Gerringong to Bomaderry
Princes Highway upgrade

ROUTE OPTIONS DEVELOPMENT
APPENDIX N - PRELIMINARY TRAFFIC NOISE AND VIBRATION ASSESSMENT REPORT
NOVEMBER 2007
Gerringong to Bomaderry
Princes Highway Upgrade

Preliminary Traffic Noise and Vibration Assessment Report

The Roads and Traffic Authority NSW

October 2007
Gerringong to Bomaderry Princes Highway Upgrade

Prepared for
The Roads and Traffic Authority NSW

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10 October 2007

DEV06/04-NV-BA-Traffic Noise and Vibration

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Quality Information

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Prepared by Simon Kean (Bassett)
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RTA acceptance

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<td>Jay Stricker</td>
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<td>Reviewing Officer</td>
<td>Ron de Rooy</td>
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Not used
1.0 Background

Maunsell was engaged by the RTA in December 2006 to carry out an Options and Route Selection Study, Concept Development and Environmental Assessment (EA) for upgrading the Princes Highway between 42.6 km to 74.6 km south of Wollongong. Maunsell has engaged a number of prominent sub-consultants to contribute to the delivery of this project.

The work includes development of route options and concept development based on the identified preferred route, environmental assessment, public displays and handover period to allow for finalisation of all activities and reports following the announcement and display of the Preferred Route, the Environmental Assessment and the Conditions of Approval.

The project will provide a bypass of Berry. The northern extremity of the project is in the vicinity of the Mount Pleasant Lookout (north of Gerringong at the termination of the four lane configuration) and the southern extremity of the project is the intersection (roundabout) of the Princes Highway with Cambewarra and Moss Vale Roads at Bomaderry.

Community involvement is a key aspect of this project and will afford the broader community the opportunity to make a demonstrable input to the process and to ensure that the requirements and aspirations of the community will be adequately and appropriately addressed. This is particularly relevant to:

a) Any potential impacts on rural and residential areas within the study area;
b) Social and economic impacts;
c) Accessibility of the road network for local and through traffic;
d) Potential impacts on water quality;
e) Potential impacts on wetlands;
f) Potential impact on flooding;
g) Potential impacts on land uses;
h) Threatened flora and fauna species;
i) Indigenous and non-indigenous heritage;
j) Visual impact;
k) Noise; and
l) Air quality.

Several studies have been undertaken since the early 1990s to identify a preferred route to upgrade sections of the Princes Highway between Kiama and Nowra including a bypass around the town of Berry.

These studies include:

m) The 1991 Gerringong to Berry Route Study;
n) 1998 North Street Berry Bypass Corridor; and
o) 2004/05 Quantm Study from Kiama to Nowra.

Sections of the highway between Gerringong and Bomaderry have a poor accident record and limited safe overtaking opportunities.

Due to the significant changes in traffic, land use and population since 1991, the NSW state government, in March 2006 committed to investigating an area where it is likely a preferred route would be located to upgrade the Princes Highway between Mount Pleasant at Gerringong and Moss Vale/Cambewarra Road at Bomaderry to meet current road standards.
2.0 Objectives of report

2.1 Introduction

The purpose of the assessment was to identify, in a general sense, the relative impact of upgraded or new roads in various localities within the study area and to integrate noise assessment and mitigation into the route options development process and identification/optimisation of a preferred route.

The overall objective of this report is to present the findings of the preliminary noise assessment and provide information to the value management process that will assist in the selection of the most appropriate route.

The assessment has been carried out in accordance with and reference to the *Environmental Criteria for Road Traffic Noise* (ECRTN, published by NSW Department of Environment and Climate Change (DECC), formerly DEC and the EPA).

This report provides a comparison between upgrading the existing highway and constructing a new road in rural and urban areas including a bypass of Berry.

