GOULBURN MULWAREE COUNCIL

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# BUSINESS PAPER

## Resumption of Extraordinary Council Meeting

## 22 June 2021

**Warwick Bennett**
**General Manager**

We hereby give notice that an Resumption of the Council Extraordinary Meeting which was adjourned on the:

Tuesday, 22 June 2021 at 11.55pm

Will be resumed Tuesday, 13 July 2021 at 6pm

in the Council Chambers, Civic Centre

184 - 194 Bourke Street, Goulburn

## Order Of Business



**Cr Bob Kirk**
**Mayor**

**Warwick Bennett**
**General Manager**

# 1 REPORTS TO COUNCIL FOR DETERMINATION

## 11.2 DA/0117/2021 - ALTERATIONS AND ADDITIONS TO RECREATION FACILITY (MAJOR), LOT 1 DP 832905, 4770 BRAIDWOOD ROAD TIRRANNAVILLE

**Author:** **Warwick Bennett, General Manager**

**Authoriser:** **Warwick Bennett, General Manager**

**Attachments:**

1. **Noise Impact Maps**
2. **Fact Sheet - Noise Policy for Industry**
3. **Noise Impact Assessment 2015**
4. **Noise Management Plan 2017**
5. **Letter from Wakefield Park committing to Noise Management Plan**
6. **Meeting Notes - Meeting with Residents**
7. **Meeting Notes - Meeting with Representatives from Wakefield Park**
8. **Tonin Noise Model**

| | |
|---|---|
| **Reference to LSPS:** | Planning Priority 6: Industry and Economy – Vision 2040 – Local industry provides for the employment needs of the region within a thriving and diversified economy which is resilient to change. |
| **DA Number:** | DA/0117/2021 |
| **Address:** | Lot 1 DP 832905, 4770 Braidwood Road Tirrannaville |
| **Proposal Description:** | Alterations and Additions to Recreation Facility (major) |
| **Type of Development:** | Integrated |
| **Zone:** | RU1 Primary Production |
| **Variations to Policy:** | Nil |
| **Submissions:** | 39 |
| **Key Issues:** | Noise, economic and social impacts |

**RECOMMENDATION**

**PROPOSED MOTION**

That:

1. The General Manager report for development application DA/0117/2021 for the proposed Alterations and Additions to Recreation Facility (major) be received.
2. Consent be granted for DA/0117/2021 for Alterations and Additions to Recreation Facility (major) located at Lot 1 DP 832905, 4770 Braidwood Road Tirrannaville, subject to the following conditions:

**SECTION A: GENERAL CONDITIONS**

1. Approved Development and Use

   Development consent has been granted in accordance with this Notice of Determination for the purposes of the following, under the *Goulburn Mulwaree Local Environmental Plan 2009:*

   - Demolition of existing pit lane building and associated structures,

- Construction of new pit lane building consisting of:
  - 14 additional garages
  - Space to enable corporate functions
  - Terrace space
  - Race control and commentary boxes
  - Office and administration areas, and medical centre
  - Ambulance and emergency response vehicle parking
- Construction and use of new off-road experience area.
- Ongoing use of the existing visitor accommodation facilities in conjunction with motorsport activities.
- Use of part of the site for the purposes of short –term camping only in conjunction with attendance at events.
- Carrying out of general purpose markets up to 12 times per calendar year.
- Additional internal signage, and new business identification signage at the site frontage.
- Water management infrastructure for the new building and off-road experience area.

***(Reason:*** *To confirm the components of the approval)*

2. Development in Accordance with Documentation

The development must only be carried out:

a) in compliance with the conditions of this Notice of Determination; and

b) in accordance with the approved plans and documentation listed in the table below.

Architectural plans prepared by Leffler Simes Architects

| Drawing no. | Rev | Title of plan or document | Date |
|---|---|---|---|
| DA01 | E | Site Plan | 06/05/2021 |
| DA02 | D | Site Plan Detail Existing / Site Plan Detail Proposed | 06/05/2021 |
| DA03 | P6 | Ground Floor | 11/09/2020 |
| DA04 | P7 | First Floor | 11/09/2020 |
| DA05 | P3 | Roof | 11/09/2020 |
| DA6 | P6 | Elevations | 11/09/2020 |
| DA07 | P7 | Sections | 11/09/2020 |

Architectural plans prepared by Veris

| Drawing no. | Rev | Title of plan or document | Date |
|---|---|---|---|
| Project No. 19069.04 | D | Proposed Development 4770 Braidwood Road Tirrannaville | 05/05/2021 |

Landscape plans prepared by Nicholas Bray Landscapes

| Drawing no. | Rev | Title of plan or document | Date |
|---|---|---|---|
| L1 | F | Overall Site Plan & Planting Palette | 12/05/2021 |
| L2 | F | Planting Zones Overall Site | 12/05/2021 |
| L3 | F | Landscape Area 9 | 12/05/2021 |

Documentation prepared by various authors

| Document ref. | Rev | Title of plan or document | Date |
|---|---|---|---|
| 2200293 | - | Statement of Environmental Effects (Ethos Urban) | 15/09/2020 |
| - | - | Wakefield Park Raceway Event Management | 09/2020 (submitted to Council on 13 May 2021) |
| - | 1 | Wakefield Park Raceway, Tirrannaville Civil Engineering Report (WSP) | 11/09/2020 |
| PS121597, C200-201 | 1 | Proposed Stormwater Drainage Layout Plan Sheet 1 of 2 and 2 of 2 (WSP) | 11/09/2020 |
| Our Ref: PS121597 | - | Wakefield Park Raceway – Civil Information Response to Goulburn Mulwaree Council letter (WSP) | 10/05/2021 |
| PS121597 C170 | 2 | Off-Road Track SWD & ESC Layout Plan (WSP) | 06/05/2021 |
| PS121597 C160 | 1 | Erosion and Sediment Control Layout Plan (WSP) | 11/09/2020 |
| - | - | Response to RFI Construction Phase Venue Management | Undated (submitted to Council on 13 May 2021) |

| | | | |
|---|---|---|---|
| Ref No: 113876-Fire Safety Audit- r2a | - | Fire & Life Safety Audit Report Wakefield Park Raceway (BCA Logic) | 10/05/2021 |
| S18234_002_psi | 2 | Preliminary Site Investigation Wakefield Park Raceway (Senversa) | 10/09/2020 |

***(Reason**: To ensure that the development is undertaken in accordance with the submitted plans and documents as amended)*

3. Documentation Inconsistency

In the event of any inconsistency between the conditions of this Notice of Determination, the drawings and any accompanying documentation referred to above, the conditions of this Notice of Determination prevail, to the extent of the inconsistency.

*(Reason: To ensure that the development is undertaken in accordance with the submitted plans and documents as amended)*

4. Documentation to be Kept on Site

At all times, a complete set of all endorsed plans, specifications and any other documentation referenced by this Notice of Determination must be kept on ***'site'*** and be readily available for perusal by any officer of ***'Council'*** or the ***'Principal Certifier'*** upon their request.

*(Reason**:** To ensure that the form of the development undertaken is in accordance with the determination of Council, Public Information and to ensure ongoing compliance)*

5. Water NSW - General

The site layout and ongoing operations at the site shall generally be as:

- specified in the Statement of Environmental Effects prepared by Ethos Planning (dated 15 September 2020)
- Event Management Plan (dated September 2020) prepared by Ethos Planning, and
- shown on the Site Plans (Job No 4922, Dwg No DA01, Rev. E and DA02, Rev. D; dated 06.05.21) prepared by Leffler Simes Architects.

No revised site layout, staging or external works that will impact on water quality, shall be permitted without the agreement of Water NSW.

***(Reason:** Water NSW has based its assessment under the State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011 on this version of the development)*

6. Water NSW - Stormwater Management

All stormwater treatment and management measures shall be implemented as specified in Section 5.3 of the Civil Engineering Report (dated 11 September 2020) and shown on the proposed Stormwater Drainage Layout Plans (Proj. No. PS121597; Sheets C200 - 201; Rev 1; dated 11/09/2020), all prepared by WSP (Australia) Pty Limited, except where varied by these conditions.

***(Reason:** To ensure appropriate stormwater treatment and quality control measures are implemented to achieve a sustainable neutral or beneficial impact on water quality, particularly during wet weather, over the longer term)*

7. Water NSW - Stormwater Management

A Stormwater Management Plan for the proposed off-road area, based on the Off-Road Track SWD & ESC Layout Plan (Proj. No. PS121597; Sheets C170; Rev 2; dated 06/05/2021) prepared by WSP (Australia) Pty Limited, shall be prepared in consultation with Water NSW prior to the finalisation of the design for the proposed off-road area.

***(Reason:** To ensure appropriate stormwater treatment and quality control measures are implemented to achieve a sustainable neutral or beneficial impact on*

*water quality, particularly during wet weather, over the longer term)*

8. Water NSW - Stormwater Management

   No Variation to stormwater treatment or management that will impact on water quality shall be permitted without the agreement of Water NSW.

   ***(Reason:*** *To ensure appropriate stormwater treatment and quality control measures are implemented to achieve a sustainable neutral or beneficial impact on water quality, particularly during wet weather, over the longer term)*

9. TransGrid - General

   TransGrid shall be notified of any amendments/ modifications to the proposal which may change proposed distances to TransGrid structures or conductors. If there are new services proposed within or crossing the easement TransGrid will need to provide approval, prior to the undertaking of work.

   ***(Reason:*** *To ensure that any alterations to the approved works are consistent with TransGrid's requirements)*

10. Essential Energy - General

    Any proposed vegetation or planting:

    - is to be capped at 4.0 metres for mature trees near and under Essential Energy's existing overhead infrastructure; and
    - must be a minimum of 5.0 metres away from any electrical infrastructure.

    ***(Reason:*** *To ensure that vegetation or planting within close proximity to electricity infrastructure is safely located)*

11. Essential Energy - Access roads

    Any proposed access and/or exit roads must remain at least 1.0 metre away from any electricity infrastructure (power pole, streetlight) at all times, to prevent accidental damage.

    ***(Reason:*** *To ensure that access infrastructure is safety located from location of electricity infrastructure)*

12. Signage at road frontage

    The proposed freestanding business identification sign shall replace all other signage located at the site frontage that can be seen by the travelling public. In this regard, all existing signage must be removed.

    ***(Reason:*** *To avoid unnecessary clutter from excess signage at the site frontage)*

13. Noise Management

    Unless otherwise varied by Council, the following noise management requirements will apply to the operations of the facility:

A. General Noise Limits

| Noise Category | Noise Limit | Maximum days per calendar year |
|---|---|---|
| Red Category | Not to exceed 95dBA<br>LAeq 15min | **To be transitioned over a 2 year period commencing 1 January 2022:**<br>Year 1 (1 January 2022 to 31 December 2022) – 50 days<br>Year 2 (1 January 2023 to 31 December 2023) – 40 days<br>Year 3 (From 1 January 2024) – 30 days |
| Amber Category | Not to exceed 85dB(A)<br>LAeq 15min | **To be transitioned over a 2 year period commencing 1 January 2022:**<br>Year 1 (1 January 2022 to 31 December 2022) – 125 days<br>Year 2 (1 January 2023 to 31 December 2023) – 110 days<br>Year 3 (From 1 January 2024) – 100 days |
| Green Category | Not to exceed 75dB(A)<br>LAeq 15min | **To be transitioned over a 2 year period commencing 1 January 2022:**<br>Year 1 (1 January 2022 to 31 December 2022) – 112 days<br>Year 2 (1 January 2023 to 31 December 2023) – 137 days<br>Year 3 (From 1 January 2024) – 157 days<br>In a LEAP year the additional day becomes a green day |
| Blue Category | Not to exceed 75dB(A)<br>LAmax(Fast) | 76 days |
| Christmas Day and Good Friday | No activity at all | 2 days |

B. Noise Limits at Receivers

In order to provide certainty to affected receivers with regard to actual noise levels experienced during each event category, the following noise limits shall not be exceeded in the each category. The maximum noise levels have been derived from the predictive noise model prepared by Renzo Tonin & Associates.

| Noise Category | Receiver (As identified in the Tonin Report dated September 2020) | Maximum Noise Levels |
|---|---|---|
| Red Category (LAeq15min) | R1, R2 & R3 | 65dB(A) |
| | R19 | 45dB(A) |
| | R20 | 60dB(A) |
| Amber Category (LAeq15min) | R1, R2 & R3 | 55dB(A) |
| | R19 | 40dB(A) |
| | R20 | 50dB(A) |
| Green Category (LAeq15min) | R1, R2 & R3 | 45dB(A) |
| | R19 | 40dB(A) |
| | R20 | 40dB(A) |
| Blue Category (LAmax(Fast)) | R1, R2 & R3 | Background +5 dB(A) |
| | R19 | |
| | R20 | |

Note: For the purposes of this consent, the background noise level is taken to be no less than 35dB(A).

C. Event Scheduling

For the purposes of this condition, an event is defined as one (1) calendar day.
The first weekend of each month (i.e. the first consecutive Saturday and Sunday) must be a Blue Category event.

At least one day per week (Monday to Friday) must be Blue Category days.

No events or activities whatsoever are to be held on Christmas Day or Easter Good Friday.

Events categorised as Red or Amber must not be held on any more than three (3) consecutive days.

D. Maximum Noise Limits

Noise emitted by a vehicle using the facility must not exceed an LAmax(Fast) greater than 95dB(A) when measured at any point not less than 30 metres from the nearest edge of the track.

On Blue Category days any noise emitted from the facility must not exceed an LAmax(Fast) greater than 75dB(A) when measured at any point not less than 30 metres from the nearest edge of the track.

E. Events Calendar

An event calendar is to be developed and made publicly available via the Wakefield

Park Raceway website. The calendar must present a minimum of the forthcoming three (3) month period. No additional events are to be added to the calendar within the 3 month period.

The calendar shall be characterised by a colour-coded system that allows residents and competitors/facility users to readily identify the noise criteria for the specific event. The colour-coding shall be a 'Red, Amber, Green, Blue' system in accordance with the above table.

If an event is to be rescheduled outside of the above period then all affected residents are to be given 30 days advanced notification of the event being rescheduled if the Event Category (as per Condition 13) elevates into a higher category, for example from Amber to Red.

If an event is required to be cancelled because of exceptional circumstances beyond the control of the Applicant (i.e. Covid-19 or natural disaster), then a reallocation of the appropriately categorised event can be included within the next 12 months by giving a minimum of 30 days' notice to Council and affected residents.

***(Reason:*** *To ensure that sensitive receivers are not impacted by unreasonable noise, and to allow Council to determine compliance against the relevant operating parameters)*

14. Noise Monitoring

A. The existing Simpson Group Soundweb system (or equivalent) must monitor and record noise levels emitted from any event or activity during all operating hours. The microphone for the Soundweb system is to be positioned 30m from the edge of the track for LAmax measurements, and 42m from the edge of the track for LAeq15 measurements.

B. An additional Simpson Group Soundweb system (or equivalent) must be installed in the location identified in the Benbow Noise Impact Assessment, dated 27 July 2015, in order to capture noise levels being generated when the circuit is using an alternative configuration; for example, utilising the shortcut between the Start Line and Turn 1.

C. Records of measurement and calibration will be maintained by the applicant for a minimum period of 12 months, and are to be made available to Goulburn Mulwaree Council at any time upon request.

D. All Soundweb system data must be made publicly available (via login) in real time on the Wakefield Park website at all times. Council is to be provided with access to any cloud-based data storage to assist with its role in monitoring compliance.

E. Council is to be provided with access to view real time and historical data being captured or previously captured by the Soundweb system via a direct system login that is accessible 24 hours per day. The applicant must provide any further records relating to noise monitoring within 24 hours of a request being made by Council.

***(Reason:*** *To allow Council and the facility manager to perform an effective compliance function and to provide transparency of facility operations, and to validate the effectiveness of the Predictive Noise Model)*

15. Noise Reference Monitor and Location

Within 90 days of this Consent becoming operational, the applicant must commission and install an equivalent system to the Simpson Group Soundweb system currently utilised by the applicant, at its own cost for utilisation by Council as a noise reference monitor. The equivalent system and its data is to be accessible by Council 24 hours per day for use in determining ongoing compliance.

The location, shall be agreed with the owner of the property identified as R20 in the Tonin Report.

Should a total of five (5) separate noise complaints/incidents be recorded by Council and be validated against the conditions of consent at the property identified as R20 in the Tonin Report during any 12 month period, Council may require an additional Simpson Group Soundweb (or equivalent) system to be installed and commissioned at a location to be determined by Council at the applicants expense.

***(Reason:*** *To allow Council to perform an effective compliance function)*

16. Static Vehicle Noise Testing

A static vehicle noise testing procedure must be provided and maintained to sample all vehicles involved in 'motorsport activities' at the facility during the event.

All static vehicle noise testing must be completed prior to the vehicle entering the circuit.

Records of all static vehicle noise testing must be maintained by the applicant for a period of 12 months, and are to be made available to Goulburn Mulwaree Council at any time upon request.

***(Reason:*** *To allow the facility manager to perform an effective compliance function)*

17. Offsite Noise Mitigation Measures

Within three (3) months of consent being granted, Wakefield Park is to provide a Noise Management Plan that identifies strategies to address ongoing noise mitigation measures and opportunities.

As part of the Noise Management Plan the applicant must engage with all sensitive receivers as identified in the Supplementary Information Report prepared by Renzo Tonin and Associates, dated 3 March 2021, to identify and implement any feasible and reasonable offsite noise mitigation measures and strategies that fall within the limits of this consent.

Evidence of engagement and actions taken with the identified sensitive receivers, along with any details of feasible and reasonable property-specific noise mitigation measures, options or strategies that have been explored to minimise the cumulative impact of noise, are to be provided to Council for record keeping purposes. For purposes of clarity, it is not Council's role as part of this consent to determine specific noise mitigation measures on properties not subject to this consent.

It should be noted that agreements reached with landholders should not be regarded as permanent (for example, changes in land tenure) and should be reviewed by the applicant periodically.

Fact Sheet F of the *Noise Policy for Industry (2017)* published by the NSW EPA shall be used to guide the selection of feasible and reasonable offsite noise mitigation measures and strategies.

For the purposes of this condition, a sensitive receiver is not bound to enter into any agreement, and will therefore retain any rights in relation to civil intervention if they continue to be impacted by noise from the facility.

***(Reason:*** *To ensure that sensitive receivers are not impacted by unreasonable noise)*

18. Annual Compliance Report

A compliance report is to be provided by the applicant to Council annually, within 30 days of the end of the previous calendar year to demonstrate the extent of compliance throughout the previous twelve (12) months. The first annual compliance reporting period will be for

the 2022 calendar year. The report is be independently verified by a suitably qualified and experienced Noise Consultant and funded by the Applicant.

The purpose of the report is to demonstrate compliance with the conditions of consent, and must specifically detail how conditions of consent relating to noise management (i.e. Conditions 13-16) have been met. This includes but is not limited to identifying any non-compliances throughout the reporting period and describing any actions taken to remedy issues of non-compliance. The provision of the Annual Compliance Report does not negate Council's functions as the Appropriate Regulatory Authority in relation to the investigation of noise complaints that may be received throughout the reporting period.

The report will be made publicly available by Council.

***(Reason:*** *To allow Council and the facility manager to perform an effective compliance function)*

19. Continual Improvement Plan

The applicant is to develop a Continual Improvement Plan to accompany its Annual Compliance Report. The Continual Improvement Plan is to be reviewed annually, and is to be submitted to Council as an attachment to the Annual Compliance Report within 30 days of the end of the previous calendar year.

The first period to which the continual improvement plan will apply will be for the 2022 calendar year. The plan is be independently verified by a suitably qualified and experienced Noise Consultant and funded by the Applicant.

The purpose of the Continual Improvement Plan is to provide the basis for an ongoing strategic review of all agreements, policies, documents and procedures relating to the operation of the facility, and to identify any opportunities for improvements or mitigation in relation to noise.

The plan will be made publicly available by Council.

***(Reason:*** *To ensure that sensitive receivers are not impacted by unreasonable noise)*

20. Staff Training

Key operational staff at the facility are to be provided with appropriate training in the use and maintenance of the Soundweb system (or equivalent), including the required procedures for removing a vehicle from the circuit.

Records of staff training will be kept by the applicant, and are to be made available to Goulburn Mulwaree Council at any time upon request.

***(Reason:*** *To allow Council and the facility manager to perform an effective compliance function)*

21. Additional Landscaping Requirements

Within 42 days of receiving consent, the applicant is to provide a revised landscaping plan that incorporates an intensive planting regime for the perimeter of the site in its entirety in order to minimise the effect of fugitive noise on surrounding receivers.

The location of the plantings must be located wholly within the boundaries of the site.

All plantings proposed as part of any endorsed Landscaping Plan shall be undertaken within 12 months of Council's endorsement of the Plan.

***(Reason:*** *To ensure that sensitive receivers are not impacted by unreasonable noise)*

22. Noise Management Responsibilities

The site operator is responsible for ensuring that any noise management and/or mitigation

requirements contained within this development consent are achieved. Penalties for non-compliance will be served upon the site operator.

NOTE: In accordance with Council's Enforcement Policy, any non-compliance with a condition of development consent will be cause for Council to consider its enforcement options. This will include, but is not limited to, the issuing of Penalty Infringement Notices, Environment Protection Notices or prosecution.

It is noted that as of the date of determination (refer cover page), the current penalty amount for non-compliance with a development consent is $6000 per offence for a corporation.

***(Reason:*** *To set out the responsibilities of the site operator in relation to compliance with noise impact mitigation measures required by this consent)*

**SECTION B: PRESCRIBED CONDITIONS IMPOSED UNDER EP&A ACT, THE REGULATION, AND OTHER RELEVANT LEGISLATION**

23. Building Code of Australia Compliance

All building work must be carried out in accordance with the provisions of the National Construction Code Series.

***(Reason:*** *Prescribed by cl. 98 of* ***'the Regulation'****)*

24. Construction Certificate Requirements

Building work, demolition or excavation in accordance with the Notice of Determination must not be commenced until a Construction Certificate required by *s.6.3* of ***'the Act'*** for the relevant part of the works has been issued in accordance with the provisions of ***'the Act'*** and ***'the Regulation'***.

***(Reason:*** *Statutory; To ensure appropriate safeguarding measures are in place prior to the commencement of any building work, demolition or excavation)*

25. Issue of a Construction Certificate

In accordance with cl.145 of the *Environmental Planning and Assessment Regulation 2000*, the plans and specifications submitted with a construction Certificate must not be inconsistent with this Notice of Determination.

***(Reason:*** *Prescribed by legislation)*

26. Occupation Certificate Requirements

A person must not commence occupation or use of the whole or any part of a new building (new building includes an altered portion of, or an extension to, an existing building) unless an Occupation Certificate required by *s.6.3* of ***'the Act'*** for the relevant part of the works has been issued in accordance with the provisions of ***'the Act'*** and ***'the Regulation'***.

***(Reason:*** Prescribed *by legislation)*

27. Critical Stage Inspections

Building work must be inspected by the ***'Principal Certifier'*** at the critical stage occasions prescribed by ***'the Act'***, ***'the Regulation'*** and as directed by the appointed ***'Principal Certifier'***.

Critical stage inspections are defined as: -

a) after excavation for, and prior to the placement of any footings; and

b) prior to covering any stormwater drainage connections; and

c) after the building work has been completed and prior to any Occupation Certificate being issued in relation to the building.

***(Reason:*** *Prescribed by legislation)*

## SECTION C: TO THE SATISFACTION OF COUNCIL PRIOR TO ISSUE OF A CONSTRUCTION CERTIFICATE

28. Construction Environmental Management Plan

A Construction Environmental Management Plan must be prepared and submitted to, and approved in writing by ***'Council'*** prior to the issue of any Construction Certificate. The plan must include, but not be limited to, the following: -

a) Details of:
   i. 24-hour contact details of site manager
   ii. the proposed phases of construction ***'works'*** on the ***'site'***, and the expected duration of each construction phase;
   iii. the proposed manner in which adjoining property owners will be kept advised of the timeframes for completion of each phase of development/construction process;
   iv. the proposed areas within the ***'site'*** to be used for the storage of excavated materials, construction materials and waste containers during the construction period;
b) Construction Traffic and Pedestrian Management Sub-Plan;
c) Construction Noise and Vibration Management Sub-Plan;
d) Construction Waste Management Sub-Plan;
e) Construction Soil and Water Management Sub-Plan, including dust; and
f) Unexpected Contamination Procedure Sub-Plan, further to all the recommendations made within the approved Preliminary site assessment. In addition to the unexpected finds procedure, any area where hardstand is to be removed and utilised for open space, such as the proposed landscaped areas marked in yellow on the approved plans, must be assessed for signs of contamination, including staining, odorous soils and anthropogenic materials such as Asbestos Containing Material (ACM). In this regard, a procedure must be established, endorsed and supervised by a suitably qualified and experienced environmental consultant, that ensures that potential contaminants are identified, an appropriate degree of sampling is undertaken, and that any contamination identified is appropriately remediated, prior to the occupation of those newly landscaped areas. Copies of all documentation that addresses compliance with this condition must be provided.

All ***'works'*** must be undertaken in accordance with the approved Construction Environmental Management Plan and any conditions attached to the approved plan. A copy of the approved Construction Environmental Management Plan must be kept on the ***'site'*** at all times and made available to any officer of ***'Council'*** upon request.

***(Reason:*** *To ensure appropriate measures have been considered for site access, storage and the operation of the site during all phases of the construction process in a manner that respects adjoining owner's property rights and residential amenity in the locality, without unreasonable inconvenience to the community, and that appropriate measures are taken to ensure impacts to human health are not compromised)*

29. s.68 Local Government Act Requirements

Prior to the issue of any Construction Certificate, an application under s.68 of the *Local Government Act 1993* must be made to, and an approval issued by, ***'Council'*** for the following works:

- Onsite wastewater treatment systems,
- Stormwater works,
- Sewerage plumbing,
- Hot and cold-water reticulation,
- Solid fuel heater,
- Hoarding within road reserve

Documentation demonstrating compliance with the above must be submitted to, and approved by the ***'Certifier'*** prior to the release of a Construction Certificate.

***(Reason:*** *To ensure approvals under the provisions of the Local Government Act 1993 are obtained before* ***'works'*** *commence)*

30. Fire Safety Upgrade

The following works as outlined in the Fire and Life Safety Audit by BCA Logic reference 113876-Fire Safety Audit-r2a dated 10 May 2021 are to be included in the documentation submitted for the Construction Certificate application:

a) Buildings A, B and C are to be provided with a fire hydrant system in accordance with E1.3 of BCA2019 and AS2419.1-2005.
b) Fire hose reels are to be provided to serve the eastern side of Building A in accordance with E1.4 of BCA2019 and AS2441-2005.
c) Additional pedestrian exit doors are to be provided to the enclosed garage zones on the western side of Building 1.
d) Additional portable fire extinguishers are to be provided to Building A and B suitable for the risk being protected (being motor vehicles) in accordance with AS2444-2001.
e) An additional 1.0m$^2$ landing is to be constructed to the rear exit door to the Café building to satisfy D2.15 of BCA2019.
f) A light switch is to be located inside the cool room of the existing Café building with an indicator located above the door outside the cool room as per G1.2 of BCA2019. An alarm is also to be installed that can be activated from inside the cool room.

The works above must be completed prior to the issue of an occupation certificate for the new spectator building.

***(Reason:*** *To provide an improved level of fire safety to the existing buildings)*

31. Flora and Fauna Assessment Report

Prior to the issue of any Construction Certificate, the submitted Flora and Fauna Assessment Report prepared by Joy Haffey Environmental Consultant, must be updated to ensure that the report accounts for the Environmental Protection and Biovieristy Conservation Acts Protected Matters Search Tool.

a) The following threatened species/MNES are known or predicted to be found in the study area, and are required to be included in a revised report:

| **Flora** | **Fauna** |
|---|---|
| Amphibromus fluitans Floating Swamp Wallaby Grass | Calidris ferruginea Curlew Sandpiper |
| Caladenia tesselata Thick Legged Spider Orchid | Ephippiorhynchus asiaticus Black Necked Stork |
| Calotis glandulosa Mauve Burr Daisy | Falco hypoleucos Grey Falcon |
| Diuris aequalis Buttercup Doubletail Orchid | Grantiella picta Painted Honeyeater |
| Dodonaea procumbens Creeping Hop Bush | Haliaeetus leucogaster White Bellied Sea Eagle |
| Lepidium hyssopifolium Aromatic Peppercress | Hirundapus caudacutus White Throated Needletail |
| Prasophyllum petilum Tarengo Leek Orchid | Lophoictinia isura Square Tailed Kite |
| Rutidosis leptorhynchoides Button Wrinklewort | Monarcha melanopsis Black Faced Monarch |
| Senecio macrocarpus Large Fruited Groundsel | Motacilla flava Yellow Wagtail |
| Swainsona recta Small Purple Pea | Myiagra cyanoleuca Satin Flycatcher |
| Thesium australe Austral Toadflax | Numenius madagascariensis Eastern Curlew |
| | Polytelis swainsonii Superb Parrot |

Rhipidura rufifrons Rufous Fantail
Petauroides volans Greater Glider
Petrogale penicillata Brush-tailed Rock Wallaby
Pseudomys novaehollandiae New Holland Mouse
Litoria aurea Green and Golden Bell Frog
Macquaria australasica Macquarie Perch
Synemon plana Golden Sun Moth

Documentation demonstrating compliance with the above must be submitted to, and approved by the ***'Council'*** prior to the release of a Construction Certificate.

***(Reason:*** *To ensure the submitted Flora and Fauna Assessment Report accounts for all potential Flora and Fauna that could occur within the site)*

32. Underground Petroleum Storage tank

The use and ongoing management associated with the underground petroleum storage system at the site must be in accordance with the provisions of the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Council'*** prior to the issue of any Construction Certificate.

***(Reason****:* *To ensure that a system is set up to adequately manage fuel spills and alleviate environmental contamination)*

33. Landscaping - General

Except where varied by other conditions, the proposed landscape plan is approved subject to the following requirements:

a) Eucalyptus albens (White Box) does not occur within Goulburn. Please delete these species from the planting list. Trees utilised in the revegetation works must be selected from the following list:

| | |
|---|---|
| *Acacia dealbata* Silver Wattle | Eucalyptus blakelyi Blakely's Red Gum |
| Acacia decurrens Early Black Wattle | Eucalyptus bridgesiana Apple Box |
| Acacia mearnsii Late Black Wattle | Eucalyptus dives Broad Leaf Peppermint |
| Acacia parramattensis Parramatta Wattle | Eucalyptus cinerea Argyle Apple |
| Allocasuarina littoralis Black She Oak | Eucalyptus globoidea White Stringybark |
| Allocasuarina verticillata Drooping She Oak | Eucalyptus macrorhyncha Red Stringybark |
| Brachychiton populneus Kurrajong | Eucalyptus mannifera Brittle Gum |
| Eucalyptus amplifolia Cabbage Gum | Eucalyptus melliodora Yellow Box |
| Eucalyptus pauciflora Snow Gum | Eucalyptus rossii Inland Scribbly Gum |
| Eucalyptus viminalis Ribbon Gum | |

b) All proposed planting areas must incorporate the same extent of landscaping as that for the proposed landscaped area bordered in yellow on the approved landscape plans, incorporating similar species at similar numbers per square metre.

c) Trees used in the re-vegetation works must comprise at least 50% Eucalyptus species.

d) Parts of areas proposed to be vegetated contain dumped tyres and other rubbish (i.e. the north eastern parts of the site). These areas must be cleaned up, with all waste to be conveyed to an approved waste facility, prior to implementing revegetation works.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by **'Council'** prior to the issue of any Construction Certificate.

***(Reason:*** *To ensure that the proposed landscaping is suitable to Goulburn's climate and that a suitable extent of landscaping is proposed to encourage habitation by local fauna)*

**SECTION D: SUBSIDIARY MATTERS TO BE COMPLETED PRIOR TO THE ISSUE OF A CONSTRUCTION CERTIFICATE**

34. NSW Rural Fire Service - Construction Standards

Where the existing tourist cabins cannot support a 50 metre APZ within the property boundaries, they shall be upgraded to improve ember protection, unless already constructed to a relevant standard. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier***' prior to the issue of any Construction Certificate.

***(Reason:*** *To ensure buildings are designed and constructed to withstand the potential impacts of bush fire attack.)*

35. NSW Rural Fire Service - Access Roads for Special Fire Protection Purpose

Access roads for special fire protection purpose (SFPP) developments must comply with general requirements of Table 6.8b of Planning for Bush Fire Protection 2019:

- SFPP access roads are two-wheel drive, all-weather roads;
- Access is provided to all structures;
- Traffic management devices are constructed to not prohibit access by emergency services vehicles;
- Access roads must provide suitable turning areas in accordance with Appendix 3; and
- One way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier***' prior to the issue of any Construction Certificate.

***(Reason:*** *To provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area.)*

36. NSW Rural Fire Service - Perimeter Roads

Perimeter roads for special fire protection purpose (SFPP) developments must comply with general requirements of Table 6.8b of Planning for Bush Fire Protection 2019 and the following:

- Perimeter roads are provided for residential subdivisions of three or more allotments;
- Where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road;
- There are two-way sealed roads;
- Minimum 8m carriageway width kerb to kerb;
- Parking is provided outside of the carriageway width;
- Hydrants are to be located clear of parking areas;
- There are through roads, and these are linked to the internal road system at an interval of no greater than 500m;
- Curves of roads have a minimum inner radius of 6m;

- The maximum grade road is 15 degrees and average grade of not more than 10 degrees;
- The road cross fall does not exceed 3 degrees; and
- A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier'*** prior to the issue of any Construction Certificate.

***(Reason:*** *To provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area.)*

37. NSW Rural Fire Service - Non-perimeter roads

Non-perimeter roads for special fire protection purpose (SFPP) developments must comply with general requirements of Table 6.8b of Planning for Bush Fire Protection 2019 and the following:

- Minimum 5.5m carriageway width kerb to kerb;
- Parking is provided outside of the carriageway width;
- Hydrants are located clear of parking areas;
- There are through roads, and these are linked to the internal road system at an interval of no greater than 500m;
- Curves of roads have a minimum inner radius of 6m;
- The maximum grade road is 15 degrees and average grade of not more than 10 degrees;
- The road cross fall does not exceed 3 degrees; and
- A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier'*** prior to the issue of any Construction Certificate.

***(Reason:*** *To provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area.)*

38. NSW Rural Fire Service - Water and Utility services

The provision of water, electricity and gas must comply with the following in accordance with Table 6.8c of Planning for Bush Fire Protection 2019:

- As recommended in the submitted bushfire report, reticulated water is to be provided to the development;
- Fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS2419.1:2005;
- Hydrants are and not located within any road carriageway;
- Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads;
- Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005;
- All above-ground water service pipes are metal, including and up to any taps;
- Where practicable, electrical transmission lines are underground;
- Where overhead, electrical transmission lines are proposed as follows:
    - Lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and
    - No part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines.
- Reticulated or bottled gas is installed and maintained in accordance with AS/NZS

1596:2014 and the requirements of relevant authorities, and metal piping is used;

- Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 - The storage and handling of LP Gas, the requirements of relevant authorities, and metal piping is used;
- All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;

  Connections to and from gas cylinders are metal; polymer-sheathed flexible gas supply lines are not used; and
- Above-ground gas service pipes are metal, including and up to any outlets.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier'*** prior to the issue of any Construction Certificate.

***(Reason:*** *To provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building)*

39. Water NSW - Wastewater management

A report as indicated in the letter prepared by WSP (dated 10 May 2021) shall be prepared in consultation with Water NSW providing details of the existing on-site wastewater treatment and management measures prior to issuance of a Construction Certificate for the new spectator building. This report shall:

- show all components of the existing on-site wastewater treatment and effluent management systems and providing adequate information including the capacity to determine the adequacy of each component of the system, and
- determine the number of people (both staff and visitors) that the existing on-site wastewater management system currently has capacity for.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier'*** prior to the issue of any Construction Certificate.

***(Reason****:* *To ensure that all wastewater is disposed of and treated and is managed in a manner that has a sustainable neutral or beneficial effect on water quality over the longer term)*

40. Water NSW- Wastewater management

a) Portable toilets shall be provided for any event where the number of visitors exceeds the capacity of the existing on-site wastewater management system. The number and type shall be hired for the event in accordance with the supplier's recommendation and as specified in http://www.events.nsw.gov.au/event-starter-guide/9-health/9-4-toilet-facilities/.

b) The portable toilets shall be located on flat land so as to be stable, and at least 10 metres away from any watercourse or drainage feature, unless the portable toilets are mounted on trailers or trucks.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier'*** prior to the issue of any Construction Certificate.

***(Reason****:* *To ensure that all wastewater is disposed of and treated and is managed in a manner that has a sustainable neutral or beneficial effect on water quality over the longer term)*

41. s.7.12 Contributions

Under s.7.12 of ***'the Act'*** ***'Council'*** has determined that development contributions are applicable to this development, as the development is likely to require the provision of, or increase the demand for, public amenities and public services within the Goulburn Mulwaree local government area.

The following Goulburn Mulwaree Council developer contributions plans are applicable to the development:

- Section 94a Contribution Plan

The contributions in accordance with ***'Council's*** Fees and Charges at the time of payment must be paid prior to the issue of any Construction Certificate.

The level of contributions is calculated on the cost of carrying out the works and in accordance with cl.25I of ***'the Regulation'*** and ***'Council's*** contribution plans at the time of payment.

A cost summary report must be completed for works under $200,000. Where the value of the work exceeds $200,000 the cost shall be certified by a registered Quantity Surveyor or an equivalent or acceptable alternative agreed to by Council.

Where staging of the ***'works'*** occurs the value of the ***'works***' for each stage is to be calculated as a cumulative total.

Documentation as issued by ***'Council'*** demonstrating that the contribution has been paid must be submitted to, and approved by the ***'Certifier'*** prior to the issue of a Construction Certificate.

***Note****:* *Copies of the Contributions Plans are available from* ***'Council'*** *or alternatively, they can be downloaded from* ***'Council's'*** *website.*

*Payment is to be accompanied by the attached sheet entitled "Summary of Charges". If payment is by personal or company cheque the plans subject to this approval will not be available for collection until such time as the cheque has been honoured (i.e. a minimum of 10 days).*

***(Reason:*** *To retain a level of service for the existing population and to provide the same level of service to the population resulting from new development)*

42. Business Identification Signage

The proposed Business Identification signage must be reduced to a maximum width of 1.2 metres.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier***' prior to the issue of any Construction Certificate.

***(Reason****:* *To ensure the proposed signage is of appropriate width to sufficiently convey information and alleviate distraction to drivers on Braidwood Road from excess electronic information)*

43. Colours and materials scheme

The proposed pit lane building must incorporate external colour and material schemes that complement the surrounding natural tones.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier***' prior to the issue of any Construction Certificate.

