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Occupational Hygiene

RCA ref 16104-402/1
Client ref DA 2021-129

15 March 2023

Muswellbrook Shire Council
PO Box 122, Muswellbrook
NSW 2333

Attention: Hamish McTaggart

ACOUSTIC ASSESSMENT PEER REVIEW: DA 2021-129

1 INTRODUCTION AND BACKGROUND

RCA Australia (RCA) have been engaged by Muswellbrook Shire Council (the client) to provide a peer review of a noise impact assessment report prepared to support a development application (DA 2021-129) for a proposed greyhound retirement / retraining facility. The noise impact assessment was prepared by Stantec Pty Ltd (Stantec).

The following proposal description has been taken from the Stantec report:

> *The proposal involves the design of a series of dog kennels and adjacent services buildings to facilitate the care and rehabilitation of up to 400 greyhounds for the purpose of adoption as pets. There are currently 20 kennel proposed buildings with each building containing 20 individual dog kennels.*

This peer review was undertaken by RCA's Acoustics Manager, Alex Rees. Alex has been a member of the Australian Acoustical Society for over six years and has been an acoustic consultant for over 10 years.

RCA have previously prepared a peer review report (16104-401.2 attached to this report). This current report follows on from where the previous report concluded. RCA's conclusion from report 16104-101.2 is reproduced below:

"RCA are satisfied that Stantec have undertaken a fair and representative noise impact assessment, and that Stantec's results and conclusions can therefore be relied upon. However, for completeness, RCA believe that Stantec should include assessment of mechanical plant and vehicle movements both on site and on local roads in their report. Additionally, Day Design noted an error in the night time criterion for R3. It is currently stated to be 38 dBA when it should read 37 dBA. It is noted that site levels are still predicted to comply, however RCA recommend this error is rectified in am emended report for accuracy.

Provided the inclusion of these items does not materially change the outcome of the assessment, RCA believe that the objectives of the appropriate noise guidelines have been met."

On the 2nd of November 2022 RCA attended a Regional Planning Panel briefing where the panel members asked RCA questions regarding the Stantec noise impact assessment. A point raised by the Day Design peer review was that the Stantec noise impact assessment adopted the minimum background noise levels (in accordance with the Noise Policy for Industry) when setting noise criteria and stated that these criteria do not accurately capture the degree of impacts to the community since the measured background levels were less than the minimum threshold. The panel members expressed a view that they would like to better understand how noise impacts might be assessed differently if the predicted site noise had been compared against the measured background noise levels rather than the adopted minimum background noise levels. RCA was tasked to further consult with Stantec and request that they include a discussion on this in an amended report.

2 DOCUMENTS REVIEWED AND OUTSTANDING NOISE ISSUES

RCA held an online technical review meeting with Stantec on the 19th of January 2023 where the following noise issues were discussed:

- Issue 1: How would assessment of noise emergence under the Noise Guide for Local Government differ to current assessment if the minimum background levels are not adopted? RCA note that the response should include all assessment periods, including sleep disturbance. RCA also query the "measured" night time background level being reported (reported to be 30 dB but the charts indicate it was lower).

- Issue 2: Assessment of mechanical ventilation should include predicted noise levels compared against criteria.

- Issue 3: Assessment of cars on local roads has been included, but no mention of car movements on site is discussed (this point was originally raised by Day Design)

Following this technical meeting, Stantec issued an amended report titled *"Greyhound Racing NSW Acoustics Report – Noise Impact Assessment for Development Application* (dated 2nd February 2023, ref: 301350478)".

RCA will comment on these issues individually below.

2.1 ISSUE 1 – MINIMUM VS MEASURED BACKGROUND NOISE LEVELS

Stantec's updated report includes the following note below Table 6:

*"*Stantec maintain that the Noise Policy for Industry criteria is the appropriate assessment criteria for the project, however it was noted that The Panel had a query about criteria derived from the Noise Guideline for Local Government (NGLG) as minimum background levels are not included in the criteria derivation from that guideline. The daytime and night-time criteria in the table above have minimum background levels applied.*

Should the method from the NGLG be used, the daytime criteria would be 35 dBA for R1 and R2, and 37 dBA for R3. The "Raw predicted noise levels" presented in Table 10 range from 14 – 17 dBA for a daytime scenario and would be even less for night-time when the dogs are enclosed in their kennels. Comparing these levels with the NGLG criteria shows that the predicted levels would still be well below criteria for day, evening, and night-time and the outcome of the assessment would remain unchanged."