It should be noted that a detailed design is not yet available and it is only possible at this stage in the project to conduct an indicative assessment of potential impacts, including:

a) A review of existing information to assess potential high noise impacts that may arise as a result of the upgrade;

b) Identify locations that may require a level of noise mitigation to be incorporated into the upgrade;

c) Conduct a desktop assessment of possible routes to feed into the generation a short list of feasible route options; and

d) Provide general, study area-wide noise management recommendations with regard to preferred offset distances or other mitigation measures to meet ECRTN noise goals for new roads, including a general summary of the benefits of a Berry bypass.
3.0 Study area

The overall study area stretches from Gerringong to Bomaderry and is up to five kilometres wide (see Figure 3.1) incorporating the three main urban areas of Gerringong, Berry and Bomaderry. Within this area there are a number of urban residential residences, rural residences, places of worship, schools and noise sensitive buildings.

Figure 3.1: Study area map

The existing Princes Highway passes to the west of Gerringong adjacent to the railway line before heading into a predominately rural area for approximately 15 km to the town of Berry. The highway passes east-west through the main street of Berry before turning to the south-west for approximately 14 km through rural land before reaching Bomaderry. Other than the Princes Highway the only other major noise source in the area is the South Coast railway line.
4.0 Ambient noise environment

4.1 Noise monitoring for route option assessment

Unattended noise monitoring using automated noise loggers was carried out at a number of locations in the study area between 8 February and 19 February 2007 as part of the preliminary assessment and short term attended monitoring (using a hand held noise monitoring device) was also conducted and a description of the acoustic environment at each location was documented.

The following statistical noise level descriptors were recorded during each 15 minute period of the unattended logging:

a) $L_{Aeq}$;
b) $L_{A10}$;
c) $L_{A90}$; and
d) $L_{Amax}$.

4.2 Monitoring locations

Noise monitoring locations were selected so as to enable the characterisation of the currently experienced noise environment across the whole study area, in locations both near the existing Princes Highway and in areas that are distant from the existing road.

Monitoring locations were also selected along the existing highway to enable calibration of the SoundPLAN noise model. Noise monitoring locations are shown in Figure 4.1.
Figure 4.1: Noise monitoring sites
### 4.3 Unattended measurements

Table 4.1 presents a summary of the noise levels recorded at each monitoring location. Detailed information for each logging location and statistical parameters may be found in Appendix A.

**Table 4.1: Summary of ambient noise levels**

<table>
<thead>
<tr>
<th>Location</th>
<th>Ambient noise levels</th>
<th>Site Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day $L_{Aeq(15hr)}$</td>
<td>Night $L_{Aeq(9hr)}$</td>
</tr>
<tr>
<td>1</td>
<td>56</td>
<td>52</td>
</tr>
<tr>
<td>2</td>
<td>58</td>
<td>56</td>
</tr>
<tr>
<td>3</td>
<td>47, 40(^1)</td>
<td>48, 38(^1)</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
<td>48</td>
</tr>
<tr>
<td>5</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>6</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>7</td>
<td>50</td>
<td>44</td>
</tr>
<tr>
<td>8</td>
<td>50(^2)</td>
<td>39(^2)</td>
</tr>
<tr>
<td>10</td>
<td>60</td>
<td>56</td>
</tr>
<tr>
<td>11</td>
<td>63</td>
<td>59</td>
</tr>
</tbody>
</table>

**Notes:**
- Note 1: Estimated road traffic noise based on typical minimum $L_{Aeq}$ noise levels
- Note 2: Based on attended noise measurements rather than noise logging due to logger failure
4.4 Traffic volume counting

Classified traffic volume counting was undertaken concurrently to the noise monitoring (12 to 28 February 2007) by an independent consultant to assist with the verification and calibration of the noise model. The traffic classification count details provided to Bassett Acoustics for each direction of travel are outlined below.

a) Hourly traffic volumes for light vehicles for each 24 hour period during the monitoring period;
b) Hourly traffic volumes for heavy vehicles for each 24 hour period during the monitoring period; and

c) Vehicle speed (total mean and 85 percentile) during the day period (7:00am to 10:00pm) and night (10:00pm to 7:00am)

Three traffic count locations were used providing sufficient traffic volume data to calibrate the noise model (see Figure 4.2).

d) Princes Highway north of Fern Street;
e) Princes Highway north of Tannery Road; and

f) Princes Highway north of Cambewarra Road.
Figure 4.2: Receivers within the study area
5.0 Assessment methodology

5.1 Overview

There are a number of aspects that need to be considered during a route options assessment including:

a) The overall noise level relative to environmental criteria;
b) The change in perceived noise levels;
c) The number of residences that may be subjected to an increase or decrease in noise levels; and
d) Ranking of different routes where the average decrease and increase in noise levels is similar but the number of affected residences differs.