***(Reason****:* *To ensure the proposed building will not be visually obtrusive)*

44. Car parking pavement

All car parking spaces shown on the approved site plan in parking areas 2A, 2B, 3, 4, 5 and 6 (as defined by Figure 16 of the Statement of Environmental Effects) must be paved with bitumen and line marked.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier***' prior to the issue of any Construction Certificate.

***(Reason****:* *To ensure that car parking spaces are defined and alleviate dust nuisance)*

45. Earthworks

A detailed cut and fill plan must be provided for all required earthworks to facilitate the proposed development. For the proposed off-road experience area, details must be provided as to how the area will be suitably compacted, and stormwater management will be maintained.

Documentary evidence demonstrating compliance with this condition must be submitted to, and approved by ***'Certifier***' prior to the issue of any Construction Certificate.

***(Reason****: To ensure that the proposal does not have any adverse sediment and erosion impacts)*

**SECTION E: PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION OR BUILDING WORKS**

46. Prior to Commencement

***'Works'*** must not commence on ***'site'*** in connection with this Notice of Determination until:

a) a Construction Certificate (where required) for the building work has been issued by:
   i. the consent authority; or
   ii. an **'*Accredited Certifier'***; and
b) the person having the benefit of the development consent has:
   i. appointed a ***'Principal Certifier'*** for the building work, and
   ii. notified the ***'Principal Certifier'*** that the person will carry out the building work as an owner-builder, if that is the case, and
c) the ***'Principal Certifier'*** has, no later than two (2) days before the building work commences:
   i. notified the ***'Council'*** of his or her appointment, and
   ii. notified the person having the benefit of the development consent of any critical stage inspections and other inspections that are to be carried out in respect of the building work, and
d) the person having the benefit of this Notice of Determination, if not carrying out the work as an owner builder, has:
   i. appointed a '***Principal Contractor'*** for the building work who must be the holder of a contractor licence if any residential building work is involved, and
   ii. notified the ***'Principal Certifier'*** of such appointment, and
   iii. unless that person is the '***Principal Contractor'*** notified the '***Principal Contractor'*** of any critical stage inspections and other inspections that are to be carried out in respect of the building work, and
e) the person having the benefit of this Notice of Determination has given at least two (2) days' notice to the ***'Council'*** of the person's intention to commence building work.

Documentary evidence confirming the above statutory requirements have been satisfied must be submitted to ***'Council'*** not less than two (2) days before any commencement of ***'works'***.

***(Reason:*** *Statutory; to ensure appropriate safeguarding measures are in place prior to the commencement of any building work, demolition or excavation)*

47. Site Sign

A sign must be erected in a prominent position on any ***'site'*** on which work involved in the erection or demolition of a building is being carried out:

a) stating that unauthorised entry to the ***'site'*** is prohibited;
b) showing the name of the '***Principal Contractor'*** (or person in charge of the ***'site'***), and a telephone number at which that person may be contacted at any time for business purposes and outside working hours; and
c) showing the name, address and telephone number of the ***'Principal Certifier'*** for the work.

Any such sign must be maintained while the ***'works'*** are being carried out and must be removed when the ***'works'*** have been completed.

The installation is to be approved by the ***'Principal Certifier'*** prior to any further commencement of ***'site' 'works'***.

***(Reason:*** *Statutory requirement)*

48. Water NSW- Construction Activities

Erosion and sediment controls as specified in the Erosion and Sediment Control Layout Plan (Proj. No. PS121597; Sheets C160; Rev 1; dated 11/09/2020) prepared by WSP (Australia) Pty Limited), shall be implemented and effective erosion and sediment controls shall be installed prior to any construction activity.

***(Reason:*** *To manage adverse environmental and water quality impacts during the construction phase of the development and to minimise the risk of erosion, sedimentation and pollution within or from the site during this construction phase)*

**SECTION F: CONDITIONS TO BE COMPLIED WITH DURING DEMOLITION OR BUILDING WORKS**

49. TransGrid - During work

During the proposed works, the following shall be adhered to:

- All work must be carried out in accordance with NSW WorkCover 'Working near overhead powerlines' Code of Practice 2006.
- During the construction phase of development TransGrid is not to be restricted from undertaking normal

  maintenance & inspection activities and, at completion of works, access to Transmission Lines & structures shall be available at all times for TransGrid plant & personnel.
- Any trench backfill for any services where travel is required by TransGrid maintenance vehicles must safely withstand the 40 tonne load capacity of maintenance vehicles.
- Adequate precaution shall be taken to protect structures from accidental damage, and the easement area shall not be used for temporary storage of construction spoil, topsoil, gravel or any other construction material.
- Safety clearance are to be observed near powerlines.

***(Reason:*** *To ensure that all proposed works in the vicinity of electricity infrastructure is carried out safely and that TransGrid maintenance vehicles are able to gain full access to the site safely and at any time)*

50. NSW Rural Fire Service - Asset Protection Zones

At the commencement of building works and in perpetuity the property around the pit lane building, camping area, tourist cabins and existing dwelling to a distance of 50 metres or the property boundary (whichever comes first), shall be maintained as an inner protection area (IPA) as outlined within section 6.8a and Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service's document Standards for Asset Protection Zones.

***(Reason:*** *To provide sufficient space for fire fighters and other emergency services personnel, ensuring radiant heat levels permit operations under critical conditions of radiant heat, smoke and embers, while supporting or evacuating occupants.)*

51. Essential Energy - Activities within close proximity of infrastructure

Any activities within close proximity to electricity infrastructure must be undertaken in accordance with the latest industry guideline currently known as ISSC 20 Guideline for the Management of Activities within Electricity Easements and Close to Infrastructure. Approval may be required from Essential Energy should activities within the property encroach on the electricity infrastructure.

All work carried out within close proximity to power lines must adhere to the requirements of SafeWork NSW publication *Code of Practice – Work near Overhead Power Lines and Code of Practice – Work near Underground Assets*.

***(Reason:*** *To ensure that any work required within close proximity of electricity infrastructure is carried out in accordance with industry guidelines)*

52. Construction Hours

All ***'works'*** must be restricted to within the hours of 7.00 am to 6.00 pm Monday to Friday and on Saturday to within the hours of 8.00 am to 1.00 pm inclusive, with no work on Sundays and Public Holidays.

Demolition and excavation works must be restricted to within the hours of 8.00 am to 5.00 pm Monday to Friday only.

All builders, excavators must display, on-site, their twenty-four (24) hour contact telephone number, which is to be clearly visible and legible from any public place adjoining the site.

***Note:*** *Demolition work means any physical activity to tear down or break up a structure (or part thereof) or surface, or the like, and includes the loading of demolition waste and the unloading of plant or machinery.*

*Excavation work means the use of any excavation machinery and the use of jackhammers, rock breakers, excavators, loaders, or the like, regardless of whether the activities disturb or alter the natural state of the existing ground stratum or are breaking up/removing materials from the site and includes the unloading of plant or machinery associated with excavation work.*

***(Reason:*** *To ensure that works do not interfere with reasonable amenity expectations of residents and the community)*

53. Unexpected Finds Protocol – Aboriginal Heritage

In the event that surface disturbance identifies a new Aboriginal object, all ***'works'*** on ***'site'*** must halt in the immediate area and to an outer radius of no less that twenty meters to prevent any further impacts of the object(s). A suitably qualified archaeologist and the registered Aboriginal Land Council representatives must be contacted to determine the significance of the object(s). The ***'site'*** if required is to be registered in the Aboriginal Heritage Information Management System (AHIMS) along with the management outcome for the ***'site'***.

The person having the benefit of this Notice of Determination must consult with the Aboriginal land Council community representatives, the archaeologist and Heritage NSW to develop and implement management strategies for all objects/sites. ***'Works'*** must only recommence with the written approval of Heritage NSW and only after a copy of that approval has been forwarded to the ***'Certifier'*** and ***'Council'.***

***(Reason:*** *To ensure the correct preservation and respect of aboriginal heritage)*

54. Waste Derived Fill and Material

The only waste derived fill material that may be received at the development ***'site'*** is:

a) Virgin excavated natural material (VENM) within the meaning of the *Protection of the Environment Operations Act 1997*; and

b) Any other waste derived material the subject of a resource recovery exemption under clauses 91 & 92 of the *Protection of the Environment Operations (Waste) Regulation 2014* that is permitted to be used as fill material.

Any waste derived material the subject of a resource recovery exemption received at the development ***'site'*** must be accompanied by documentation as to the material's compliance with the exemption conditions and must be provided to the ***'Principal Certifier'***.

***(Reason:*** *To ensure that imported fill that is of an acceptable standard for environmental protection purposes)*

55. Site management during construction

During the entire phase of construction, the Construction Phase Venue Management document submitted with the Development Application must be adhered to. Temporary way finding signage shall be erected from the site entrance, to convey traffic movement between construction staff and ordinary site users in accordance with the management document.

***(Reason:*** *To ensure that measures are in place to control site operations and avoid conflict between site users and construction vehicles and personnel)*

56. Water NSW - Stormwater Management

The stormwater management plan for the proposed off-road area shall be implemented during the construction and operation of the proposed off-road area.

***(Reason:*** *To ensure appropriate stormwater treatment and quality control measures are implemented to achieve a sustainable neutral or beneficial impact on water quality, particularly during wet weather, over the longer term)*

57. Water NSW - Stormwater Management

During construction, the Sediment and Erosion controls shall prevent sediment or polluted water leaving the site or entering any stormwater drain or natural drainage system. The controls shall be regularly inspected, maintained and retained until works have been completed and ground surface stabilised or groundcover re-established.

***(Reason:*** *To manage adverse environmental and water quality impacts during the construction phase of the development and to minimise the risk of erosion, sedimentation and pollution within or from the site during this construction phase)*

58. Construction Environmental Management Plan

During construction, all requirements of the Construction Environmental Management Plan approved in the Construction Certificate must be adhered to.

***(Reason:*** *To ensure that all necessary steps are taken to mitigate impacts to the natural environment and the health and safety of all future site users)*

**SECTION G: CONDITIONS TO BE COMPLIED WITH PRIOR TO THE ISSUE OF AN OCCUPATION CERTIFICATE**

59. Compliance with Conditions of Consent

Prior to the issue of any Occupation Certificate the person having the benefit of this Notice of Determination must demonstrate to the '**Principal Certifier'** that all conditions required to be complied with, either at or before the occupation stage, including conditions identified as at all times have been complied with. An Occupation Certificate must not be issued where the development undertaken is in breach of this Notice of Determination.

***(Reason:*** *To ensure compliance with the terms of this Notice of Determination)*

60. Plumbing and Drainage Finalisation

A final inspection of water plumbing and sewer drainage must be conducted by ***'Council'*** as the Water and Sewer Authority.

Documentary evidence issued by ***'Council'*** confirming that the final inspection was satisfactory must be provided to the ***'Principal Certifier'*** prior to the issue of any Occupation Certificate.

***(Reason:*** *To ensure compliance with the statutory requirements)*

61. Certificate of Compliance

A Compliance Certificate and a sewer service drainage diagram as issued by the plumber who submitted the Notice of Work must be issued to ***'Council'*** prior to the release of any Occupation Certificate.

Documentary evidence confirming that the above requirements have been fulfilled must be provided to the ***'Principal Certifier'*** prior to the issuing of any Occupation Certificate.

*(**Reason:** To ensure compliance with the statutory requirements)*

62. Fire Safety Certificate

Prior to the issue of any Occupation Certificate it will be necessary to submit to the ***'Principal Certifier'***, a Fire Safety Certificate in respect of the fire safety measures installed within the building.

A Fire Safety Certificate is to state, in relation to each essential fire or other safety measure implemented in the building or on the land on which the building is situated that the measure has been assessed by a person (chosen by the owner of the building) who is properly qualified to do so, and that, as at the date of the assessment, the measure was found to be capable of performing to a standard not less than that required by the schedule to the relevant approval.

***(Reason:** Statutory requirement)*

63. NSW Rural Fire Service - prior to use

Prior to the use of the site for camping and events/function, the proposed refuge building (pit lane building) shall be established in satisfaction of this Bush Fire safety authority and shall:

- Be clearly signposted as a place of refuge;
- Provide a pathway linking the camping area to the refuge building, which is clearly signposted and accommodated by appropriate APZs;
- The maximum capacity of the camping use (being the total number of all camping guests, and camping activity staff, etc) shall be provided for in the proposed refuge building as outlined below;
    - Occupancy levels permissible for a Class 9b Assembly Building ('Public Hall') and 'area per person' requirements (being 1 square metre per person) as specified under the Building Code of Australia.

***(Reason:** To ensure that the approval accommodates sufficient area for all users of the site in the event of a bush fire emergency)*

64. NSW Rural Fire Service - Emergency and Evacuation Planning Assessment

Prior to the commencement of use, a Bush Fire Emergency Management and Evacuation Plan be prepared as outlined below:

- NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan;
- Australian Standard AS 3745:2010 Planning for emergencies in facilities (where applicable);
- The Bush Fire Emergency Management and Evacuation Plan must consider a mechanism for the early relocation of occupants on days when adverse fire weather is notified or adverse fire activity occurs in the local government area in which the development operates;
- A copy of the Bush Fire Emergency Management and Evacuation Plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development; and,

- A copy of the Draft Emergency Management and Evacuation Plan shall be provided to the NSW RFS Far South Coast Team for comment, and any return comments from the district shall be adopted into an amended Emergency Management and Evacuation Plan.

***(Reason:*** *To provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments)*

65. Disposal Information

Prior to the issue of any Occupation Certificate the person having the benefit of this Notice of determination must provide to the ***'Principal Certifier'*** copies of all waste disposal receipts and any documentation as necessary demonstrating that all demolition and construction waste has been lawfully disposed of or recycled in accordance with the Construction Waste Management Sub-Plan and these conditions of consent.

The ***'Principal Certifier'*** must be satisfied that quantity of waste disposed of or recycle is commensurate to the quantity of waste actually generated by the ***'works'***.

*(**Reason:*** *To ensure waste material is appropriately recycled and lawfully disposed)*

66. Way-Finding Signage

Prior to the issue of any Occupation Certificate way-finding signage must be installed throughout the ***'site'*** that provides clear and visible directional signage that caters for all users of the site, and visitors.

Details demonstrating compliance with this condition must be submitted to the ***'Principal Certifier'*** prior to the issue of any Occupation Certificate.

***(Reason:*** *To ensure the public and emergency services can properly access the site)*

67. Food Premises - General

Prior to the issue of any Occupation Certificate, the construction and fit-out of any food preparation area is to comply with the requirements of the Food Act 2003, the Food Standards Code and AS 4674-2004: Design, construction and fit-out of food premises.

***(Reason:*** *To ensure that food preparation areas meet the requirements of relevant legislation)*

68. Private Water Supplies

Prior to the issue of any Occupation Certificate, a quality assurance plan developed in accordance with the requirements of the *Public Health Act 2010* and *Public Health Regulation 2012* must be submitted to NSW Health.

***(Reason:*** *To ensure that the development proponent meets their obligations in regard to potable water quality)*

69. Completion of landscaping

All proposed landscaping as detailed on the approved plans and within the conditions of consent, must be fully completed, prior to the issue of any Occupation Certificate.

***(Reason:*** *To ensure that the development is provided with landscaping to screen the proposed off-road experience area, that amenity is provided to users of the site and that sensitive receivers are not impacted by unreasonable noise)*

70. Biodiversity Management Plan

A site Biodiversity Management Plan must be developed, with a copy provided to '***Council'*** for approval prior to the issue of any Occupation Certificate. The A site Biodiversity Management Plan must include provisions for each of the following:

- Clear demarcation and protection revegetation zones for the proposed site

revegetation works. No vehicle access is to be permitted into these areas except for emergency access or maintenance activities such as weed and feral animal control, biodiversity monitoring and vegetation management.

- No rubbish dumping is to be permitted in revegetation areas.
- Annual threatened species flora and fauna surveys/monitoring must be conducted on the site following approved protocols to demonstrate continuing improvements in biodiversity values. Detailed records of flora and fauna surveys must be maintained. These records must be made available for audit by council on request.
- The site generally has an abundance of rock. It is recommended that this be placed as loose surface rock in the revegetation areas to create and enhance fauna habitat, at a spacing of at least one rock (30 cm width at widest part) per 25 square metres.
- Weed control and management, especially Serrated Tussock, African Love Grass, Blackberry, St John's Wort and Chilean Needle Grass.
- Feral animal management, including rabbits, cats and foxes.
- Ten (10) nest boxes must be installed in mature trees on the site to enhance fauna habitat. Five (5) nest boxes are to be suitable for micro-bats and 5 nest boxes are to be suitable for Red Rumped Parrots (or similar sized birds). Nest boxes are to be constructed and installed following guidelines in the Local Land Services Greater Sydney Publication "Build your own wildlife nest box".
- Annual review and updating of the Biodiversity Management Plan.

***(Reason:*** *To ensure that provision is made for the vegetation areas to be adequately protected and maintained, and encourage habitat by local fauna)*

71. Water NSW - Stormwater management

A suitably qualified consultant(s) or engineer(s) shall certify in writing to Water NSW and Council prior to issuance of an Occupation Certificate that all stormwater management measures have been installed as per these conditions of consent and are in a functional state.

***(Reason:*** *To ensure appropriate stormwater treatment and quality control measures are implemented to achieve a sustainable neutral or beneficial impact on water quality, particularly during wet weather, over the longer term)*

72. Water NSW - Operational Environmental Management Plan

An Operational Environmental Management Plan (OEMP) for the whole site shall be prepared in consultation with Water NSW by a person with knowledge and experience in the preparation of such plans prior to the issuance of an Occupation Certificate. The OEMP shall be implemented and shall include but not be limited to:

- details on the wastewater management systems including location and nature of structures such as pipes, septic tank(s), flow meter(s), balance tank(s), pump well(s), standby pumps, alarms, switch on and off valves, aerated wastewater treatment system, storage dam and effluent irrigation area
- a monitoring program for the wastewater management system that shall include, but not be limited to:
    - actual peak wastewater flow generated by large events at the site
    - system operation and control, and
    - desludging frequency of septic tank(s)
- the management measures to be implemented if monitoring shows the wastewater management system is not operating effectively or may be causing adverse environmental impacts
- details on the location and nature of stormwater management structures such as pits, pipes, swales, dams, and rainwater collection system

- outline the responsibilities and detailed requirements for the inspection, monitoring and maintenance of all wastewater and stormwater management structures, including the frequency of such activities
- identify the individuals or positions responsible for inspection and maintenance activities including a reporting protocol and hierarchy, and procedures for managing and notification of water quality emergencies (On-site Wastewater System failure), and
- provide checklists for recording inspections and maintenance activities.

***(Reason:*** *To ensure appropriate wastewater and stormwater treatment and quality control measures are maintained so as to achieve a sustainable neutral or beneficial impact on water quality, particularly during wet weather, over the longer term)*

**SECTION H: CONDITIONS TO BE COMPLIED WITH AT ALL TIMES**

73. Traffic Management

Prior to undertaking all Class 1 (Minor), Class 2 (Large) and Class 3 (Major) events, the applicant must:

- Prepare an event based Traffic Management Plan (TMP), and implemented to Council's satisfaction. The TMP shall be in accordance with Chapter 7 of the Guide to Traffic Management and Transport Management for Special Events. A copy of this guide can be downloaded from http://www.rms.nsw.gov.au/trafficinformation/downloads/tmc_specialevents_dl1.html
- Liaise with the Director of Major Events in preparing their TMP. In the first instance they should contact the Director by email details of the event to major.events@tmc.transport.nsw.gov.au.
- Liaise with the Manager, Operations Planning (TfNSW) in preparing their TMP. In the first instance they should contact the Manager by email details of the event to regional.special.events@rms.nsw.gov.au.
- Put in place a communication strategy be put in place to notify motorists of potential delays.
- If the traffic management arrangements for the event, are likely to impact on a travel lane of Braidwood Road or impact on the operation of traffic signals on any road, the applicant must apply for, and obtain a Road Occupancy Licence (ROL) from the TfNSW Traffic Operations Unit (TOU) prior to the event. The ROL application would require a traffic management plan (TMP) to be prepared by a person who is certified to prepare Traffic Control Plans. TfNSW recommends that the application be lodged a minimum of one month prior to the event.

***(Reason:*** *The TMP needs to consider and identify appropriate internal arrangements to minimise existing queuing onto Braidwood Road. For instance, TfNSW understands the proposed internal arrangements which may result in conflict eg. Vehicles waiting to exit the site may block vehicles entering the site and turning right into Jack Brabham Drive, potentially causing queuing onto Braidwood Road. Given this, alternative arrangements need to be considered for Class 2 and Class 3 events)*

74. TransGrid - Obstructions

At all times, no obstruction of any type shall be placed within 30 metres of any part of transmission line structures i.e. the 30 metre exclusion zone is to be observed, and no obstructions are to be placed on access tracks or within the easement area that restricts access.

***(Reason:*** *To ensure that the proposed development is not carried out contrary to TransGrid requirements)*

75. Hours of Operation

Use of the Wakefield Park Raceway facility for motorsport activities shall observe the following operating hours, Monday to Sunday:

- 8:00am to 6:00pm, for use of the motor racing circuit;
- 9:00am to 6:00pm or sundown, whichever first occurs, for motorsport activities;
- No events of any nature are to be held on Christmas Day or Easter Good Friday.

For the purposes of warming up, testing and mechanical repairs/maintenance, competition engines may be started no earlier than 8:00am.

***(Reason:*** *To ensure that the approved hours of the operation for the facility are clarified)*

76. Hours of Illumination - Signage

At all times the proposed Business Identification sign must cease illumination outside the operational hours of the recreation facility.

***(Reason:*** *To ensure appropriate forms of signage that are consistent with the development controls and those that are desired for the locality)*

77. Maintenance of Landscaping

At all times the landscaped area of the approved ***'works'*** is to be maintained in accordance with the approved landscape plan.

Any replacement plants required must be advanced in growth and be selected to maintain the anticipated mature height, canopy density and nature of those plant species as originally approved.

***(Reason:*** *To ensure the visual amenity of the streetscape is maintained)*

78. Use of relocated structures

At all times the relocated structures must only be used for purposes that are ancillary to the use of the recreation facility (major).

***(Reason:*** *This approval grants consent for the existing site activity being a recreational facility (major))*

79. Market operations

At all times the proposed markets must operate in accordance with the following requirements:

a) the rows of garages where markets are to be held must be separated by temporary fencing or other physical barrier.
b) signage must be erected for the entire duration of market events, to direct pedestrians from the car parking area to the markets.
c) markets must only be held when there is a class 1 event in operation, or when the site is not holding any motorsport events.
d) there must only be one market event held per month.

***(Reason:*** *To ensure that the market activity does not conflict with the principal use of the site and that pedestrian safety is not compromised)*

80. Further ground water monitoring

Six (6) months following the issue of this Development Consent, the development proponent must carry out groundwater monitoring, around the Underground Petroleum Storage System (UPSS), to ascertain concentration of hydrocarbons in ground water. If levels of concentration continue to be above adopted screening criteria, the proponent will be required to install a loss monitoring and leak detection system (incorporating a network of three monitoring wells around the UPSS), as per NSW EPA Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019.

Council is to be provided with the results of the ground water monitoring, within 30 days of the sampling date. If levels of concentration are above those previously analysed, the development proponent is to install the loss monitoring and leak detection system above, within 90 days of the date of the ground water monitoring sampling date.

***(Reason:*** *To ensure that there is adequate action taken, in recognition of hydrocarbon concentrations in groundwater above adopted screening criteria in accordance with EPA guidelines)*

81. Off-road experience area

All earthworks to facilitate the off-road experience area must:

- Incorporate a maximum mound height of 5 metres, from existing ground level.
- Be fully utilised and must not be stockpiled.
- Be appropriately compacted.
- Incorporate permanent sediment and erosion control devices
- Not be sourced externally to the site. No earth is to be imported to the site or exported from the site.
- Ensure that all stormwater run-off is directed to the existing stormwater management system.

***(Reason:*** *To alleviate sediment and erosion impacts and ensure that mounds are to an appropriate height)*

82. Biodiversity Management Plan Maintenance

At all times, all requirements of the Biodiversity Management Plan approved as part of this development consent must be implemented.

***(Reason:*** *To ensure that the vegetated areas continue to be protected and maintained and continue to encourage activity by local fauna)*

83. Event Management Plan

At all times, the site must function in accordance with the approved Event Management Plan. For all class 2 and 3 events, traffic controllers (persons) will be required to ensure that there are no impacts from queuing on Braidwood Road.

***(Reason:*** *To ensure that vehicles utilising the site during peak periods are adequately controlled to alleviate any traffic impacts to Braidwood Road)*

84. Use of on-site Food and Drink Premises

At all times, the on-site Food and Drink Premises must be used ancillary to the use of the site as a Recreation Facility (Major).

***(Reason:*** *To ensure that the Food and Drink Premises remains an ancillary use to the principal use of the site)*

85. Underground Petroleum Storage tank

At all times, the paving, bunding and roofing system to the re-fuelling area shall be maintained. Capture of liquids into the bunding system must be monitored and waste liquid is to be emptied and lawfully disposed of prior to it becoming full.

***(Reason:*** *To ensure that liquid waste is adequately managed to prevent environmental contamination)*

86. Waste oil and liquid storage

At all times, the storage of waste oil and other liquids must occur within a roofed, paved and bunded area. The bunding system must enable the storage of the total volume of all stored liquids, plus 10%. The capture of liquids into the bunding system must be monitored and waste liquid is to be emptied and lawfully disposed of prior to it becoming full.

***(Reason:*** *To ensure that liquid waste is adequately managed to prevent environmental contamination)*

87. Private Water Supplies

At all times, the applicant must demonstrate that the drinking water supplied to the development and used in any aspect of the food production process will consistently meet the criteria of the Australian Drinking Water Guidelines.

***(Reason:*** *To ensure that the development proponent continually meets their obligations in regard to potable water quality)*

88. Water NSW - Operational Environmental Management Plan

The wastewater and stormwater management structures shall be monitored, maintained, and managed as per the Operational Environmental Management Plan.

***(Reason:*** *To ensure appropriate wastewater and stormwater treatment and quality control measures are maintained so as to achieve a sustainable neutral or beneficial impact on water quality, particularly during wet weather, over the longer term)*

89. Water NSW - Operational Environmental Management Plan

The wastewater management system monitoring and performance reports, prepared by a person with knowledge and experience in the preparation of such reports, shall be submitted to Council and Water NSW. These reports shall be submitted initially on an annual basis for the first two year with future requirements to be determined by system performance.

***(Reason:*** *To ensure appropriate wastewater and stormwater treatment and quality control measures are maintained so as to achieve a sustainable neutral or beneficial impact on water quality, particularly during wet weather, over the longer term)*

**SECTION I: GENERAL TERMS OF APPROVAL PURSUANT TO SECTION 4.47 OF THE ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979**

90. NSW RFS General Terms of Approval

NSW RFS provides its General Terms of Approval to the application, subject to the conditions within the letter dated 15 June 2021, which must be satisfied during the relevant stage of the development and prior to the issue of the Subdivision Certificate (or at a time as otherwise stated in the condition).

***(Reason:*** *To ensure the development meets the requirements of Planning for Bushfire Protection 2019)*

**SECTION J: CONCURRENCE AGENCY CONDITIONS**

91. Water NSW Concurrence

Water NSW concurs with Council granting consent to the application, subject to the conditions within the concurrence letter dated 16 June 2021, which must be satisfied during the relevant stage of the development and prior to the issue of the Subdivision/Occupation Certificate (or at a time as otherwise stated in the condition).

***(Reason:*** *To ensure the development has a neutral or beneficial effect on water quality)*

**SECTION K: ADVISORY INFORMATION**

a) Prior to commencing any building, or associated constructions works, the following provisions of ***'the Act'*** are to be complied with:

(i) A Construction Certificate is to be obtained in accordance with Section 6.3 of ***'the Act'***.

(ii) A Principal Certifier is to be appointed and Council is to be notified of the appointment in accordance with Section 6.6 of the Act.

(iii) Council is to be notified at least two (2) days of the intention to commence building works, in accordance with Section 6.6(2)(a) of the Act.

b) Prior to any ***'Work'*** commencing on ***'site'*** all services should be clearly located and identified by contacting "Dial before you Dig" by telephoning 1100 or utilising www.1100.com.au

c) ***'Council's'*** fees and charges are adjusted annually on the 1st July, all fees are calculated at the time of payment this may mean that amounts required to be paid increase.

3. Council makes this determination because it is satisfied that the proposal, subject to conditions being met:

a) Will satisfy Part 1 Section 1.3 (c) of "the Act" as it does promote the orderly and economic use and development of land.

b) The proposal does meet the aim under Clause 1.2 (2)(a) and (b) of the "GMC LEP 2009" which states:

(a) to promote and co-ordinate the orderly and economic use and development of land in the area,

(b) to provide a framework for the Council to carry out its responsibility for environmental planning provisions and facilitate the achievement of the objectives of this Plan,

c) Will satisfy the DCP requirements in relation to noise impacts of the proposed development because of the requirement to transition to a quieter venue

d) In Council's opinion, the proposal provision of Section 4.15(1)(b) of "the Act" that the conditions imposed will satisfactorily considered the likely impacts of the development, including social impacts in the locality.

e) As the facility has operated in this location for some time, the Council is satisfied that the proposal demonstrates suitability of the site for its ongoing use in accordance with Section 4.15(1)(c) of "the Act".

f) The proposal having regard to the provision of Section 4.15(1)(e) of "the Act" is considered to be in the public interest.

4. That Council revoke the Prevention Notice dated 8 January 2020, and issue a new Prevention Notice in accordance with the provisions of the Protection of the Environment Operations Act 1997 that reflects conditions 13-22 in Item 2 above.

Section 375A of the *Local Government Act 1993* requires General Managers to record which Councillors vote for and against each planning decision of the Council, and to make this information publicly available.

**BACKGROUND**

DA/0117/2021 was considered at the 22 June 2021 Council Meeting which was adjourned until 13 July 2021. This report is being presented as a result of the resolution passed by Council on 22 June 2021, which states:
That:

1. In accordance with clause 4.15 of the Code of Meeting practice Council accepts the General Managers recommendation that a further report is required on matters raised in the Public Forum and that the determination of the Wakefield Park Development Application be deferred until the 13 July 2021 and this meeting be adjourned until that date.
2. No public forum be held at the adjourned Extraordinary Meeting on the 13 July 2021 Council Meeting.

This report is therefore presented for consideration by Council as part of the resumption of the adjourned meeting.

Prior to adjourning the meeting of 22 June 2021, Council resolved that a supplementary report be prepared that considers the following matters:

1. Investigate Phillip Island Race Track noise issues.
2. Investigate signage on the site.
3. Clarity on pre-race activities and start time on track
4. Activities on no race days
5. Comment on the economic value to the region
6. Clear direction on noise categories being simplified and reduced from 4 to 3 categories
7. Reduction of number of days in the red category to 30 event days
8. Amber category between 75-85 dBA up to 150 events
9. Green category less than 75 dBA
10. Providing sound data to the community via the Wakefield Park website
11. How many events can operate above 75 dBA?
12. Methodology on the number of noisy days
13. Should we include a black colour category for prestige events?
14. Include changes to static testing
15. Location of additional monitoring equipment
16. Conditions relating to compliance
17. Additional offsite noise mitigations matters
18. Condition to nullify the 1993 consent

Following on from that meeting, the following four (4) items were also added to the above list:

19. More info re the off road component of the DA ...noise, dust, how often, joint events, etc.
20. Can the noise meter be rotated around neighbours in a 3 to 4 km radius?

21. What are the opportunities for sound absorption/mitigation on the new building near start line?
22. Maybe use areas in conjunction with Council for offset tree planting (Eg. Council's draft Vegetation Removal Offset Policy)

**REPORT**

At the 22 June 2021 Council Meeting, staff had presented a report in relation to DA/0117/2021 that recommended refusal. In summary, this recommendation was put forward as staff were not satisfied that all environmental impacts had been appropriately considered by the applicant.

The recommendation in this supplementary report is a result of the Council's request that an alternate direction with conditions be given as an option for Council's consideration. Meetings were held with submitters and the Applicant and a copy of the notes taken at those meetings are attached.

The summary of the feedback from all parties is that Wakefield Park should be able to continue but needs to transition to a quieter venue. As Councillors would be aware the majority of the discussions are related to noise. The focus on the recommended conditions, especially those related to noise, is the transitioning of the facility to a quieter venue, but still allowing Wakefield Park to operate as a viable business.

In determining a way forward, Council has had to not only consider the noise impacts, particularly undesirable impacts on receivers, but also the economic and social benefits that the facility provides to the community.

Over the last 20 years since noise being generated at the site first began being questioned by surrounding residents a number of noise monitoring reports, impact assessments and a noise management plan have been prepared for the site, which are in addition to the latest noise assessments and modelling commissioned by Wakefield Park for both the Prevention Notice and the Development Application. To this end Council have a substantial amount of information prepared by acoustic consultants relating to both the operations of Wakefield Park Raceway at various points in time, the noise generated from various events, the actual noise impacts of events, noise generated at residences as well as proposed appropriate operational times and noise mitigation measures.

It is important to recognise that the majority of data collected prior to 2018 was based upon the actual noise level at a receiver's property. This is based upon the ability of specific noise properties changing depending on where the noise is being generated on the track and prevailing weather conditions. There are currently opportunities to circumvent noise being appropriately measured on site, however if noise is monitored at the receivers properties and independently assessed, then transparency and credibility in the process can be achieved.

It is also important that any requirements relating to noise monitoring and noise generation have no end date. This is in recognition that property ownerships change and people's attitudes /relationships change and regardless of any formal or informal arrangements that may currently be in place, there will always be a requirement for Council to oversee compliance.

In addition to the noise documentation accompanying the Development Application, a number of additional reports have been commissioned by Wakefield Park over the past 20 years, which have been drawn upon in the preparation of this report.

In 2015, Wakefield Park commissioned a Noise Impact Assessment prepared by Benbow Environmental. A copy of that report is attached. It is stated in that report that the activities of the circuit had increased from the original expectation and that the intention of the report was to arrive at an acceptable outcome that benefits the owners of the vehicles that use Wakefield Park, keeps Wakefield Park viable but protects the residences from excessive noise too many times over a

year. The findings of that report recommended just 3 major noise weekends (6 days) per year (the equivalent of the proposed red category in condition 13), 10 medium noise events per year (the equivalent of the amber category) and the remainder of all operational days be the equivalent of the green category.

In 2017, a further report was commissioned by Wakefield Park including a Noise Management Plan prepared by Benbow Environmental (also attached) in response to the previous noise impact assessment. That second report again made recommendations regarding the number of acceptable days for noisy events. This Plan increased numbers across all categories but still only provided for 12 high noise days per year where noise levels may exceed the background noise level by over 20 dB(A) at relevant receivers (the equivalent of the proposed red category), 50 days per year for medium noise events where noise levels may exceed 10-20 dB(A) at receivers (the equivalent of the amber category) and 100 days where noise may exceed background by 5-10dB(A) (the equivalent of the green category).

It was noted in both reports that implementing measures such as limiting noise-generating events, restricting track activities, providing static vehicle testing at Wakefield Park Raceway and employing noise mitigation measures at affected residences would limit the impact on receivers whilst allowing Wakefield Park to remain economically viable. Further to this both reports acknowledged that the venue needed to be willing to reduce the noise level being emitted from their site. Again it is stated that these reports were commissioned by Wakefield Park.

In a letter dated 31 August 2017, signed by Wakefield Park (copy attached), a commitment was made by Wakefield Park “to commence implementation of some of the measures outlined in the Noise Management Plan and will continue to do so going forward”. This commitment effectively demonstrates that Wakefield Park have previously agreed to limiting the number of ‘noisy’ days. In the proposed conditions of consent as recommended by this report, Council would be increasing the number of ‘noisy’ events to an even greater level, however Wakefield Park are now questioning the viability even though the number of ‘noisy’ days now proposed far exceed what has previously been recommend as being reasonable.

Reference is made to Receivers R1, R2 and R3 as identified in the Tonin Report dated September 2020. Although these 3 dwellings have not actively participated in the discussions and consultation held to date, it is important to note that an excessive level of noise is being received at their residences and this must be acknowledged by Council and within its determination. If any of these properties change hands or the owners’ relationships with Wakefield Park changes, there would be an expectation that Council would protect them from noise based on the consent that is place at the time.

Condition 13 has been included in response to concerns raised by residents that identify the different levels and types of noise generated from the facility. The condition was drafted by utilising Dr Tonin’s Predictive Noise Model, which predicts the noise level to be received at a number of receiver locations based upon the noise level being generated at Wakefield Park. A copy of the abridged Predictive Noise Model (in the form of a spreadsheet) has been attached. You will note from the spreadsheet that predictive noise modelling from a number of properties is excluded, in particular R1, R2 and R3. Prior to the meeting on 13 July, we will be seeking the complete noise model from the applicant to enable Council to fully comprehend the impact of noise at these receivers. It is noted that this information was sought by staff prior to the original recommendation presented at the 22 June 2021 Council Meeting.

Notwithstanding the above, it has also been observed that the configuration of the track is such that a shorter circuit could be utilised for events such as drifting, which has the effect of circumventing the noise meter at turn 2. In the Benbow Noise Impact Assessment of 2015 it is recommended that one (1) additional noise monitor be installed to monitor noise generated on the track, which is now reflected in the draft conditions. The Benbow report specifically states “that the noise logger placed onsite is not located in a representative position as much higher noise levels were observed on other sections of the track”.

The red star on the image below indicates the location of the existing noise monitor, and the highlighted yellow area demonstrates a shorter circuit configuration which can be utilised. The yellow star reflects Benbow's proposed location for an additional noise monitor which should allow for actual noise from the track to be recorded.

At its meeting held 22 June 2021, Council provided a list of 18 issues that require further analysis. Subsequent to the meeting being adjourned, 4 additional matters were raised, and have also been included. The responses are as follows:

***1. Investigate Phillip Island Race Track noise issues***

The Phillip Island Circuit has been operational in its current format since 1988. According to the Phillip Island Circuit website the facility is subject to the following noise limits:

| Noise Limit | | Midweek Days | Weekend Days | Total |
|---|---|---|---|---|
| Above 95dB(A) | Loudest | 15 | 6 | 21 |
| Up to 95dB(A) | Quite Loud | 110 | 50 | 160 |
| Up to 75 dB(A) | Moderate | 100 | 12 | 112 |
| Quiet | Quiet | 36 | 36 | 72 |

Whilst the above noise limits may be in place, they do not demonstrate that the facility is operating in harmony with its surrounding residents. A number of media outlets have published reports relating to the impact on residents across the wider Phillip Island settlement, including a recent

report published December 29, 2020 by the Phillip Island and San Remo Advertiser. This report states that in 2015, a Victorian EPA survey found that noise complaints from the facility were the third highest in Victoria, only behind amplified music and noise from industry.

Reports such as those published by the Phillip Island and San Remo Advertiser also indicate that as in NSW, Victoria also does not have an adopted framework around managing noise from a motorsport facility which is an ongoing source of frustration for residents.