RCA note that Stantec's response does not include a discussion on LAmax levels and sleep disturbance, but we also note that the Noise Guide for Local Government does not have a corresponding LAmax and sleep disturbance criteria to directly compare against.

RCA are of the opinion that Stantec have adequately addressed this issue and it is now resolved.

2.2 MECHANICAL PLANT ASSESSMENT

Section 5.2 of the updated Stantec report begins *"As the detailed design and selection of mechanical plant has not been completed, a maximum noise level assessment will be conducted"*. What follows is a list of assumptions including maximum sound power levels for onsite mechanical plant. This section concludes *"Given the above, the assessment indicates that mechanical noise criteria (provided in Table 6) will be able to be achieved".*

RCA made the point during the technical meeting with Stantec that the ordinary reader will not be able to infer compliance with the noise criteria based on the assumed sound power levels. RCA had recommended that noise levels should be predicted at each receiver based on the assumed sound power levels of the mechanical plant in order to demonstrate compliance with the criteria, but we see this detail was not added to the updated report.

Despite being of the view that Stantec did not clearly demonstrate that mechanical plant will comply with noise criteria, RCA do agree with Stantec that mechanical plant can be selected or modified if necessary, in order to achieve compliance.

RCA recommend that if this proposal receiver approval, that a more detailed assessment of mechanical plant be undertaken as part of the construction certificate based on selected plant.

2.3 TRAFFIC MOVEMENTS IN CARPARK

Section 5.3.2 of the updated Stantec report states “An assessment of the predicted noise levels due to cars in the car park has been conducted”. The assessment concludes that the worst case 15 minute LAeq would be approximately 22 dBA, which is well below the daytime criterion.

RCA are satisfied that this issue has been addressed.

3 RCA’S CONCLUSIONS AND RECOMMENDATIONS

RCA’s previous report concluded that Stantec had undertaken a fair and representative noise impact assessment in accordance with the most relevant noise guideline, which is the Noise Policy for Industry. Following the November Regional Planning Panel briefing, RCA understood there to be three outstanding noise issues for Stantec to address in an updated report. RCA are satisfied that Stantec have now adequately addressed two of the three open noise issues and that the third issue (mechanical plant) can most easily be resolved at the construction certificate stage.

Yours faithfully

RCA AUSTRALIA

Alex Rees
Acoustics Manager

ATTACHMENTS
RCA report 16104-401.2

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RCA ref 16104-401/2
Client ref DA 2021-129

27 October 2022

Muswellbrook Shire Council
PO Box 122, Muswellbrook
NSW 2333

Attention: Hamish McTaggart

ACOUSTIC ASSESSMENT PEER REVIEW: DA 2021-129

1 INTRODUCTION AND PROPOSAL DESCRIPTION

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The following proposal description has been taken from the Stantec report:

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This peer review was undertaken by RCA's Acoustics Manager, Alex Rees. Alex has been a member of the Australian Acoustical Society for over six years and has been an acoustic consultant for over 10 years.

2 DOCUMENTS REVIEWED

RCA have reviewed various documents in preparing this letter, including the Statement of Environmental Effects and submissions from the community, however this technical review is primarily based upon the documents outlined in **Table 1**.

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Table 1 *Review documents*

Document author	Document title	Revision
Stantec	Greyhound Racing NSW, Acoustic Report, Noise Impact Assessment for Development Application Ref:301350478	Rev 002, dated 8/10/2021
Stantec	Greyhound Racing NSW, Acoustic Report, Noise Impact Assessment for Development Application Ref:301350478	Rev 004, dated 24/5/2022
Day Design	Animal Boarding Establishment – 1949 Martindale Road, Martindale, Acoustic Peer Review Ref: 7601-1.1R	Dated 18/08/2022
Stantec	Memo – Re: Response to Day Design Acoustic Review	Rev 02, dated 23/09/2022

3 REVIEW PROCESS

The flow chart below illustrates the review process. A copy of the most recent RCA comment register is attached to this letter.

