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Brisbane Road Car Park Redevelopment

Independent Assessment Report on Noise Aspects of Application

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Prepared for: Sunshine Coast Council

12 February, 2018





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1. Introduction

1.1 Overview of Proposed Development

ASK Consulting Engineers Pty Ltd (ASK) has been commissioned by Sunshine Coast Council to provide a review of the noise aspects of the development application for the mixed-use development proposed for Sunshine Coast Council's Brisbane Road car park site bounded by Smith Street, First Avenue and Brisbane Road at Mooloolaba. On surrounding land there is a range of residential, retail and commercial uses

ASK has screened the development application for details relevant to noise. The development includes a podium with retail tenancies and car parking, and three residential towers. A schematic diagram of the proposed development and its location is shown in **Figure 1.1**.



Figure 1.1 Orientation of Development (from DA submission)

The development plans show that the loading dock including waste storage collection is at ground level off Smith Street to the west, at the back of the supermarket in the retirement building. This is evident toward the top of

Figure 1.2.



Figure 1.2 Ground Floor Plan of Development (Drawing 10630 DA11 Issue 8)

1.2 Scope of Review

The scope of the review is to assess the noise aspects as follows:

- (1) Undertake review of relevant development parameters and considerations.
- (2) Review applicant pre-lodgement material.
- (3) Identify key aspects for discussion.
- (4) Assess the development application against the provisions of the planning scheme.
- (5) Assess the information response against the provisions of the planning scheme.
- (6) Prepare assessment report including recommendations and conditions.

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2. Key Issues

This section describes the key issues identified and requested on review of the initial development application that were identified in the ASK noise review report 9001R02V01_draft (dated 14/12/2017) and again in ASK noise and waste odour information request summary report 9001R03V01 (dated 15/12/2017).

2.1 Issue 29: Noise Impacts

2.1.1 Issue

The application has not yet adequately demonstrated that it meets the Nuisance Code and Planning Scheme Policy SC6.15.

2.1.2 Information Required

- (1) A revised noise report should be provided which includes the following:
 - (a) Complete baseline noise monitoring consisting of (i) long-term (5 to 7 day) measurement of noise levels at nearby sensitive uses and at the subject site, and (ii) attended noise measurements to understand and quantify the existing noise sources and impacts onto the site. The monitoring should assess the potential variable noise from surf and the effect of shielding buildings.
 - (b) Assess noise against both (i) EPP(Noise) Schedule 1 'Acoustic quality objectives'; and (ii) 'background plus' type noise criteria for all onsite noise sources.
 - (c) Specify noise limits for proposed mechanical plant.
 - (d) Present additional carpark noise analysis either in the form of (i) noise calculations which consider the reverberant nature of semi-enclosed carparking; or (2) a comparative assessment of future carparking noise versus existing carparking noise based on the change to hourly traffic usage of the carpark across the day and week.
 - (e) Complete a quantitative analysis of the loading dock noise emissions based on proposed noise sources (e.g. refrigerated vehicles) located in a partially enclosed dock located across the road from residences. This analysis would be expected to determine appropriate hours of use, internal treatments to the dock area, and limitations on dock opening area.
 - (f) A more detailed analysis of noise from food and drink outlets and the function facility, should include the following:
 - Present additional information regarding operational hours of nearby similar businesses.
 - (ii) A quantitative analysis of noise emissions from the function facility should determine a compliant internal noise level based on the proposed Rw 35 acoustic rated facade. This should also consider patron noise from balconies, and noise escaping from areas with amplified music through non-soundlock doors.
 - (iii) Consider both Council noise criteria (including recommended 'background plus' criteria) and OLGR Liquor Licensing noise criteria.
 - (g) Review noise impacts onto the development based on the site noise monitoring, uses of nearby premises and proposed noise criteria.



3. Response to Information Request

The information request was addressed by the applicant in the MWA Environmental report "Noise Impact Assessment – Response to Information Request – Proposed Mixed Use Development – Brisbane Road, Mooloolaba" (Job No. 17-173, dated 7/02/2018).