Without limiting the focus to Phillip Island, Council have also investigated other motorsport facilities, including Mt Panorama (Bathurst), Sydney Motorsport Park (Eastern Creek), and Lakeside (Brisbane).

For the majority of the year, the Mount Panorama Circuit at Bathurst is a public road, originally opened in 1938 as a tourist drive. For a maximum of five (5) events per year, the road is closed for motor racing purposes, and under the specific *Mount Panorama Motor Racing Act 1989*, noise management provisions of other legislation are effectively "switched off".

At present Bathurst Regional Council are seeking consent for an additional, purpose-built motor racing facility known as 'Velocity Park' to be constructed alongside the Mt Panorama circuit. The proposal is regarded as a State Significant Development and has only progressed to the SEARs being issued, however after reviewing the project's scoping report and the SEARs as well as discussions with the Department of Planning, Industry & Environment, it appears that noise is going to be the decisive factor in the assessment and subsequent determination.

Sydney Motorsport Park, formerly known as Eastern Creek, was opened in 1990. The facility is owned by the NSW Government but operated by the Australian Racing Drivers Club. It is located in a predominantly industrial setting, with the industrial areas of Eastern Creek, Huntingwood and Minchinbury all in close proximity (to the north, north-west and west of the site), a number of waste management facilities to the south, the Prospect water reservoir to the east and both the M4 and M7 motorways running alongside to the north and west respectively. This setting provides a fundamentally elevated background noise level which minimises the impact on sensitive receivers further away from the facility, and effectively provides the platform for why the circuit has capacity to run into the night, as was mentioned a number of times during the meeting on 22 June 2021. It is therefore incomparable to Wakefield Park or the proposal at hand.

The Lakeside motor racing facility in Brisbane is another notable facility that has also had to succumb to noise management requirements, more so over the past 2 decades. The facility was opened in 1961 and operated until 2001 when it was closed for numerous reasons that included court proceedings relating to noise. Notwithstanding this, the facility reopened in 2008 albeit in a reduced operating capacity but nevertheless demonstrates viability of a circuit with such restrictions.

The above examples effectively demonstrate the inherent difficulty faced by regulatory authorities in approving and managing motorsport facilities throughout Australia. The lack of a specific noise management framework across most jurisdictions validates the notion that no two facilities can be compared, and that each must be assessed on its individual merits, particularly in relation to how noise is managed.

***2. Investigate signage on the site***

Internal signage within the site is generally not considered to be a cause for concern in relation to the assessment of this development application. As is the case with the majority of recreational facilities, sponsorship signage is utilised to provide additional exposure and income for supporters of the facility and is generally not visible from outside of the site. Any risk is further reduced by the fact that the facility is not operational after dark, which removes the need for the illumination of any signage within the facility.

The visibility of site signage from the public domain, for example, site identification signage that is visible from Braidwood Road, will require some regulation however this can be managed effectively via appropriate conditions of consent.

***3. Clarity on pre-race activities and start time on track***

Conditions relating to use of the track are clearly set out in the draft conditions of consent, which ultimately reflect the existing Noise Prevention Notice.

Throughout the operation of the Noise Prevention Notice, Council have not received any validated complaint in relation to use of the facility outside of the permitted hours of consent.

Some confusion had existed within the community, which was expressed during the public forum on 22 June 2021, however this was correctly attributed to the use of the Natsoft timing software. In this respect there can be no correlation between the use of Natsoft and use of the facility, without further evidence in the form of live noise data.

The proposed Conditions 13 and 75 seek to address this matter.

***4. Activities on no race days***

Clarification was sought by Council in relation to the types of activities that can occur on 'non-race days'. The recommended conditions do not delineate between race day events and non-race day events. The issue that Council needs to focus on is the noise emanating from the site and allowing Wakefield Park to undertake any business operations (in line with this consent) it so desires as long as the noise levels are controlled. In other words the intent is to simplify the consent.

However if Council was on the opinion to introduce definitions then the following could be introduced:

> '*Motorsport activities*' are defined as any activity or event involving a motor vehicle for racing or competitive driving purposes at Wakefield Park Raceway, but excluding facility maintenance and repairs and activities defined below as 'non-motorsport activities'.
>
> '*Non-motorsport activities*' means activities such as facility maintenance and repairs, new car launches, photo shoots, market stalls and road skills development courses (i.e. learn to drive and learn to ride – non related to motorsport activities). An activity must not be classified as non-motorsport related if noise exceeds 75dB(A) when measured at any point not less than 30 metres from the nearest edge of the track (using the LAmax(Fast) method).

***5. Comment on the economic value to the region***

The Economic Impact Assessment by Urban Enterprise, provided as part of the application states that Wakefield Park generated in the order of $16.9M to the Goulburn regional economy in 2019. This figure was referenced many more times on 22 June 2021 during the open forum

Although there is no doubt that the economic value of Wakefield Park to the economy of Goulburn is substantial, we have reviewed submissions and visited Council's own data, and have formed an opinion that the $16.9M is overstated. The value of a 1 person per night stay in Goulburn has been assessed independently for Council as being $271.00. Using the applicant's figures, this would mean that there are in excess of 62,000 people visiting Wakefield Park every year and spending a night in the region. However, Wakefield Park themselves have stated through this process that the number of visitors and users at the facility sits at approximately 30,000 annually. We have ran a number of scenarios to support this view. One such scenario is:

- If 50% of those visitors stayed 1 night and the other 50% only purchased $100 worth of goods per day, then the economic value to the Region would be approximately $6M. A 33% allowance for variables would elevate this figure to an $8M economic contribution from the facility.

Regardless of whether the figure sits at $6M, $8M or $16.9M, there is no doubt that the facility contributes a substantial amount of value to this region and this should be taken into account in the assessment of the development application. Notwithstanding this, it is only one of many considerations that must be taken into account, and therefore should not be the sole consideration in determining the application. Council should also not lose sight of the fact that the growth of the economic benefit was only made possible via the facility not operating in accordance with its consent.

***6. Clear direction on noise categories being simplified and reduced from 4 to 3 categories***

Reducing the number of noise categories has been explored, however following consultation with the relevant stakeholders, additional categories were included as a means of providing clarity.

That being said, 3 clear categories remain in place in relation to 'noise-producing' activities, with the additional 1 category regarded as being for clarity purposes in relation to what is expected on 'quiet' days.

It is important to note that the introduction of the Blue Category in proposed Condition 13 has been done in reference to the fact that a Green Category day can still experience short bursts of 95dB(A) throughout the event/day, provided that the 15-minute average remains under 75dB(A). The Blue Category therefore provides a mechanism to ensure that noise remains under 75dB(A) on such days. It should also be noted that no events whatsoever will be permitted on Christmas Day or Good Friday.

For consistency, and to prevent confusion amongst Council, the community and the applicant, it is strongly recommended that an alternative category utilising a different unit of measurement (i.e. special events over a number of days being classified as a single event) **not be adopted**. This position is supported by the applicant.

The proposed Condition 13 seeks to address this matter.

***7. Reduction of number of days in the red category to 30 event days***

Both the submitters and the Wakefield Park management have agreed that this facility needs to transition to a quieter venue. Wakefield Park have indicated they still require 75 'red" days. The recommendation in condition 13 is to transition in 2.5 years from what is happening now down to 30 days. This is significantly more days than recommended in the Benbow Environmental Reports.

***8. Amber category between 75-85 dB(A) up to 150 events***

Both the submitters and the Wakefield Park management have agreed that this facility needs to transition to a quieter venue. Wakefield Park have indicated they still require 212 'amber" days. The recommendation in condition 13 is to transition in 2.5 years from what is happening now down to 100 days. This is significantly more days than recommended in the Benbow Environmental Reports.

***9. Green category less than 75 dB(A)***

Both the submitters and the Wakefield Park management have agreed that this facility needs to transition to a quieter venue. Wakefield Park have indicated they require 78 green" days. The recommendation in condition 13 is to transition in 2.5 years from what is happening now down to 157 days.

***10. Providing sound data to the community via the Wakefield Park website***

Refer to condition 14 for outcome of recommended outcome.

***11. How many events can operate above 75 dB(A)?***

Refer to condition 13 for outcome of recommended outcome.

***12. Methodology on the number of noisy days***

In order to calculate the number of days appropriate for each category listed in the proposed Condition 13 above, it was acknowledged that Council had access to a variety of information from which a methodology could be derived. This included:

- Undertaking a review of existing noise guidelines, including the Noise Guide for Local Government and the Noise Policy for Industry – attached;
- Undertaking a review of numerous Noise Management and Assessment reports prepared for Wakefield Park Raceway during the past ten (10) year period;
- Reviewing documentation provided to support the Development Application as well as advice provided by Councils consulting acoustician;

- Reviewing documentation received as part of the exhibition process in support of resident submissions;
- Undertaking and reviewing matters raised during consultation with affected receivers before and during the determination process;
- Exploration of the reasonable and feasible noise mitigation strategies and measures that could be employed both at the site and at affected residences in order to address noise impacts;
- Giving consideration to the wider community benefits and economic value of Wakefield Park Raceway.

Notwithstanding the above it was evident based upon the content of the public forum component of the 22 June 2021 Council Meeting that nobody sought to shut down the facility but that compromise was required by all stakeholders. Accordingly the draft conditions have been prepared in a manner that seeks to strike a balance between the operational viability of the Facility and the rights of the residents.

As the draft conditions demonstrate it is considered appropriate that Council seeks to transition the facility towards operations with less of a noise impact over a prescribed period as detailed. This allows Wakefield Park Raceway to facilitate its existing commitments whilst at the same time providing something for the affected residents to look forward to.

***13. Should we include a black colour category for prestige events?***

Following stakeholder consultation, it is recommended that the addition of a black colour category for prestige events (such as the 3-day Australian Superbike Event) not proceed, as this would introduce an unnecessary element of confusion to the matter that will affect not only operations of the facility but also Council's ability to manage compliance. This request has been overcome by simply identifying the number of high-profile events and providing an appropriate allowance within the draft conditions.

As stated in Item 6 above, for consistency, and to prevent confusion amongst Council, the community and the applicant, it is strongly recommended that an alternative category utilising a different unit of measurement (i.e. special events over a number of days being classified as a single event) **not be adopted**. This position is supported by the applicant.

It is recommended that all events and facility operations refer back to the table in the proposed Condition 13.

***14. Include changes to static testing***

The proposed Condition 16 has been updated to require the static testing of all vehicles prior to them entering the circuit.

***15. Location of additional monitoring equipment***

The proposed Condition 15 has been provided in order to allow for a 'noise reference monitor', which effectively seeks to serve as a checks-and-balance exercise in validating the Predictive Noise Model. Consultation with affected residents has suggested that the most appropriate location for the noise reference monitor is at Receiver R20, as identified in the Tonin report. This is based upon the noise monitoring data that was used to underpin the Predictive Noise Model, as well as the level of elevated noise experienced at this location, that demonstrates this receiver is the most-impacted residence that does not have a commercial agreement or otherwise with Wakefield Park.

Additionally, a second monitor is proposed to be added via Condition 14 to take into account the ability off facility users to utilise a shortened circuit configuration.

***16. Conditions relating to compliance***

The proposed draft conditions have been complied with regard to measuring and enforcing compliance activities. This includes a condition requiring the operator to provide an annual compliance report accompanied by a continual improvement plan, as well as a general condition in relation to clarifying noise management responsibilities. These are reflected in draft conditions 18, 19 and 22.

***17. Additional offsite noise mitigations matters***

Condition 17 in the proposed set of draft conditions reflects Council's requests for the applicant to seek out opportunities for further off-site noise mitigation measures.

The proposed condition would require the applicant to engage with all sensitive receivers that have been identified in Supplementary Information Report prepared by Renzo Tonin and Associates, dated 3 March 2021, and prepare a Noise Management Plan within three (3) months of the consent being granted.

As suggested by Dr Renzo Tonin during his address to Council in the public forum at the 22 June 2021 Council Meeting, the draft condition makes reference to Fact Sheet F of the *Noise Policy for Industry (2017)* as published by the NSW EPA, which is used to guide the selection of feasible and reasonable measures and strategies. The Fact Sheet defines both *feasible* and *reasonable*, and has been attached for reference purposes.

***18. Condition to nullify the 1993 consent***

The 1993 Development Consent remains current until such time as the applicant demonstrates commencement in accordance with the new consent, if granted, or alternatively surrenders the 1993 consent.

Regardless of Council's determination in relation to this Development Application, the consent will only become active once the applicant commences operation under the new consent's operating framework. However, the applicant is not legally bound to commence operating under a new consent therefore an additional recommendation has been provided (Refer Recommendation 4).

Recommendation 4 states:

> That Council revoke the Prevention Notice dated 8 January 2020, and issue a new Prevention Notice in accordance with the provisions of the Protection of the Environment Operations Act 1997 that reflects conditions 13-22 in Item 2 above.

By making a resolution in line with the above, Council is ensuring that noise generated by operations at the facility can be regulated in the interim.

Alternatively, the Applicant should be aware that if the new consent, if granted by Council is not activated Council may be required to commence compliance actions to enforce the 1993 consent.

***19. More info re the off road component of the DA ...noise, dust, how often, joint events, etc.***

According to the applicant's Statement of Environmental Effects, the off-road experience area is defined as:

> *The Off-road Experience Area would be utilised by motor vehicles for activities such as 4WD driver training, corporate experiences and recreational use.*
>
> *The Off-road experience centre would be separated from other uses within the site by a wire fence or similar. No structures are proposed to facilitate this use, other than a small existing shed that will be relocated from the pit lane area as marked on the site plan. Reshaping of existing soil will be required to allow for the reshaping of the land to create suitable obstacles and routes. As the contouring will be dynamic and adjusted over time to provide new and modified conditions for vehicles, it is proposed that this area would be governed by the following parameters:*
>
> - *Maximum mounding height of 5 metres above existing ground level.*
> - *No earth material is to be imported or removed from the site.*

- *Areas of exposed earth are to be minimised as much as practical and feasible, with areas not used for vehicle movement to be revegetated with turf or covered with mesh.*
- *Mounding and reshaping of earth is to ensure that all water runoff is directed to existing storage and treatment facilities within the site, with no water discharge (overland flow or controlled) to occur to the south or east of this area.*

***20. Can the noise meter be rotated around neighbours in a 3 to 4 km radius?***

As per Item 15 above, it has generally been agreed by residents via the recent consultation process that the most appropriate location for a reference noise monitor is at Receiver R20.

A private receiver is at R19 and there is a trigger within the consent for additional noise meters to be installed if noise levels are exceeded on more than 5 occasions in any one calendar year

***21. What are the opportunities for sound absorption/mitigation on the new building near the start line?***

The proposed new pit lane and corporate building may provide some noise mitigation, however this would primarily only occur when vehicles are in pit lane or on the main straight. Due to the layout and elevation changes of the circuit, vehicle motors are working their hardest as they exit turn 2 and climb the hill towards turn 3 which directs noise in a westerly direction. Regardless of whether the new buildings are constructed or not, receivers beyond this part of the circuit would remain exposed to elevated noise.

It is noted that these observations were supported by the applicant's noise consultant, Dr Renzo Tonin, during his address to Council in the public forum at the 22 June 2021 Council Meeting.

***22. Maybe use areas in conjunction with Council for offset tree planting (Eg. Council's draft Vegetation Removal Offset Policy)***

This is not possible as Council are seeking to utilise its policy to collect funds trees for public open spaces. Wakefield Park is a private facility, therefore the use of public funds is not considered appropriate. Council would be seen to subsidising noise mitigations measures on private property and that would set a significant precedence in our opinion. It would also confuse Councils role in the compliance function versus the

**REASONS FOR RECOMMENDATION**

Paragraph 3 of the Recommendation above gives reasons why Council can grant consent to Wakefield Parks DA despite the staff recommendation that the application be refused. The reasoning is highlighted within paragraph 3 of the recommendation with the main focus being that the conditions imposed within the recommended approval will satisfy the provisions of the Act and the LEP. Noting that Council has recently received a legal opinion in regard to how the words "public interest" are defined, and that generally indicated that it was up to each individual Council to determine in their own thinking the level of public interest each application has.

**SUMMARY**

After meeting with representatives of the submitters and the applicant, it has been stated to us that everybody wants this business to continue, and everybody wants this business to transition to a quieter facility. The emphasis in the recommended conditions above is to ensure that both of these key points are paramount. We have referenced the 2015 and 2017 Benbow reports which were commissioned by Wakefield Park, and clearly state that the number of noisy days need to reduce and in fact, reduce to a level much less than what is being recommended in this report. Further, Benbow states in both the 2015 and 2017 reports that even with the reduced noisy days, the facility is still financially viable. These conclusions by Benbow are made following comparisons to similar venues around the world.

**FINANCIAL IMPLICATIONS**

Financial implications are likely to Council if the applicant of the development proposal chooses to appeal the recommended refusal to the Land and Environment Court.

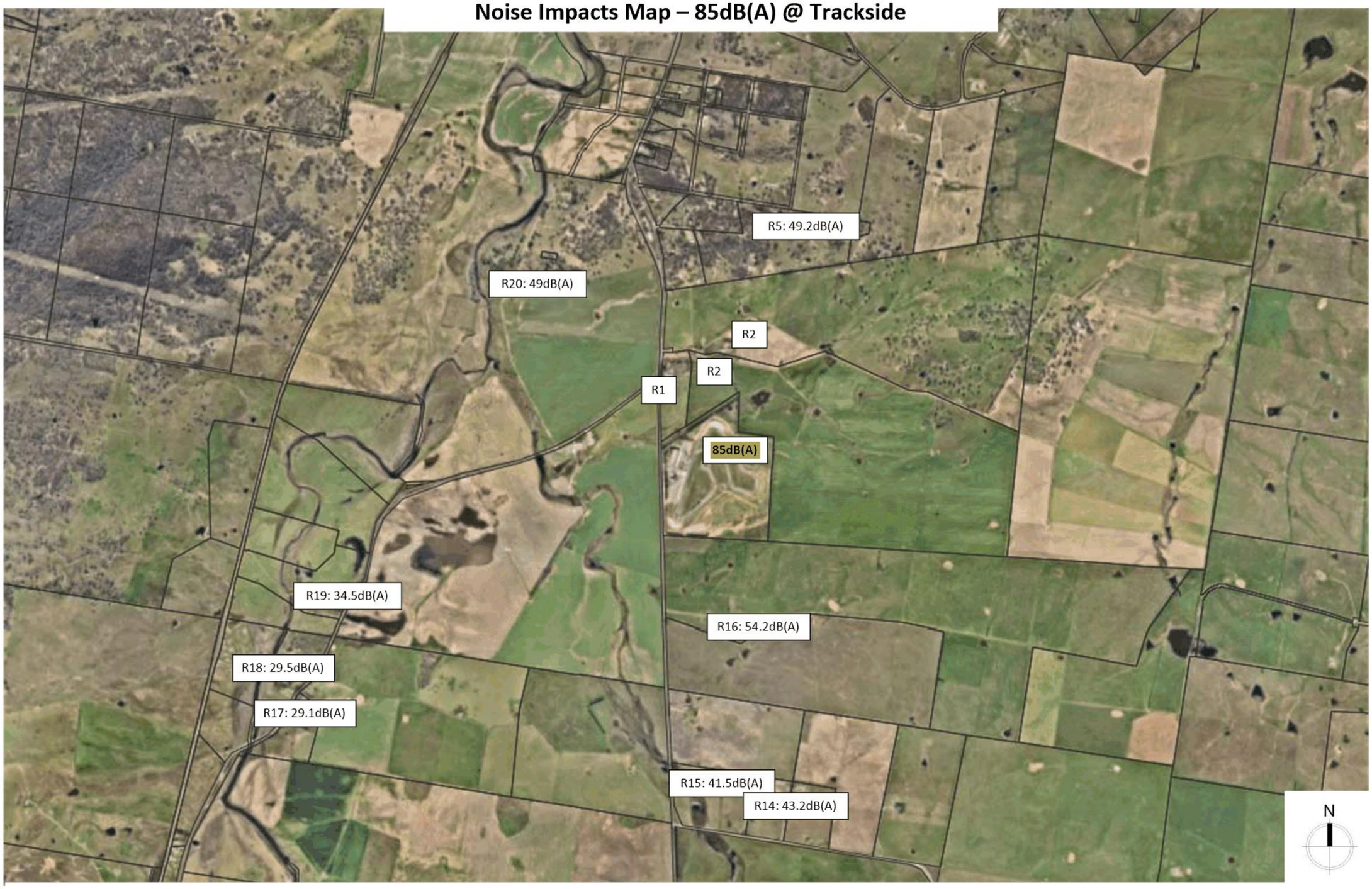
**LEGAL IMPLICATIONS**

Council may be in a position where it may be required to defend an appeal made by the Applicant to the Land and Environment Court.

## Noise Impacts Map – 75dB(A) @ Trackside


*Disclaimer: The information depicted on this image has been compiled by Council based on information provided by the applicant as part of DA/0117/2021 together with historical data and information held by Council.*

## Noise Impacts Map – 85dB(A) @ Trackside




*Disclaimer: The information depicted on this image has been compiled by Council based on information provided by the applicant as part of DA/0117/2021 together with historical data and information held by Council.*

## Noise Impacts Map – 95dB(A) @ Trackside


*Disclaimer: The information depicted on this image has been compiled by Council based on information provided by the applicant as part of DA/0117/2021 together with historical data and information held by Council.*

# Fact Sheet F: Feasible and reasonable mitigation

'Feasible' and 'reasonable' mitigation is defined as follows.

A **feasible** mitigation measure is a noise mitigation measure that can be engineered and is practical to build and/or implement, given project constraints such as safety, maintenance and reliability requirements. It may also include options such as amending operational practices (for example, changing a noisy operation to a less-sensitive period or location) to achieve noise reduction.

Selecting **reasonable** measures from those that are feasible involves judging whether the overall noise benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the mitigation measure. To make such a judgement, consider the following:

- Noise impacts:
    - existing and future levels, and projected changes in noise levels
    - level of amenity before the development, for example, the number of people affected or annoyed
    - the amount by which the triggers are exceeded.
- Noise mitigation benefits:
    - the amount of noise reduction expected, including the cumulative effectiveness of proposed mitigation measures, for example, a noise wall/mound should be able to reduce noise levels by at least 5 decibels
    - the number of people protected.
- Cost effectiveness of noise mitigation:
    - the total cost of mitigation measures
    - noise mitigation costs compared with total project costs, taking into account capital and maintenance costs
    - ongoing operational and maintenance cost borne by the community, for example, running air conditioners or mechanical ventilation.
- Community views:
    - engage with affected land users when deciding about aesthetic and other impacts of noise mitigation measures
    - determine the views of all affected land users, not just those making representations, through early community consultation
    - consider noise mitigation measures that have majority support from the affected community.

Take into account the above considerations when determining the mitigation measures proposed to be incorporated into the development. In practice, the detail of the mitigation measures applied will largely depend on project-specific factors. These are the measures that minimise, as far as practicable, the local impacts of the project. Project approval conditions that flow from this process should be achievable. They need to provide clarity and confidence for the proponent, local community, regulators and the ultimate operator that the proposed mitigation measures can achieve the predicted level of environmental protection.

# NOISE IMPACT ASSESSEMENT
# PREPARED FOR
# WAKEFIELD PARK MOTORSPORT
# GOULBURN, NSW

*Prepared for:* Matthew Ronke,
Executive Officer, Wakefield Park Motorsport
Stewart Lloyd, Goulburn Mulwaree Council
Residential Community

*Prepared by:* Felipe Torres, Senior Acoustic Consultant
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*Report No:* 141158_Noise_Rev1
July 2015
(Released: 27 July 2015)



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## Contents

## Tables



## Figures



## Attachments

# 1. INTRODUCTION

Benbow Environmental has been engaged by Wakefield Park Motorsport to undertake a noise impact assessment for the current operations of the motor sports facility at 4770 Braidwood Road, Goulburn, NSW, 2580. In particular, this report details the findings of the noise generated by large events and the associated noise impact at several residential locations.

This noise survey has been prepared primarily in accordance with the *NSW Environment Protection Authority, Industrial Noise Policy (EPA 2000) (INP)* and the Noise Guide for Local Government.

The site is located within a rural area and has been operating for over 20 years. Nearest sensitive residential receptors were noted as being approximately 400 metres north of the site boundary. However, due to the sensitive community reaction to noise from this motor sports venue, several residential receptors located up to 10km away from the site have been considered in this assessment. Noise predictions were undertaken utilising noise prediction software, Sound Plan (v7.3).

Long-term unattended and short-term attended noise monitoring was undertaken during the day time period at numerous off-site residential locations and on-site reference locations in order to measure several parameters such as the existing background noise levels in the area unaffected by site noise emissions, current noise impact associated with the site's operations and relevant noise data associated with vehicles using the track.

Relevant information detailed within this report was provided by Wakefield Park Motorsport. Therefore, Benbow Environmental considers this to be accurate and proceeded with the noise survey based on the information provided.

## 1.1 Scope of Works

This noise impact assessment has been limited to the following scope of works:

a) Inspection of site and surrounds;
b) Revision of relevant documentation;
c) Direct contact with residents and Goulburn Mulwaree Council;
d) Long term noise monitoring and short term noise monitoring unaffected by site noise emissions at residential receptors in accordance with the relevant NSW EPA guidelines;
e) Establishment of project specific noise levels;
f) Long term noise monitoring noise monitoring at 30m from track during current operations;
g) Assessment of status of compliance against Confederation of Australian Motor Sport noise requirements;
h) Determination of large events and potential noisiest vehicles associated with current operations at the subject site;
i) Collection of required noise samples;
j) Prediction of potential noise impacts at the nearby noise sensitive receptors;
k) Assessment of potential noise impacts against relevant legislation and guidelines;
l) Investigate potential ameliorative measures/control solutions where required; and
m) The compilation of this report containing concise statements of potential noise impact.

To aid in the review of this report, supporting documentation has been included within the Attachments.
A summary of the noise monitoring undertaken throughout the assessment is shown in Table 1-1.

Table 1-1: Summary of Noise Monitoring Undertaken Throughout the Assessment

| Period | Event | Description | Purpose |
|---|---|---|---|
| 23/07/2014–6/08/2014 | Refer to Wakefield Park Motorsports website | Site Inspection | Become familiar with on-site operations |
| | | Long-term noise monitoring at 2 residential locations | Direct contact with residents and understand primary concerns |
| 29/11/2014–30/11/2014 | Australian Super Truck Championship & AASA ACT State Championship | Short-term noise monitoring at several locations on-site | Acquire relevant noise data. |
| | | Long-term noise monitoring at 2 location on-site | Data used to calibrate noise modelling |
| | | Long-term noise monitoring at 5 residential locations | Determine community response to large events |
| 24/12/2014–09/01/2015 | Site not operating except on 28-29-30 Dec 2014 | Long-term noise monitoring at 5 residential locations | Background noise readings unaffected by site noise emissions |
| 28/02/2015–10/03/2015 | Refer to Table 7-1 | Long-term noise monitoring at 30m from track | Determine any exceedances to the current 95 dB(A) noise criterion |
| 10/04/2015–12/04/2015 | CAMS NSW Motor Race Championship | Short-term noise monitoring at several locations on-site | Acquire relevant noise data |
| | | Long-term noise monitoring at 4 locations on-site | Data used to calibrate noise modelling |

The noise monitoring undertaken between 23rd July 2014 and 7th August 2014, the initial site inspection carried out during this period and the direct contact with some of the most affected residents provided a clear understanding of the current situation associated with the operations at Wakefield Park Motorsport. The information collected was utilized to proceed with the assessment.

The noise monitoring has needed to be conducted over a long period of time in order to establish a clear relationship between the venues at Wakefield Park and compliance – non-compliance.

## 2. COMMUNITY PERCEPTION

An essential aspect of the noise impact assessment is to understand the effects the current operations at Wakefield Park are having on residents.

This aspect is assessed by comparing the operational effects of the motor sports with:

- The operational noise levels;
- The frequency of the events being audible, clearly audible, irritating, annoying or excessively noisy.
- The times of the operations when noise levels are irritating and excessive Monday–Friday, Saturday and Sunday.

Equally important for a balanced viewpoint is to consider the consequences on the future prosperity of Wakefield Park and ongoing popularity of this venue for motor sport enthusiasts.

There are lessons to be learnt from the community experiences at other motor sports venues. A review of guidelines and experiences elsewhere are summarised below.

### 2.1 AUSTRALIAN EXPERIENCES

- Queensland Government – Planning for shooting and motor sports facilities
  Prepared by: Sport and Recreation Services, Department of National Parks, Sport and Racing.
  State of Queensland, 2013.

The following are the main facts obtained from this document:

> *"Some peak motor sport bodies proactively implement noise management practices to mitigate impacts on neighbours and reduce health risks for officials and participants.*
>
> *Where separation distances are less than 2 km, a noise impact study is required to show how compliance would be achieved with the following acoustic quality objectives:*
>
> *Schedule 1. Outdoors of dwellings*
> *Day time $L_{Aeq,adj,1hr}$ 50 dB(A)*

- ACT
  Environment ACT
  Urban Services
  Motor Sports Noise
  October 2002

Noise limits applied are 45 dB(A) as a zone noise standard. Event credits are applied.

A maximum number of events which generate noise up to 5 dB(A) above the zone noise standard is specified for each of the motor sports facilities.

Similar to the NSW Noise Guide for Local Government, the number of events is controlled by fixing the number and allowable noise as shown in Table 2-1. This table is from the ACT document.

Table 2-1: Number of Events and Allowable Noise Limits

| Maximum noise permitted above zone noise standard at the compliance location | Number of event credits required to stage the event |
|---|---|
| 2.5 dB(A) | 0.5 |
| 5.0 dB(A) | 1 |
| 7.5 dB(A) | 1.5 |
| 10.0 dB(a) | 2 |
| 12.5 dB(A) | 2.5 |
| 15.0 dB(A) | 3 |
| 17.5 dB(A) | 3.5 |
| 20.0 dB(A) | 4 |

The maximum permitted noise level which can be obtained using noise events is 65 dB(A). This noise limit would not be reasonable to apply at Tirrannaville.

In the ACT, the noise level is managed through the number of credits that are used, more credits being available when the noise exceedances above the noise zone of 45 dB(A) are less.

For example, if a site has been granted 20 credits, then it can have 20 events that are 5 dB(A) above the zone noise level of 45 dB(A) or 4 events that are 20 dB(A) above the zone noise level.

Times of events were allowed to extend into the evening and commenced from 9.00 am. This time of starting is seen as being an issue that needs to be closely considered for Wakefield Park.

## 2.2 UK Experiences

- Donington Park
  Circuit Noise Restrictions
  Number of race days
  - 20 days may run unsilenced

  The noise limit is a drive by test
  - Another 20 days may run to a noise level of 118 dB(A) (at the exhaust outlet)
  - Another to a noise level of 108 dB(A).
  - Use is permitted 365 days per year with a noise limit of 98 dB(A) at the "drive by test"

The relevance of these restrictions are not the noise limits but the adoption of noise limits and number of events.

The circuit has a Noise Management Plan in place.

The purpose of the NMP is to achieve compliance with their planning permit.

The NMP regularly applies the need for meeting the "drive by test" noise limits. A vehicle that fails the test is not permitted to enter the track but may be modified or repaired and be retested.

The public address system is specifically addressed so that it is sufficient to enable clear audibility for spectators but not to be excessively loud.

The PA system at Wakefield Park needs to be addressed so that it is sufficiently audible at the workshops and pit but inaudible at residences.

PA noise is extremely irritating to residents.

- Goodwood

The noise test system is provided on video and would be a very good model to use. Daily noise reports from the circuit's noise logger are published on a web page.

- Brands Hatch

Operating hours are Fridays, Saturdays and Bank Holidays 9.00 am – 6.30 pm
Sundays 10.00–6.30 pm

Earliest time of starting racing engines is respectively 9.00 am and 10.00 am (ie Sundays)

Static vehicle noise limits are between 102 dB(A)–105 dB(A). The 102 dB(A) is quoted as being a static level to legally operate on a public road. Vehicles that do not comply with the noise limit for the class of vehicle are not permitted to race. Any driver creating excessive tyre squeal is given two warnings and any third occurrence removes the driver from further participation on that day. **[BE comment:** This is a good practice.]

Drive by noise limit is 92 dB(A). Any vehicle exceeding this limit is barred from participating.

The public address system automatically adjusts to the track background noise. The volume is automatically reduced where there is no circuit activity. **[BE comment:** Another very good practice.]

The community liaison is a strong feature of the Circuit's noise management plan.

- Blyton Park

This circuit adapts the 95 dB(A) drive by test noise limit.

Tyre squeal is considered to be an invasive noise.

Drifting has been excluded.

Others that can be reviewed are:

- Snettenton Circuit;
- Oval Racing Circuit;
- Kames Motorsport Complex;
- Oulton Park; and
- Mallory Park.

Noise management has a strong focus.

Further discussion of community perception is provided in the first pages of Section 4. This section explains noise descriptors and what are reasonable levels of noise.

# 3. SITE IDENTIFICATION

A brief outline of the subject site has been provided below.

## 3.1 SITE LOCATION AND DESCRIPTION

The site is located at 4770 Braidwood Road, Tirrannaville NSW. It is located approximately 11 km south of Goulburn and approximately 230 km south west of the Sydney CBD.

Figure 3-1 shows an aerial view of the site. The site is situated within the Local Government Area of Goulburn Mulwaree Council

## 3.2 ADJACENT LAND USE

Table 3-1 provides the list of the nearest identified sensitive receptors that could be potentially affected by the noise impacts from the site's activities. These receptors were selected based on their proximity and directional bearing from the subject site. Special attention has been given to residential receptors R7, R8, R10 and R12 as several noise complaints have been raised by the residents at these locations. Given the distance between the site and the residential receptors R4 and R5, the potential for operational noise impacts to these surrounding residential areas is very likely. Therefore, the noise impacts at these two locations were evaluated with due diligence. Receptors R1 and R2 have been considered as a reference only as an arrangement between the owners of these properties and Wakefield Park Motorsport have been made.

The locations of all these receptors are shown in Figure 3-2 and more detailed in Figure 3-3.

Residence receptor R7 has three receptors on this land which is the original homestead, Tirranna.

The location of R7 is more distant than the other two receptors so these are considered at R7A, R7B and R7C.

R7A and R7B have a degree of noise reduction due to a ridge line that runs south-north.

R7C is the original homestead of the property. This has line of sight to the circuit with no topographical features to reduce the noise levels. The residence is also on two levels with a verandah on the east and on the south sides which would be exposed to noise from the eastern end of the circuit.

Table 3-1: Nearest Identified Sensitive Residential Receptors

| Receptor ID | Address | Easting (m) | Northing (m) | Distance to Site Track (m) |
|---|---|---|---|---|
| R1 | 4840 Braidwood Road Tirrannaville | 196725.528 | 6140236.81 | 430 |
| R2 | 4842 Braidwood Road Tirrannaville | 197028.25 | 6140346.112 | 420 |
| R3 | 22 YattaLunga Road Tirrannaville | 196841.647 | 6141152.618 | 1,245 |
| R4 | 24 YattaLunga Road Tirrannaville | 197394.038 | 6141216.607 | 1,335 |
| R5 | 4672 Braidwood Road Tirrannaville | 197137.336 | 6138617.398 | 735 |
| R6 | 45 Painters Lane Tirrannaville | 197276.145 | 6137645.574 | 1,700 |
| R7 | 4971 Braidwood Road Tirrannaville | 195848.291 | 6140878.944 | 1,495 |
| R8 | 270 Currawang Road Tirrannaville | 194586.529 | 6138716.415 | 2,270 |
| R9 | 333 Currawang Road Tirrannaville | 194382.584 | 6138056.285 | 2,700 |
| R10 | 5207 Braidwood Road Tirrannaville | 195924.567 | 6143237.085 | 3,480 |
| R11 | 305 Readers Road Tirrannaville | 200232.952 | 6130378.454 | 9,570 |
| R12 | 264 Readers Road Tirrannaville | 199790.26 | 6130682.54 | 9,140 |

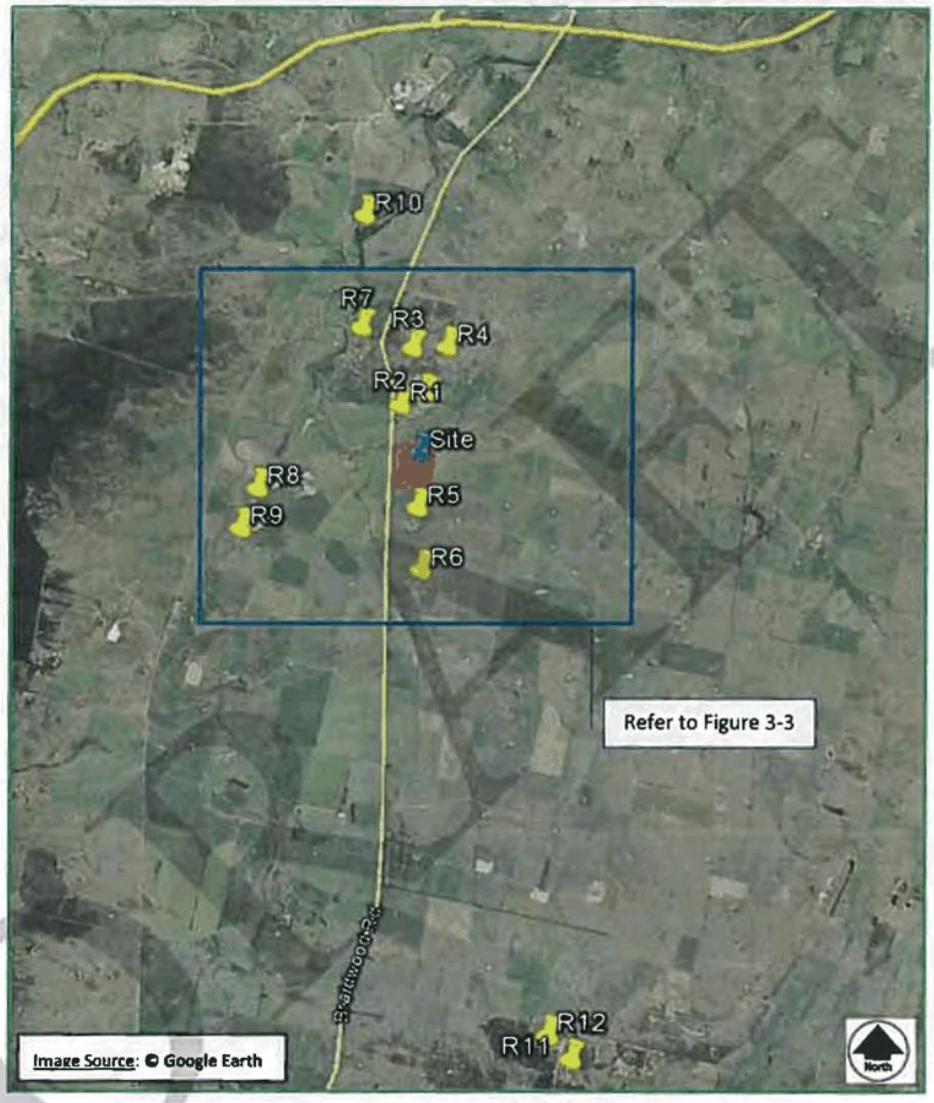
Figure 3-1: Site Aerial View


The circuit was constructed on the land that is relatively flat along the pit straight and hten becomes elevated in the eastern half.