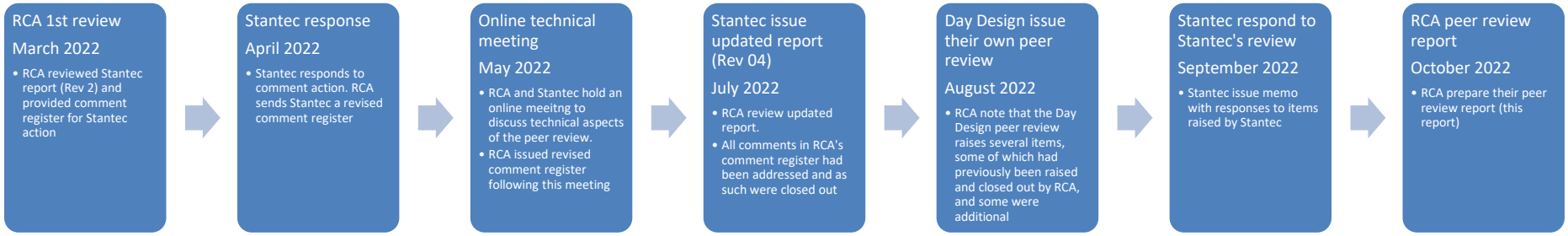

Figure 1 *Peer review process and timeline*

4 REVIEW FINDINGS

4.1 BACKGROUND INFORMATION

RCA firstly note that assessing noise from dog kennels can be technically tricky. One reason it is tricky is because it can be difficult, or there can be dispute, regarding finding a representative scenario to assess. This is because dogs are mobile and do not generate constant noise. The noise consultant therefore must determine a typical worst-case scenario which includes assumptions regarding the location of the noise source (and how much attenuation will likely be offered from structures blocking the line of sight between source and receiver) and how intense a group of dogs will bark during a typical worst-case scenario. An additional consideration is whether the noise source (primarily barking dogs) has any inherent characteristics beyond the absolute noise level that make the noise additionally annoying.

4.2 NOTES ON AVAILABLE NOISE GUIDELINES

To complicate the assessment, RCA note that there is not a specific assessment guideline that was written to assess noise from dog kennels. The two most appropriate noise guidelines for this assessment would be the *NSW Noise Policy for Industry* (NPfI) (EPA, 2017) and the *Noise Guide for Local Government* (EPA, 2013). Note that there is an updated Noise Guide for Local Government document but it remains in draft form.

The NPfI was written to assess the noise impacts from large industrial activities, specifically those that are listed within Schedule 1 of the Protection of the Environment Operations Act 1997. A common noise characteristic among these types of activities is that the operation (and therefore noise) is often constant in nature and that these activities often operate 24-hours a day, seven days a week. RCA note that the NPfI was not strictly written to assess noise from dog kennels, however the NPfI provides a scientific approach and framework for determining project specific noise goals and for assessing noise impacts, including the assessment of annoying characteristics. The NPfI is likely referenced in the majority of noise impact assessments to support development applications, despite the fact that the majority of development applications are not for Scheduled Activities. Stantec have chosen to base their noise impact assessment upon the NPfI, which RCA considers to be reasonable.

The Noise Guide for Local Government is an alternative guideline (or could perhaps be used to supplement the assessment) and provides context to the term “Offensive noise”, as defined in the Protection of the Environment Operations Act 1997. The Noise Guide for Local Government provides the below checklist that could be used by an authorised officer to determine if a noise is offensive, noting that not all questions need be answered in the affirmative to determine that a noise is offensive. For comparison only, RCA have included a note on how the NPfI considers the same question.

Table 2 *Offensive noise checklist and corresponding NPfI approach*

Offensive noise checklist from Noise Guide for Local Government (EPA, 2013)	RCA's interpretation of how the NPfI considers the same question
Q1. Is the noise loud in an absolute sense? Is it loud relative to other noise in the area?	The NPfI requires a quantitative assessment of the cumulative industrial noise (if applicable) as well as the level of intrusiveness (relative noise) of the proposal.
Q2. Does the noise include characteristics that make it particularly irritating?	The NPfI provides quantitative analysis methods to test for: tonality, low frequency, intermittency (at night only), duration (NPfI will increase the project noise trigger level for single noise events within an assessment period).
Q3. Does the noise occur at times when people expect to enjoy peace and quiet?	The NPfI requires project noise trigger levels are derived for day, evening and night time periods.
Q4. Is the noise atypical for the area?	The NPfI presupposes that we are considering "industrial noise". While not exactly the same, the NPfI provides "amenity" criteria which is regarded as reasonable cumulative industrial noise for a given receiver land type (for example, rural residential has different amenity criteria to urban residential).
Q5. Does the noise occur often?	Under the NPfI, a typical worst-case 15-minute scenario would be assessed.
Q6. Are a number of people affected by the noise?	This is not really considered when assessing impacts but might inform a discussion on reasonable and feasible mitigation measures.