Issue 29: Noise Impacts

- (1) A revised noise report has been provided which includes the following:
 - (a) Baseline noise monitoring has been conducted at the site over 6 days, and attended noise measurements have been undertaken. No comment was provided regarding noise from surf and the effect of shielding buildings, but it was noted that the attended daytime measurements did not note any surf noise.
 - (b) Both (i) EPP(Noise) Schedule 1 'Acoustic quality objectives'; and (ii) 'background plus' type noise criteria have been considered.
 - (c) Noise limits are specified for proposed mechanical plant in report Table 5.
 - (d) Carpark noise analysis is indicated as including reverberant carpark noise.
 - (e) Loading dock noise has been assessed and determined appropriate hours (day and evening), internal treatments (acoustically absorptive soffit), but no dock open area change appears to have been required.
 - (f) A more detailed analysis of noise from food and drink outlets and the function facility, was presented including the following:
 - (i) Additional information regarding operational hours of nearby similar businesses.
 - (ii) A quantitative analysis of noise emissions.
 - (iii) Consideration of Council and OLGR criteria.
 - (g) A review of noise impacts onto the development was conducted albeit not based on site noise monitoring.

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4. Compliance with Sunshine Coast Planning Scheme

4.1 Statutory Instruments

The applicable codes and policy from the Sunshine Coast Planning Scheme 2014 are:

- (2) Part 6.2.7 District Centre Zone Code
- (3) Part 7.2.20 Mooloolaba/Alexandra Headland Local Plan Code
- (4) Part 9.3.1 Use Code Business Uses and Centre Design Code
- (5) Part 9.3.11 Use Code Multi-unit residential Uses Code
- (6) Part 9.3.14 Use Code Residential Care Facility and Retirement Facility Code
- (7) Part 9.4.3 Development Code Nuisance Code and Schedule 6.15 Planning Scheme Policy
- (8) Part 9.4.8 Development Code Transport and parking code
- (9) Part 9.4.11 Development Code Works, services and infrastructure code

4.2 District Centre Zone Code

4.2.1 Requirements of Code

The development is located within a district centre zone. The District Centre Zone Code includes the following prescribed outcome at 6.2.7.2 (2) (m): Development ensures that there is no unreasonable loss of amenity for surrounding premises, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking and public health and safety, having regard to the mixed use nature of the zone.

4.2.2 Review

It is considered that compliance with the Nuisance Code and Policy would satisfy the requirements of the District Centre Zone Code. It is considered that *"ensures that there is no unreasonable loss of amenity for surrounding premises"* is likely to require noise criteria which compare predicted noise emission levels with background levels.

4.3 Mooloolaba/Alexandra Headland Local Plan Code

The development site is within the area covered by the Mooloolaba/Alexandra Headland Local Plan Code 7.2.20. The purposes of this Code include amenity in various locations, but these do not include the site of the development.

4.4 Business Uses and Centre Design Code

4.4.1 Requirements of Code

Section 9.3.1.2(2)(e) of the Business Uses and Centre Design Code indicates that "business use or centre activity avoids or, where avoidance is not practicable, minimises adverse impacts upon the amenity, privacy and environmental quality of nearby residential uses, recognising that activity centres are mixed use environments where some impacts may occur."

Performance Objective PO13 of the Business Uses and Centre Design Code Section 9.3.1 is as follows: "The business use or centre activity does not unreasonably impact upon the amenity or environmental quality of its environs and especially any nearby residential premises." The corresponding acceptable outcome (AO13.1) is that:



"Undesirable visual, noise and odour impacts on public spaces and residential uses are avoided or minimised by:-

- (10) where appropriate, limiting the hours of operation of the business use to maintain acceptable levels of residential amenity relative to the site's context and setting;
- (11) providing vehicle loading/unloading and refuse storage/collection facilities within enclosed service yards or courtyards; and
- (12) locating site service facilities and areas such that they are not adjacent to the frontage of a street or public space."

Performance Objective PO16 of the Business Uses and Centre Design Code Section 9.3.1 is as follows: "Where the business use or centre activity requires the use of acoustic attenuation measures to avoid or minimise adverse impacts on nearby residential premises, such measures are designed and constructed so as to be compatible with the local streetscape, and discourage crime and anti-social behaviour." No acceptable outcome is provided to this Performance Outcome.

4.4.2 Review

It is considered that compliance with the Nuisance Code and Policy would satisfy the requirements of PO13 and PO16.