The circuit does not have in place any specific noise controls. The original acoustic design, undertaken by one of the authors, required there to be acoustic shielding provided if V8 cars were to be raced.

The activities of the circuit have increased from the original expectation. This aspect is considered in detail throughout this report.

Figure 3-2: Aerial View of the Site Location with the Nearest Identified Receptors – Zoom Out




Land from the site across to receptors R8 and R9 is flat. Receptors R3 and R4 are elevated to the site.

Receptors R5 and R6 have a degree of acoustic shielding provided by topography. The more distant residences R11 and R12 are elevated to the circuit and have direct line of sight. Although distant, the potential acoustic impact has been assessed and noise monitoring of an event undertaken.

Figure 3-3: Aerial View of the Site Location with the Nearest Identified Receptors – Zoom In


The receptors at R8 have lived here for many years and are very tolerant people. Their opinion as to the acoustic impact has been considered in detail as it provides solutions to enable the circuit to remain prosperous but having less acoustic impact than what has been measured and modelled.

## 4. EXISTING ACOUSTIC ENVIRONMENT

Establishing the existing acoustic environment is fundamental to establishing what is an acceptable level of noise at receptors.

There are rules that have been developed and these work reasonably effectively in practice from a large number of noise assessments undertaken by ourselves and others.

The method that is used is provided as background information as there are a number of non-acoustical persons who will read this report and the technical jargon reduces the appreciation of how noise annoyance occurs. This aspect is also of vital interest to Wakefield Park.

The measurement of noise uses the dB(A) scale which has been found to enable a measurement of noise to replicate how we subjectively react to noise at different levels. There are more involved explanations but this is sufficient for this discussion.

The background noise in the absence of the noise source being assessed is measured over several days and the noise instrument provides the statistical level of noise every 15 minutes from many hundreds of short responses to the noise level – every 125 ms.

The background noise is also referred to as the ambient level of noise.

The statistical determination of what is the background/ambient noise uses the level of noise that is exceeded for 90% of the time over a measurement period of 15 minutes.

90% of 15 minutes is 13.5 minutes. So for 13.5 minutes for the noise level to be exceeded means that this noise level must be very low.

The $L_{A90}$ is often explained as being the average of the minimum noise levels that exist. The purist acoustician would not accept this but it is a simple analogy to help understand how the rules assess noise for its compliance and to determine whether it is annoying or offensive.

The noise instrument performs the calculation and provides the $L_{A90}$.

The noise logger or the acoustical engineer records these usually over 15 minute periods.

The $L_{A90}$ that is then accepted as being the background level from several days of measurements is the $L_{A90}$ of the $L_{A90}$ levels – basically the minimum of the minimums.

This approach works well when 5 dB(A) is added to the $L_{A90}$ as at this level 90% of the population usually find the noise source although audible is not offensive or annoying – provided several other factors are considered.

These factors are:

- The noise has annoying characteristics.

This is defined later in the section and there are three characteristics which could make the noise more audible – tonality, impulsiveness and undulating levels. If these characteristics are present

then instead of an acceptable noise level being $L_{A90}$ + 5 dB(A), 5 dB(A) penalties are applied and if one annoying characteristic is present based on the rules that are used then an acceptable level becomes $L_{A90}$. If two characteristics are present the acceptable level becomes $L_{A90}$ -5 dB(A).

A receptor can become noise sensitive and then audibility may be used by the receptor as deciding for themselves the noise is too high. We do our assessments based on the rules and frequently a noise can be audible yet be fully compliant.

As the noise source increases the level at the receptor above the $L_{A90}$ + 5 dB(A) to say $L_{A90}$ + 7 dB(A), the noise becomes more discernible. As it reaches $L_{A90}$ + 10 dB(A) then more and more reasonable people find it annoying and from our experience rightfully so.

There are other factors that also influence what $L_{A90}$ + "x" dB(A) is acceptable and this is often explained as the social worth of the development that is generating the noise. There are other factors and these equally need to be considered.

Industry often is designed or as a feature of its operations generates a "hum". There is very little change in the noise level and residents can become accustomed to this and even grow to accept a noise that exceeds the $L_{A90}$ + 5 dB(A) rule.

Transport generated noise is tolerated at much higher noise levels than the $L_{A90}$ + 5 dB(A).

Outdoor venues, unless they have great social worth, excellent contact with residents and work with their community, are prone to cause complaints.

Outdoor music events and motor sport are two activities that need to have a close working relationship with their community.

This is especially so with these activities because they are activities that satisfy special interest groups and not necessarily the wider community. There are many examples:

- Bathurst
  The 1000 km car race is of wide community interest and is able to generate noise levels that far exceed the $L_{A90}$ + 5 dB(A) rule.

- New Year's Eve
  Benbow Environmental has supervised a large outdoor music concert over six years that far exceeded the background + 5 dB(A) rule without complaints.

However, these are exceptions but demonstrate that a community will work with the noise generator.

For a venue that has events throughout the year then there needs to be compromise or the venue needs to be willing to either reduce the noise level being emitted from their site, or purchase a buffer zone, or treat residences if agreeable, or adopt a community focussed approach or, unfortunately, find another location.

It is the intention of this report to arrive at an acceptable outcome that benefits the owners of the vehicles that use Wakefield Park, keep Wakefield Park viable but protect the residences from excessive noise too many times over a year.

There is also a vital point that all readers of this report need to recognise. There are times of a weekend that become more sensitive.

Perhaps this example will illustrate the point.

Benbow Environmental undertook the noise supervision of two large outdoor concerts. One was at the Woodford Falls Festival, a large outdoor rock concert that ran over four days, beginning Thursday night. Residences contacted raised the point of requesting that the venue not go late on the Thursday night and keep them awake as many had to rise early for work.

The residents were accepting of the late concert on Friday evening.

A similar experience occurred at a large concert at Cockatoo Island (in Parramatta River near Balmain) and the annoyed resident raised the same point but was accepting of Friday night being disturbed.

This is relevant to the starting times on Sundays for Wakefield Park and will be discussed further in the section dealing with recommendations. The discussion in Section 2 raised the issue of times of operation from the UK experience.

This report makes reference to the Noise Guide for Local Government and the Industrial Noise Policy. Both apply a similar approach in determining what is an acceptable level of noise that can be used to determine acceptable noise levels.

The INP was developed specifically for industrial noise sources and not motor racing circuits.

The Noise Guide for Local Government is more relevant for motor racing sport. However in determining the $L_{eq}$ + 5 dB(A) the INP is most relevant.

The level of background noise varies over the course of any 24 hour period, typically from a minimum at 3.00am to a maximum during morning and afternoon traffic peak hours. Therefore the INP requires that the level of background and ambient noise be assessed separately for the daytime, evening and night time periods. The INP defines these periods as follows:

- **Day** is defined as 7.00am to 6.00pm, Monday to Saturday and 8.00am to 6.00pm Sundays and Public Holidays;
- **Evening** is defined as 6.00pm to 10.00pm, Monday to Sunday and Public Holidays; and
- **Night** is defined as 10.00pm to 7.00am, Monday to Saturday and 10.00pm to 8.00am Sundays and Public Holidays.

## 4.1 Noise Monitoring Equipment and Methodology

The existing ambient and background noise environment was measured using a Svantek SVAN 957 Precision Sound Level Meter (attended noise monitoring) and five (5) Acoustic Research Laboratories statistical Environmental Noise Loggers, type Ngara and EL-215

(unattended noise monitoring). The approach adopted is consistent with the requirements of the INP.

The instrument sets were calibrated by a NATA accredited laboratory within two years of the measurement period. Calibration certificates have been included in Attachment 3.

To ensure accuracy and reliability in the results, field reference checks were applied both before and after the measurement period with an acoustic calibrator. There were no excessive variances observed in the reference signal between the pre-measurement and post-measurement calibration. The instruments were set on A-weighted Fast response and noise levels were measured over 15-minute statistical intervals. QA/QC procedures applied for the measurement and analysis of noise levels have been presented in Attachment 2. The microphones were fitted with windsocks and were positioned at 1.5 meters above ground level.

In assessing the background noise levels, any data affected by adverse weather conditions has been discarded according to the requirements of the INP. The weather data was sourced from the Bureau of Meteorology, from the Automatic Weather Station (AWS) located at Goulburn Airport AWS (ID 070330).

## 4.2 Measurement Location

Unattended long-term noise monitoring was undertaken from Wednesday 24th December 2015 to Thursday 8th January 2015 at receptors R4, R5, R7, R8 and R12. The location of these receptors is shown in Figure 3-2 and Figure 3-3. The management of Wakefield Park Motorsport confirmed the following:

> *"The period when we are not in operation is from December 22nd 2015 to January 10th 2015, with the 28th, 29th and 30th December 2014 in use in that period"*

Based on this information, the noise monitoring recorded on 28th, 29th and 30th December 2014 was excluded in the analysis. Therefore, the remaining measured noise levels have been considered as being representative of the existing background noise environment of the area in the absence of existing site emissions.

In accordance with the NSW EPA INP, measured noise data obtained from the above monitored locations has been considered representative of the various potentially affected areas surrounding the project site. The relevant information, found in Section 3.1.2 on page 24 of the NSW INP has been reproduced below.

> ***"Most affected location(s)**—locations that are most affected (or that will be most affected) by noise from the source under consideration as per Note 2 in Section 2.2.1. In determining these locations, the following need to be considered: existing background levels, noise source location/s, distance from source/s (or proposed source/s) to receiver, and any shielding (for example, building, barrier) between source and receiver. Often several locations will be affected by noise from the development. In these cases, locations that can be considered representative of the various affected areas should be monitored."*

Table 4-1 identifies the various considered receptor locations that have been associated with the five (5) noise logger locations and will therefore utilise the noise criteria derived from the measurement data obtained from the respective noise logger.

Table 4-1: Associated Residential Receptors

| Monitoring Location | Associated Residential Receptor Locations |
|---|---|
| R4 | R1, R2, R3, R4 |
| R5 | R5, R6 |
| R7 | R7, R10 |
| R8 | R8, R9 |
| R12 | R11, R12 |

## 4.3 Measured Noise Levels

The procedures that are used in the Industrial Noise Police INP and the Australian Standard AS 1055 are followed to determine the background noise levels that would apply.

The Rating Background Level is the terminology used in the INP.

The results of the logger graphs are presented in Attachment 4.

On the following pages are these results analysed and presented in tables. Each table presents the following information:

- Date.
- For each day the 24 hour period is separated into three periods, this follows guidelines in the INP:
  Day – 7.00 am – 6.00 pm
  Evening – 6.00 pm – 10.00 pm
  Night – 10.00 pm – 7.00 am

The tables show the logarithum average results for each period for each day for the noise descriptors that head various columns in the tables. These descriptors are $L_1$, $L_{10}$, the LBC (ambient background level) $L_{A90}$ and $L_{Aeq}$ (all are A-weighted).

The values in the table for the $L_{A90}$s are the median levels which are then termed the RBL – rating background level.

The meaning of the $L_1$, $L_{10}$ and $L_{eq}$ are provided in Attachment 1.

The sources of the noise levels would include noise sources characteristic of the areas near to and around the receptors. These would be well known to the residents and include natural

occurring sources such as birds and the rustle of leaves in vegetation, noises from farming activities, domestic activities and distant or local transport.

The characteristic of most of these sources are that these are intermittent and not continuous.

Other than farming activities and the motor sport venue, there are few other activities associated with industry.

Nearby industry was observed east of the site and involved the poultry industry. These operations were not audible.

The conclusion will be drawn that there is no contribution to the existing $L_{Aeq}$ noise levels. This has the consequence of the noise criteria to be adopted as discussed in Section 5.

### 4.3.1 Long-Term Unattended Noise Monitoring Results

The measured data was analysed to determine a single assessment background level (ABL) for each day, evening and night time period in accordance with the INP. That is, the ABL is best established by determining the lowest tenth-percentile level of the $L_{A90}$ noise data over each period of interest. The background noise level or rating background level (RBL) representing the day, evening and night assessment periods is based on the median of individual ABL's determined over the entire monitoring period.

The results of the long-term unattended noise monitoring are displayed in Table 4-2 to Table 4-6. Daily noise logger graphs have been included in Attachment 4.

Table 4-2: Unattended Noise Monitoring Results at R4, dB(A)

| Date | $L_1$ | | | $L_{10}$ | | | ABL ($L_{90}$) | | | $L_{eq}$ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Day | Evening | Night | Day | Evening | Night | Day | Evening | Night | Day | Evening | Night |
| 24/12/2014 | 48 | 44 | 43 | 40 | 37 | 38 | 32 | 31 | 29 | 40 | 37 | 41 |
| 25/12/2014 | 55 | 45 | 43 | 50 | 39 | 38 | 36 | 33 | 31 | 49 | 37 | 43 |
| 26/12/2014 | 49 | 46 | 44 | 43 | 42 | 39 | 32 | 31 | 31 | 42 | 40 | 45 |
| 27/12/2014 | 53 | 45 | 42 | 41 | 38 | 37 | 32 | 32 | 31 | 46 | 47 | 39 |
| 28/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 29/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 30/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 31/12/2014 | 53 | 41 | 41 | 43 | 36 | 35 | 33 | 32 | 31 | 55 | 35 | 42 |
| 1/01/2015 | 54 | 50 | 41 | 45 | 47 | 36 | 32 | 34 | 31 | 49 | 43 | 40 |
| 2/01/2015 | 55 | 45 | 41 | 44 | 40 | 36 | 32 | 34 | 30 | 49 | 44 | 46 |
| 3/01/2015 | 57 | 53 | 41 | 47 | 42 | 36 | 35 | 34 | 30 | 50 | 53 | 44 |
| 4/01/2015 | 55 | # | 44 | 43 | # | 38 | 34 | # | 31 | 49 | # | 48 |
| 5/01/2015 | 57 | 47 | 42 | 44 | 40 | 37 | 32 | 31 | 32 | 53 | 39 | 37 |
| 6/01/2015 | 55 | 45 | 43 | 43 | 41 | 38 | 31 | 35 | 32 | 50 | 43 | 41 |
| 7/01/2015 | 54 | 44 | 42 | 41 | 38 | 38 | 31 | 31 | 32 | 49 | 38 | 41 |
| 8/01/2015 | 53 | 49 | 44 | 42 | 41 | 39 | 32 | 32 | 32 | 48 | 46 | 44 |
| 9/01/2015 | 54 | # | 45 | 42 | # | 39 | 33 | # | 32 | 47 | # | 39 |
| Average | 54 | 46 | 43 | 44 | 40 | 37 | * | * | * | * | * | * |
| Median (RBL) | * | * | * | * | * | * | **32** | **32** | **31** | * | * | * |
| Logarithmic Average | * | * | * | * | * | * | * | * | * | 50 | 45 | 43 |

**Note:** - indicates values that has not been considered as the site was operational
# indicates noise measurements were not undertaken during this period
* indicates values that are not relevant to that noise descriptor
Value in bold indicates most relevant noise descriptor

**Table 4-3: Unattended Noise Monitoring Results at R5, dB(A)**

| Date | $L_1$ | | | $L_{10}$ | | | ABL ($L_{90}$) | | | $L_{eq}$ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Day | Evening | Night | Day | Evening | Night | Day | Evening | Night | Day | Evening | Night |
| 24/12/2014 | 59 | 59 | 56 | 52 | 51 | 49 | 34 | 32 | 31 | 51 | 54 | 46 |
| 25/12/2014 | 62 | 58 | 56 | 54 | 51 | 49 | 36 | 32 | 31 | 59 | 53 | 47 |
| 26/12/2014 | 61 | 57 | 55 | 53 | 50 | 48 | 36 | 32 | 31 | 52 | 47 | 46 |
| 27/12/2014 | 59 | 58 | 56 | 52 | 50 | 48 | 33 | 32 | 31 | 50 | 48 | 46 |
| 28/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 29/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 30/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 31/12/2014 | 59 | 56 | 56 | 52 | 50 | 49 | 35 | 32 | 31 | 50 | 52 | 46 |
| 1/01/2015 | 59 | 60 | 56 | 52 | 52 | 49 | 33 | 31 | 31 | 49 | 49 | 46 |
| 2/01/2015 | 58 | 57 | 56 | 52 | 50 | 49 | 33 | 33 | 31 | 49 | 48 | 46 |
| 3/01/2015 | 61 | 56 | 57 | 53 | 50 | 49 | 34 | 32 | 31 | 51 | 45 | 47 |
| 4/01/2015 | 60 | # | 56 | 52 | # | 49 | 32 | # | 31 | 49 | # | 46 |
| 5/01/2015 | 58 | 56 | 55 | 51 | 50 | 48 | 34 | 32 | 31 | 49 | 47 | 44 |
| 6/01/2015 | 59 | 55 | 56 | 51 | 49 | 49 | 32 | 31 | 29 | 50 | 44 | 45 |
| 7/01/2015 | 61 | 59 | 57 | 53 | 52 | 49 | 34 | 33 | 32 | 52 | 49 | 47 |
| 8/01/2015 | 60 | 60 | 58 | 54 | 53 | 51 | 35 | 32 | 31 | 51 | 49 | 48 |
| 9/01/2015 | 59 | # | 58 | 52 | # | 51 | 35 | # | 30 | 49 | # | 48 |
| Average | 60 | 57 | 56 | 52 | 51 | 49 | * | * | * | * | * | * |
| Median (RBL) | * | * | * | * | * | * | **34** | **32** | **31** | * | * | * |
| Logarithmic Average | * | * | * | * | * | * | * | * | * | 52 | 50 | 46 |

**Note:** - indicates values that has not been considered as the site was operational
# indicates noise measurements were not undertaken during this period
* Indicates values that are not relevant to that noise descriptor
Value in bold indicates most relevant noise descriptor

Table 4-4: Unattended Noise Monitoring Results at R7, dB(A)

| Date | $L_1$ | | | $L_{10}$ | | | ABL ($L_{90}$) | | | $L_{eq}$ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Day | Evening | Night | Day | Evening | Night | Day | Evening | Night | Day | Evening | Night |
| 24/12/2014 | 63 | 61 | 44 | 51 | 50 | 38 | 34 | 26 | 25 | 66 | 56 | 46 |
| 25/12/2014 | 60 | 54 | 42 | 51 | 48 | 35 | 33 | 27 | 23 | 53 | 57 | 43 |
| 26/12/2014 | 58 | 51 | 43 | 49 | 42 | 36 | 29 | 26 | 23 | 49 | 49 | 45 |
| 27/12/2014 | 59 | 51 | 44 | 51 | 43 | 35 | 33 | 26 | 22 | 54 | 44 | 41 |
| 28/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 29/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 30/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 31/12/2014 | 56 | 50 | 43 | 46 | 42 | 36 | 32 | 26 | 24 | 49 | 58 | 47 |
| 1/01/2015 | 55 | 52 | 42 | 46 | 40 | 35 | 31 | 29 | 22 | 48 | 42 | 41 |
| 2/01/2015 | 55 | 55 | 42 | 47 | 48 | 36 | 31 | 28 | 23 | 48 | 52 | 42 |
| 3/01/2015 | 57 | 64 | 42 | 48 | 58 | 36 | 31 | 41 | 23 | 49 | 57 | 40 |
| 4/01/2015 | 52 | # | 45 | 44 | # | 37 | 29 | # | 23 | 42 | # | 43 |
| 5/01/2015 | 58 | 56 | 43 | 48 | 49 | 35 | 34 | 32 | 23 | 50 | 52 | 44 |
| 6/01/2015 | 60 | 52 | 42 | 52 | 47 | 35 | 32 | 29 | 23 | 54 | 56 | 42 |
| 7/01/2015 | 60 | 56 | 44 | 51 | 51 | 37 | 32 | 33 | 26 | 53 | 58 | 46 |
| 8/01/2015 | 54 | 43 | 41 | 44 | 38 | 39 | 30 | 28 | 27 | 47 | 36 | 47 |
| Average | 58 | 54 | 43 | 48 | 46 | 36 | * | * | * | * | * | * |
| Median (RBL) | * | * | * | * | * | * | **32** | **28** | **23** | * | * | * |
| Logarithmic Average | * | * | * | * | * | * | * | * | * | 56 | 55 | 44 |

Note: - indicates values that has not been considered as the site was operational
# indicates noise measurements were not undertaken during this period
* indicates values that are not relevant to that noise descriptor
Value in bold indicates most relevant noise descriptor

Table 4-5: Unattended Noise Monitoring Results at R8, dB(A)

| Date | $L_1$ | | | $L_{10}$ | | | ABL ($L_{90}$) | | | $L_{eq}$ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Day | Evening | Night | Day | Evening | Night | Day | Evening | Night | Day | Evening | Night |
| 24/12/2014 | 55 | 53 | 43 | 47 | 42 | 34 | 31 | 27 | 22 | 45 | 43 | 42 |
| 25/12/2014 | 57 | 48 | 39 | 49 | 37 | 33 | 29 | 27 | 21 | 61 | 42 | 42 |
| 26/12/2014 | 54 | 47 | 44 | 43 | 39 | 36 | 27 | 25 | 21 | 43 | 39 | 46 |
| 27/12/2014 | 55 | 46 | 41 | 46 | 37 | 36 | 33 | 24 | 23 | 45 | 39 | 40 |
| 28/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 29/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 30/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 31/12/2014 | 54 | 52 | 42 | 46 | 44 | 35 | 28 | 27 | 23 | 47 | 49 | 40 |
| 1/01/2015 | 56 | 53 | 42 | 48 | 44 | 35 | 28 | 25 | 22 | 49 | 43 | 40 |
| 2/01/2015 | 52 | 52 | 42 | 44 | 44 | 34 | 27 | 26 | 22 | 42 | 48 | 40 |
| 3/01/2015 | 55 | 60 | 42 | 46 | 54 | 35 | 26 | 30 | 21 | 47 | 62 | 39 |
| 4/01/2015 | 51 | # | 39 | 42 | # | 33 | 30 | # | 23 | 41 | # | 39 |
| Average | 54 | 51 | 42 | 46 | 42 | 35 | * | * | * | * | * | * |
| Median (RBL) | * | * | * | * | * | * | **28** | **26** | **22** | * | * | * |
| Logarithmic Average | * | * | * | * | * | * | * | * | * | 52 | 54 | 41 |

Note: - indicates values that has not been considered as the site was operational
# indicates noise measurements were not undertaken during this period
* indicates values that are not relevant to that noise descriptor
Value in bold indicates most relevant noise descriptor

Table 4-6: Unattended Noise Monitoring Results at R12, dB(A)

| Date | $L_1$ | | | $L_{10}$ | | | ABL ($L_{90}$) | | | $L_{eq}$ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Day | Evening | Night | Day | Evening | Night | Day | Evening | Night | Day | Evening | Night |
| 24/12/2014 | 54 | 44 | 37 | 40 | 35 | 32 | 25 | 24 | 21 | 46 | 37 | 39 |
| 25/12/2014 | 51 | 42 | 39 | 41 | 35 | 32 | 24 | 26 | 21 | 43 | 36 | 43 |
| 26/12/2014 | 57 | 48 | 40 | 43 | 42 | 34 | 25 | 24 | 22 | 47 | 42 | 39 |
| 27/12/2014 | 52 | 39 | 39 | 38 | 33 | 33 | 24 | 26 | 24 | 45 | 33 | 43 |
| 28/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 29/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 30/12/2014 | - | - | - | - | - | - | - | - | - | - | - | - |
| 31/12/2014 | 52 | 40 | 37 | 41 | 34 | 30 | 26 | 26 | 20 | 43 | 35 | 44 |
| 1/01/2015 | 55 | 49 | 37 | 42 | 36 | 31 | 26 | 23 | 20 | 48 | 38 | 39 |
| 2/01/2015 | 48 | 48 | 37 | 38 | 41 | 31 | 24 | 28 | 20 | 40 | 42 | 41 |
| 3/01/2015 | 52 | 48 | 38 | 44 | 43 | 32 | 27 | 31 | 20 | 44 | 42 | 41 |
| 4/01/2015 | 55 | # | 38 | 44 | # | 30 | 29 | # | 20 | 44 | # | 42 |
| 5/01/2015 | 50 | 49 | 37 | 41 | 40 | 32 | 26 | 24 | 21 | 42 | 46 | 37 |
| 6/01/2015 | 51 | 48 | 40 | 42 | 45 | 33 | 26 | 31 | 21 | 44 | 43 | 43 |
| 7/01/2015 | / | / | 32 | / | / | 27 | / | / | 21 | / | / | 27 |
| Average | 53 | 45 | 38 | 41 | 38 | 32 | * | * | * | * | * | * |
| Median (RBL) | * | * | * | * | * | * | 26 | 26 | 21 | * | * | * |
| Logarithmic Average | * | * | * | * | * | * | * | * | * | 45 | 41 | 41 |

Note: - indicates values that has not been considered as the site was operational
# indicates noise measurements were not undertaken during this period
* indicates values that are not relevant to that noise descriptor
Value in bold indicates most relevant noise descriptor

The median RBL associated with the background noise levels ($L_{A90}$) was measured to be 28 dB(A) and 26 dB(A) during the day time period at receptors R8 and R12 respectively. As stated in the NSW INP, where the rating background level is found to be less than 30 dB(A), then it is set to 30 dB(A). Therefore a minimum RBL of 30 dB(A) has been considered in this assessment.

The background noise levels for the day time period have been summarized in Table 4-7.

Table 4-7: Background Noise Level for Day Time Period

| Monitoring Location | Median (RBL) $L_{90}$ dB(A) |
|---|---|
| R4 | 32 |
| R5 | 34 |
| R7 | 32 |
| R8 | 30* |
| R12 | 30* |

Note: * Indicates value has been set to 30 dB(A)

## 4.4 PHOTOGRAPHS

Figure 4-1: Receptor R4

Figure 4-2: Receptor R5

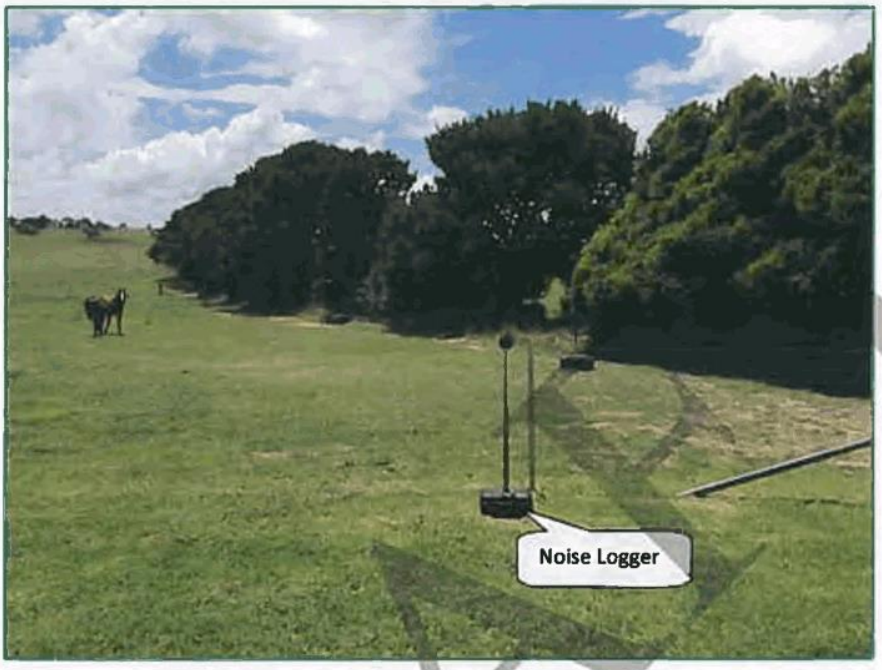



Figure 4-3: Receptor R7

Figure 4-4: Receptor R8


Figure 4-5: Receptor R12

# 5. CURRENT LEGISLATION AND GUIDELINES

There are two documents that are used in preparing this report. These are the *Noise Guide for Local Government Guide to Noise* and the *NSW EPA Industrial Noise Policy.*

The *Noise Guide to Local Government* is referenced for the explanation of what is offensive and annoying –intrusiveness – noise. It is also referenced for criteria for motor racing.

The *NSW EPA INP* is referenced for several reasons.

Although this policy was developed for industrial noise sources, it is referenced in the abovementioned Local Government Guide.

It is used in this report to establish the noise criteria using the methodology outlined in the policy. It can be used to objectively determine noise criteria for a motor sports venue on the basis of what noise level generated by a motor sports venue would be intrusive.

## 5.1 NSW EPA Industrial Noise Policy

### 5.1.1 Introduction

The NSW INP was developed by the NSW EPA primarily for the assessment of noise emissions from industrial sites regulated by the NSW EPA. However, the policy can also be used by NSW Planning and Infrastructure and local government to assist in their assessment of potential noise issues.

An important point to note in the policy is presented in Section 1.4.1. This section states:

> *"The industrial noise source criteria set down in Section 2 are best regarded as planning tools. They are not mandatory, and an application for a noise-producing development is not determined purely on the basis of compliance or otherwise with the noise criteria. Numerous other factors need to be taken into account in the determination. These factors include economic consequences, other environmental effects and the social worth of the development."*

The policy sets out two criteria that are used to assess potential site-related noise impacts. The first criterion aims at controlling intrusive noise impacts in the short-term for residences. This criterion is therefore called the intrusiveness criterion.

The second criterion aims at maintaining a suitable amenity for particular land uses including residences in the long-term. This criterion is called the amenity criterion.

### 5.1.2 Intrusiveness Criterion

The intrusiveness criterion can be summarised as:

$L_{Aeq,(15minute)} \leq$ rating background level + 5 dB(A)

The $L_{Aeq,(15minute)}$ is the predicted or measured $L_{Aeq}$ from noise generated within the Project Site over a fifteen minute interval at the receptor.

This is to be assessed at the most affected point on or within the residential property boundary or if that is more than 30 m from the residence, at the most affected point within 30 m of the residence.

### 5.1.3 Amenity Criterion

To limit continuing increases in noise levels, the maximum ambient noise level within an area from industrial noise sources should not normally exceed the acceptable noise levels specified in Table 2.1 of the INP, the applicable parts of which are reproduced in Table 5-1.

Table 5-1: NSW EPA Amenity Criteria - Recommended $L_{Aeq}$ noise levels from industrial noise sources

| Type of Receptor | Indicative Noise Amenity Area | Period | Recommended $L_{Aeq}$ noise level (dB(A)) | |
|---|---|---|---|---|
| | | | Acceptable | Recommended Maximum |
| Residence | Rural | Day | 50 | 55 |
| | | Evening | 45 | 50 |
| | | Night | 40 | 45 |

The existing industrial noise levels are compared to the acceptable level and Table 5-2 is then used to derive the applicable amenity criteria.

Table 5-2: Modification to Acceptable Noise Level (ANL[1]) to Account for Existing Levels of Stationary Noise

| Total Existing $L_{Aeq}$ Noise Level From Industrial Sources | Maximum $L_{Aeq}$ Noise Level for Noise from New Sources Alone |
|---|---|
| ≥ ANL + 2 | If existing noise level is likely to decrease in future: ANL – 10<br>If existing noise level is unlikely to decrease in the future: Existing level – 10 |
| ANL + 1 | ANL – 8 |
| ANL | ANL – 8 |
| ANL –1 | ANL – 6 |
| ANL – 2 | ANL – 4 |
| ANL – 3 | ANL – 3 |
| ANL – 4 | ANL – 2 |
| ANL – 5 | ANL –2 |
| ANL – 6 | ANL – 1 |
| < ANL - 6 | ANL |

**Source:** Table 2.2 NSW EPA INP
**Note:** [1]ANL is the recommended acceptable $L_{Aeq}$ noise level for the specific receptor, area and time of day.

### 5.1.4 Operational Project Specific Noise Levels

Noise limits for the subject site can be established in accordance with the principles and methodologies of the INP, the measured background noise levels and the existing industrial operational noise levels of the area.

According to the INP, it is recommended that the more stringent noise limits be applied to protect the existing acoustic amenity from deteriorating.

The current project specific noise levels associated with operational noise are presented in Table 5-3. As on-site operations are generally carried out between 8am and 5pm, the day time period has been considered only.

Table 5-3: Current Project Specific Noise Levels associated with Operational Noise

| Monitoring Location | Associated Receptor | Measured RBL L90 | Adjusted RBL L90 | Existing Industrial Noise $L_{eq}$ | Acceptable Noise Level $L_{eq}$ | Intrusive Criterion $L_{eq,15minute}$ | Amenity Criterion $L_{eq,\ period}$ | PSNL $L_{eq,15\ minute}$ |
|---|---|---|---|---|---|---|---|---|
| R4 | R1, R2, R3, R4 | 32 | 32 | Inaudible | 50 | 37 | 50 | **37** |
| R5 | R5, R6 | 34 | 34 | Inaudible | 50 | 39 | 50 | **39** |
| R7 | R7, R10 | 32 | 32 | Inaudible | 50 | 37 | 50 | **37** |
| R8 | R8, R9 | 28 | 30 | Inaudible | 50 | 35 | 50 | **35** |
| R12 | R11, R12 | 26 | 30 | Inaudible | 50 | 35 | 50 | **35** |

The last column is headed PSNL meaning project specific noise limits. These are the lower of the intrusive criterion and amenity criterion listed in these columns in the above table. The PSNL are the 5 dB(A) above background and would be applied to the majority of the everyday events at the circuit.

Higher noise limits would be needed on a limited number of occasions after fair and reasonable consideration is given to times of operation, and on agreeing to a Noise Management Plan for the activities of the site.

## 5.2 Noise Guide for Local Government

This guide is principally being used to establish the noise criteria for motor sports venues and recommend the contents of a noise management plan.

Section 3.6 of Part 3 Noise Management Principles provides useful guidance on noise from a motorsport facility.

Managing noise from existing activities is discussed on the basis of what action is feasible and reasonable. This is an approach that is being applied to this noise impact assessment.

- Feasible measures
  Feasible measures are those that can be put into practice or can be engineered and would be considered practical to build. This aspect is considered in the report at the Section dealing with the results of the noise modelling.

- Reasonable measures
  The Noise Guide expresses this quite succinctly:

  *"Selecting reasonable measures from those that are feasible involves making a judgement to determine whether the overall noise reduction benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the noise abatement measure."*

  In making such a judgement there are many factors to consider, the most relevant being the following:

  - Future changes in noise level from the existing motor sports venue.
    At present this would be unlikely given the current level of annoyance and intrusiveness that is being experienced.

  - Number of people genuinely being affected or annoyed.
    Importantly, the level of annoyance is based on the exceedance of 5 dB(A) above background and not audibility.

  - Whether noise can be reduced and the number of residents that would be advantaged.

  - Cost of the mitigation measures given consideration of the characteristics of the site, the number of residents that would benefit and whether compliance would be achieved.

Amongst the reasonable measures, Community Views feature strongly. Similarly consultation with the community is a feature of the NSW EPA INP.

The discussion under Community Views consist of the following:

- *"engagement with affected land users when deciding about the aesthetic or other impacts of work practices/abatement measures*
- *views of all affected land users not just those making complaints, determined through early community consultation*
- *practices/measures with majority support from the affected community."*

These aspects have been applied in this assessment.

### 5.2.1 Noise Criteria for Motor Sports

A Case Study (Case Study No. 2) is presented in the Noise Guide.

The Case Study raises many factors that can be applied and these have been considered in this assessment.

The reader can refer to this Section of the Guide as it is reproduced in Attachment 5.

The main aspects are the following:

- Establish noise criteria for the majority of the minor events to meet 5 dB(A) + $L_{A90}$ if feasible.
- Establish noise criteria for 10 events or a negotiable number that would meet 10 dB(A) + $L_{A90}$ provided times of operation are reasonable from residents' perspective.
- Establish higher noise criteria for three weekends for major events that meet 20 dB(A) + $L_{A90}$ provided times of operation are reasonable again from the residents' perspective.
- Establish a noise management plan by firstly organising a consultative committee that would initially operate under the control of Council but gradually consist only of representatives of the residents and the management of Wakefield Park.

A framework of the consultative committee will need to be put in place and it is envisaged the following would occur.

- An invitation be extended to the residents.
- A steering committee be formed and led by either a Council officer or a person nominated by Wakefield but independent of themselves.
- Residents would have 2–3 members.
- Wakefield Park would have at least 1 and be allowed to invite attendees to assist with technical matters.
- The function of the committee is to ensure ongoing communication occurs. It is not to decide operational matters of the motor sports site. These decisions would be made through the legislative process, Council being the Appropriate Regulatory Authority. The committee could invite other attendees such as Councillors.
- Meetings would be quarterly.
- The Committee would review a noise management plan that is recommended to be prepared as a result of this noise assessment.

# 6. RECOMMENDED NOISE LIMITS AND TIMES OF OPERATION

The following are the recommended noise limits.

- Three major weekend events per year.

| Receptors | $L_{Aeq}$ |
|---|---|
| R1, R2, R3 and R4 | 52 dB(A) |
| R5 and R6 | 54 dB(A) |
| R7 and R10 | 52 dB(A) |
| R8 and R9 | 50 dB(A) |
| R11 and R12 | 40 dB(A) |

| Times of Operation | | |
|---|---|---|
| Friday and Saturday | 8am–5pm | Pit and workshop activities, amenities and food halls |
| | 9am–5pm | Truck warmup with maximum 5 vehicles |
| | | Racing |
| | | PA unless a modified PA system is developed |
| Sunday | 8am–9pm | Pit and workshop activities, amenities and food halls |
| | | Track warm up with maximum 2 vehicles |
| | 9am–5pm | Racing |
| | | PA unless a modified PA system is developed |

- Ten Events per year

| Receptors | $L_{Aeq}$ |
|---|---|
| R1, R2, R3 and R4 | 42 dB(A) |
| R5 and R6 | 44 dB(A) |
| R7 and R10 | 42 dB(A) |
| R8 and R9 | 40 dB(A) |
| R11 and R12 | 35 dB(A) |

| Times of Operation | | |
|---|---|---|
| Monday to Saturday | 8am–5pm | Pit and workshop activities, amenities and food halls |
| | 9am–5pm | Truck warmup with maximum 5 vehicles |
| | | Racing |
| | | PA unless a modified PA system is developed |
| Sunday | 8am–9pm | Pit and workshop activities, amenities and food halls |
| | | Track warm up with maximum 2 vehicles |
| | 9am–5pm | Racing |
| | | PA unless a modified PA system is developed |

- Majority of events

| Receptors | $L_{Aeq}$ |
|---|---|
| R1, R2, R3 and R4 | 37 dB(A) |
| R5 and R6 | 39 dB(A) |
| R7 and R10 | 37 dB(A) |
| R8 and R9 | 35 dB(A) |
| R11 and R12 | 35 dB(A) |

**Times of Operation**

| | | |
|---|---|---|
| Monday to Saturday | 8am–5pm | Pit and workshop activities, amenities and food halls |
| | 9am–5pm | Track warmup with maximum 5 vehicles |
| | | Racing |
| | | PA unless a modified PA system is developed |
| Sunday | 8am–9pm | Pit and workshop activities, amenities and food halls |
| | | Track warm up with maximum 2 vehicles |
| | 9am–5pm | Racing |
| | | PA unless a modified PA system is developed |

- Noise Monitoring
  Noise monitoring will need to be altered from the current reliance on a single track noise logger. A second or preferred location is discussed in Section 7 of this report.