RCA note that most items in this checklist are covered by the NPfI assessment framework (the only exception probably is Q6). However, while this checklist can be answered qualitatively, the NPfI provides statistical and other quantitative analysis methods to ensure a consistent assessment approach.

Overall, while RCA can see some merit in a consultant deciding to assess dog kennel noise against the *Noise Guide for Local Government*, RCA does not believe there is a mandate to use this guideline. RCA also believe that at the planning stage, the NPfI provides a more robust and scientific assessment framework. Ultimately, if only one guideline was chosen for assessment purposes, RCA believe the NPfI to be the more appropriate of the two guidelines. While RCA would not consider it to be incorrect to assess against both guidelines, we note that there would be some redundancy in this approach, since the two guidelines largely share the same objectives. In most cases, RCA would expect that any noise that were deemed "offensive", would also exceed project noise trigger levels derived in accordance with the NPfI.

RCA therefore support Stantec's decision to apply the NPfI to this assessment and do not believe Stantec was required to additionally assess the proposal against the Noise Guide for Local Government.

4.3 STANTEC'S APPROACH TO NOISE MODELLING

Stantec measured barking dogs at an existing kennel and have used these measurements as an input into a computer noise model (Stantec uses reputable software SOUNDPLAN, which RCA does not hold a license for). After holding an online meeting with Stantec, RCA are satisfied that representative noise measurements were converted in appropriate noise model inputs. RCA also note that well known noise propagation algorithms were used for noise predictions and that model configuration settings provided in the report appeared reasonable.

4.4 RCA'S PRIMARY COMMENTS THAT HAVE SINCE BEEN RESOLVED

RCA's comment register is attached to this letter. A summary of the primary queries and their resolution are shown in **Table 3**.

Table 3 *Primary queries and resolutions*

RCA query	Resolution
Stantec's Rev 02 report did not assess the potential for noise enhancing weather during day, evening and night, for each of the four seasons	Stantec's Rev 04 report assumed noise enhancing weather conditions at all times, and demonstrated that noise compliance was still achieved
Stantec's Rev 02 report had a typo in the derived noise criteria	This was resolved in Rev 04 report.
Stantec's Rev 02 report had a typo for the calculated sound power of barking dogs	This was resolved in Rev 04 report.
Stantec's Rev 02 report did not consider if barking dogs had any inherent annoying characteristics.	Stantec's Rev 04 report adopted a penalty for two annoying characteristics: tonality and intermittency. The report demonstrated that noise compliance was still achieved.

4.5 REVIEW OF DAY DESIGN'S PEER REVIEW

Day Design then completed their own peer review. These comments, Stantec's response, and RCA's own commentary is provided in **Table 4**. Note that comments from Day Design and Stantec below have been paraphrased.

Table 4 *Day Design peer review and Stantec's response*

Day Design comment	Stantec response	RCA's commentary
1. The NPfI is the only guideline considered for the assessment	In absence of a prescriptive guideline, the NSW NPfI is commonly referred to as best practice.	RCA agree that assessment against NPfI alone is sufficient, with the exception that road noise should have been considered against the Road Noise Policy (discussed later)
2. Note only	No response given	-
3. Note only	No response given	-
4. Distances from site to the "nearest residential receivers" are not consistent with architectural drawings. Day Design also contested that the assessment location may not have exactly been in the correct location (RCA interpret that any error would have been less than 30 m). Day Design also contend that some receivers (much further away) were left out of the assessment. Day Design also note that the kennels offer less shielding to distant receivers south-west that were not assessed.	There was inconsistency between reference points when measuring the distance between receivers and the proposal, between the Stantec report and architectural drawings. This inconsistency has no bearing on the noise model predictions. The additional receivers not assessed are over 1 km away. Demonstrating compliance at closer receivers infers that compliance will also be met further away.	RCA agree that the model predictions are based on accurate distance between source and receiver. Even if the assessment location was incorrect by 30 m, this difference is negligible when there is more than 500 m distance between the noise source and assessment location. RCA note that the "average" noise levels during the day time presented in Table 9 of the Stantec report (Rev 04) have received an "intermittent" penalty of 5 dB, when this penalty should only apply during the night time period, providing accidental additional conservatism in the results. The margin of compliance (and considering the predicted level would be 5 dB less without the erroneous penalty) appears to support Stantec's position that compliance at the nearest receivers infers that compliance would be achieved for receivers further away, even if the kennels did offer less shielding for these distant receivers.
5. note only	No response given	-