4.5 Multi-unit residential Uses Code & Residential Care Facility and Retirement Facility Code

4.5.1 Requirements of Code

Performance Objective PO13 of the Multi-unit residential Uses Code Section 9.3.11 is as follows: *"Fences and walls used in landscapes for the multi-unit residential use:- (c) provide an acoustic barrier for traffic noise;"* The corresponding acceptable outcomes (AO13.1 to 13.3) are that:

"Unless required to ameliorate traffic noise or headlight glare, high solid fences or walls are avoided along street frontages.

Front fences and walls have a maximum height of not more than:- (a) 1.8 metres if 50% transparent; or (b) 1.2 metres if solid.

Front fences and walls are setback behind the 2 metre wide landscape strip."

Performance Objective PO9 of the Residential Care Facility and Retirement Facility Code Section 9.3.14 is similar to the above.

4.5.2 Review

The site appears not to be affected by a major road, and is also multistorey and thus a barrier would not likely be required, practical, or acoustically effective to ameliorate traffic noise.

4.6 Nuisance Code and Planning Scheme Policy

4.6.1 Requirements of Code

The purpose and overall outcomes are to prevent or mitigate nuisance emissions from the development and the exposure of proposed sensitive land uses to nuisance emissions from surrounding development.

Performance Objective PO1 of the Nuisance Code Section 9.4.3 is as follows:



"Development, other than development involving live entertainment or amplified sound in a hospitality area or as part of a temporary event, is located, designed, constructed and operated to ensure that noise emissions do not adversely impact on surrounding sensitive land uses.

Note—this performance outcome applies even if noise emissions are generated by sensitive land uses, from sources such as communal areas, service areas, plant and equipment (e.g. air conditioning units) and the like."

The corresponding acceptable outcome AO1 is that:

"Development does not involve activities that would cause noise related environmental harm or nuisance. **OR** Development ensures noise does not emanate from the site through site layout, design, construction, and operation."

Performance Objective PO2 of the Nuisance Code Section 9.4.3 is as follows:

"Development that is a sensitive land use is located, designed, constructed and operated to achieve a satisfactory level of acoustic amenity where there is potential for noise emissions generated from surrounding development to adversely affect the sensitive land use.

Editor's note—this performance outcome relates to a 'reverse amenity' situation where a proposed sensitive land use may be adversely impacted by noise emissions from surrounding development. In such cases, it is contingent upon the proposed sensitive land use to implement measures to ensure a satisfactory level of acoustic amenity is provided to prospective occupants and users of the development."

The corresponding acceptable outcome AO2 is that:

The sensitive land use is not established in an area that will be adversely impacted by noise generated by existing land uses, activities and possible future development in the area. **OR** Where located in an area where adverse noise impacts are likely, the sensitive land use mitigates all potential impacts through site layout, design, construction, and operation."

Performance Objective PO3 of the Nuisance Code Section 9.4.3 is as follows: "Development involving live entertainment or amplified sound in a hospitality area, or as part of a temporary event, provides a satisfactory level of acoustic amenity for surrounding sensitive land uses, having regard to the location and setting of the development and the frequency of the event." No acceptable outcome is provided to this Performance Outcome.

4.6.2 Requirements of Policy

The purpose of SC6.15 Planning scheme policy for the nuisance code is to:

(a) provide advice and guidelines about achieving outcomes in the Nuisance code; and

(b) identify information that may be required to support a development application where:-

(i) nearby existing or planned development may be affected by noise, light, odour or dust, or particulate emissions from the proposed development; or

(ii) the proposed development is likely to be subject to noise, light, odour or dust, or particulate imissions from existing or planned nearby development.

The following documents are included as relevant guidelines in Section SC6.15.9:

- Environmental Protection (Noise) Policy 2008
- Guideline: Application requirements for activities with noise impacts (Department of Environment and Heritage Protection)
- Noise Measurement Manual (Department of Environment and Heritage Protection).



Sections SC6.15.3, SC6.15.4 and SC6.15.5 include advice for preventing or minimising nuisance emissions and imissions associated with:

- SC6.15.3 road traffic noise
- SC6.15.4 noise and/or vibration
- SC6.15.5 live entertainment, amplified music and voices.

The site appears not to be affected by a major road and thus the application of advice in SC6.15.3 does not appear necessary.