  In addition it is recommended that track officials use a hand held noise meter at the workshops and test all vehicles. The procedures would be developed in a noise management plan.

The noise limits to be set will need further assessment and advice as this is a critical issue and at the core of the noise complaints that are being generated.

The findings presented in Section 2 are a result of the "lessons learnt" in the UK. These lessons have enabled motor sports to continue and from our reading of documents published on the Web, are able to operate financially.

The authors realise this will require strong management practices by Wakefield Park but is a necessary outcome to provide a necessary level of control on vehicle noise as this at present is relatively uncontrolled.

# 7. CONFEDERATION OF AUSTRALIAN MOTOR SPORT (CAMS)

The noise emissions from the current use of the track at Wakefield Park are required to satisfy specific Confederation of Australian Motor Sport (CAMS) requirements, as outlined in Schedule B, Article 12 of the "General Requirements for Cars and Drivers" in the 2015 CAMS Manual of Motor Sport. The following conditions apply:

> Schedule B.
>
> *Each automobile (except superkart) shall, of necessity, in any speed event or race:*
>
> 12 *be configured such that the sound emitted when measured 30 m from the track edge does not exceed 95 dB(A) unless event regulations set a lower limit.*

Based on the information provided above, it is understood that the Lmax noise parameter of a vehicle passing by should not exceed 95 dB(A). One noise logger is permanently located on-site to verify if vehicles using the track comply with the CAMS noise requirements. The measured noise levels are sent in real time to the control tower where an operator verifies the noise emissions of the vehicle. The location of the microphone is shown in Figure 7-1. Access to the data recorded by Wakefield Park's noise logger was not available as the microphone presented technical malfunctioning. Based on noise measurements undertaken during current operations and observations carried out by acoustic engineers, BE believes that the noise logger placed on-site is not located at a representative position as much higher noise levels were observed on other sections of the track. Alternatively, a noise logger was place 30m from the beginning of the primary section of the track. The location of the temporary noise logger is shown in Figure 7-1 and a photograph is shown in Figure 7-2.

Long-term noise monitoring was carried out between Saturday 28th February 2015 and Tuesday 10th March 2015 in order to measure a variety of events. The list of events considered in the noise monitoring is shown in Table 7-1. The $L_{A1hay}$ noise descriptor was recorded between 8am and 6pm over 15-minute intervals. The highest noise level recorded for each 15-minute interval has been presented only. The results are provided in Table 7-2.

As can be seen in Table 7-2, several noise exceedances were recorded during the events "Wakefield 300" and "Speed off the Streets – Cars Only". Noise levels up to 107 dB(A) $L_{max}$ were recorded which exceeds CAMS noise requirements by 12 dB.

Figure 7-1: Noise Logger at Reference Location

Figure 7-2: Noise Logger at Reference Location


Table 7-1: Events at Wakefield Park Motorsport During Noise Monitoring

| Date | Event |
|---|---|
| 28/02/2015 | Wakefield 300 |
| 1/03/2015 | Wakefield 300 |
| 2/03/2015 | Speed Off The Streets – Cars Only |
| 3/03/2015 | Formula Ford Experience Australia |
| 4/03/2015 | Speed Off The Streets – Cars Only |
| 5/03/2015 | Track Closed |
| 6/03/2015 | V8 Race Experience |
| 7/03/2015 | V8 Race Experience |
| 8/03/2015 | V8 Race Experience |
| 9/03/2015 | Private Track Day |
| 10/03/2015 | Speed Off The Streets – Cars Only |

Note: shaded cell indicates event when noise criterion was exceeded.

Table 7-2: Noise Monitoring Undertaken at Reference Location On-site (30m from Track)

| End 15min Period | 28/02/2015 | 1/03/2015 | 2/03/2015 | 3/03/2015 | 4/03/2015 | 5/03/2015 | 6/03/2015 | 7/03/2015 | 8/03/2015 | 9/03/2015 | 10/03/2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | $L_{max}$ dB(A) | | | | | | | | | | |
| 8:15 | 65 | 67 | 87 | 60 | 57 | 87 | 72 | 84 | 80 | 69 | 56 |
| 8:30 | 58 | 73 | 55 | 61 | 56 | 83 | 86 | 88 | 83 | 78 | 61 |
| 8:45 | 53 | 104 | 60 | 84 | 69 | 81 | 89 | 87 | 88 | 74 | 57 |
| 9:00 | 66 | 101 | 61 | 78 | 69 | 83 | 88 | 90 | 89 | 62 | 65 |
| 9:15 | 99 | 94 | 79 | 53 | 102 | 75 | 81 | 88 | 89 | 63 | 87 |
| 9:30 | 99 | 102 | 100 | 56 | 93 | 73 | 89 | 89 | 88 | 88 | 94 |
| 9:45 | 99 | 103 | 95 | 77 | 97 | 73 | 90 | 89 | 89 | 92 | 93 |
| 10:00 | 96 | 101 | 95 | 84 | 100 | 72 | 89 | 89 | 88 | 87 | 90 |
| 10:15 | 99 | 96 | 96 | 85 | 98 | 71 | 89 | 89 | 89 | 79 | 86 |
| 10:30 | 99 | 105 | 99 | 85 | 98 | 85 | 89 | 90 | 90 | 94 | 89 |
| 10:45 | 92 | 106 | 99 | 85 | 99 | 85 | 90 | 90 | 87 | 93 | 97 |
| 11:00 | 100 | 104 | 97 | 79 | 96 | 75 | 91 | 88 | 89 | 88 | 92 |
| 11:15 | 96 | 105 | 94 | 84 | 99 | 75 | 91 | 90 | 90 | 73 | 92 |
| 11:30 | 96 | 103 | 86 | 88 | 99 | 75 | 92 | 90 | 87 | 77 | 97 |
| 11:45 | 101 | 105 | 95 | 87 | 93 | 72 | 91 | 91 | 88 | 89 | 96 |
| 12:00 | 98 | 103 | 101 | 88 | 92 | 74 | 91 | 89 | 89 | 94 | 93 |
| 12:15 | 96 | 104 | 107 | 88 | 93 | 72 | 91 | 88 | 89 | 88 | 93 |
| 12:30 | 77 | 104 | 100 | 85 | 99 | 72 | 91 | 88 | 88 | 88 | 87 |
| 12:45 | 68 | 105 | 85 | 66 | 94 | 74 | 89 | 89 | 89 | 89 | 85 |
| 13:00 | 65 | 104 | 97 | 69 | 92 | 68 | 88 | 89 | 88 | 92 | 96 |
| 13:15 | 76 | 92 | 99 | 69 | 90 | 76 | 91 | 89 | 88 | 73 | 96 |
| 13:30 | 99 | 97 | 90 | 86 | 69 | 71 | 91 | 91 | 88 | 75 | 91 |

Table 7-2: Noise Monitoring Undertaken at Reference Location On-site (30m from Track)

| End 15min Period | 28/02/2015 | 1/03/2015 | 2/03/2015 | 3/03/2015 | 4/03/2015 | 5/03/2015 | 6/03/2015 | 7/03/2015 | 8/03/2015 | 9/03/2015 | 10/03/2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | $L_{max}$ dB(A) | | | | | | | | | | |
| 13:45 | 99 | 95 | 89 | 87 | 65 | 73 | 90 | 91 | 87 | 75 | 87 |
| 14:00 | 96 | 96 | 96 | 86 | 87 | 72 | 91 | 89 | 88 | 92 | 97 |
| 14:15 | 99 | 93 | 98 | 83 | 67 | 67 | 89 | 90 | 88 | 92 | 97 |
| 14:30 | 95 | 103 | 93 | 82 | 64 | 72 | 89 | 88 | 89 | 92 | 91 |
| 14:45 | 100 | 103 | 88 | 80 | 67 | 70 | 91 | 68 | 91 | 86 | 90 |
| 15:00 | 93 | 102 | 99 | 64 | 68 | 72 | 90 | 89 | 90 | 96 | 87 |
| 15:15 | 96 | 101 | 92 | 83 | 68 | 71 | 88 | 88 | 88 | 84 | 94 |
| 15:30 | 95 | 101 | 85 | 89 | 69 | 74 | 81 | 88 | 89 | 82 | 95 |
| 15:45 | 97 | 97 | 101 | 88 | 68 | 70 | 88 | 90 | 88 | 90 | 91 |
| 16:00 | 99 | 97 | 105 | 89 | 66 | 66 | 75 | 88 | 83 | 72 | 89 |
| 16:15 | 75 | 96 | 66 | 87 | 76 | 67 | 81 | 89 | 67 | 69 | 58 |
| 16:30 | 65 | 96 | 64 | 82 | 74 | 66 | 73 | 71 | 70 | 74 | 63 |
| 16:45 | 63 | 96 | 70 | 85 | 70 | 67 | 79 | 68 | 74 | 70 | 63 |
| 17:00 | 64 | 96 | 66 | 61 | 68 | 68 | 72 | 67 | 67 | 70 | 73 |
| 17:15 | 72 | 96 | 65 | 67 | 67 | 76 | 80 | 67 | 69 | 71 | 61 |
| 17:30 | 68 | 78 | 67 | 61 | 71 | 75 | 74 | 70 | 66 | 67 | 64 |
| 17:45 | 66 | 66 | 63 | 58 | 70 | 65 | 74 | 71 | 67 | 67 | 62 |
| 17:45 | 59 | 61 | 62 | 58 | 65 | 59 | 72 | 71 | 69 | 70 | 62 |
| Max | 101 | 106 | 107 | 89 | 102 | 85 | 92 | 91 | 91 | 96 | 97 |

Note: shaded cell indicates value exceed the 95 dB(A) $L_{max}$ criterion

# 8. NOISE IMPACT ASSESSMENT

An outline of the predictive noise modelling methodology and operational noise modelling scenarios has been provided below.

## 8.1 NOISE SOURCES

A diverse range of events are carried out at Wakefield Park throughout the year. This includes events such as "Private Track Day" for private vehicles and "NSW State Championships" which involves large vehicles such as super tracks. A detailed noise study for each vehicle that currently uses the track throughout the year is not feasible due to the large amount of resources that would be required. Therefore, based on both BE experience and Wakefield Park Motorsport recommendations, two large events were selected to be studied in detail. These events are shown in Table 8-1.

Table 8-1: Large Monitored Events

| Event | Date | Vehicle Types Included |
|---|---|---|
| Australian Super Truck Championship & AASA ACT State Championship | 29/11/2014 – 30/11/2014 | Pulsars Driver A<br>Pulsars Driver B<br>Super Truck Nationals<br>Super TT<br>Miniature Race Cars<br>NSW V8's<br>Stockcars<br>Excels Driver A<br>Excels Driver B<br>V.E.K Tools Pulsar Enduro Leg 1<br>V.E.K Tools Pulsar Enduro Leg 2<br>Suzuki Swifts<br>Mazda MX5's |
| CAMS NSW Motor Race Championship | 10/04/2015 – 12/04/2015 | Supersports<br>Improved Production Under 2 Litre<br>Improved Production Over 2 Litre<br>Formula Race Cars<br>Formula Vee<br>Formula Ford<br>Superkarts |

Short-term noise measurements were undertaken at several locations surrounding the track in order to determine the noisiest vehicle types during the 2 large monitored events. The vehicles with the highest sound pressure levels are as follows:

- Super Truck Nationals;
- NSW V8's;
- Stockcars;
- Formula Race Cars;
- Improved Production Under 2 Litre; and
- Improved Production Over 2 Litre.

The sound power levels for the primary identified vehicles listed above have been calculated from noise measurements of sound pressure levels undertaken at 7 strategic locations surrounding the track. Each of these 7 locations was considered to represent a segment of the track with a particular sound spectral distribution. Figure 3-1 shows the noise monitoring locations and the respective segments of the track.

Figure 8-1: Monitoring Locations and segments of the Track Utilized in the Noise Modelling

A-weighted third-octave band centre frequency sound power levels have been used in the noise modelling and are presented in Table 8-2 . The noise sources utilised as part of this assessment are comprised of the primary noise generating activities associated with the effective operation at Wakefield Park Motorsport. In addition, several long term and short term noise measurements were carried out to calibrate the noise modelling. This was made by increasing and/or reducing the sound power levels shown in Table 8-2 for particular segments. Therefore, a realistic noise contribution from each segment at each location can be seen in section 8.3

Table 8-2: Noise Sources – Sound Power Levels

| Segment | Overall | Third Octave Band Centre Frequency (Hz) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 20 | 25 | 31 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1k | 1.25k | 1.6k | 2k | 2.5k | 3.15k | 4k | 5k | 6.3k | 8k | 10k | 12.5k | 16k | 20k |
| **SUPER TRUCK NATIONALS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 134 | 66 | 65 | 79 | 81 | 87 | 93 | 98 | 108 | 105 | 108 | 118 | 118 | 117 | 126 | 124 | 125 | 124 | 124 | 123 | 123 | 121 | 120 | 118 | 116 | 114 | 111 | 114 | 103 | 96 | 92 | 80 |
| B | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| C | 137 | 67 | 66 | 80 | 89 | 93 | 102 | 110 | 114 | 119 | 118 | 126 | 112 | 114 | 122 | 128 | 131 | 128 | 125 | 126 | 124 | 125 | 123 | 121 | 120 | 118 | 114 | 113 | 107 | 100 | 92 | 77 |
| D | 123 | 67 | 63 | 70 | 79 | 86 | 90 | 108 | 106 | 107 | 114 | 112 | 108 | 100 | 101 | 104 | 108 | 114 | 113 | 113 | 113 | 111 | 110 | 107 | 105 | 101 | 95 | 89 | 81 | 73 | 67 | 69 |
| E | 130 | 70 | 65 | 74 | 82 | 87 | 91 | 103 | 111 | 110 | 123 | 123 | 113 | 112 | 115 | 117 | 116 | 117 | 118 | 116 | 117 | 115 | 112 | 112 | 111 | 111 | 116 | 119 | 104 | 99 | 97 | 79 |
| F | 135 | 70 | 68 | 74 | 82 | 84 | 93 | 109 | 109 | 107 | 123 | 125 | 110 | 110 | 120 | 120 | 126 | 127 | 129 | 127 | 122 | 117 | 119 | 116 | 113 | 108 | 106 | 105 | 97 | 85 | 78 | 73 |
| G | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **NSW V8'S** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 134 | 64 | 62 | 66 | 82 | 89 | 77 | 89 | 96 | 104 | 104 | 112 | 113 | 114 | 128 | 123 | 123 | 126 | 124 | 125 | 122 | 120 | 120 | 117 | 114 | 111 | 107 | 103 | 97 | 93 | 85 | 75 |
| B | 127 | 48 | 48 | 59 | 72 | 74 | 74 | 85 | 95 | 99 | 105 | 106 | 110 | 119 | 121 | 115 | 117 | 119 | 116 | 116 | 112 | 110 | 110 | 107 | 104 | 100 | 96 | 92 | 87 | 83 | 76 | 67 |
| C | 134 | 70 | 67 | 72 | 87 | 89 | 92 | 100 | 105 | 114 | 113 | 113 | 113 | 122 | 124 | 123 | 120 | 123 | 125 | 124 | 123 | 123 | 122 | 120 | 117 | 113 | 109 | 106 | 100 | 94 | 87 | 79 |
| D | 123 | 67 | 63 | 68 | 76 | 86 | 89 | 95 | 101 | 109 | 115 | 121 | 116 | 105 | 105 | 100 | 103 | 108 | 109 | 104 | 103 | 101 | 100 | 99 | 95 | 92 | 88 | 83 | 78 | 71 | 66 | 69 |
| E | 124 | 70 | 64 | 70 | 75 | 77 | 86 | 87 | 94 | 100 | 107 | 116 | 112 | 107 | 107 | 112 | 108 | 117 | 116 | 113 | 110 | 109 | 107 | 106 | 98 | 96 | 98 | 93 | 84 | 76 | 71 | 73 |
| F | 132 | 74 | 64 | 75 | 84 | 81 | 92 | 96 | 101 | 110 | 113 | 121 | 117 | 119 | 121 | 118 | 119 | 123 | 125 | 123 | 122 | 121 | 117 | 113 | 108 | 105 | 106 | 105 | 99 | 94 | 87 | 77 |
| G | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **STOCKCARS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 136 | 66 | 69 | 74 | 85 | 96 | 95 | 97 | 110 | 110 | 111 | 112 | 116 | 116 | 121 | 123 | 127 | 126 | 126 | 128 | 127 | 126 | 125 | 124 | 121 | 118 | 116 | 112 | 106 | 100 | 92 | 80 |
| B | 129 | 48 | 55 | 61 | 70 | 80 | 92 | 86 | 95 | 106 | 103 | 106 | 111 | 114 | 118 | 114 | 117 | 121 | 119 | 118 | 120 | 117 | 118 | 119 | 117 | 113 | 113 | 108 | 103 | 98 | 91 | 83 |
| C | 136 | 67 | 64 | 69 | 80 | 99 | 102 | 97 | 115 | 116 | 110 | 112 | 114 | 117 | 119 | 121 | 125 | 127 | 128 | 127 | 128 | 126 | 125 | 124 | 122 | 119 | 115 | 111 | 105 | 97 | 88 | 77 |
| D | 121 | 66 | 63 | 68 | 82 | 82 | 89 | 103 | 103 | 107 | 110 | 114 | 112 | 110 | 106 | 110 | 109 | 106 | 109 | 108 | 106 | 106 | 103 | 102 | 98 | 94 | 91 | 86 | 79 | 71 | 66 | 69 |
| E | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| F | 132 | 71 | 66 | 71 | 80 | 95 | 86 | 95 | 112 | 110 | 109 | 114 | 115 | 113 | 119 | 121 | 120 | 125 | 123 | 123 | 123 | 123 | 121 | 120 | 117 | 114 | 111 | 107 | 101 | 94 | 85 | 75 |
| G | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **FORMULA RACE CARS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 132 | 65 | 59 | 63 | 70 | 73 | 88 | 92 | 91 | 97 | 104 | 115 | 110 | 112 | 124 | 131 | 126 | 123 | 123 | 121 | 123 | 120 | 119 | 118 | 114 | 112 | 107 | 103 | 97 | 91 | 83 | 73 |
| B | 132 | 45 | 48 | 57 | 63 | 71 | 74 | 78 | 86 | 90 | 109 | 117 | 114 | 116 | 120 | 119 | 121 | 122 | 123 | 122 | 123 | 121 | 118 | 117 | 116 | 113 | 110 | 106 | 102 | 98 | 92 | 85 |
| C | 134 | 69 | 59 | 64 | 72 | 76 | 79 | 83 | 93 | 104 | 115 | 121 | 119 | 106 | 126 | 126 | 124 | 126 | 121 | 123 | 124 | 121 | 118 | 118 | 113 | 110 | 105 | 100 | 93 | 86 | 77 | 71 |
| D | 129 | 71 | 61 | 67 | 75 | 78 | 84 | 90 | 101 | 114 | 118 | 120 | 117 | 123 | 121 | 116 | 116 | 115 | 116 | 118 | 119 | 118 | 115 | 112 | 107 | 102 | 97 | 91 | 82 | 73 | 70 | 73 |
| E | 128 | 69 | 63 | 63 | 72 | 76 | 80 | 86 | 91 | 108 | 121 | 120 | 109 | 120 | 122 | 114 | 113 | 110 | 111 | 111 | 111 | 108 | 105 | 103 | 100 | 96 | 90 | 85 | 80 | 73 | 68 | 70 |
| F | 134 | 66 | 61 | 65 | 72 | 79 | 85 | 90 | 94 | 101 | 114 | 121 | 123 | 119 | 126 | 123 | 124 | 127 | 125 | 123 | 124 | 120 | 117 | 117 | 115 | 113 | 109 | 105 | 101 | 94 | 84 | 74 |
| G | 128 | 71 | 61 | 67 | 75 | 79 | 86 | 91 | 97 | 109 | 118 | 122 | 121 | 114 | 118 | 120 | 114 | 116 | 114 | 114 | 114 | 112 | 111 | 109 | 106 | 104 | 99 | 95 | 88 | 80 | 70 | 69 |
| **IMPROVED PRODUCTION UNDER 2L** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 133 | 65 | 60 | 63 | 70 | 72 | 80 | 81 | 85 | 99 | 97 | 107 | 121 | 118 | 110 | 123 | 121 | 125 | 124 | 122 | 123 | 122 | 120 | 118 | 116 | 113 | 109 | 107 | 101 | 95 | 87 | 78 |
| B | 136 | 46 | 55 | 58 | 64 | 70 | 79 | 79 | 88 | 96 | 104 | 115 | 117 | 124 | 117 | 125 | 124 | 126 | 125 | 125 | 124 | 124 | 123 | 123 | 122 | 118 | 117 | 113 | 108 | 103 | 97 | 89 |
| C | 139 | 69 | 63 | 67 | 74 | 78 | 90 | 90 | 98 | 105 | 104 | 117 | 129 | 122 | 124 | 126 | 125 | 130 | 130 | 131 | 130 | 129 | 128 | 127 | 124 | 122 | 119 | 114 | 108 | 101 | 93 | 83 |
| D | 131 | 72 | 64 | 66 | 74 | 78 | 79 | 88 | 94 | 100 | 113 | 125 | 119 | 116 | 122 | 132 | 118 | 118 | 119 | 121 | 122 | 120 | 118 | 116 | 112 | 109 | 105 | 101 | 94 | 87 | 78 | 74 |
| E | 128 | 71 | 65 | 66 | 77 | 77 | 78 | 86 | 92 | 105 | 99 | 110 | 126 | 112 | 109 | 115 | 106 | 110 | 111 | 112 | 113 | 113 | 112 | 109 | 106 | 103 | 97 | 92 | 86 | 81 | 73 | 70 |
| F | 137 | 67 | 62 | 66 | 72 | 78 | 83 | 93 | 97 | 101 | 115 | 118 | 125 | 129 | 115 | 118 | 124 | 126 | 127 | 129 | 129 | 127 | 125 | 123 | 121 | 119 | 117 | 113 | 108 | 103 | 96 | 87 |
| G | 126 | 68 | 61 | 66 | 69 | 78 | 81 | 87 | 93 | 98 | 110 | 114 | 115 | 110 | 113 | 118 | 113 | 113 | 115 | 116 | 117 | 115 | 113 | 111 | 108 | 105 | 100 | 95 | 89 | 82 | 72 | 69 |
| **IMPROVED PRODUCTION OVER 2L** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| B | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| C | 137 | 69 | 62 | 68 | 74 | 81 | 89 | 87 | 96 | 112 | 109 | 114 | 128 | 121 | 120 | 128 | 122 | 129 | 128 | 126 | 127 | 125 | 124 | 122 | 119 | 114 | 110 | 105 | 99 | 92 | 83 | 73 |
| D | 130 | 74 | 68 | 68 | 76 | 80 | 82 | 88 | 96 | 103 | 118 | 123 | 115 | 120 | 125 | 114 | 115 | 115 | 115 | 116 | 116 | 116 | 112 | 111 | 107 | 102 | 96 | 89 | 80 | 73 | 70 | 73 |
| E | 133 | 70 | 61 | 68 | 74 | 79 | 83 | 86 | 94 | 107 | 113 | 115 | 128 | 118 | 115 | 125 | 120 | 123 | 122 | 122 | 121 | 120 | 118 | 115 | 112 | 108 | 103 | 99 | 95 | 88 | 78 | 70 |
| F | 140 | 68 | 62 | 67 | 73 | 75 | 88 | 87 | 94 | 112 | 114 | 119 | 133 | 117 | 113 | 127 | 118 | 133 | 133 | 130 | 130 | 130 | 127 | 126 | 124 | 121 | 117 | 114 | 111 | 105 | 96 | 85 |
| G | 130 | 69 | 62 | 64 | 72 | 77 | 82 | 82 | 90 | 92 | 98 | 115 | 126 | 109 | 117 | 116 | 112 | 119 | 116 | 117 | 118 | 117 | 117 | 117 | 112 | 109 | 104 | 100 | 92 | 85 | 75 | 70 |

## 8.2 MODELLING METHODOLOGY

### 8.2.1 Noise Model

Predictive Noise Modelling was carried out in Sound PLAN v7.3 using the Concawe algorithm when assessing operational noise. This model has been extensively utilised by Benbow Environmental for assessing noise emissions for existing and proposed developments, and is recognised by regulatory authorities throughout Australia. The model allows for the prediction of noise from a site, at the specified receptor, by calculating the contribution of each noise source.

The noise sources as well as the topographical features of the subject area, surrounding buildings and receiver locations, were all input into the noise model to determine the noise emissions of the proposed development at the nearest potentially affected residences.

The modelling scenario has been carried out using $L_{eq,\ 15\ minutes}$ descriptor when assessing operational noise. Using these descriptors, noise emission levels were predicted at the nearest potentially affected sensitive receptors to determine the noise impact against the relevant noise criteria in accordance with the INP.

### 8.2.2 Assumptions Made for Noise Modelling

It should be noted that the relevant assessment period for operational noise emissions has been considered to be 15 minutes. Therefore noise source durations detailed in the following assumptions should be considered per 15 minute period in view of potential noise impacts under worst-case scenarios. Each assessment-specific assumption has been detailed below:

- Off-site topographical information was obtained from the Department of Lands, Six Maps, with contour maps having intervals of 10 m whilst on-site contours were supplied by Wakefield Park Motorsport.
- On-site structures such as the primary buildings have been included in the model;
- All receptors were modelled at 1.5 m above ground level;
- Grounds have been modelled considering ground factors ranging from 0 to 1;
- Vehicles have been modelled considering moving point sources; and
- Several factors such as gradient, road surface and speed have been considered in the assessment.

### 8.2.3 Noise Modelling Scenarios

Six (6) operational scenarios considering different configurations were established for the modelling of operational noise generation. Each model configuration was used to calculate noise levels at the nearest potentially affected receptor under the operations undertaken on-site. The scenario is detailed in Table 8-3.

Table 8-3: Modelled Noise Scenarios

| Scenario | Type Vehicle | Number of Cars* | Number of Laps* | Estimated Race Time* | Number of Laps in a 15-min Period* |
|---|---|---|---|---|---|
| 1 | Super Truck Nationals | 10 | 10 | 17 | 9 |
| 2 | NSW V8's | 6 | 8 | 10 | 8 |
| 3 | Stockcars | 9 | 16 | 17 | 14 |
| 4 | Formula Race Cars | 12 | 14 | 18 | 12 |
| 5 | Improved Production Under 2 Litre | 14 | 14 | 16 | 13 |
| 6 | Improved Production Over 2 Litre | 6 | 14 | 16 | 13 |

Note: * indicates approximated values
Data obtained from http://racing.natsoft.com.au/

### 8.2.4 Meteorological Factors

The scenario was run with noise enhancing meteorological conditions. The following conditions were considered:

- Condition A: neutral weather conditions; and
- Condition B: 3 m/s wind from source to receptor.

These meteorological conditions have been displayed in detail in Table 8-4.

Table 8-4: Meteorological Conditions Assessed in Noise Propagation Modelling

| Condition | Classification | Ambient Temp | Ambient Humidity | Wind Speed | Wind Direction | Temperature Inversion | Affected Receiver | Applicability |
|---|---|---|---|---|---|---|---|---|
| A | Neutral | 10 °C | 70% | - | - | - | All | All periods |
| B | Gradient Flow | 10 °C | 70% | 3m/s | Receiver | - | All | All periods |

## 8.3 Operational Predicted Noise Levels

Results of the predictive noise modelling without considering any control measures have been displayed in Table 8-5 and Table 8-6 for neutral and adverse weather conditions respectively.

**Table 8-5: Noise Modelling Result For Day Time Period - Condition A, Leq, 15min dB(A)**

| Receptor | Super Truck Nationals | NSW V8's | Stockcars | Formula Race Cars | Improved Production Under 2 Litre | Improved Production Over 2 Litre | PSNL |
|---|---|---|---|---|---|---|---|
| R1 | 68 | 62 | 68 | 66 | 69 | 70 | 37 |
| R2 | 68 | 63 | 68 | 66 | 70 | 70 | 37 |
| R3 | 57 | 51 | 56 | 55 | 58 | 58 | 37 |
| R4 | 57 | 51 | 56 | 55 | 57 | 57 | 37 |
| R5 | 51 | 46 | 51 | 49 | 51 | 52 | 39 |
| R6 | 53 | 48 | 52 | 50 | 52 | 53 | 39 |
| R7 | 55 | 49 | 54 | 53 | 55 | 55 | 37 |
| R8 | 49 | 44 | 48 | 47 | 49 | 49 | 35 |
| R9 | 46 | 41 | 45 | 45 | 46 | 46 | 35 |
| R10 | 42 | 38 | 40 | 40 | 42 | 41 | 37 |
| R11 | 21 | 15 | 19 | 17 | 18 | 19 | 35 |
| R12 | 22 | 17 | 20 | 18 | 19 | 20 | 35 |

**Note:** Shaded cells indicate that the predicted noise level exceeds the project specific noise level

**Table 8-6: Noise Modelling Result For Day Time Period - Condition B, Leq, 15min dB(A)**

| Receptor | Super Truck Nationals | NSW V8's | Stockcars | Formula Race Cars | Improved Production Under 2 Litre | Improved Production Over 2 Litre | PSNL |
|---|---|---|---|---|---|---|---|
| R1 | 73 | 67 | 73 | 71 | 75 | 75 | 37 |
| R2 | 74 | 68 | 73 | 71 | 75 | 75 | 37 |
| R3 | 63 | 57 | 61 | 61 | 63 | 63 | 37 |
| R4 | 63 | 57 | 61 | 60 | 63 | 63 | 37 |
| R5 | 56 | 52 | 56 | 55 | 56 | 57 | 39 |
| R6 | 58 | 54 | 58 | 56 | 57 | 59 | 39 |
| R7 | 60 | 55 | 59 | 59 | 61 | 60 | 37 |
| R8 | 55 | 50 | 54 | 53 | 55 | 54 | 35 |
| R9 | 52 | 48 | 51 | 51 | 52 | 51 | 35 |
| R10 | 48 | 43 | 45 | 46 | 48 | 47 | 37 |
| R11 | 26 | 20 | 24 | 22 | 23 | 24 | 35 |
| R12 | 27 | 22 | 25 | 23 | 25 | 25 | 35 |

**Note:** Shaded cells indicate that the predicted noise level exceeds the project specific noise level

## 9. NOISE CONTROL STRATEGIES

The scope of the noise assessment does not extend to providing detailed engineering solutions to noise non-compliances. This can be discussed however.

Noise mitigation is possible and is reasonable to expect that one of a number of actions would be undertaken.

The first approach and one that is very cost effective is to reduce the noise at source. This can be achieved by simply requiring motor vehicles to satisfy a strict code of practice i.e. a noise limit measured at 1 m from the exhaust system and exhaust outlet. This costs minimal money to Wakefield Park but will put into effect an immediate reduction in noise levels at residences.

Section 7 of the report found shortcomings in the track noise logging. Unless this is addressed, the need for noise control may affect the future activities at this circuit and this needs to be avoided.

An education package to those who use Wakefield Park will be needed. This would be a main part of a Noise Management Plan. To avoid disputes between motor sports enthusiasts and management, education on the need for noise compliant vehicles is of critical importance.

The noise predictions are supported by field observations and comments from residents who are supportive of the continuing operation of the motor sports circuit.

The original noise design of the circuit was undertaken by one of the authors and the need for noise barriers was identified. These barriers were not constructed. These are likely to be less effective than what would now be required for the current intensity of use of the circuit.

There are designs available for noise barriers that would be effective in reducing the level of noise during the most popular events. These would need to be of transparent (see through) material to maintain spectator interest.

The circuit has major portions of the track on the side of the hill at the site and hence noise control in the direction of the nearest receivers will be difficult if not technically implausible unless high noise barriers are erected.

The cost of these without support funding would prohibit their use.

Another alternative would be to provide acoustic treatment at residences adversely affected. This can be provided through the use of courtyard walls and double glazing. These controls are not recommended at this stage-. The need for noise controls needs to be discussed further as the other actions that can be adopted would reduce the extent of noise control that is required.

## 10. STATEMENT OF POTENTIAL NOISE IMPACT

A noise impact assessment was undertaken to assess current noise emissions for the use of the track at Wakefield Park Motorsport.

Long-term unattended and short-term attended noise monitoring was carried out at several residential and on-site locations during current operations. In addition, noise monitoring was undertaken during a 2-week period in absence of site noise emissions in order to establish the project specific noise levels associated with operations at the site as requested in the *NSW Environment Protection Authority, Industrial Noise Policy (EPA 2000) (INP)*.

A total of 6 vehicle types were identified as the noisiest vehicles at Wakefield Park. Noise predictions were undertaken utilising noise prediction software, Sound Plan (v7.3) considering neutral and adverse weather conditions. The predicted noise levels indicate that current operations at Wakefield Park significantly exceed the project specific noise levels at all residential receptors considered in this report except at receptors R11 and R12. Receptors R1 and R2 presented the highest noise levels due to the short distance between their locations and the track. Site operations during the events considered in this assessment are likely to generate annoyance to the residents at receptors R1 to R10 primarily early in the mornings. Noise emissions from the site at receptors R11 and R12 might be barely audible during adverse weather conditions but readily comply with the project specific noise levels by at least 8 dB.

This report provides a number of recommendations and these can be summarised as being the following. Each recommendation is aimed at addressing matters raised by residents and found from the noise assessment.

1. Establish a working committee that will improve communication between all parties. The committee approach has been successful for many industries and their residential neighbours as it enables views to be shared and people to work together for a better outcome.

2. Prepare a Noise Management Plan that will provide guidance to the management of Wakefield Park to allow for reasonable noise limits, achieve compliance and put into effect control of individual vehicle noise levels. This will not be a popular outcome but is necessary.

3. Adopt the noise limits and times of operation.

4. Examine further the noise control strategies that are available, the cost implications and whether any are affordable.

This concludes the report.

Prepared by:

| | | |
|---|---|---|
| Felipe Torres[1] | Daniele Albanese | R T Benbow |
| Senior Acoustic Engineer | Senior Acoustic Engineer | Principal Consultant |



[1]Felipe Torres has left the employ of Benbow Environment to widen his professional career and we thank him for his contribution to this assessment.

## 11. LIMITATIONS

Our services for this project are carried out in accordance with our current professional standards for site assessment investigations. No guarantees are either expressed or implied.

This report has been prepared solely for the use of Wakefield Park Motorsport, as per our agreement for providing environmental services. Only Wakefield Park Motorsport is entitled to rely upon the findings in the report within the scope of work described in this report. Otherwise, no responsibility is accepted for the use of any part of the report by another in any other context or for any other purpose.

Although all due care has been taken in the preparation of this study, no warranty is given, nor liability accepted (except that otherwise required by law) in relation to any of the information contained within this document. We accept no responsibility for the accuracy of any data or information provided to us by Wakefield Park Motorsport for the purposes of preparing this report.

Any opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal advice.

# ATTACHMENTS

**Attachment 1: Noise Terminology**

**'A' FREQUENCY WEIGHTING**

The 'A' frequency weighting roughly approximates to the Fletcher-Munson 40 phon equal loudness contour. The human loudness perception at various frequencies and sound pressure levels is equated to the level of 40 dB at 1 kHz. The human ear is less sensitive to low frequency sound and very high frequency sound than midrange frequency sound (i.e. 500 Hz to 6 kHz). Humans are most sensitive to midrange frequency sounds, such as a child's scream. Sound level meters have inbuilt frequency weighting networks that very roughly approximates the human loudness response at low sound levels. It should be noted that the human loudness response is not the same as the human annoyance response to sound. Here low frequency sounds can be more annoying than midrange frequency sounds even at very low loudness levels. The 'A' weighting is the most commonly used frequency weighting for occupational and environmental noise assessments. However, for environmental noise assessments, adjustments for the character of the sound will often be required.

**AMBIENT NOISE**

The ambient noise level at a particular location is the overall environmental noise level caused by all noise sources in the area, both near and far, including all forms of traffic, industry, lawnmowers, wind in foliage, insects, animals, etc. Usually assessed as an energy average over a set time period 'T' ($L_{Aeq}$,T).

**AUDIBLE**

Audible refers to a sound that can be heard. There are a range of audibility grades, varying from "barely audible", "just audible" to "clearly audible" and "prominent".

**BACKGROUND NOISE LEVEL**

Total silence does not exist in the natural or built environments, only varying degrees of noise. The Background Noise Level is the minimum repeatable level of noise measured in the absence of the noise under investigation and any other short-term noises such as those caused by all forms of traffic, industry, lawnmowers, wind in foliage, insects, animals, etc.. It is quantified by the noise level that is exceeded for 90 % of the measurement period 'T' ($L_{A90}$, T). Background Noise Levels are often determined for the day, evening and night time periods where relevant. This is done by statistically analysing the range of time period (typically 15 minute) measurements over multiple days (often 7 days). For a 15 minute measurement period the Background Noise Level is set at the quietest level that occurs at 1.5 minutes.

**'C' FREQUENCY WEIGHTING**

The 'C' frequency weighting approximates the 100 phon equal loudness contour. The human ear frequency response is more linear at high sound levels and the 100 phon equal loudness contour attempts to represent this at various frequencies at sound levels of approximately 100 dB.

**DECIBEL**

The decibel (dB) is a logarithmic scale that allows a wide range of values to be compressed into a more comprehensible range, typically 0 dB to 120 dB. The decibel is ten times the logarithm of the ratio of any two quantities that relate to the flow of energy (i.e. power). When used in acoustics it is the ratio of square of the sound pressure level to a reference sound pressure level, the ratio of the sound power level to a reference sound power level, or the ratio of the sound intensity level to a reference sound intensity level. See also Sound Pressure Level and Sound Power Level. Noise levels in decibels cannot be added arithmetically since they are logarithmic numbers. If one machine is generating a noise level of 50 dB, and another similar machine is placed beside it, the level will increase to 53 dB (from $10 \log_{10} (10^{(50/10)} + 10^{(50/10)})$ and not 100 dB. In theory, ten similar machines placed side by side will increase the sound level by 10 dB, and one hundred machines increase the sound level by 20 dB. The human ear has a vast sound-sensitivity range of over a thousand billion to one so the logarithmic decibel scale is useful for acoustical assessments.