6. Where local weather conditions are not available, adopting “worst case” or noise enhancing meteorological conditions is generally considered acceptable.	Stantec applied category 5 weather conditions (noise enhancing) during night time scenarios.	RCA note that the category 5 noise enhancing conditions appear to have been applied for night time only, however, the day time predictions were made using the ISO 9613 algorithm, which also includes noise enhancing source to receiver winds (in all directions). RCA therefore consider that noise enhancing weather conditions have fairly (and potentially conservatively) been assessed
7. Note only	No response given	-
8. “Updated Stantec Report, Section 3.3, page 6, Table 1, noted that the day time measured LA90,15 minute measurement at location ‘A1’ was 27.5	No response given	The point of this comment is later discussed in Day Design’s comment #9. Day Design make the following points: the attended measurement result does not entirely support the trends (RBL) calculated from the unattended data. RCA also raised this as looking a little unusual, however it is not material to the assessment when we apply the “minimum background levels” prescribed by the NPfI.
9. Stantec object to the assessment adopting the “minimum background levels” prescribed by the NPfI	The NPfI prescribes “minimum background levels” which were adopted since the measured RBLs were lower than these.	RCA consider the NPfI to be the appropriate guideline for this assessment, and as such, the minimum RBLs would apply.
10. NPfI is not the correct guideline for this assessment, and mechanical plant and vehicular movements on site have not been assessed.	Stantec defend the use of the NPfI. Stantec state that appropriate mechanical plant treatment will be selected once details of the plant are known. Stantec provide results of a desktop assessment for traffic on local roads due to the proposal. The result is 10 dB below criteria.	RCA agree with using the NPfI. For completeness, RCA consider that mechanical plant should have been included in the assessment, however, we note that it is expected to be negligible compared to the sound power of barking dogs.

		Stantec missed the point about vehicle movements on site. This would actually be assessed against the NPfI while on site. RCA note however that again this is expected to be negligible. Stantec's desktop traffic results for cars on "local roads" showed that predicted traffic noise is well below criteria. RCA consider that for completeness, this should be included in the report.
11. Day Design note that it appears that the minimum RBLs prescribed by the NPfI have been adopted without any justification.	Stantec state that they presented the "minimum project intrusiveness noise levels"	RCA agree that adopting the minimum RBLs prescribed by the NPfI is correct, but for clarity, Stantec could have explained the process better
12. Day Design contend that the sleep disturbance assessment should be based on the "measured" background noise levels, and not the adopted "minimum background levels" prescribed by the NPfI	The sleep disturbance assessment was conducted in accordance with the NPfI.	RCA agree that the NPfI if the most relevant guideline for this assessment.
13. Night time criterion at R3 should be 37 dBA, not 38 dBA as stated.	Noted. This does not change the assessment outcome.	RCA agrees with both comments. However this should be rectified in an updated report for accuracy.
14. Note only	No response given	-
15. No reference to mechanical plant or vehicle movements on site	See response to comment #10	RCA agree this is a repeat of comment # 10
16. Day Design raised technical concerns with the noise model inputs	Stantec contend that Day Design have misunderstood the noise model inputs, and that Day Design's own desktop calculations do not account for shielding due to kennel structures and potentially other attenuation factors.	RCA note early in this report that these assessments are technically challenging and that there will be some difference in approach between consultants. Through discussions held with Stantec, RCA are satisfied that Stantec have undertaken a fair and representative assessment.

17. Noise enhancing conditions have only been applied during night time.	The effects of temperature inversions have been assessed during night time only as due to the nature of temperature inversions. Furthermore, the nighttime is the most stringent period.	RCA believes Stantec have missed the point that noise enhancing weather should be considered for all assessment periods, however, RCA notes that the ISO 9613 algorithm already incorporates noise enhancing source to receiver winds.
18. See comment #16	See response #16	See response #16
19. Note only	No response	-
20. See comment #16	No response	-
21. Day Design state that it is not clear which scenario has been assessed against which criterion	"Section 5.3.1 is a typical scenario for daytime where the dogs are allowed to roam in the outdoor sections of the kennels, therefore it has been assessed against daytime criterion of 40 dBA. The next section 5.3.2 addresses the night-time period."	RCA agree that this was not very clear to the reader but understand the dogs will be inside their kennels during the evening and night time periods. RCA also note that the predictions for the daytime scenario noise levels still comply with the evening and night time criterion.
22. Combination of previous comments	"See previous responses"	-
23. Repeat of above	"See previous responses"	-
24. Day Design state the management plan will need revision once the assessment is amended	"See previous responses"	Day Design's comment presupposes that the current assessment is insufficient. While there are a few items that should be added for completeness (mechanical plant and vehicle noise), RCA does not anticipate any material change to the outcome of the assessment.
25. Repeat of above	"See previous responses"	-