In NSW, the Environmental Criteria for Road Traffic Noise (ECRTN, published by NSW Department of Environment and Climate Change (DECC), formerly DEC and the EPA) provides statutory goals on the overall allowable noise levels but does not provide a measure of the subjective impact. The subjective impact is arguably more relevant than the DECC noise goals for a route options assessment as the ECRTN does not take into account the fact that perceived noise levels may increase by up to 400% before the new road exceeds the noise goals.

There are a number of methods for rating the subjective impact of noise on the community. These methods typically make use of experimentally derived relationships between the measured change in decibel noise levels and the subjective increase in loudness of the noise.

For road traffic noise an increase in noise level of 8 to 10 dB(A) is typically accepted as corresponding to a doubling in perceived loudness, similarly an 8 to 10 dB(A) decrease is regarded as a halving in loudness. This relationship allows a weighting scheme to be developed so that the change in perceived loudness at every affected residence along a route may be estimated and summed. The summation score and the average perceived change in noise levels can then be used to provide a measure of the impact of the route for comparison with other options or a base case.

Recently, in NSW, two methods have been used by the RTA in route options assessments to provide a perceptual ranking:

1) Arup Acoustics, based on work completed in the UK by the Department of the Environment, Transport and the Regions, developed a method which relates road traffic noise levels to the percentage of the population that can be expected to be annoyed at various noise levels. This method has validity in regions with appreciable population density. However, the concept of percentage of population annoyed by a given noise level, while possibly providing a suitable ranking score, may be less meaningful to residents in areas of a route where there may only be one to five houses over a few kilometres of road.

2) Wilkinson Murray developed a method for Australian conditions which relates directly to perceived noise levels rather than indirectly through percentage annoyance. This method considers the possibility that the existing route may remain open to local traffic and that the receiver could be subject to noise from different directions.

Bassett believe that the method developed by Wilkinson Murray is most suited to this study area because it has been developed for Australian conditions where there are isolated dwellings in rural locations. The implementation of this method is discussed in more detail in Section 5.3.
5.2 Statutory criteria

The noise goals in NSW for road traffic noise on public roads are described in the ECRTN and the criteria that may be applied from the policy depend on how the roads function within the road network. The Princes Highway functions as a freeway in the overall road network in this area.

The noise criteria in the ECRTN which are appropriate for dwellings adjacent to the Princes Highway upgrade are summarised below in Table 5.1.

Table 5.1: Recommended road traffic noise criteria in ECRTN

<table>
<thead>
<tr>
<th>Type of development</th>
<th>Criteria for residences adjacent to local roads</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day 7am – 10pm (dB(A))</td>
</tr>
<tr>
<td>New freeway or arterial road corridor</td>
<td>LAeq (15 hr) 55 dB(A)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Redevelopment of an existing freeway / arterial road</td>
<td>LAeq (15 hr) 60 dB(A)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.3 Perceptual impact

Bassett Acoustics have based the route options assessment on the methodology proposed in a technical article prepared by Neil Gross (Wilkinson Murray Pty Limited), as described in Section 5.1 above.

The two basic parameters used in the assessment procedure are:

a) Number of residential properties or sensitive potentially affected; and
b) Change in noise level (both increase and decrease) from the existing situation at each residence.

The method in the technical article by Neil Gross groups the residences into one of five categories. The categories group the residences based on the distance between the residence and the existing route. The distance categories are:

c) 0-50 m;
d) 50-100 m;
e) 100-200 m;
f) 200-500 m; and
g) >500 m.

The change in distance between the existing route and the proposed route is then correlated with the subjective change in noise levels.