**dBA – See 'A' frequency weighting**

**dBC – See 'C' frequency weighting**

**EQUIVALENT CONTINUOUS SOUND LEVEL, LAeq**

Many sounds, such as road traffic noise or construction noise, vary repeatedly in level over a period of time. More sophisticated sound level meters have an integrating/averaging electronic device inbuilt, which will display the energy time-average (equivalent continuous sound level - $L_{Aeq}$) of the 'A' frequency weighted sound pressure level. Because the decibel scale is a logarithmic ratio, the higher noise levels have far more sound energy, and therefore the LAeq level tends to indicate an average which is strongly influenced by short term, high level noise events. Many studies show that human reaction to level-varying sounds tends to relate closer to the $L_{Aeq}$ noise level than any other descriptor.

**'F'(FAST) TIME WEIGHTING**

Sound level meter design goal time constant which is 0.125 seconds.

**FLETCHER–MUNSON EQUAL LOUDNESS CONTOUR CURVES**

The Fletcher–Munson curves are one of many sets of equal loudness contours for the human ear, determined experimentally by Harvey Fletcher and Wilden A. Munson, and reported in a 1933 paper entitled "Loudness, its definition, measurement and calculation" in the Journal of the Acoustic Society of America.

**FREE FIELD**

In acoustics a free field is a measurement area not subject to significant reflection of acoustical energy. A free field measurement is typically not closer than 3.5 metres to any large flat object (other than the ground) such as a fence or wall or inside an anechoic chamber.

**FREQUENCY**

The number of oscillations or cycles of a wave motion per unit time, the SI unit is the hertz (Hz). 1 Hz is equivalent to one cycle per second. 1000 Hz is 1 kHz.

**IMPACT ISOLATION CLASS (IIC)**

The American Society for Testing and Materials (ASTM) has specified that the IIC of a floor/ceiling system shall be determined by operating an ISO 140 Standard Tapping Machine on the floor and measuring the noise generated in the room below. The IIC is a number found by fitting a reference curve to the measured octave band levels and then deducting the sound pressure level at 500 Hz from 110 decibels. Thus the higher the IIC, the better the impact sound isolation. Not commonly used in Australia.

**'I' (IMPULSE) TIME WEIGHTING**

Sound level meter time constant now not in general use. The 'I' (impulse) time weighting is not suitable for rating impulsive sounds with respect to their loudness. It is also not suitable for assessing the risk of hearing impairment or for determining the 'impulsiveness' of a sound.

**IMPACT SOUND INSULATION ($L_{nT,w}$)**

Australian Standard AS ISO 717.2 – 2004 has specified that the Impact Sound Insulation of a floor/ceiling system be quantified by operating an ISO 140 Standard Tapping Machine on the floor and measuring the noise generated in the room below. The Weighted Standardised Impact Sound Pressure Level ($L_{nT,w}$) is the sound pressure level at 500 Hz for a reference curve fitted to the measured 1/3 octave band levels. Thus the lower $L_{nT,w}$ the better the impact sound insulation.

**IMPULSE NOISE**

An impulse noise is typified by a sudden rise time and a rapid sound decay, such as a hammer blow, rifle shot or balloon burst.

**LOUDNESS**

The volume to which a sound is audible to a listener is a subjective term referred to as loudness. Humans generally perceive an approximate doubling of loudness when the sound level increases by about 10 dB and an approximate halving of loudness when the sound level decreases by about 10 dB.

**MAXIMUM NOISE LEVEL, LAFmax**

The root-mean-square (rms) maximum sound pressure level measured with sound level meter using the 'A' frequency weighting and the 'F' (Fast) time weighting. Often used for noise assessments other than aircraft.

**MAXIMUM NOISE LEVEL, LASmax**

The root-mean-square (rms) maximum sound pressure level measured with sound level meter using the 'A' frequency weighting and the 'S' (Slow) time weighting. Often used for aircraft noise assessments.

**NOISE RATING NUMBERS**

A set of empirically developed equal loudness curves has been adopted as Australian Standard AS 1469-1983. These curves allow the loudness of a noise to be described with a single NR number. The Noise Rating number is that curve which touches the highest level on the measured spectrum of the subject noise. For broadband noise such as fans and engines, the NR number often equals the 'A' frequency weighted dB level minus five.

**NOISE**

Noise is unwanted, harmful or inharmonious (discordant) sound. Sound is wave motion within matter, be it gaseous, liquid or solid. Noise usually includes vibration as well as sound.

**NOISE REDUCTION COEFFICIENT – See: "Sound Absorption Coefficient"**

**OFFENSIVE NOISE**

Reference: Dictionary of the NSW Protection of the Environment Operations Act 1997). "Offensive Noise means noise:
(a) that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:
(i) is harmful to (or likely to be harmful to) a person who is outside the premise from which it is emitted, or
(ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or
(b) that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances prescribed by the regulations."

**PINK NOISE**

Pink noise is a broadband noise with an equal amount of energy in each octave or third octave band width. Because of this, Pink Noise has more energy at the lower frequencies than White Noise and is used widely for Sound Transmission Loss testing.

**REVERBERATION TIME, T60**

The time in seconds, after a sound signal has ceased, for the sound level inside a room to decay by 60 dB. The first 5 dB decay is often ignored, because of fluctuations that occur while reverberant sound conditions are being established in the room. The decay time for the next 30 dB is measured and the result doubled to determine the $T_{60}$. The Early Decay Time (EDT) is the slope of the decay curve in the first 10 dB normalised to 60 dB.

**SOUND ABSORPTION COEFFICIENT, $\alpha$**

Sound is absorbed in porous materials by the viscous conversion of sound energy to a small amount of heat energy as the sound waves pass through it. Sound is similarly absorbed by the flexural bending of internally damped panels. The fraction of incident energy that is absorbed is termed the Sound Absorption Coefficient, $\alpha$. An absorption coefficient of 0.9 indicates that 90 % of the incident sound energy is absorbed. The average $\alpha$ from 250 to 2 kHz is termed the Noise Reduction Coefficient (NRC).

**'S' (SLOW) TIME WEIGHTING**

Sound level meter design-goal time constant which is 1 second.

**SOUND ATTENUATION**

A reduction of sound due to distance, enclosure or some other devise. If an enclosure is placed around a machine, or an attenuator (muffler or silencer) is fitted to a duct, the noise emission is reduced or attenuated. An enclosure that attenuates the noise level by 20 dB reduces the sound energy by one hundred times.

**SOUND EXPOSURE LEVEL (LAE)**

Integration (summation) rather than an average of the sound energy over a set time period. Use to assess single noise events such as truck or train pass by or aircraft flyovers. The sound exposure level is related to the energy average ($L_{Aeq}$, T) by the formula $L_{Aeq}$, $T = L_{AE} - 10 \log_{10} T$. The abbreviation (SEL) is sometimes inconsistently used in place of the symbol ($L_{AE}$).

**SOUND PRESSURE**

The rms sound pressure measured in pascals (Pa). A pascal is a unit equivalent to a newton per square metre ($N/m^2$).

**SOUND PRESSURE LEVEL, Lp**

The level of sound measured on a sound level meter and expressed in decibels (dB). Where $L_p = 10 \log_{10} (Pa/Po)^2$ dB (or 20 log10 (Pa/ Po) dB) where Pa is the rms sound pressure in Pascal and Po is a reference sound pressure conventionally chosen is 20 µPa ($20 \times 10^{-6}$ Pa) for airborne sound. $L_p$ varies with distance from a noise source.

**SOUND POWER**

The rms sound power measured in watts (W). The watt is a unit defined as one joule per second. A measures the rate of energy flow, conversion or transfer.

**SOUND POWER LEVEL, Lw**

The sound power level of a noise source is the inherent noise of the device. Therefore sound power level does not vary with distance from the noise source or with a different acoustic environment. $Lw = Lp + 10 \log_{10}$ 'a' dB, re: 1pW, ($10^{-12}$ watts) where 'a' is the measurement noise-emission area ($m^2$) in a free field.

**SOUND TRANSMISSION CLASS (STC)**

An internationally standardised method of rating the sound transmission loss of partition walls to indicate the sound reduction from one side of a partition to the other in the frequency range of 125 Hz to 4000 kHz. (Refer: Australian Standard AS 1276 – 1979). Now not in general use in Australia, see: weighted sound reduction index.

**SOUND TRANSMISSION LOSS**

The amount in decibels by which a random sound is reduced as it passes through a sound barrier. A method for the measurement of airborne Sound Transmission Loss of a building partition is given in Australian Standard AS 1191 - 2002.

**STATISTICAL NOISE LEVELS, Ln.**

Noise which varies in level over a specific period of time 'T' (standard measurement times are 15 minute periods) may be quantified in terms of various statistical descriptors for example:-

- The noise level, in decibels, exceeded for 1 % of the measurement time period, when 'A' frequency weighted and 'F' time weighted is reference to as $L_{AF1}$, T. This may be used for describing short-term noise levels such as could cause sleep arousalduring the night.

- The noise level, in decibels, exceeded for 10 % of the measurement time period, when 'A' frequency weighted and 'F' time weighted is reference to as $L_{AF10}$, T. In most countries the LAF10, T is measured over periods of 15 minutes, and is used to describe the average maximum noise level.

- The noise level, in decibels, exceeded for 90 % of the measurement time period, when 'A' frequency weighted and 'F' time weighted is reference to as $L_{AF90}$, T. In most countries the LAF90, T is measured over periods of 15 minutes, and is used to describe the average minim um or background noise level.

**STEADY NOISE**

Noise, which varies in level by 6 dB or less, over the period of interest with the time-weighting set to "Fast", is considered to be "steady". (Refer AS 1055.1 1997).

**WEIGHTED SOUND REDUCTION INDEX, Rw**

This is a single number rating of the airborne sound insulation of a wall, partition or ceiling. The sound reduction is normally measured over a frequency range of 100 Hz to 3.150 kHz and averaged in accordance with ISO standard weighting curves (Refer AS/NZS 1276.1:1999). Internal partition wall Rw + C ratings are frequency weighted to simulate insulation from human voice noise. The $R_w + C$ is similar in value to the STC rating value. External walls, doors and windows may be $R_w + C_{tr}$ rated to simulate insulation from road traffic noise. The spectrum adaptation term Ctr adjustment factor takes account of low frequency noise. The weighted sound reduction index is normally similar or slightly lower number than the STC rating value.

**WHITE NOISE**

White noise is broadband random noise whose spectral density is constant across its entire frequency range. The sound power is the same for equal bandwidths from low to high frequencies. Because the higher frequency octave bands cover a wider spectrum, white noise has more energy at the higher frequencies and sounds like a hiss.

**'Z' FREQUENCY WEIGHTING**

The 'Z' (Zero) frequency weighting is 0 dB within the nominal 1/3 octave band frequency range centred on 10 Hz to 20 kHz. This is within the tolerance limits given in AS IEC 61672.1-2004: 'Electroacoustics - Sound level meters – Specifications'.

Attachment 2: QA/QC Procedures

**Calibration of Sound Level Meters**

A sound level meter requires regular calibration to ensure its measurement performance remains within specification. Benbow Environmental sound level meters are calibrated by a National Association of Testing Authority (NATA) registered laboratory or a laboratory approved by the NSW Environment Protection Authority (EPA) every two years and after each major repair, in accordance with AS 1259-1990.

The calibration of the sound level meter was checked immediately before and after each series of measurements using an acoustic calibrator. The acoustic calibrator provides a known sound pressure level, which the meter indicates when the calibrator is activated while positioned on the meter microphone.

The sound level meters also incorporate an internal calibrator for use in setting up. This provides a check of the electrical calibration of the meter, but does not check the performance of the microphone. Acoustical calibration checks the entire instrument including the microphone. Calibration certificates for the instrument sets used have been included as Attachment 3.

**Care and Maintenance of Sound Level Meters**

Noise measuring equipment contains delicate components and therefore must be handled accordingly. The equipment is manufactured to comply with international and national standards and is checked periodically for compliance. The technical specifications for sound level meters used in Australia are defined in Australian Standard AS 1259 – 1990 *"Sound Level Meters"*.

The sound level meters and associated accessories are protected during storage, measurement and transportation against dirt, corrosion, rapid changes of temperature, humidity, rain, wind, vibration, electric and magnetic fields. Microphone cables and adaptors are always connected and disconnected with the power turned off. Batteries are removed (with the instrument turned off) if the instrument is not to be used for some time.

**Investigation Procedures**

All investigative procedures were conducted in accordance with AS 1055.1–1997 *Acoustics – "Description and Measurement of Environmental Noise (Part 1: General Procedures)"*.

The following information was recorded and kept for reference purposes:

- type of instrumentation used and measurement procedure conducted;
- description of the time aspect of the measurements, ie. measurement time intervals; and
- positions of measurements and the time and date were noted.

As per AS 1055.1-1997, all measurements were carried out at least 3.5 m from any reflecting structure other than the ground. The preferred measurement height of 1.2 m above the ground was utilised. A sketch of the area was made identifying positions of measurement and the approximate location of the noise source and distances in meters (approx.).

**Unattended Noise Monitoring**

*NOISE MONITORING EQUIPMENT*

ARL noise loggers type Ngara and EL-215 were used to conduct the long-term unattended noise monitoring. This equipment complies with Australian Standard 1259.2–1990 "Acoustics – Sound Level Meters" and is designated as a Type 1 and Type 2 instrument suitable for field use.

The measured data is processed statistically and stored in memory every 15 minutes. The equipment was calibrated prior and subsequent to the measurement period using a Rion NC-73 sound level calibrator. There were no significant variances observed in the reference signal between the pre-measurement and post-measurement calibrations. Instrument calibration certificates have also been included in Attachment 3.

*METEOROLOGICAL CONSIDERATION DURING MONITORING*

For the long-term attended monitoring, meteorological data for the relevant period were provided by the Bureau of Meteorology, which was considered representative of the site for throughout the monitoring period.

*DESCRIPTORS & FILTERS USED FOR MONITORING*

Noise levels are commonly measured using A-weighted filters and are usually described as dB(A). The "A-weighting" refers to standardised amplitude versus frequency curve used to "weight" sound measurements to represent the response of the human ear. The human ear is less sensitive to low frequency sound than it is to high frequency sound. Overall A-weighted measurements quantify sound with a single number to represent how people subjectively hear different frequencies at different levels.

Noise environments can be described using various descriptors depending on characteristics of noise or purpose of assessments. For this survey the $L_{A90}$ was used to analyse the monitoring results. The statistical descriptors $L_{A90}$ measures the noise level exceeded for 90% of the sample measurement time, and is used to describe the "Background noise". Background noise is the underlying level of noise present in the ambient noise, excluding extraneous noise or the noise source under investigation.

Measurement sample periods were fifteen minutes. The Noise -vs- Time graphs representing measured noise levels at the noise monitoring location are presented in Attachment 4.

**ATTENDED NOISE MONITORING**

*NOISE MONITORING EQUIPMENT*

The attended short-term noise monitoring was carried out using a SVANTEK SVAN957 Class 1 Precision Sound Level Meter. The instrument was calibrated by a NATA accredited laboratory within two years of the measurement period. The instrument sets comply with AS 1259 and was set on A-weighted, fast response.

The microphone was positioned at 1.5 metres above ground level and was fitted with a windsock. The instrument was calibrated using a Rion NC-73 sound level calibrator prior and subsequent to the measurement period to ensure the reliability and accuracy of the instrument sets. There were no significant variances observed in the reference signal between the pre-measurement and post-measurement calibrations. Instrument calibration certificates have also been included in Attachment 3.

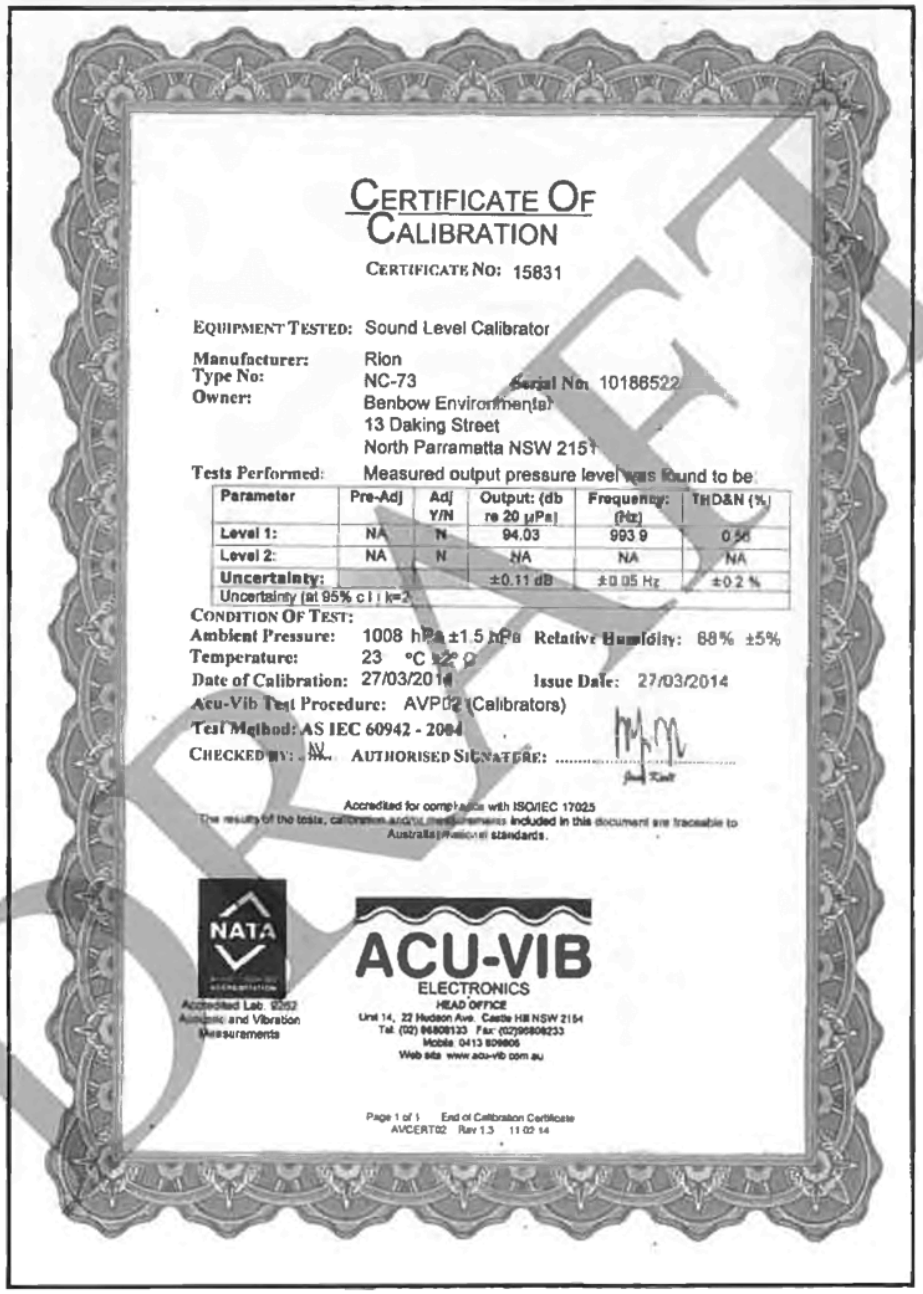
*WEATHER CONDITIONS*

It was clear, fine without significant breeze.

*METHODOLOGY*

The attended noise measurements were carried out generally in accordance with Australian Standard AS 1055-1997 – "Acoustics – Description and Measurement of Environmental Noise".

Attachment 3: Calibration Certificates



# CERTIFICATE OF CALIBRATION

CERTIFICATE NO: 15831

EQUIPMENT TESTED: Sound Level Calibrator

Manufacturer: Rion
Type No: NC-73 Serial No: 10186522
Owner: Benbow Environmental
13 Daking Street
North Parramatta NSW 2151

Tests Performed: Measured output pressure level was found to be

| Parameter | Pre-Adj | Adj Y/N | Output: (db re 20 µPa) | Frequency: (Hz) | THD&N (%) |
|---|---|---|---|---|---|
| Level 1: | NA | N | 94.03 | 993.9 | 0.56 |
| Level 2: | NA | N | NA | NA | NA |
| Uncertainty: | | | ±0.11 dB | ±0.05 Hz | ±0.2 % |
| Uncertainty (at 95% c.l. k=2) | | | | | |

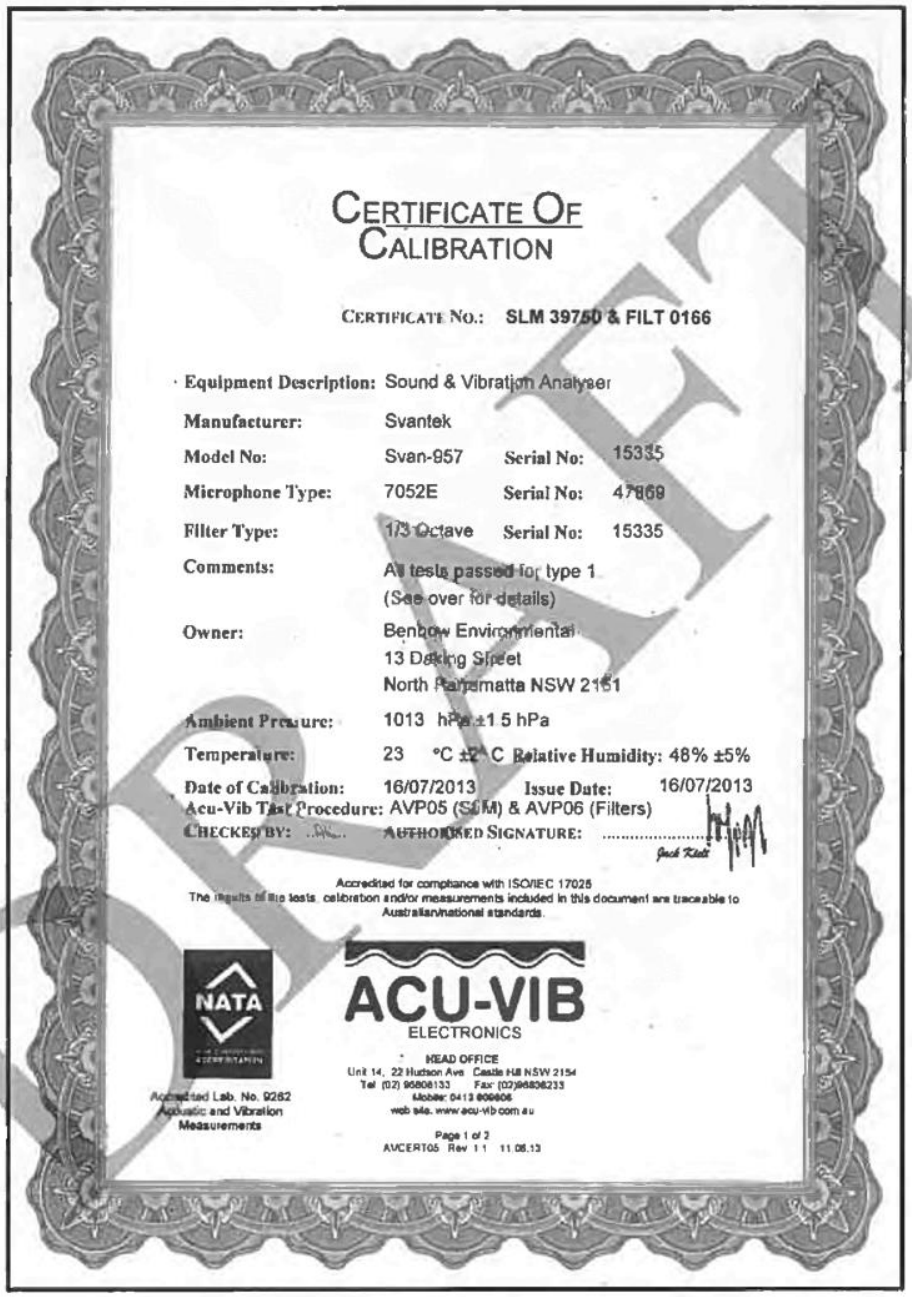
CONDITION OF TEST:
Ambient Pressure: 1008 hPa ±1.5 hPa Relative Humidity: 68% ±5%
Temperature: 23 °C ±2 °C
Date of Calibration: 27/03/2014 Issue Date: 27/03/2014
Acu-Vib Test Procedure: AVP02 (Calibrators)
Test Method: AS IEC 60942 - 2004
CHECKED BY: ... AUTHORISED SIGNATURE: .....

Accredited for compliance with ISO/IEC 17025
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

NATA
Accredited Lab. 9252
Acoustic and Vibration Measurements

ACU-VIB ELECTRONICS
HEAD OFFICE
Unit 14, 22 Hudson Ave. Castle Hill NSW 2154
Tel: (02) 94809133 Fax: (02)98806233
Mobile 0413 809806
Web site www.acu-vib.com.au

Page 1 of 1 End of Calibration Certificate
AVCERT02 Rev 1.3 11.02.14



# CERTIFICATE OF CALIBRATION

**CERTIFICATE NO.:** SLM 39750 & FILT 0166

| | | | |
|---|---|---|---|
| **Equipment Description:** | Sound & Vibration Analyser | | |
| **Manufacturer:** | Svantek | | |
| **Model No:** | Svan-957 | **Serial No:** | 15335 |
| **Microphone Type:** | 7052E | **Serial No:** | 47869 |
| **Filter Type:** | 1/3 Octave | **Serial No:** | 15335 |
| **Comments:** | All tests passed for type 1<br>(See over for details) | | |
| **Owner:** | Benbow Environmental<br>13 Daking Street<br>North Parramatta NSW 2151 | | |
| **Ambient Pressure:** | 1013 hPa ±1.5 hPa | | |
| **Temperature:** | 23 °C ±2 °C | **Relative Humidity:** | 48% ±5% |
| **Date of Calibration:** | 16/07/2013 | **Issue Date:** | 16/07/2013 |
| **Acu-Vib Test Procedure:** | AVP05 (SLM) & AVP06 (Filters) | | |
| **CHECKED BY:** | | **AUTHORISED SIGNATURE:** | |

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Acoustic and Vibration Measurements

ACU-VIB
ELECTRONICS

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Page 1 of 2
AVCERT05 Rev 1.1 11.06.13

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## Sound Level Meter
AS 1259.1:1990 - AS 1259.2:1990

# Calibration Certificate

**Calibration Number** C14383

**Client Details** Benbow Environmental
13 Dowling Street
North Parramatta NSW 2151

**Equipment Tested/ Model Number :** ARL EL-215
**Instrument Serial Number :** 194438
**Microphone Serial Number :** N/A
**Pre-amplifier Serial Number :** N/A

**Atmospheric Conditions**
**Ambient Temperature :** 25°C
**Relative Humidity :** 27.1%
**Barometric Pressure :** 100.78kPa

**Calibration Technician :** Luke Hudson
**Calibration Date :** 14/07/2014
**Secondary Check:** Tim Williams
**Report Issue Date :** 14/07/2014

**Approved Signatory :** Ken Williams

| Clause and Characteristic Tested | Result | Clause and Characteristic Tested | Result |
|---|---|---|---|
| 10.2.2: Absolute sensitivity | Pass | 10.3.4: Inherent system noise level | Pass |
| 10.2.3: Frequency weighting | Pass | 10.4.2: Time weighting characteristic F and S | Pass |
| 10.3.2: Overload indications | Pass | 10.4.3: Time weighting characteristic I | Pass |
| 10.3.3: Accuracy of level range control | Pass | 10.4.5: R.M.S performance | Pass |
| 8.9: Detector-indicator linearity | Pass | 9.3.2: Time averaging | Pass |
| 8.10: Differential level linearity | Pass | 9.3.5: Overload indication | Pass |

Least Uncertainty of Measurement -

Acoustic Tests
31.5 Hz to 8kHz: ±0.120dB
12.5kHz: ±0.165dB
16kHz: ±0.245dB

Electrical Tests
31.5 Hz to 20kHz: ±0.098dB

Environmental Conditions
*Temperature* ±0.3°C
*Relative Humidity* ±4.1%
*Barometric Pressure* ±0.1kPa

*All uncertainties are derived at the 95% confidence level with a coverage factor of 2.*

This calibration certificate is to be read in conjunction with the calibration test report

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# Calibration Certificate

Number : C13391

Client Details : Benbow Environmental
13 Daking Street
North Parramatta NSW 2151

Equipment Tested/ Model Number : ARL SL-215

Instrument Serial Number : 194702

Microphone Serial Number : N/A

Preamplifier Serial Number : N/A

Ambient Temperature : 22°C

Relative Humidity : 45%

Barometric Pressure : 102.9 kPa

Calibration Technician : Adrian Walker

Calibration Date : 16-July-2013

Secondary Checked by : Tim Williams

Report Issue Date : 16-July-2013

Approved Signatory :

Tested To : AS1259.1 1990

Comments : All tests passed for type 2

| Clause and Characteristic Tested | Result | Clause and Characteristic Tested | Result |
|---|---|---|---|
| 10.1.2 Absolute sensitivity | Pass | | |
| 10.2.3 Frequency weighting | Pass | | |
| 8.9 Detector-indicator linearity | Pass | | |
| 8.10 Differential level linearity | Pass | | |
| 10.3.4 Inherent weighted system noise level | Pass | | |
| 10.4.2 Time weighting characteristics F and S | Pass | | |
| 10.4.3 R.M.S performance | Pass | | |

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# Calibration Certificate

Number : C13671

Client Details : Benbow Environmental
13 Daking Street
North Parramatta NSW 2151

Equipment Tested/ Model Number : ARL Ngara

Instrument Serial Number : 8780AE

Microphone Serial Number : 13743

Preamplifier Serial Number : 27982

Ambient Temperature : 22°C

Relative Humidity : 44%

Barometric Pressure : 100.62 kPa

Calibration Technician : Adrian Walker

Calibration Date : 09-December-2013

Secondary Check by : Sandra Minto

Report Issue Date : 09-December-2013

Approved Signatory :

Tested To : AS1259.1:1990
AS1259.2:1990

Comments : All tests passed for type 1

| Clause and Characteristic Tested | Result | Clause and Characteristic Tested | Result |
|---|---|---|---|
| 10.2.2: Absolute sensitivity | Pass | 10.4.5: R.M.S performance | Pass |
| 10.2.3: Frequency weighting | Pass | 9.3.2: Time averaging | Pass |
| 10.3.2: Overload indications | Pass | 9.3.5: Overload indication | Pass |
| 4.9: Detector indicator linearity | Pass | | |
| 8.10: Differential level linearity | Pass | | |
| 10.3.4: Inherent weighted system noise level | Pass | | |
| 10.4.3: Time weighting characteristics F and S | Pass | | |

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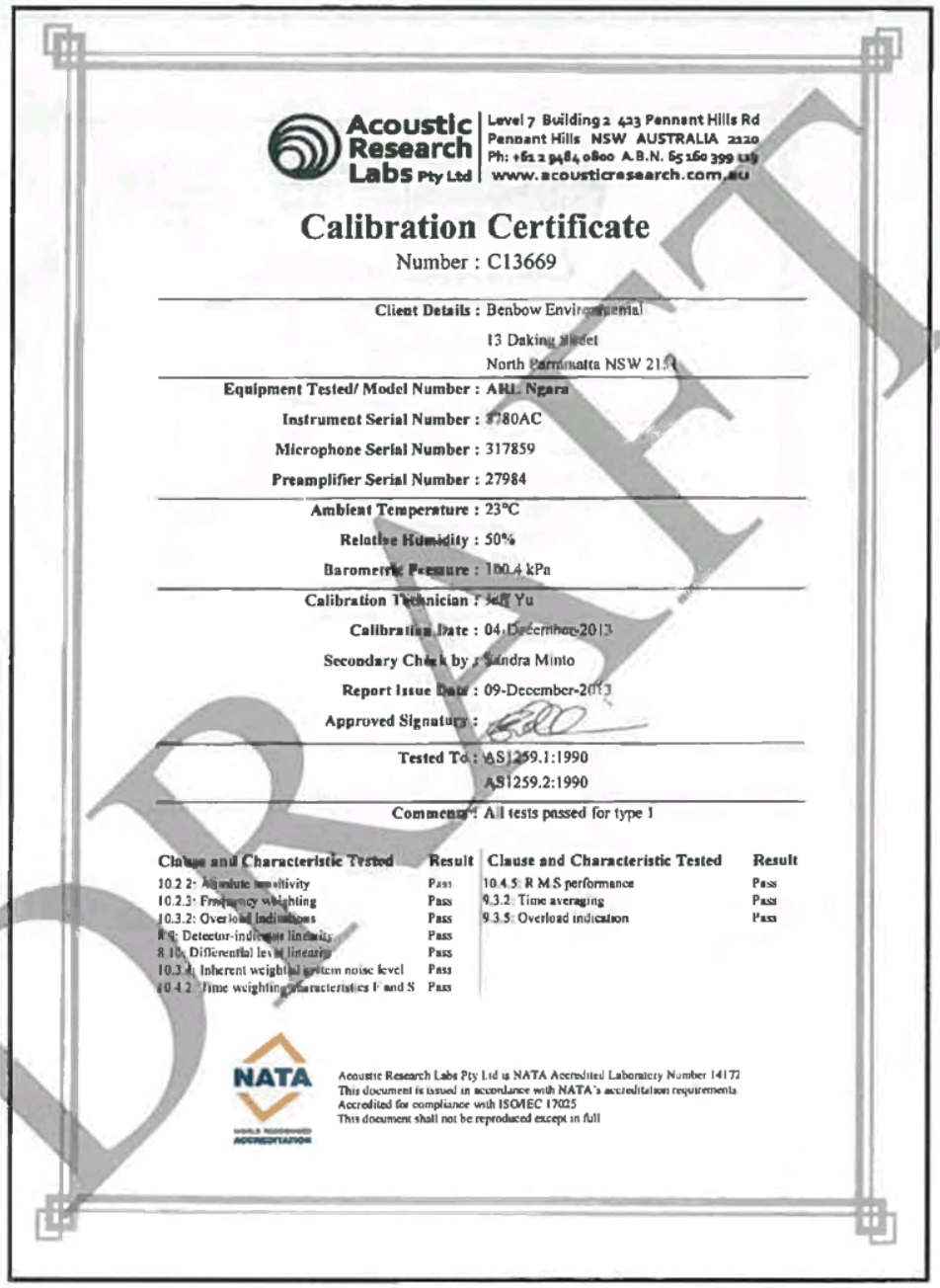

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# Calibration Certificate

Number : C13669

**Client Details :** Benbow Environmental
13 Daking Street
North Parramatta NSW 2151

**Equipment Tested/ Model Number :** ARL Ngara
**Instrument Serial Number :** 3780AC
**Microphone Serial Number :** 317859
**Preamplifier Serial Number :** 27984

**Ambient Temperature :** 23°C
**Relative Humidity :** 50%
**Barometric Pressure :** 100.4 kPa

**Calibration Technician :** Jack Yu
**Calibration Date :** 04-December-2013
**Secondary Check by :** Sandra Minto
**Report Issue Date :** 09-December-2013
**Approved Signatory :**

**Tested To :** AS1259.1:1990
AS1259.2:1990

**Comments :** All tests passed for type 1

| Clause and Characteristic Tested | Result | Clause and Characteristic Tested | Result |
|---|---|---|---|
| 10.2.2: Absolute sensitivity | Pass | 10.4.5: R M S performance | Pass |
| 10.2.3: Frequency weighting | Pass | 9.3.2: Time averaging | Pass |
| 10.3.2: Overload indications | Pass | 9.3.5: Overload indication | Pass |
| 8.9: Detector-indicator linearity | Pass | | |
| 8.10: Differential level linearity | Pass | | |
| 10.3.4: Inherent weighted system noise level | Pass | | |
| 10.4.2: Time weighting characteristics F and S | Pass | | |

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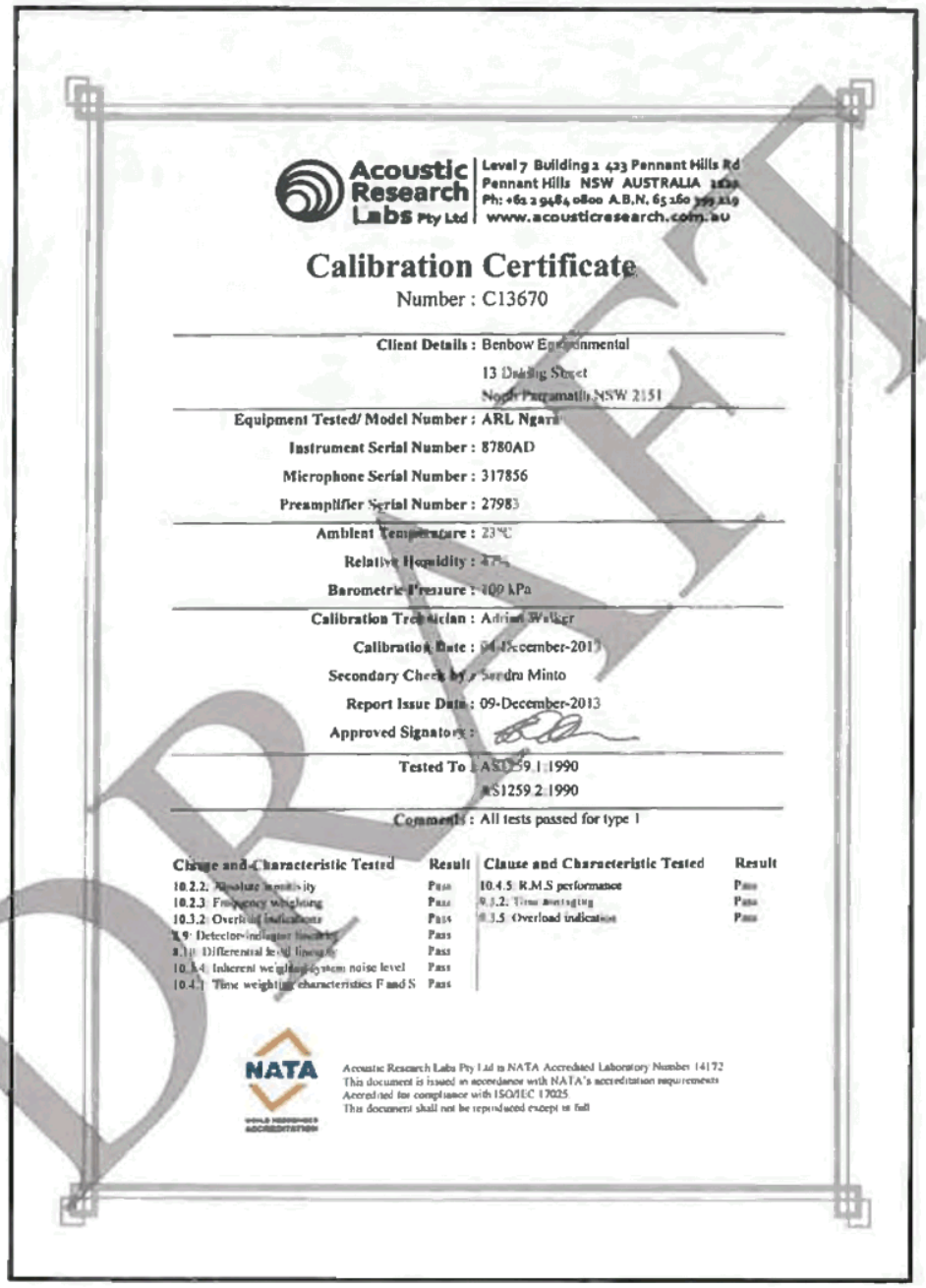