Contained within SC6.15.4 is the following advice:

- Compliance with Performance Outcomes PO1 and PO2 of the Nuisance Code may be demonstrated in part or aided by the submission of a noise impact assessment report prepared by a competent person, which properly addresses, describes or includes the following:
 - The results of background noise level monitoring.
 - Comparison of the background noise level with predicted source noise levels using an appropriately recognised methodology and criteria, from the proposed activity at the nearest potentially affected sensitive land uses to determine compliance with criteria as defined in Schedule 1 of the *Environmental Protection (Noise) Policy 2008*.
- Where a sensitive land use is proposed in a locality with existing noise sources, Council may also require submission of a noise impact assessment report prepared by a competent person that includes the following:
 - The results of ambient noise level monitoring.
 - An assessment of the measured and predicted noise levels using an appropriately recognised methodology and criteria. From the assessment, the determination of compliance with the criteria as defined in Schedule 1 of the *Environmental Protection (Noise) Policy 2008.*

Contained within SC6.15.5 is the following advice:

- Compliance with Performance Outcome PO3 of the Nuisance code may be demonstrated in part or aided by submission of a noise impact assessment report prepared by a competent person, which properly addresses, describes or includes:
 - Results of octave band background noise monitoring.
 - An assessment of the measured and predicted noise levels using an appropriately recognised methodology and criteria. From the assessment, the determination of compliance with the criteria as defined in Schedule 1 of the *Environmental Protection (Noise) Policy 2008*.
 - Comment on potential noise impacts associated with patron noise at the premises and noise from departing patrons associated with the entertainment event.
 - Specification of maximum source noise level to be emitted at the premises.

It is noted that the advice proposes assessment using comparison of background noise level but also references Schedule 1 of the EPP(Noise) which does not included criteria for comparison with background noise levels. Therefore, it is considered that two methods should be considered in an assessment, being (i) comparison of predicted noise levels with background noise levels; and (ii) comparison of predicted noise levels with background noise levels; and (ii) comparison of predicted noise levels with acoustic quality objectives contained in Schedule 1 of the EPP(Noise). It is considered that application of method (i) or (ii) alone is not sufficient.

4.6.3 Review

The noise aspects of the Nuisance Code and Policy are addressed in the MWA noise impact assessment report dated 7/02/2018 (MWA Job No. 17-173), hereafter referred to as the MWA report.



The MWA report includes baseline noise monitoring over a six day period. The background noise level at the logging location (Location D) appears to match the lowest background noise level measured at the attended monitoring locations around the site (Locations 1 to 4) and is thus considered appropriate. The background noise levels are also similar to those measured nearby by ASK.

The report considers both acoustic quality objectives and 'background plus' criteria, and determines that the acoustic quality objectives are significantly exceeded already and thus were not considered further in the assessment. This is considered a reasonable approach given the existing noise environment is dominated by road traffic.

Section 4.1 of the MWA report includes a preliminary assessment of mechanical plant noise which demonstrates the nominated criteria are achievable with reasonable acoustic design including an acoustically designed plant room. It is recommended that the mechanical plant noise limits be conditioned and post-construction night-time noise measurements be undertaken with plant operating under typical worst-case conditions to demonstrate compliance with the limits.

Section 4.2 of the MWA report includes an assessment of carpark noise which states that reverberant noise in the carpark is considered. The assessment is unclear with respect to the assumed traffic volumes and vehicle sound power levels. The reported sound power levels in Table 10 are understood to be based on a single vehicle, and in which case appear reasonable. The results in Table 11 indicate compliance albeit with only a 1 dB margin at the residences at 8 Smith Street. Therefore it is recommended that carpark volumes used in the modelling are reported or confirmation be provided that modelled carpark volumes were as per the approved Traffic Engineer's report. The requirement for a low noise carpark surface to minimise tyre squeal should be conditioned.

Section 4.3 of the MWA report includes an assessment of loading dock noise. The results in Table 13 indicate compliance in the day and evening, but non compliance at night, and hence proposes hours of 7am to 10pm which should be conditioned. The assessment does not make reference to refrigerated vehicles, and hence a revised assessment is required which considers refrigerated vehicles else they be restricted to daytime hours (7am to 6pm) Monday to Saturday. The report proposes an absorptive ceiling which should be conditioned.