5 RCA'S CONCLUSIONS AND RECOMMENDATIONS

RCA are satisfied that Stantec have undertaken a fair and representative noise impact assessment, and that Stantec's results and conclusions can therefore be relied upon. However, for completeness, RCA believe that Stantec should include assessment of mechanical plant and vehicle movements both on site and on local roads in their report. Additionally, Day Design noted an error in the night time criterion for R3. It is currently stated to be 38 dBA when it should read 37 dBA. It is noted that site levels are still predicted to comply, however RCA recommend this error is rectified in an amended report for accuracy.

Provided the inclusion of these items does not materially change the outcome of the assessment, RCA believe that the objectives of the appropriate noise guidelines have been met.

Yours faithfully

RCA AUSTRALIA

Alex Rees
Acoustics Manager

ATTACHMENTS
RCA Comment Register

Comment #	Stantec Report section	RCA comment	Stantec response	RCA response April 2022	Updated RCA comments after meeting 3 May 2022	Updated RCA comments after updated Stantec report (Rev04)	Date RCA closed out
A			General Stantec Response:				
			The assessment Scenario 1 predicted levels at least 15 but more likely 20-30 dB below criteria, and the Scenario 2 predicted levels 15 to 21 below criteria. Comments from RCA suggest multiple modelling inputs, and criteria derivation considerations. This includes +3.5 dB for meterological conditions, +5 dB for tonal effects, +5 dB for intermittent noise (see comments below). Even if all of these applied at worst case scenario simultaneously add 13.5 dB. Given that the assessment was already conservative and adding all of the additional factors at worst case brings the predicted levels generally in line with or close to the critiera, Stantec do not believe that the results or the recommendations for the assessment require changes.	Yet to have technical discussion regarding modelling inputs which might have bearing on this point.	This is likely the outcome. I think we need to document that these potential penalties have been accounted for.	Report clearly states that met conditions and annoying characterisictcs have been assessed. Closed	18-07-22
1	Figure 3	The top left corner of the wind rose says "Williamtown RAAF". That station would be ~100km away. Is there available data from a closer station?	Williamtown RAAF is the closest wind rose available from the Bureau of Meterology. If there is a closer wind rose data, we will be happy to use the data and replace figure three.	This becomes less important if you can demonstrate that the proposal can meet criteria under noise enhancing weather. Yet to have technical discussion regarding modelling inputs which might have bearing on this point.	Stantec to review Fact Sheet D from NPI and decide if they will be assessing under "noise enhancing conditions". If so, this wind rose won't be required.	Updated report demonstrates noise criteria can be met under noise enhancing conditions. Closed	18-07-22
2	Figure 3	D2 of the NPI states the assessment must also consider each of the four seasons and assessment periods (day, eve, night) individually (or adopt conservative met conditions). The assessment does not comment on seasonal (d/e/n) wind or winter temperature inversions	The correction factors for a meteorological Category 5 - Moderate (5th out of 6 categories increasing in intensity), range from 1.2 dB in lower frequencies and 5.1 dB around 1k Hz for a distance of 800m. Adding these in the model would produce an avergage increase of 3.5 dB as a conservative approach.	see above.	See above	Updated report demonstrates noise criteria can be met under noise enhancing conditions. Closed	18-07-22
3	Table 1	Not material to the assessment, but I note the attended measurement was taken 2 days after the unattended logging period finished. Is this correct?	This is correct. The battery for the loggers ran out on the 4th of August, then attended measurements were taken on the 6th when the loggers were collected.	Closed.	Closed		29-04-22
4	Table 1	The LA90 (27.5) is quite low (not unexpected) and was determined to be controlled by wind in trees. It seems unlikely then that the calculated RBL would be 32 & 30. Does this indicate that the wind during the 15 minute attended measurement was lower than what was typical during the unnattended logging period? Weather observations made during the attended measurement would help answer this.	Our site notes indicate there was a "small breeze". Yes, it is understood that the attended measurements were taken during a reasonably still day and that typically the area is subject to higher winds than observed during the visit.	Closed.	Closed		29-04-22