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# Calibration Certificate

Number : C13670

Client Details : Benbow Environmental
13 Dellig Street
North Parramatta NSW 2151

Equipment Tested/ Model Number : ARL Ngara

Instrument Serial Number : 8780AD

Microphone Serial Number : 317856

Preamplifier Serial Number : 27983

Ambient Temperature : 23°C

Relative Humidity : 47%

Barometric Pressure : 100 kPa

Calibration Technician : Adrian Walker

Calibration Date : 04-December-2013

Secondary Check by : Sandra Minto

Report Issue Date : 09-December-2013

Approved Signatory :

Tested To : AS1259.1:1990
AS1259.2:1990

Comments : All tests passed for type 1

| Clause and Characteristic Tested | Result | Clause and Characteristic Tested | Result |
|---|---|---|---|
| 10.2.2. Absolute sensitivity | Pass | 10.4.5 R.M.S performance | Pass |
| 10.2.3. Frequency weighting | Pass | 9.3.2. Time averaging | Pass |
| 10.3.2. Overload indications | Pass | 9.3.5. Overload indication | Pass |
| 8.9. Detector-indicator linearity | Pass | | |
| 8.10. Differential level linearity | Pass | | |
| 10.3.4. Inherent weighted system noise level | Pass | | |
| 10.4.1. Time weighting characteristics F and S | Pass | | |

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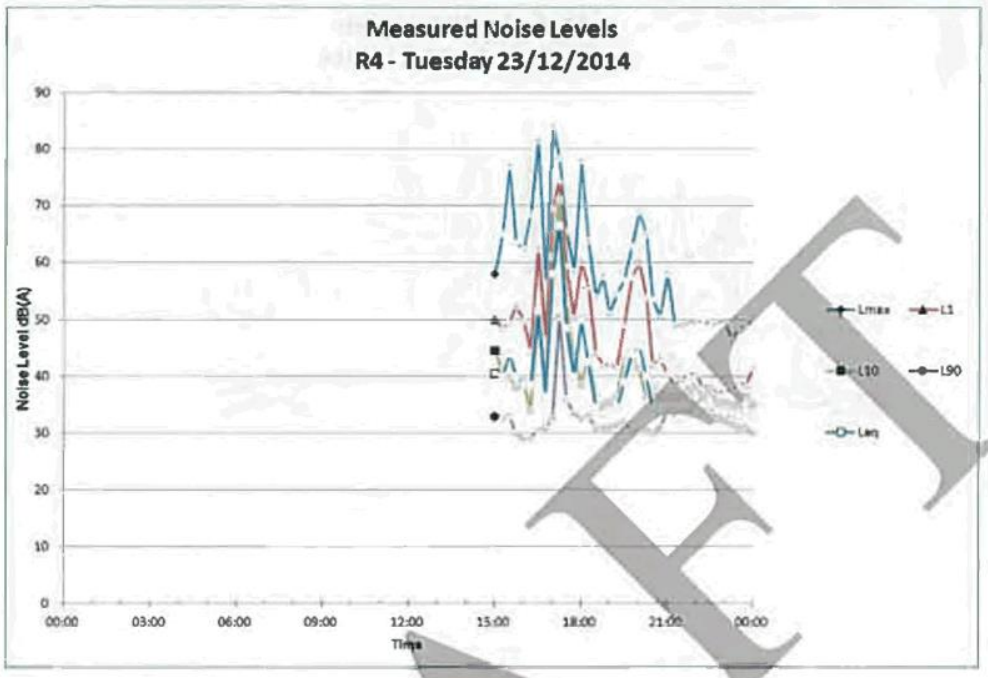
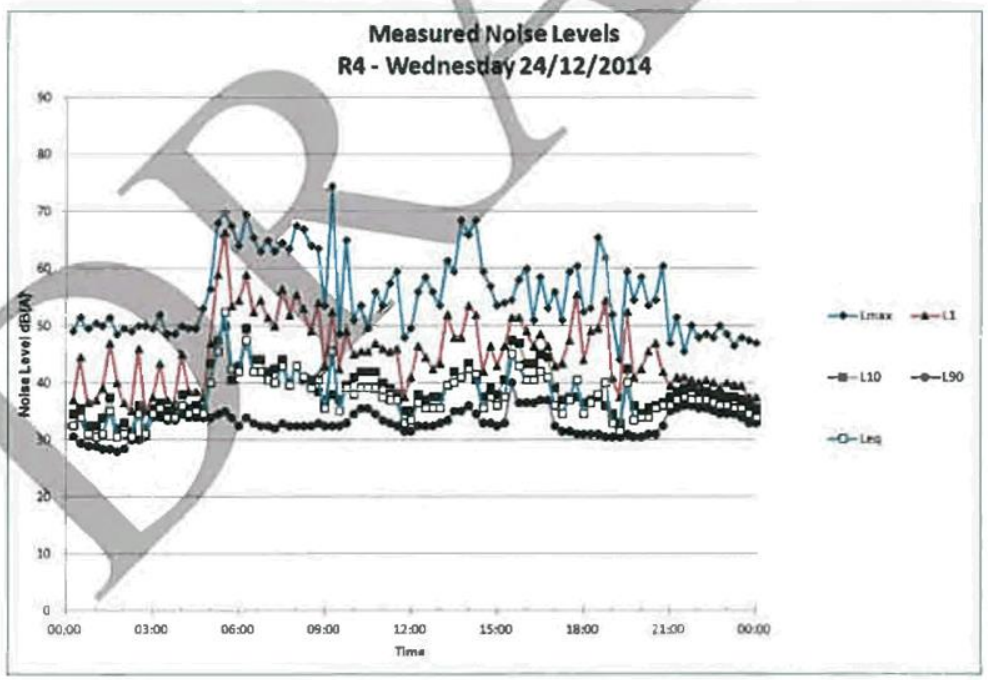
Attachment 4: Daily Noise Logger Charts


Measured Noise Levels
R4 - Tuesday 23/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Wednesday 24/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
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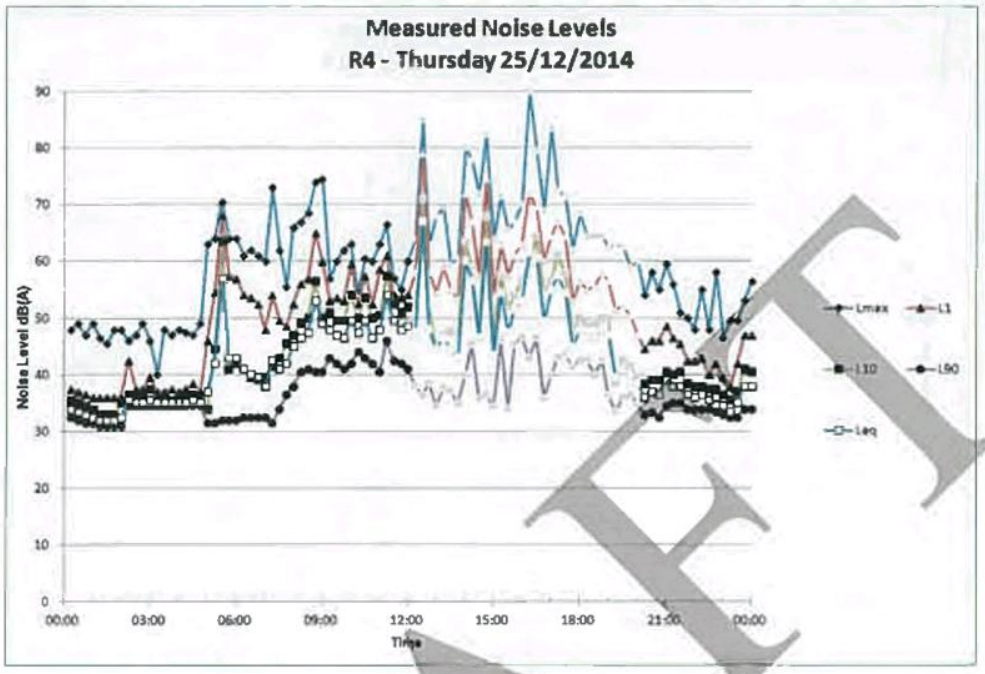
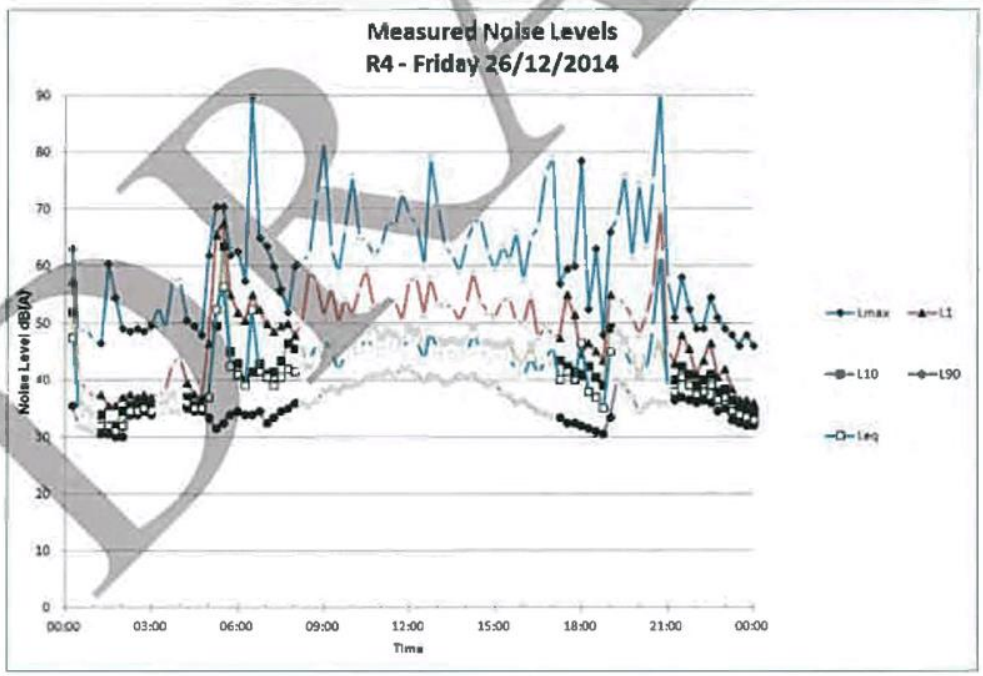
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Thursday 25/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Friday 26/12/2014
Noise Level dB(A)
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80
70
60
50
40
30
20
10
0
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12:00
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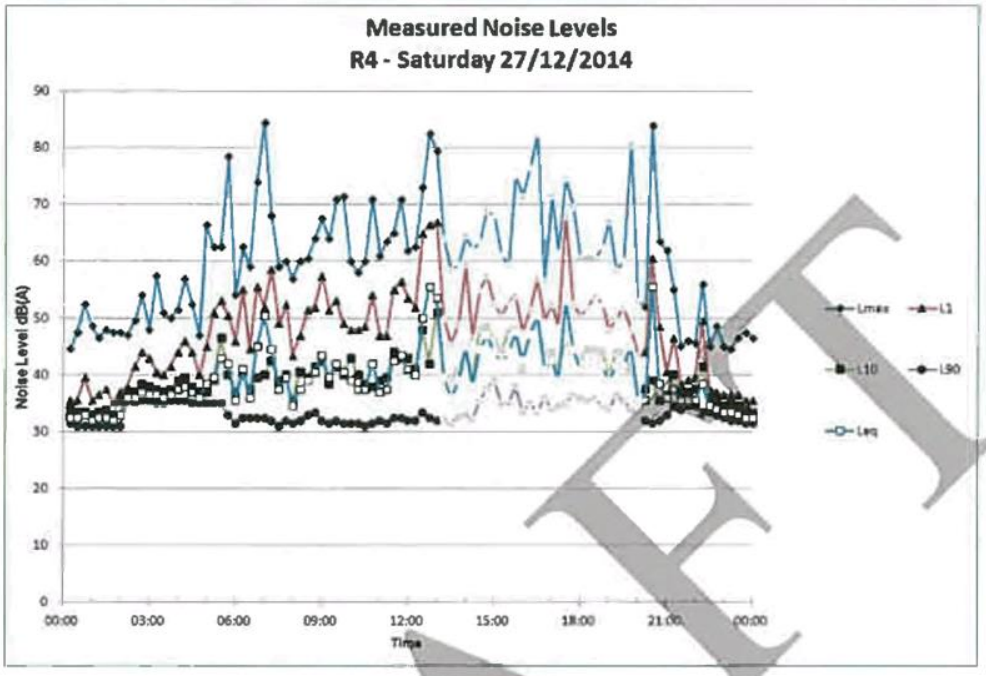
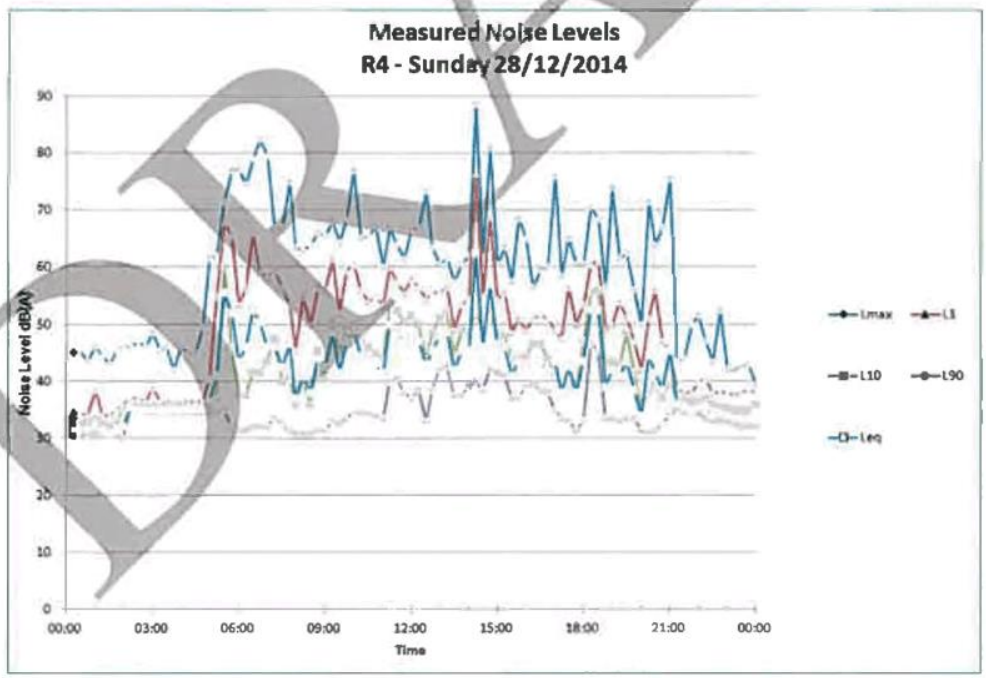
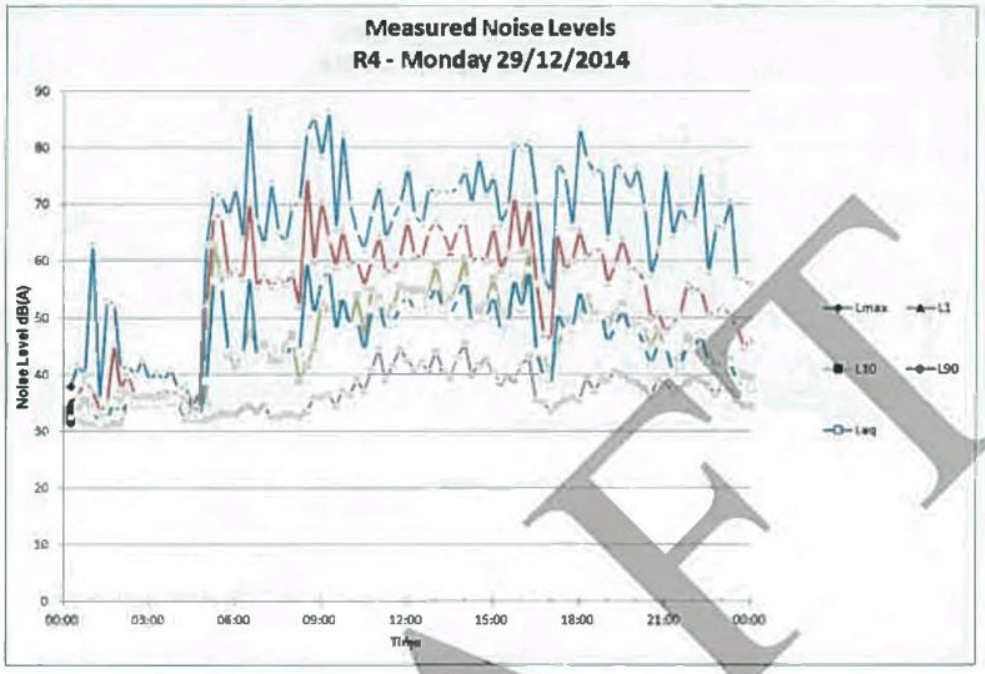
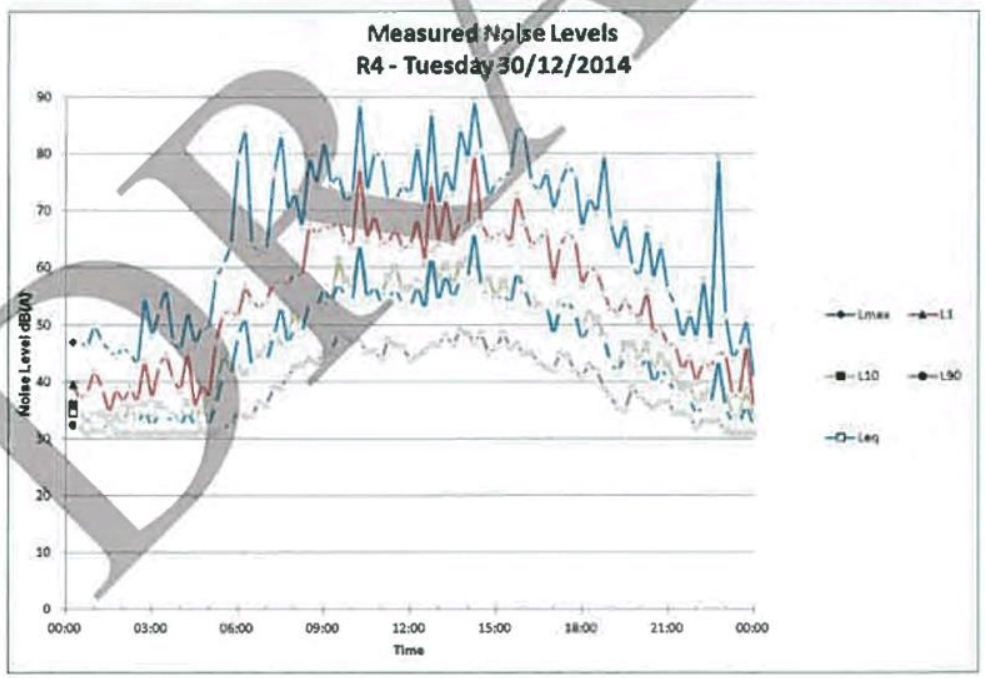
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Saturday 27/12/2014
Noise Level dB(A)
Time
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Sunday 28/12/2014
Noise Level dB(A)
Time
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Monday 29/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Tuesday 30/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
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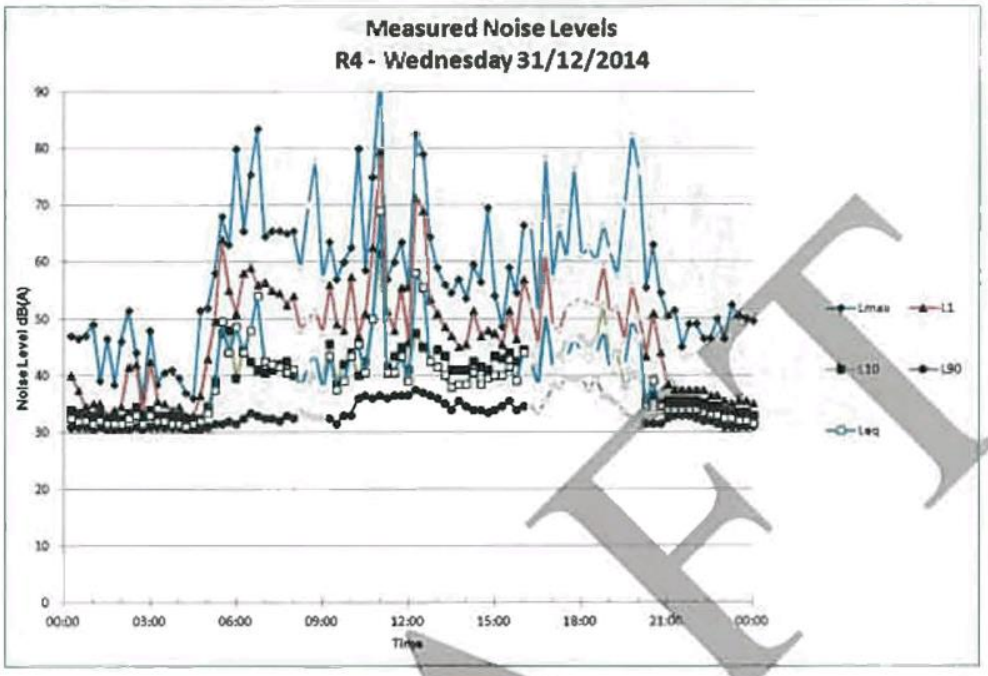
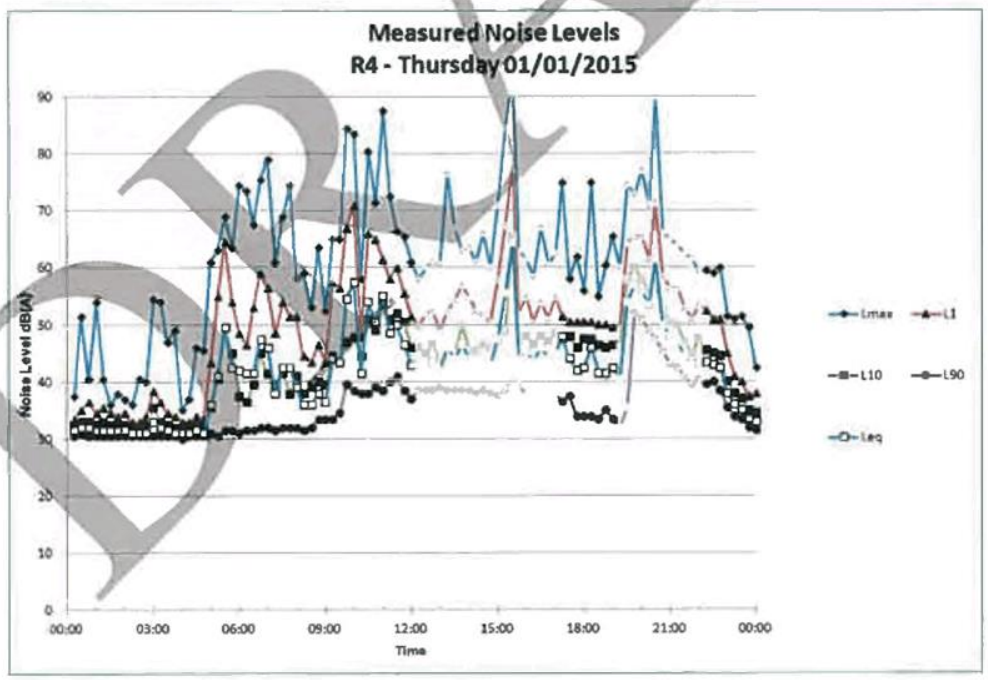
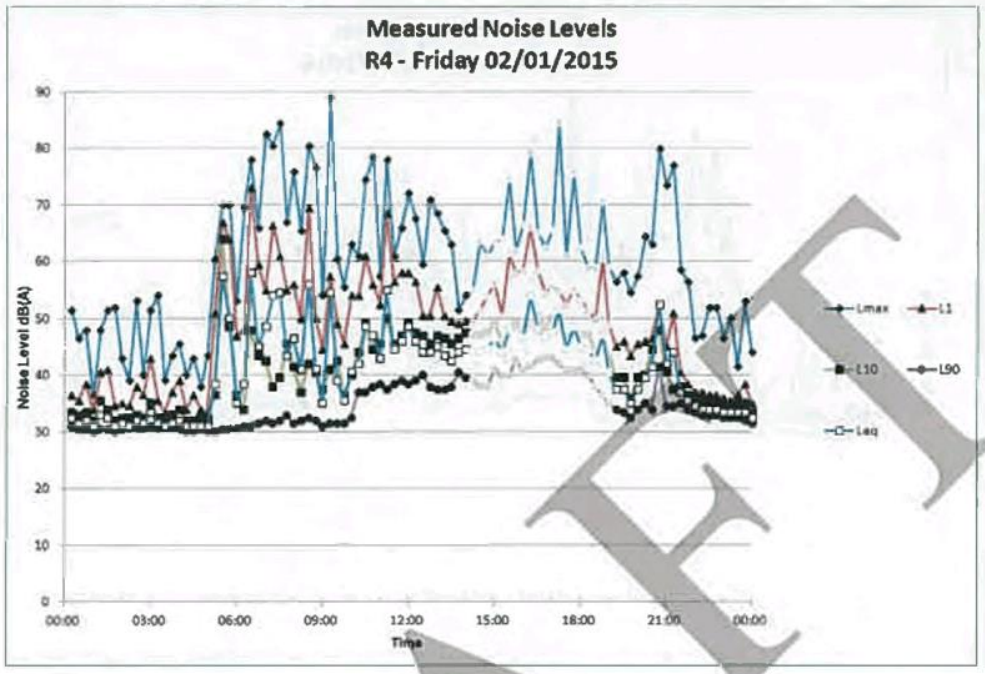
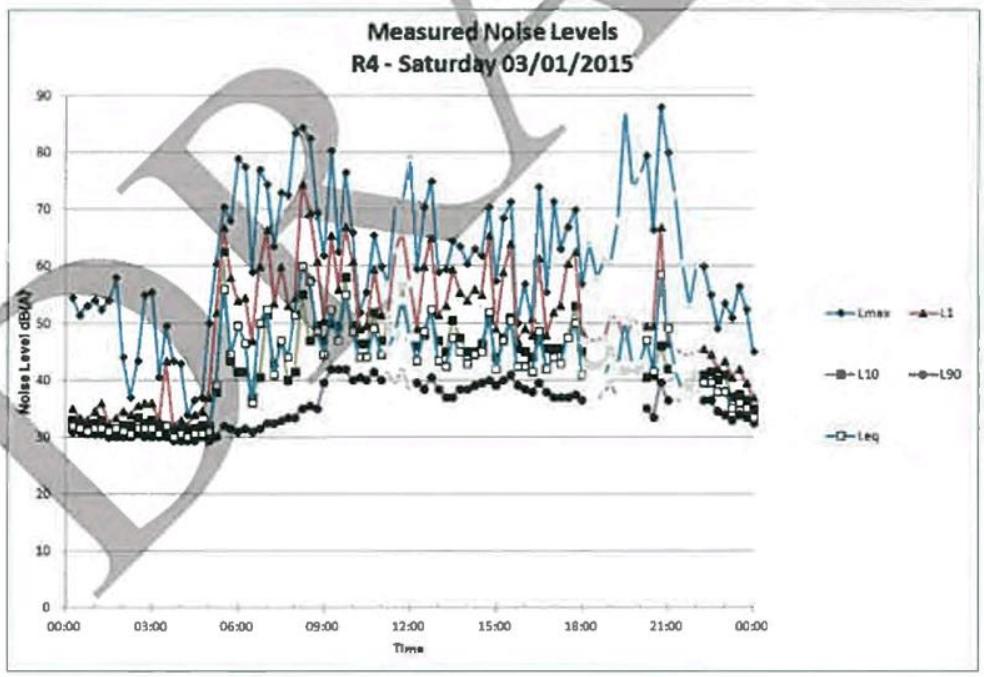
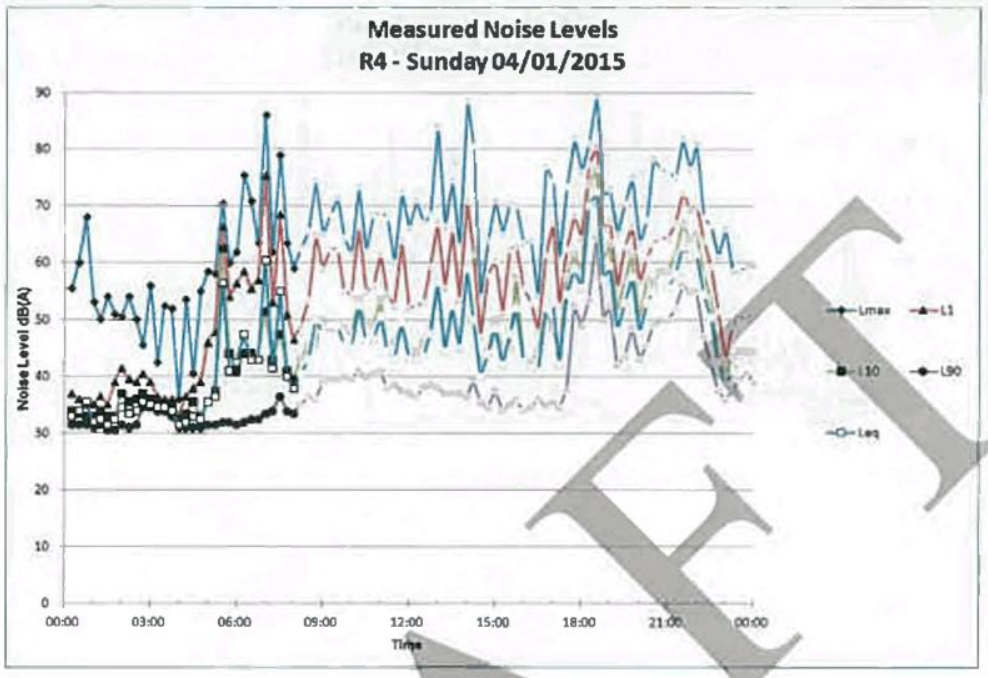
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Wednesday 31/12/2014
Noise Level dB(A)
Time
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Thursday 01/01/2015
Noise Level dB(A)
Time
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Friday 02/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Saturday 03/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Sunday 04/01/2015
Noise Level dB(A)
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80
70
60
50
40
30
20
10
0
00:00
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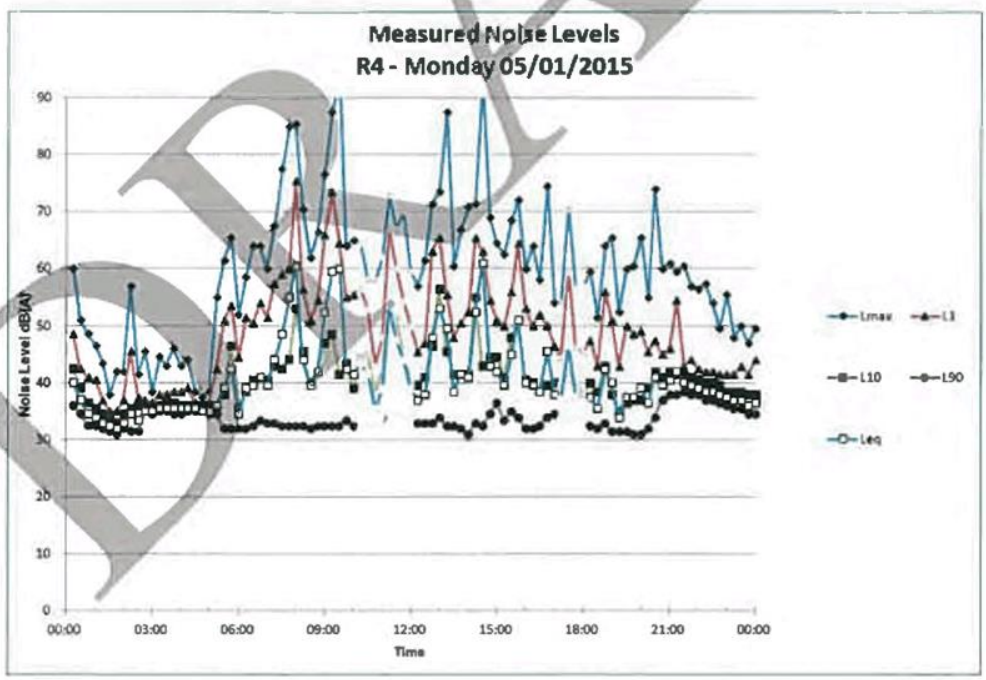
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R4 - Monday 05/01/2015
Noise Level dB(A)
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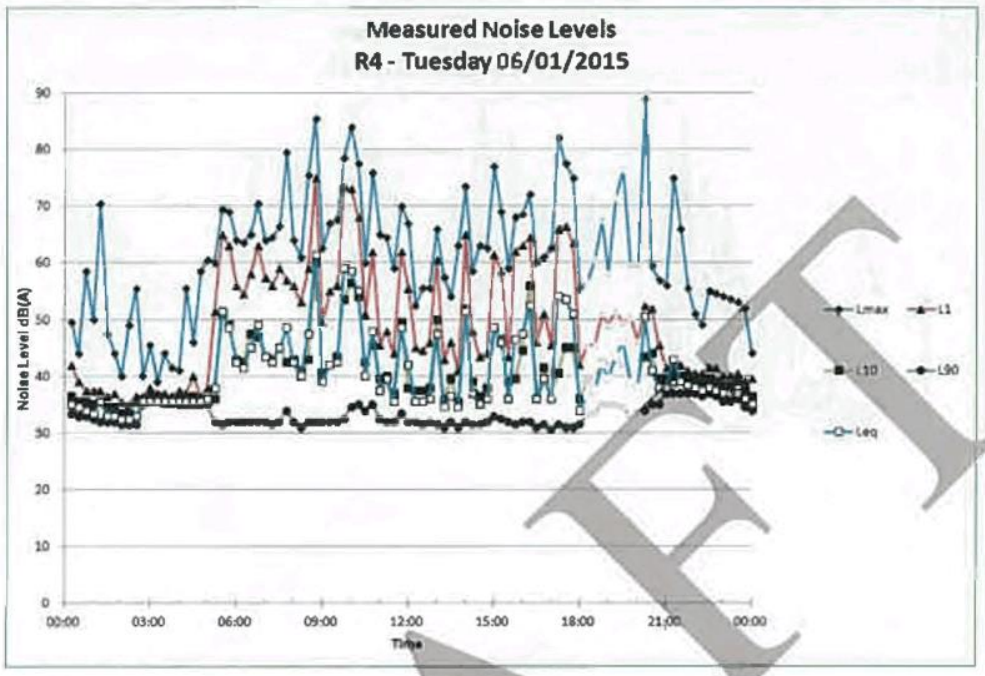
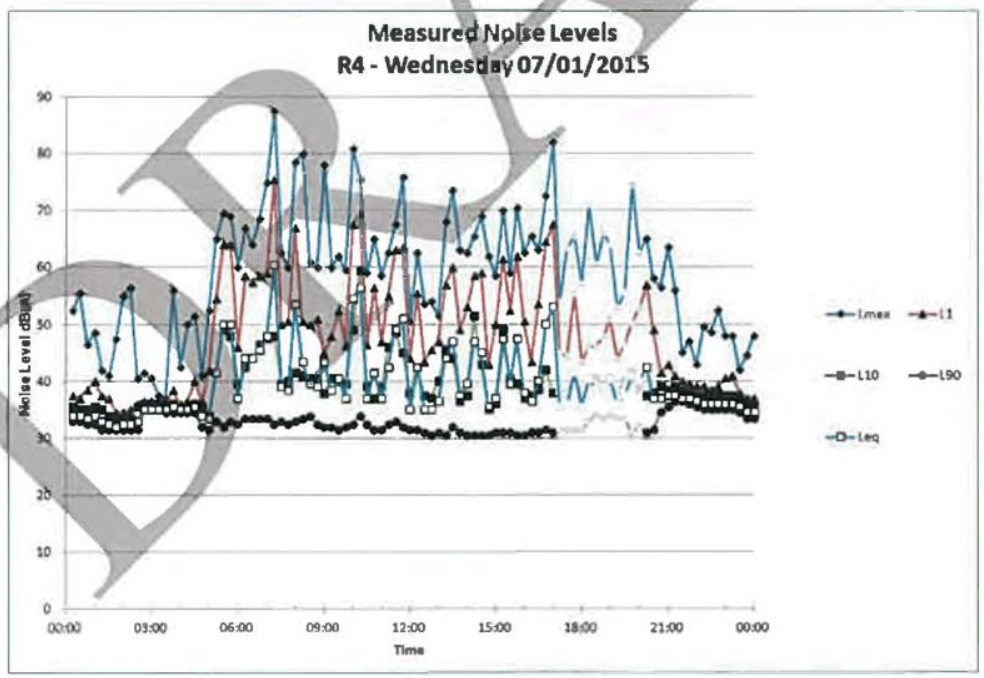
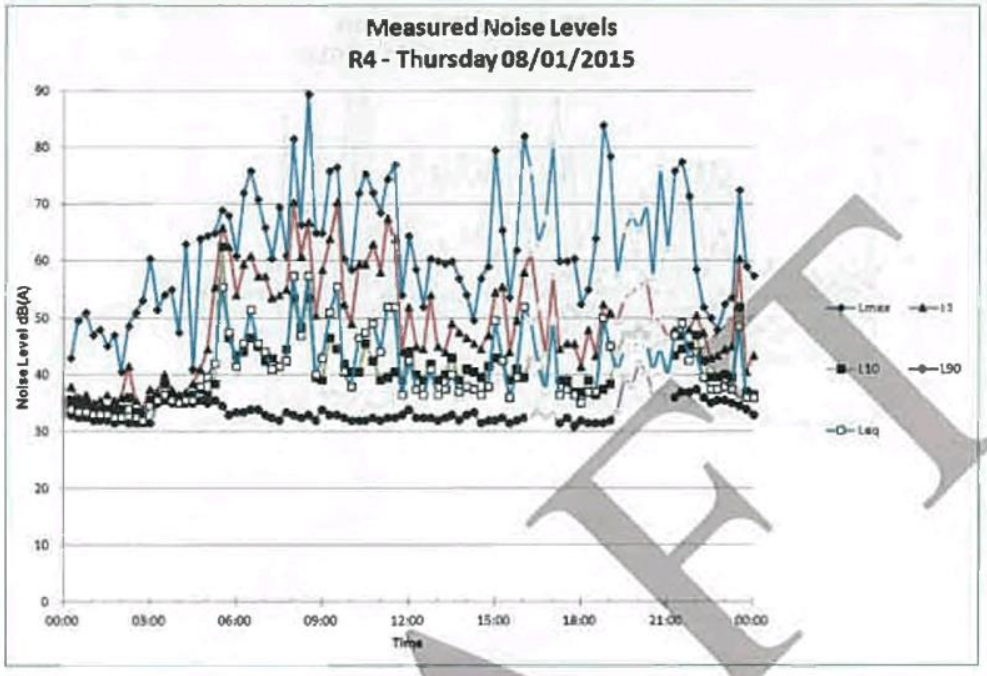
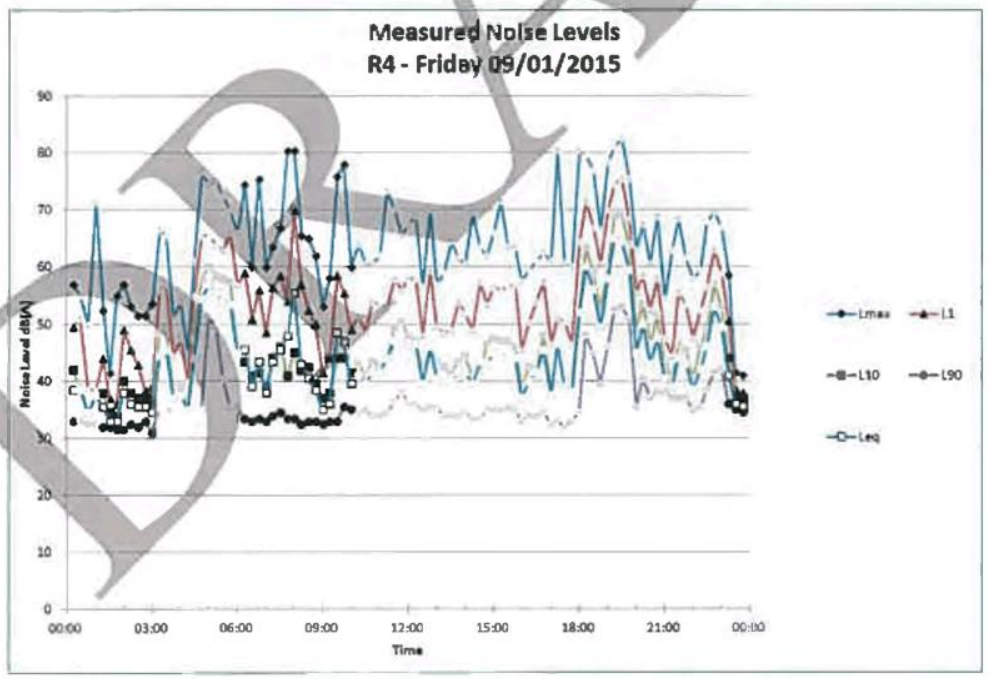
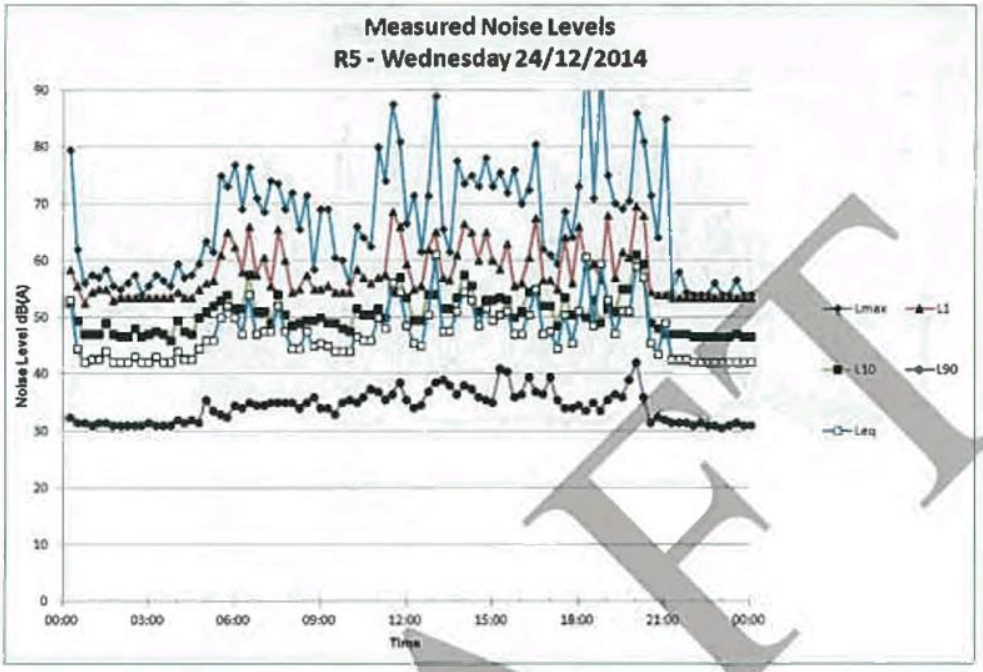
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