The first distance category realistically deals with residences within 25 m to 50 m from the road. The move from one distance category to the next typically represents an equal change in traffic noise level.

Applicable weightings that consider the likely changes in absolute traffic noise level and potential annoyance for each residence are then applied. The weightings range from 0.4 to 6.4 and are selected starting with a weighting of one. This represents the situation where there is no change in noise level at a residence set back 200 m to 300 m from the existing road.

If noise levels are higher (residences are closer) or increases are bigger, a weighting greater than 1 is applied since it would represent a greater impact. Similarly if noise levels were to reduce a weighting less than 1 needs to be applied. However for the same change in noise level either up or down, the procedure recognises that the increase is perceived to have a greater response. Since a 10 dB(A) increase in noise level is widely accepted to be a subjective doubling in noise, this has been used to set the weightings by comparing the different distance categories.

The totalled number of properties within each distance category is multiplied by the appropriate weighting and then summed together to provide a weighted grand total (WGT) and the average perceived weighting (APW, average perceived increase or decrease in noise level) for each area category. These weightings assume similar traffic volumes for each proposed alignment option and for the “future existing” case.

This method was initially intended to be a manual method whereby estimates can be quickly obtained by measuring distances on a scaled print out of the existing and proposed route. Bassett has modified the procedure so that it may be automated and make use of noise modelling software such as SoundPLAN. Automation allows a greater number of routes to be evaluated at a greater number of receivers.
6.0 Modelling

6.1 General

Noise levels were calculated at each receiver for the entire study area using SoundPLAN software, which implements the Calculation of Road Traffic Noise (CoRTN) algorithm. The UK Department of Transport devised the CoRTN algorithm and with suitable corrections, this method has been shown to give accurate predictions of traffic noise levels under Australian conditions.

The noise model for this project incorporated the following features:

a) Traffic volume and/or percentage of cars on the roadway;

b) Traffic volume and/or percentage of medium/heavy trucks on the roadway;

c) Correction for pavement surface;

d) Corrections for roadway gradient;

e) Road chainage and x,y,z coordinates of traffic lanes and topographic features imported from electronic data (DXF format);

f) Receiver x,y,z coordinates and heights;

g) Intervening ground cover absorption;

h) Roadside or topographic barriers;

i) Contributed noise from other traffic sources to determine the cumulative noise impact; and

j) 2.5 dB(A) correction for facade effects.

Calculations were conducted using measured and predicted traffic volumes for the existing road configuration and the upgraded road configuration in 2016 to determine the day (L_{Aeq,15hr}) and night (L_{Aeq,9hr}) noise levels at each residence and noise sensitive receiver.

6.2 Traffic volumes

The traffic volumes that were used for the assessment were an AADT of 9457 for the existing traffic flows and an AADT 14745 (based on 3.7% growth per annum) for the 2016 ‘future existing’ and route option traffic flows.

Based on the classified traffic volume counts undertaken concurrently to the noise monitoring (12 to 28 February 2007), the day and night time percentage volume split was 91% and 9% respectively, with heavy vehicle percentages of 10% and 25% respectively.
7.0 Study region assessment

7.1 Overall

At a basic level, without considering noise mitigation measures such as shielding, the minimum offset distance should be approximately 250 m between new roads and residential receivers identified in Figure 4.2 so as to meet ECRTN noise goals for new roads. This minimum distance can be reduced significantly with the use of mitigation and noise treatment.

Noise mitigation measures will be investigated in detail once the preferred route has been identified and the location of potentially affected receivers is known. However, measures which can be considered in the event of noise impact include, among others, noise walls, landscaping treatments such as noise mounds; and architectural treatments such as the installation of double glazing and noise proofing.

7.2 Rural locations

A rural section with approximately 90 receivers was investigated to compare the typical impact due to constructing a new route in a region that currently experiences low noise levels with upgrading the existing route. The results in Table 7.1 indicates that the perceived impact of a new route may be significantly higher than an upgrade of an existing route even if the measured noise levels along the route are similar.