5	3.4.1	States that periods of rain have been discarded prior to analysis. Is this based on Williamtown weather data? What about periods of wind > 5 m/s? I assume Stantec determined high wind to be a feature of the area. Monitoring charts showing excluded periods would help visually sanity check comment #4 and #5. I have advised Council to request these monitoring charts.	It is based on weather from Denman which is within 20km.	Please provide monitoring charts in the report including excluded periods.	Please provide monitoring charts in the report including excluded periods.	Updated report includes monitoring charts which show excluded periods. Closed	18-07-22
6	3.4.1	I'm surprised there is 2dB difference in RBL between L1 and L2. Was there an apparent explanation from site observations?	It is likely that this small difference is due to proximity to creek and associated subtly different ecosystems - crickets, insects, breeze in the shrubs and trees.	Closed.	Closed		29-04-22
7	Table 3	See Table 2.1 from NPI which states a minimum daytime RBL of 35 will be adopted. This would mean your daytime intrusiveness criterion would be 40 at both locations.	Noted - this means that our project specific noise emission criteria for daytime is going to be adjusted to 40 dB(A) for both locations. The evening and night time will not change. With this adjustment, it will make the assessment results even more conservative.	Agree Stantec adopted more conservative day time criterion. Yet to have technical discussion regarding modelling inputs which might have bearing on this point.	Stantec to update with new criterion.	Agree with criterion in updated report Closed	18-07-22
8	Table 6	All receivers have the same night time criterion despite Table 3 showing they had different intrusivness criterion.	The lowest of the amenity and intrusiveness criteria are taken for the project specific noise levles. The amenity criteria for night time was 35 dB(A) - the lower than or equal to the intrusiveness criteria from Table 3 for both receiver locations. This applies to both recievers.	I think the Night time Amenity noise criterion is incorrect. Night time Amenity is 40 dB. Night time **Project Amenity** is 35 dB. But the "**adjusted**" Project Amentiy would be 38 dB (add 3 before comparing to intrusiveness, see page 8 of NPI). This means R3 night time criterion would be 38. Stantec have adopted more stringent. Yet to have technical discussion regarding modelling inputs which might have bearing on this point.	Stantec to check NPI and consider if night time criterion needs adjusting.	Agree with criterion in updated report Closed	18-07-22
9	5.1	An Laeq,15 minute of measured dogs is given (70 dBA) but we don't know the distance. Was this information used in the modelling? If you had a representative distance from a 'group' of dogs, this may have been easier/better way to model dogs over a 15 minute period instead of "8000 individual barks", which relies on assumption of "1 in 5 dogs barking simultaneously'.	Yes, the 70 dB(A) was of a group of dogs, with distance 10m from the closest dogs with other dogs at greater distances. This was used for the day time average noise level model scenario. Additionally the maximum noise level from one dog at 10m away was used in a different model scenario. Two methods were used for a more thourough assessment. The measurement of dogs barking were conducted over a 15 minute period.	Let's chat online. As long as you have captured a "typical worst case 15 minutes" you can then represent that as a SWL and use in the model.	RCA is satisfied that Stantec have taken representative measurement of "typical worst case" scenario and then used this as a model input. Closed.		03-05-22
10	5.2	The following modelling inputs should be outlined: met conditions (d/e/n)= ? Ground absorption = ? Number of dogs and distribution = ? Time weighted 15 minute SWL frequency spectrum = ?	Noted - these parameters can be added to the report if required.	Please add. Also indicate whether you used ISO9613 or CONCAWE and met conditions.	Please update report with these inputs (noting discussion regarding met conditions). Include model algorithm (ISO 9613 or CONCAWE with inputs)	Stantec appear to have used a combination of calculation algorithms. CONCAWE was used to determine a meteorology penlaty for noise enhancing weather, and then this was added to results obtained using the ISO 9613 algorithm. RCA are satisfied that model inputs have been stated. Not sure why Table 10 explicity adds a met penality but Table 9 does not. However, note that all criteria is still met even if met penalty has not been added. Also the met penalty added to R3 appears to only be 0.5 dB. Again, this receiver remains well under criterion. Closed	18-07-20
