at any one time)	Estimated Total Attendees (at any one time)
NSW U16 Match	2x games in the month of October/November Sunday	Weekend	46	276	322
NSW U15 Match	1x game in the month of October Sunday	Weekend	46	250	294
New Events					
Round of Girls 7s (Frosty)	1x day between June-August Saturday	Weekend	14	280	394
Sydney v Country Juniors	1 Day in the month of August Sunday	Weekend	46	184	230
GPS / SJRU / CJRU Reps	1 day in the month of June Thursday	Mid-week	46	138	184

3.2 Predicted Traffic and Crowd Noise Increase

Primarily, most of the proposed events are previously held events with small sized crowds in attendeance at the David Phillips Sports Field. The intensity of the these events are not anticipated to change the conditions as per the existing operations of the site, where regular sporting events are hosted. Generally the use of the space will remain as is and has been assessed as part of the Acoustic Report for Development Application prepared by Stantec, dated 21st August 2020.

There are a handful of proposed new events, which total to 3 days in the year. These events are noted to be similar sized events with regard to the number of total attendees at any given time. The worst case scenario being the Round of Girls 7s (Frosty) games which is an approximate increase of 26 attendees from the previous maximum event.

As an indication, a 3dB increase would be based on a doubling of attendees for events. Based on this, there is expected to be an overall low level of noise generation increase associated with the new events. An estimated increase of 0.3dB(A) is expected from the previously held games which is not considered to be a perceptible change in noise level.

Similarly to the noise generation potential from attendees, the expected impact from traffic movements in relation to the newly proposed events are minimal and will not adversely impact the existing environment.

3.3 Acoustic Management Strategies

Although it is not expected that the new events will cause any adverse impact to the environment the following strategies should be implemented to manage and minimise the acoustic impact to the affected noise sensitive receivers:

- Attendees should be aware of noise emissions through signage and not create excessive noise. Signage should also be visible at the offsite parking to be mindful of noise when coming and going.
- Noise levels should be managed by staff via monitoring of outdoor areas during the proposed events to discourage any commotion and extraneous noise.
- Clear directions for arrival and departure routes should be conveyed to attendees prior to the event to reduce strain and impact on the local roads system. This will help reduce any vehicles circulating the surrounding area searching for available parking.

4. Conclusion

An acoustic assessment of the noise emissions from the proposed redevelopment for the NSW Rugby Centre of Excellence, located at 32 Banks Ave, Daceyville NSW 2032 has been conducted. NSW Rugby has Proposed a schedule of games across the year.

Noise impact from the newly proposed events are not expected to have significant impact to the nearby noise sensitive receivers. Nevertheless, management strategies have been provided in Section 3.3 to manage attendee related noise for these events.

Even though no assessment can be considered as being thorough enough to preclude all potential environmental impacts, having given regard to the above listed conclusions, it is the finding of this assessment that the development application should not be refused on the grounds of excessive noise generation, as it is expected to comply with all applicable regulations with regards to noise.

The information presented in this report shall be reviewed if any modifications to the features of the development specified in this report occur, including and not restricted to increase in patron noise or number of events.

Appendix A Glossary of Acoustic Terms

NOISE	
Acceptable Noise Level:	The acceptable LAeq noise level from industrial sources, recommended by the EPA (Table 2.1, INP). Note that this noise level refers to all industrial sources at the receiver location, and not only noise due to a specific project under consideration.
Adverse Weather:	Weather conditions that affect noise (wind and temperature inversions) that occur at a particular site for a significant period of time. The previous conditions are for wind occurring more than 30% of the time in any assessment period in any season and/or for temperature inversions occurring more than 30% of the nights in winter).
Acoustic Barrier:	Solid walls or partitions, solid fences, earth mounds, earth berms, buildings, etc. used to reduce noise.
Ambient Noise:	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment Period:	The period in a day over which assessments are made.
Assessment Location	The position at which noise measurements are undertaken or estimated.
Background Noise:	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level.
Decibel [dB]:	The units of sound pressure level.
dB(A):	A-weighted decibels. Noise measured using the A filter.
Extraneous Noise:	Noise resulting from activities that are not typical of the area. Atypical activities include construction, and traffic generated by holidays period and by special events such as concert or sporting events. Normal daily traffic is not considered to be extraneous.
Free Field:	An environment in which there are no acoustic reflective surfaces. Free field noise measurements are carried out outdoors at least 3.5m from any acoustic reflecting structures other than the ground
Frequency:	Frequency is synonymous to pitch. Frequency or pitch can be measured on a scale in units of Hertz (Hz).
Impulsive Noise:	Noise having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent Noise:	Level that drops to the background noise level several times during the period of observation.
LAmax	The maximum A-weighted sound pressure level measured over a period.
LAmin	The minimum A-weighted sound pressure level measured over a period.
LA1	The A-weighted sound pressure level that is exceeded for 1% of the time for which the sound is measured.
LA10	The A-weighted sound pressure level that is exceeded for 10% of the time for which the sound is measured.
LA90	The A-weighted level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).

LAeq	The A-weighted “equivalent noise level” is the summation of noise events and integrated over a selected period of time.
LAeqT	The constant A-weighted sound which has the same energy as the fluctuating sound of the traffic, averaged over time T.
Reflection:	Sound wave changed in direction of propagation due to a solid object met on its path.
R-w:	The Sound Insulation Rating R-w is a measure of the noise reduction performance of the partition.
SEL:	Sound Exposure Level is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain Leq sound levels over any period of time and can be used for predicting noise at various locations.
Sound Absorption:	The ability of a material to absorb sound energy through its conversion into thermal energy.
Sound Level Meter:	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound Pressure Level:	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.
Sound Power Level:	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Tonal noise:	Containing a prominent frequency and characterised by a definite pitch.