From a purely noise impact assessment point of view a new route in a rural area, away from the existing alignment, would only be beneficial overall if a significant number of receivers experience an individual benefit (i.e. a reduction in noise levels) and the impact on newly affected receivers can be minimised with mitigation and sufficient offset distances.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
</tr>
<tr>
<td>Day – number of residences</td>
<td>&gt;55 L_{eq}(dB(A))</td>
</tr>
<tr>
<td></td>
<td>&gt;60 L_{eq}(dB(A))</td>
</tr>
<tr>
<td>Night – number of residences</td>
<td>&gt;50 L_{eq}(dB(A))</td>
</tr>
<tr>
<td></td>
<td>&gt;55 L_{eq}(dB(A))</td>
</tr>
<tr>
<td>Average Perceived Weighting (APW), relative to existing (2007)</td>
<td>1.00</td>
</tr>
<tr>
<td>Rank</td>
<td></td>
</tr>
</tbody>
</table>

While there may potentially be less residences affected by noise through the selection of a new route, when compared with upgrading the existing route, the overall perceived impact for the new route is much higher.

The increase in noise levels experienced if the existing route were to be upgraded would be barely perceivable and as such, it would be unlikely that any of the 19 residences would require mitigation treatment when assessed against 55 dB(A) L_{Aeq} criteria.

If the new route were to be selected, up to 27 properties may require treatment when assessed against the 50 dB(A) L_{Aeq} criteria for a new road.
7.3 Berry

Based on the surrounding topography it appears that it may be feasible to construct a bypass to the south of Berry, starting approximately 3kms south of Kangaroo valley road, or to the north of Berry deviating from the Princess Highway near the start of Kangaroo valley.

Table 7.2 presents a comparison of the noise levels and change in perceived noise levels for options around Berry compared with the existing road and the ‘future existing’ road (existing road with 2016 traffic flows). Both bypass options would reduce the overall perceived noise levels for existing noise affected receivers in the Berry region when compared with the ‘future existing’ noise levels or an alternative option of upgrading the existing alignment through Berry, or an existing parallel street within the town.

The bypass option with the lowest overall perceived increase in noise levels is a bypass south of Berry.

A noise wall on both sides of the upgraded road parallel with the northern end of Huntingdale Park Road would significantly reduce the overall noise impact of a northern bypass option.

The least desirable option for an upgrade in the Berry region would be to upgrade an existing street within the town.

Over the wider study area, a bypass of a township may provide a significant enough benefit to a large enough number of residences within that town, to outweigh potential the detrimental affects of noise increases in the rural areas.

Table 7.2: Comparison of noise levels around Berry

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Route</th>
<th>Existing</th>
<th>Future existing</th>
<th>Alternative route within Berry</th>
<th>North of Berry</th>
<th>North of Berry with 6 m wall</th>
<th>South of Berry</th>
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</thead>
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<tr>
<td>Day – number of residences</td>
<td>&gt;55 L₉₀, (dB(A))</td>
<td>214</td>
<td>288</td>
<td>283</td>
<td>139</td>
<td>33</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>&gt;60 L₉₀, (dB(A))</td>
<td>65</td>
<td>84</td>
<td>82</td>
<td>41</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Night – number of residences</td>
<td>&gt;50 L₉₀, (dB(A))</td>
<td>214</td>
<td>288</td>
<td>283</td>
<td>139</td>
<td>33</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>&gt;55 L₉₀, (dB(A))</td>
<td>65</td>
<td>84</td>
<td>82</td>
<td>41</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Average Perceived Weighting (APW), relative to existing (2007)</td>
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<td>1.14</td>
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<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
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</tr>
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8.0 Conclusion

In predominantly rural areas, a road upgrade following the existing route is likely to minimise the overall perceived change in noise levels unless a route can be identified where sufficient mitigation can be successfully implemented. Conversely, a new road corridor that reduces traffic noise for a large number of residences can provide an environmental benefit.

Balancing of noise impacts due to relative changes in noise level and the absolute level of noise, has been accomplished in this review by applying a methodology that uses weightings to estimate overall levels of noise impacts.