11	5.3.1	It is hard to comment on the reasonableness of "1 in 5 dogs barking 100 times in 15 minutes" as a model input. The report earlier observed that at Central Coast, "1 in 5" barked simultaneously, but this does not infer than 1 / 5 will bark **100 times** in 15 minutes.	During the measurements, we took multiple videos. The following is the number of barks: a) 6 barks in 12 seconds equating to 450 in 15 mins, b) 14 barks in 21 seconds equating to 600 barks in 150 mins c) 20 barks in 10 seconds equating to 1800 per 15 mins. Our assessment has assumed 8000 per 15 minutes as a conservative approach. It was also observed on site that the major barking events did not last long, from 30 seconds to a minute followed by periods of silence and the occasional bark. Perhaps someone who works with the dogs can comment on the frequency of barks. If further investigations occur at the Central Coast site, the number of barks in a 15 minute period can be counted.	Let's chat online. As long as you have captured a "typical worst case 15 minutes" you can then represent that as a SWL and use in the model.	RCA is satisfied that Stantec have taken representative measurement of "typical worst case" scenario and then used this as a model input. Closed.		03-05-22
12	5.3.1	Further to above, a sound power is not provided for each bark. I think it would have been easier to represent a SWL for a group of dogs barking for 15 minutes.	Sound power level of a single bark is provided in Section 5.3.2	see above.	RCA is satisfied that Stantec have taken representative measurement of "typical worst case" scenario and then used this as a model input. Closed.		03-05-22
13	Figure 5	Looking at Figure 5, the Laeq,15 minute level at each kennel looks to be less than 65 dBA. This seems lower than I would have expected (noting the report earlier observed Laeq 70 dBA (with no distance supplied) measured at Central Coast).	70 dB(A) was measured 10 meters from the closest dog and the other dogs were scattered at further distances.	Let's chat online. As long as you have captured a "typical worst case 15 minutes" you can then represent that as a SWL and use in the model.	RCA is satisfied that Stantec have taken representative measurement of "typical worst case" scenario and then used this as a model input. Closed.		03-05-22
14	5.3.2	SWL of 108 was calculated from short term measurements. Is this correct? I get 88 + 20*log10(10)+8 = 116 SWL.	This is a typo and the report will be updated to reflect SWL of 116 dB as a noise source. The predicted noise level at the nearest residential reciever complies with the established noise criteria during the night time.	Please confirm if the correct SWL was used in the modelling scenarios. 8 dB increase might be significant after we potentially add 13.5 dB for other factors such as met and annoying characteristics.	Closed		03-05-22
15	5.3.2	Please check results after confirming SWL. If I use SWL 116 dBA as a point source, a rough calc gives Lamax 53 dBA @ 570 m away. I note ground cover and shielding not accounted for in rough calc.	The night time maximum criteria is 52 dB(A). The rough calc is in marginal compliance with criteria without accounting for ground absorption, effects of topography and most importanty the significant shielding provided by the kennels themselves and the mounds of earth.	Agree.	Closed		29-04-22
16	5.3.2	Temperture inversions during winter might be relevant. See comment #2.	See response for comment #2.	The report should be updated to reflect that met and annoying characteristics have been considered.	The report should be updated to reflect that met and annoying characteristics have been considered.	Stantec have assessed under noise enhancing meteorology conditions. Closed	18-07-22
17	5.3.2	Do we need to consider tonal or intermittent characteristics?	There is one occasion where a 1/3 octave band exeeds its neighbouring bands by 5dB and 7 dB. The correction for this is to add 5 dB to the calculated level at the receiver. Intermittent characteristic factor would also be an addition of 5dB. If this was added to the noise levels for the average assessment, the prediction would become <30 dB(A) instead of <20 dB(A) and still comply.	The report should be updated to reflect that met and annoying characteristics have been considered. Yet to have technical discussion regarding modelling inputs which might have bearing on this point.	The report should be updated to reflect that met and annoying characteristics have been considered. Yet to have technical discussion regarding modelling inputs which might have bearing on this point.	Tonal and intermittent characteristics have both been applied. Closed	18-07-22
18	Council RFI	Please still respond to Council's RFI regarding noise, notingt there will be some overlap with my comments.	We are happy to carry out further investigations at the Central Coast facility to further inform calculations and verify assumptions.	Yet to have technical discussion regarding modelling inputs which might have bearing on this point.	RCA do not require any further investigation field work. Stantec should confirm with Council if there are any outstanding items from their RFI	RCA are satisifed that any outstanding items are now closed.	18-07-22