Section 4.4 of the MWA report includes an assessment of patron dining and function use noise. It is not clear if this considers noise from the hotel roof top, and thus this should be confirmed or added to the model. It is noted that the results in Table 14 indicate marginal (1 dB) compliance in the evening period, and thus the assumptions for patron numbers are critical. The report assumes a minimum acoustic rating of Rw 35 for the building envelope of the restaurant/bar and function facilities and this should be conditioned. It is not clear from the MWA report how open doors were addressed in the modelling, whether doors are also rated to Rw 35, and whether sound locks are also required to be conditioned. Therefore it is recommended that function room outdoor areas are limited to 10pm, to prevent noise leakage from internal areas.

Section 4.5 of the MWA report includes an assessment of the cumulative noise impact which indicates compliance. It is noted that the results indicate a 1 dB margin in the daytime, and no margin in the evening and night.

Section 4.6 of the MWA report includes a preliminary OLGR (Liquor Licensing) noise assessment of amplified entertainment. It is noted that the calculations assume exterior doors are closed, and thus would require a tenancy to have a soundlock or the doors are locked and access is gained from another point. It is requested that the permissible noise levels be indicated for the situation where there is no sound lock (i.e. the door is open).

Section 5.1 of the MWA report includes a review of impacts onto the subject development from surrounding land uses. It has been recommended that a minimum acoustic rating of Rw 30 be applied to the development to account for the noise from nearby land uses. No calculations are provided to support this rating. It is noted that Brisbane City Council require minimum acoustic ratings of Rw 32 and Rw 35 for



glazing in mixed use and centre zones to account for noise from surrounding uses. The Rw 30 recommendation should be conditioned.

Section 5.2 of the MWA report indicates that no state controlled road traffic noise corridors affect the subject site, and that the proposed minimum Rw 30 construction allows external noise to be excluded. This conclusion is in keeping with our expectation for the site in achieveing the maximum design levels in AS2107.

Overall, it is requested that some items require further information.

4.7 Transport and Parking Code

4.7.1 Requirements of Code

Performance Objective PO17 of the Transport and Parking Code Section 9.4.8 is as follows: "Development ensures that access, manoeuvring and parking facilities do not have adverse impacts on people, properties or activities, with regard to light, noise, emissions or stormwater run-off." No acceptable outcome is provided to this Performance Outcome.

4.7.2 Review

It is considered that compliance with the Nuisance Code and Policy would satisfy the requirements of PO17.

4.8 Works, Services and Infrastructure Code

4.8.1 Requirements of Code

Performance Objective PO1 of the Works, Services and Infrastructure Code Section 9.4.11 is as follows: "Air emissions, noise or lighting arising from construction activities and works do not adversely impact on surrounding areas." The corresponding acceptable outcomes (AO1.1 to 1.5) are that:

"AO1.3 Works are only carried out between 7:00am to 6:00pm Monday to Saturday inclusive.

AO1.4 Noise generating equipment is enclosed, shielded or acoustically treated in a manner which ensures the equipment does not create environmental harm."

4.8.2 Review

The allowable hours of construction work in AO1.3 and the outcome AO1.4 could be included in conditions of development.



5. Conclusion

The proposed development generally complies with the requirements of the planning scheme and does not raise any significant issues that cannot be addressed by reasonable and relevant conditions. The application is therefore recommended for approval.

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6. Recommendation

APPROVE WITH CONDITIONS Application No. MCU17/2169 for the Brisbane Road Car Park Redevelopment situated at 7, 9, 13 & 15 First Avenue, 11 Smith Street & Brisbane Road, Mooloolaba as identified in the attached details is recommended for the Decision Notice.

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7. Conditions

The recommended conditions are as follows in Section 7.1 to 7.3.

7.1 Project Specific Conditions

- (1) The noise impact assessment must be updated and re-submitted to Council with the following amendments:
 - (a) Inclusion of a table with the modelled carpark traffic volumes and confirmation that these were in accordance with the approved traffic engineer's report.
 - (b) Consideration of large refrigerated vehicles in the loading dock assessment. In the absence of this information, refrigerated vehicles will be limited to daytime only in **Condition (4)**.
 - (c) Consideration of the hotel roof top bar in the patron noise and amplified music assessments, and the cumulative model.
 - (d) Revised assessment of patron and amplified music emissions with consideration of open doors between internal areas and balconies/outdoor areas, where there is no soundlock. Revised indicative permissible OLGR noise levels may result from this assessment.
- (2) Any fixed plant and equipment* that causes noise (e.g. from basement car-park exhausts, air conditioning units, pool filtration units, refrigeration units, pumps and generators or kitchen exhaust units), must be enclosed, shielded and/or positioned to ensure that the following sound pressure levels for a noise sensitive land use are achieved:

Location where criteria applies at a	Adjusted equivalent continuous sound pressure level $(L_{Aeq,adj,T})$ to be achieved during the day, evening and night time periods			Maximum sound pressure level (L _{Amax})
noise sensitive land				to be achieved
use				during the night time period
	Day 7am-6pm	Evening 6pm-10pm	Night 10pm-7am	Night 10pm-7am
Sensitive receivers	50 dB(A)	49 dB(A)	44 dB(A)	50 dB(A)
(external)				

Note: Measurements must be in accordance with AS 1055.1 - Acoustics – Description and measurement of environmental noise – General procedures. Measurements must be adjusted for tonality and impulsiveness where require

- (3) The carpark surface should be brush finished concrete to minimise tyre squeal noise. Any alternative surface will require a separate acoustic report by a qualified person* to demonstrate through field measurements that carpark noise levels (sound power levels) are not increased beyond those used in the noise impact assessment report.
- (4) The loading dock is to be restricted to the following hours:
 - Non-refrigerated vehicles: Daytime and evening hours of 7am to 10pm Monday to Saturday, and 7am to 6pm Sunday;
 - (b) Refrigerated vehicles: Daytime hours of 7am to 6pm from Monday to Saturday, unless an updated noise report which demonstrates compliance in other periods is submitted; and
 - (c) Refuse collection: Daytime hours of 7am to 6pm from Monday to Saturday.
- (5) The loading dock is to include acoustic absorptive treatments which are to be evenly distributed across the loading dock area, ideally on the soffit. The acoustic absorptive treatments are to have a minimum Noise Reduction Coefficient of NRC 0.5 and a total area equivalent of at least 60% of the soffit area of the total loading dock area.
- (6) The facade elements of the restaurant/bar at ground level, function facilities and any other rooms where amplified music is proposed, are to achieve a minimum acoustic rating of Rw 35.



- (7) The restaurant/bar at ground level, function facilities and any other rooms with amplified music are to be air-conditioned.
- (8) Use of the outdoor areas should be limited as follows:
 - (a) Restaurant/bar at ground level: 6am to 10pm.
 - (b) Function facility balconies: 6am to 10pm.
 - (c) Podium outdoor recreational areas i.e. the pool and garden areas: 7am to midnight.
- (9) The facade elements of the residential components of the building are to achieve a minimum acoustic rating of Rw 30.
- (10) Certification must be submitted to council from a qualified person* that the following requirements have been achieved *(Refer to Advisory Note):
 - Mechanical plant noise levels outside sensitive receivers meet the limits in Condition (2) based on typical worst-case day, evening and night operation.
 - (b) The carpark surface achieves the requirements of Condition (3).
 - (c) The acoustic absorptive treatments to the loading dock achieve the requirements of **Condition (5)**.
 - (d) The facade elements of the restaurant/bar at ground level, function facilities and any other rooms where amplified music is proposed, achieve the requirements of **Condition (6)**.
 - (e) The facade elements of the residential components of the building achieve the requirements of **Condition (9)**.

7.2 Standard Acoustic Conditions

- (11) Any grills or metal plates subject to vehicular traffic on the site must be suitably acoustically dampened to prevent noise impacts on surrounding sensitive land uses.
- (12) Where complaints (other than frivolous or vexatious complaints) are made to council about noise from the approved use, council may require the site management entity to:
 - (a) Submit a Noise Impact Assessment prepared by a qualified person* in accordance with council's *Planning scheme policy for the nuisance code*, and/or
 - (b) Undertake further noise amelioration measures or operations, install volume limiting devices or barriers and/or shield or relocate mechanical plant and equipment and have such measures certified by a qualified person*.

*(Refer to Advisory Note)

7.3 Standard Advisory Notes (Environmental Health)

Qualified Person

- (1) For the purpose of certifying <u>acoustic matters or treatments</u> for the development, a qualified person is considered to be either:
 - a Registered Professional Engineer of Queensland (RPEQ) with a minimum of three (3) years current experience in the field of acoustics.;
 - (b) a Member of the AAS with a minimum of three (3) years current experience in the field of acoustics.