A bypass can provide a significant benefit to a large enough number of residences within a town that the overall benefit outweighs the detrimental affects of any increases in noise in the rural areas.

Where possible, routes should provide the maximum possible offset distance between the road and the identified receivers. The minimum offset distance between new roads and residential receivers should be approximately 250 m, unless mitigation or shielding by terrain features is provided, so as to meet ECRTN noise goals for new roads.

Noise mitigation measures will be investigated in detail once the preferred route has been identified and the location of potentially affected receivers is known. However, measures which can be considered in the event of noise impact include, among others, noise walls, landscaping treatments such as noise mounds; and architectural treatments such as the installation of double glazing and noise proofing.
Appendix A  Noise monitoring results
Appendix A  Noise monitoring results

Tuesday 13 February, 2007

Location 1

Lmax  L10  Leq  L90
Location 1

Wednesday 14 February, 2007

Time

dB(A)

Lmax

L10

Leq

L90

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0
Sunday 18 February, 2007

Location 1

Time

dB(A)

Lmax

L10

Leq

L90
Monday 19 February, 2007

Location 1

Lmax, L10, Leq, L90

Time

dB(A)
Location 2

Sunday 11 February, 2007

Time

dB(A)

L1

L10

Leq

L90
Thursday 15 February, 2007

Time

Location 2

Data for Location 2 on Thursday 15 February, 2007, shows variations in dB(A) levels throughout the day.

- L1
- L10
- Leq
- L90

The graph illustrates the noise levels over time, with peaks and troughs indicating changes in acoustic conditions.
Location 2

Sunday 18 February, 2007

Time

dB(A)

L1  L10  Leq  L90
Location 3

Thursday 15 February, 2007

Time

dB(A)

L1, L10, Leq, L90
Location 3

Friday 16 February, 2007

<table>
<thead>
<tr>
<th>Time</th>
<th>dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>1</td>
<td>30</td>
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<td>40</td>
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<td>3</td>
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<td>4</td>
<td>60</td>
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<tr>
<td>5</td>
<td>70</td>
</tr>
<tr>
<td>6</td>
<td>80</td>
</tr>
<tr>
<td>7</td>
<td>90</td>
</tr>
</tbody>
</table>

Legend:
- L1
- L10
- Leq
- L90
Location 4

Thursday 08 February, 2007

Time

dB(A)

L1
L10
Leq
L90
Sunday 11 February, 2007

Location 4

Time

L1

L10

Leq

L90

dB(A)
Location 4

Monday 12 February, 2007

Frequency of measurements (dB(A))

- L1
- L10
- Leq
- L90

Time

Location 4

60021933 – Gerringong to Bomaderry Princes Highway Upgrade
Saturday 17 February, 2007

Location 4

Lmax, L10, Leq, L90

Time

dB(A)
Location 4

Sunday 18 February, 2007

Lmax, L10, Leq, L90

[Graph showing noise levels over time]
Monday 12 February, 2007

Location 5

Time

dB(A)

L1
L10
Leq
L90
Saturday 17 February, 2007

Location 5

Time

dB(A)

L1, L10, Leq, L90
Monday 12 February, 2007

Location 6

Time

dB(A)

L1, L10, Leq, L90
Friday 16 February, 2007

Location 6

Time

dB(A)

L1
L10
Leq
L90
Saturday 17 February, 2007
Sunday 18 February, 2007

Location 6

Time

dB(A)

L1
L10
Leq
L90
Tuesday 13 February, 2007

Location 8

Sunday 11 February, 2007

Location 10

Time

dB(A)

L1  L10  Leq  L90
Thursday 15 February, 2007

Location 10

Time

dB(A)

L1

L10

Leq

L90
Thursday 08 February, 2007

Location 12

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dB(A)
Location 12

Friday 09 February, 2007

Time

dB(A)

L1  L10  Leq  L90
Location 12

Monday 12 February, 2007

Time

dB(A)

L1
L10
Leq
L90
Location 12

Tuesday 13 February, 2007

Time

dB(A)

L1  L10  Leq  L90
Thursday 15 February, 2007