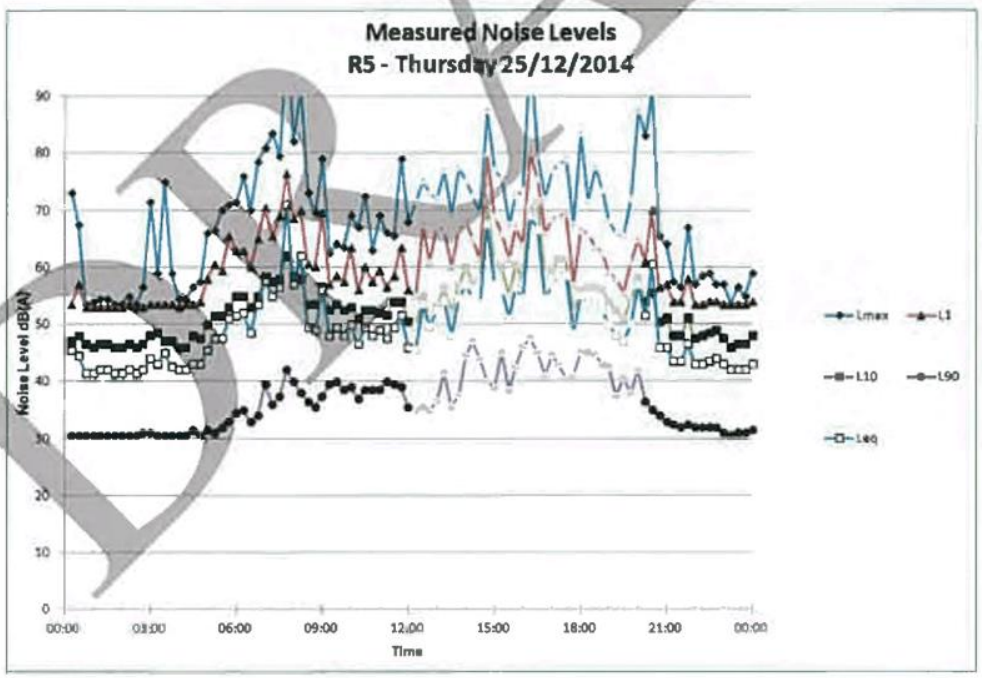

Measured Noise Levels
R4 - Tuesday 06/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

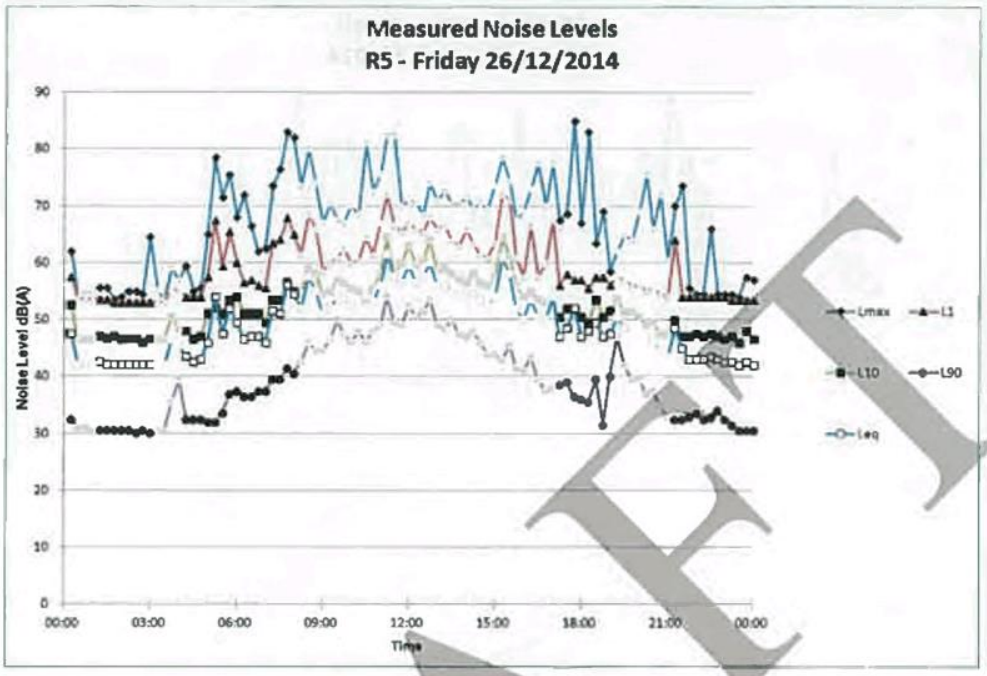

Measured Noise Levels
R4 - Wednesday 07/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

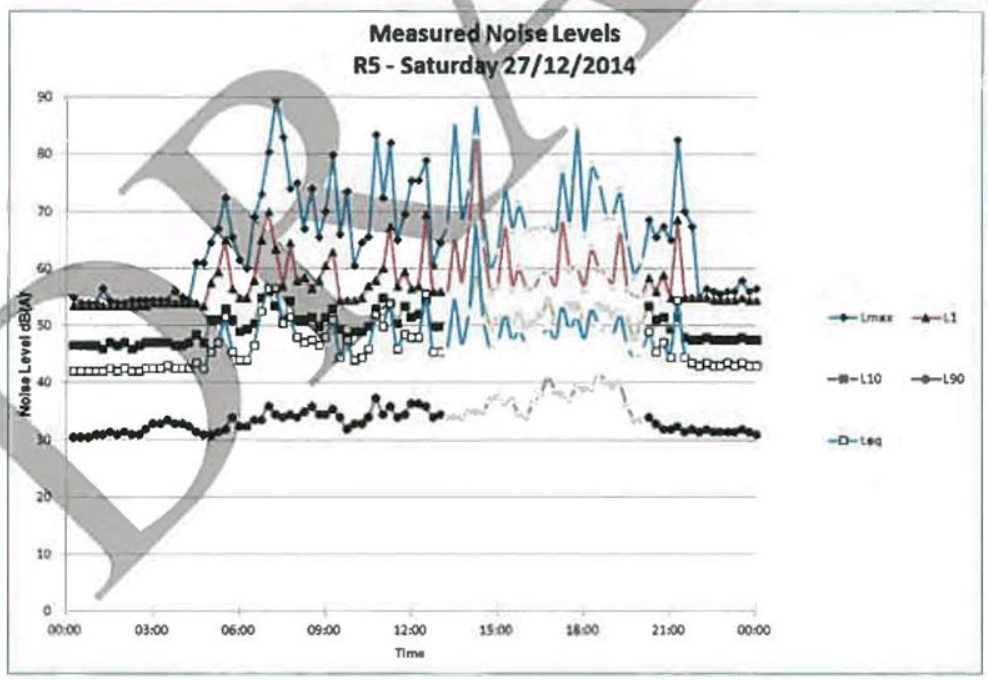

Measured Noise Levels
R4 - Thursday 08/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

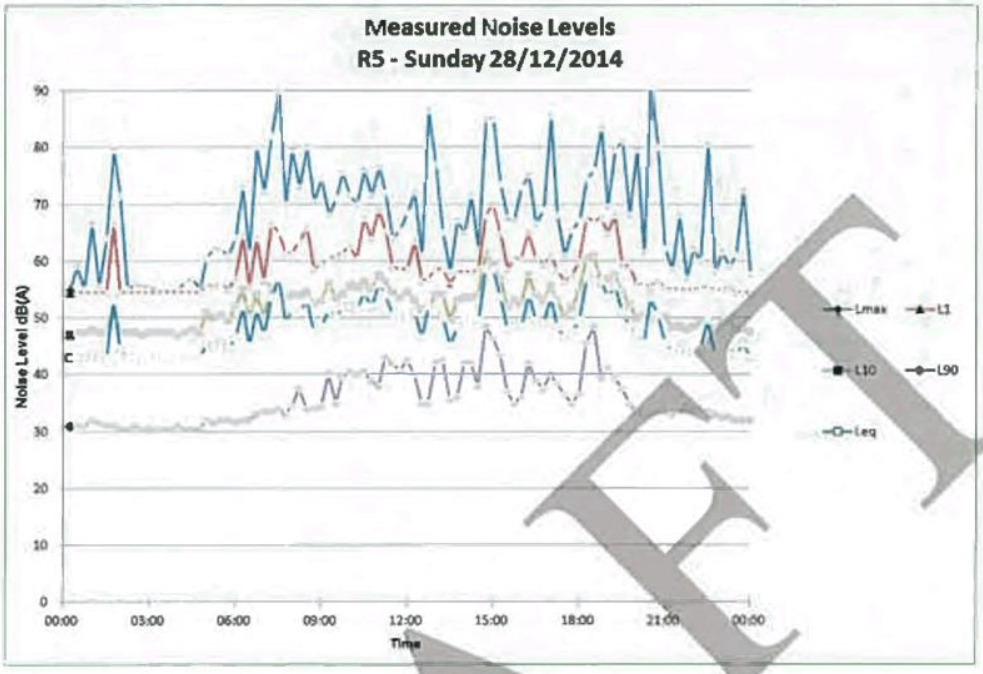

Measured Noise Levels
R4 - Friday 09/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

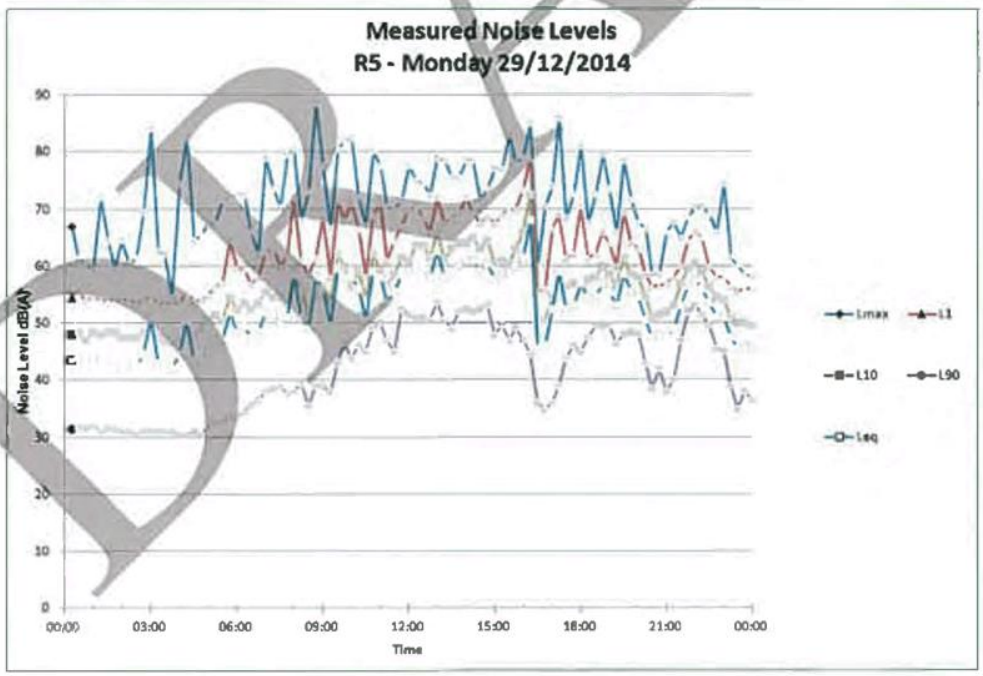

Measured Noise Levels
R5 - Wednesday 24/12/2014
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

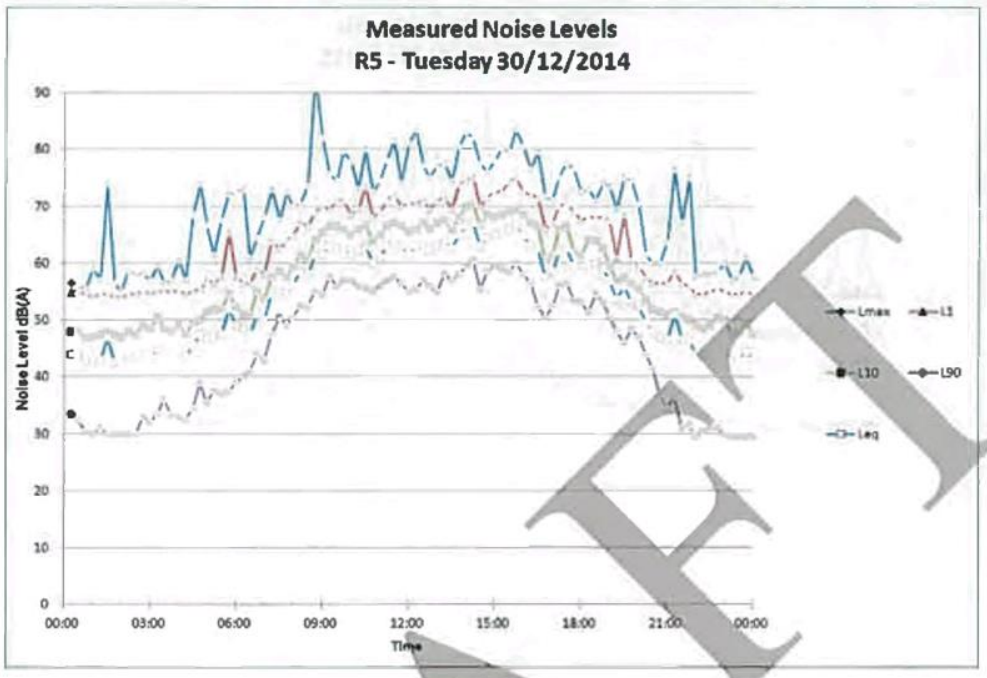

Measured Noise Levels
R5 - Thursday 25/12/2014
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

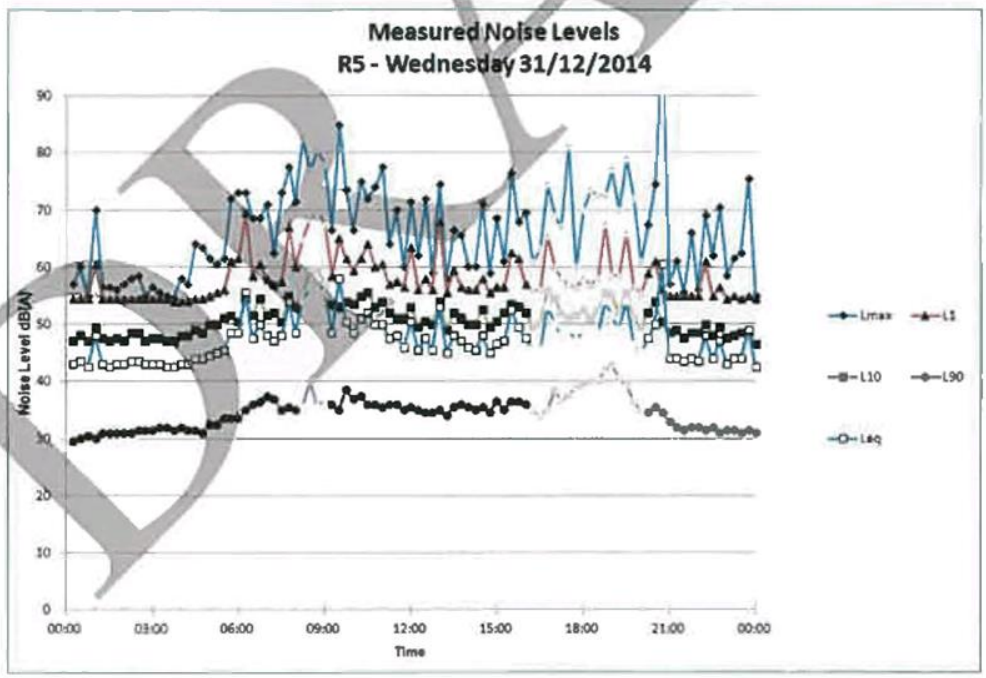

Measured Noise Levels
R5 - Friday 26/12/2014
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

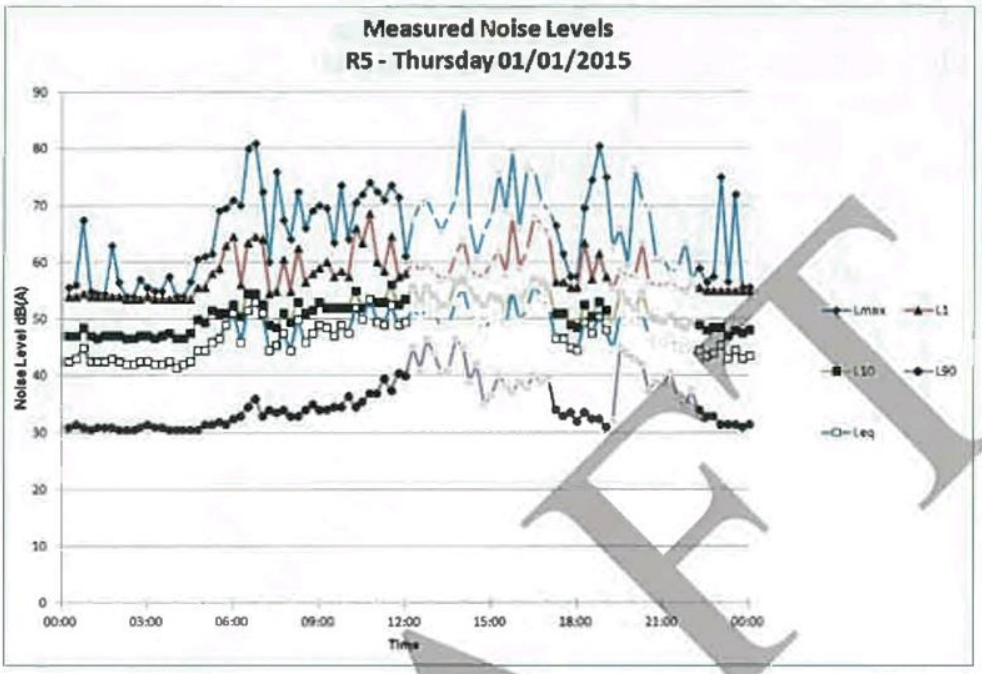

Measured Noise Levels
R5 - Saturday 27/12/2014
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

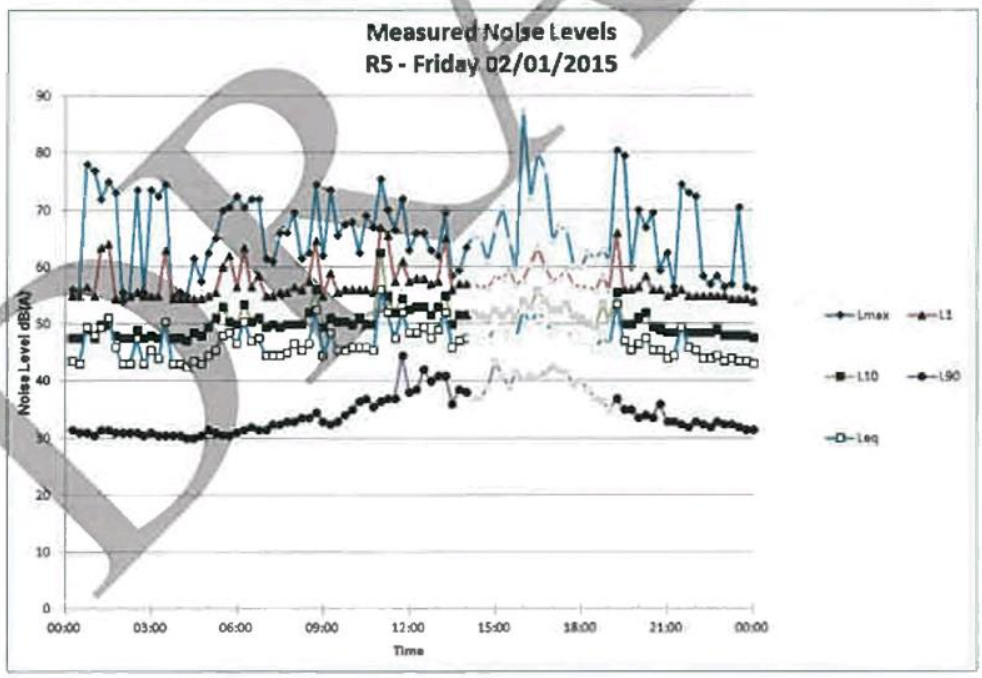

Measured Noise Levels
R5 - Sunday 28/12/2014
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

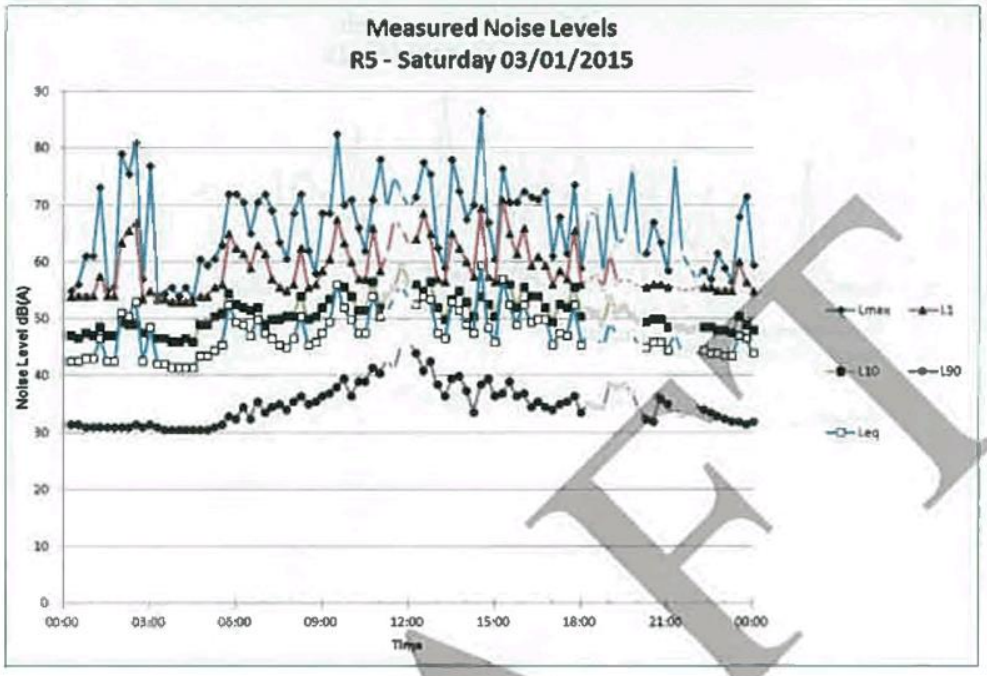

Measured Noise Levels
R5 - Monday 29/12/2014
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

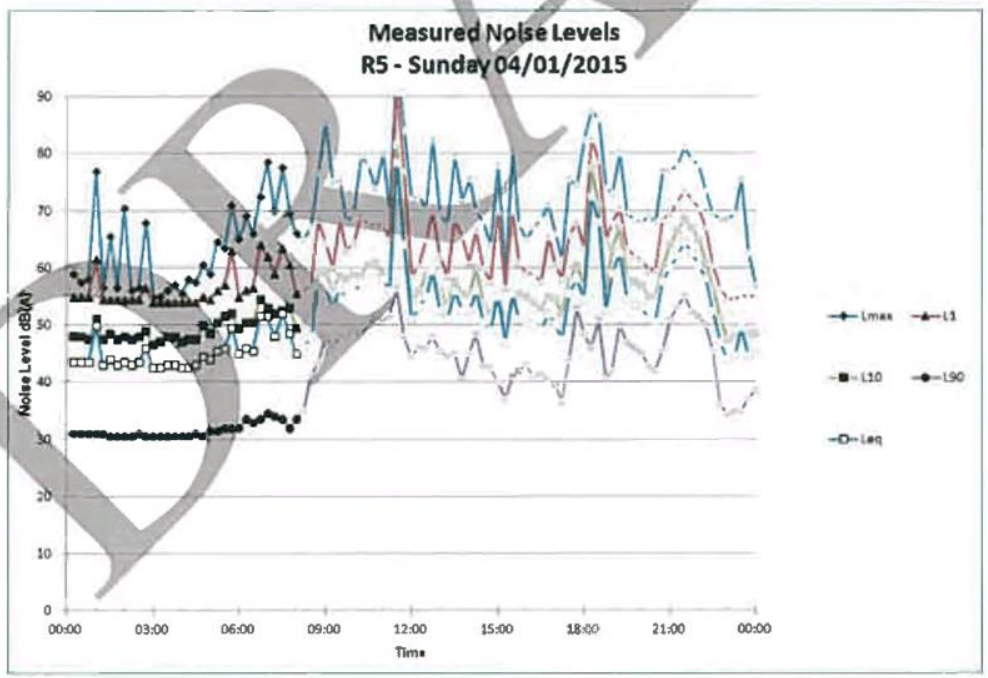

Measured Noise Levels
R5 - Tuesday 30/12/2014
Noise Level dB(A)
Time
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Lmax
L1
L10
L90
Leq

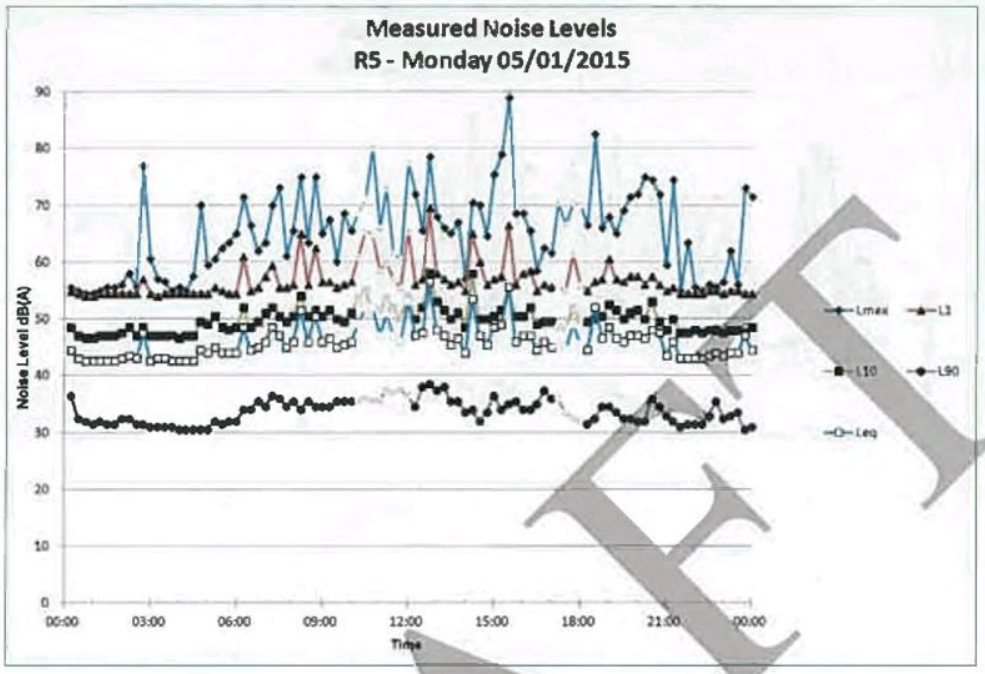

Measured Noise Levels
R5 - Wednesday 31/12/2014
Noise Level dB(A)
Time
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Lmax
L1
L10
L90
Leq

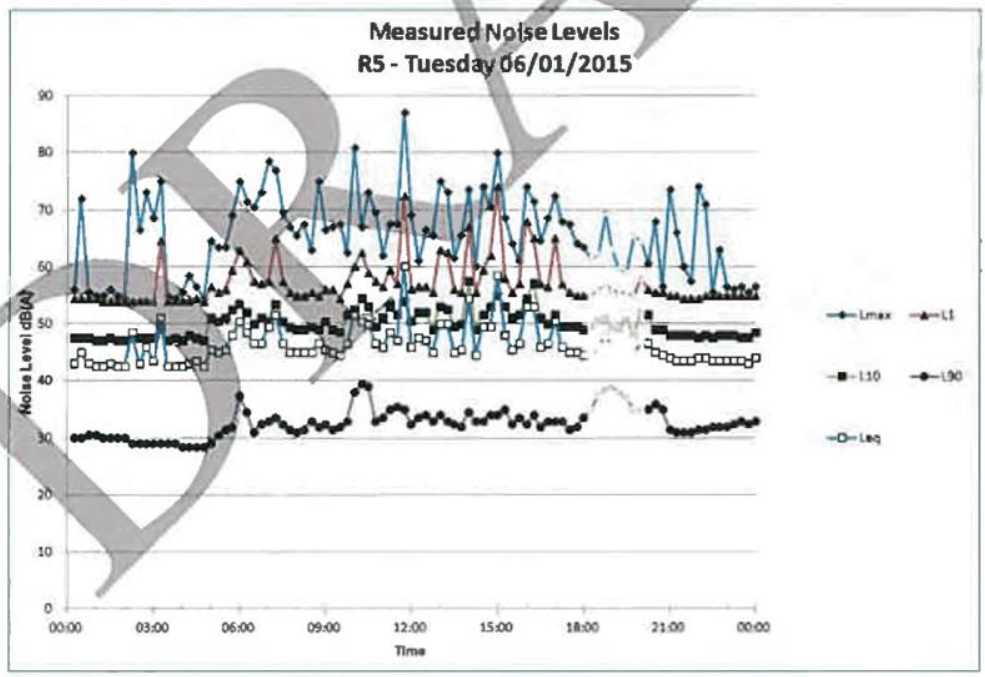

Measured Noise Levels
R5 - Thursday 01/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

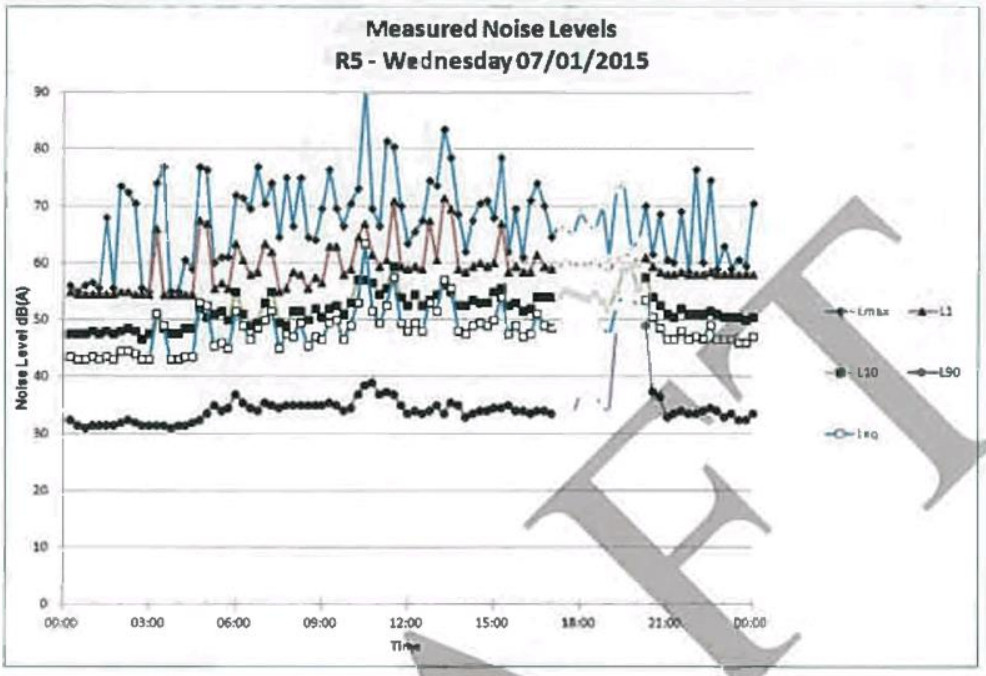

Measured Noise Levels
R5 - Friday 02/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R5 - Saturday 03/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R5 - Sunday 04/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R5 - Monday 05/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R5 - Tuesday 06/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R5 - Wednesday 07/01/2015
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
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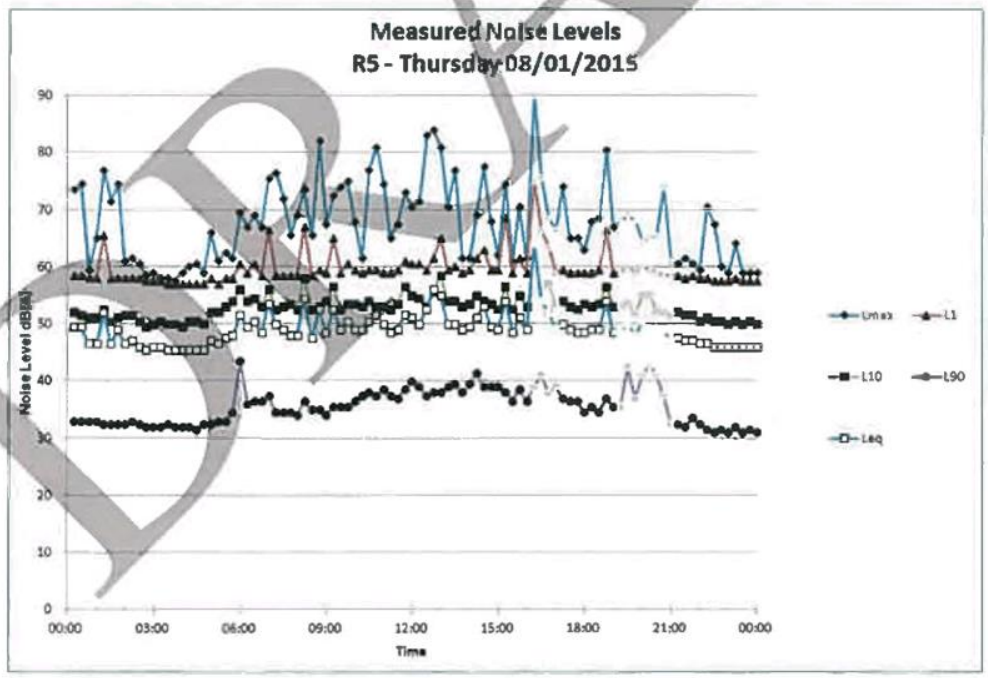
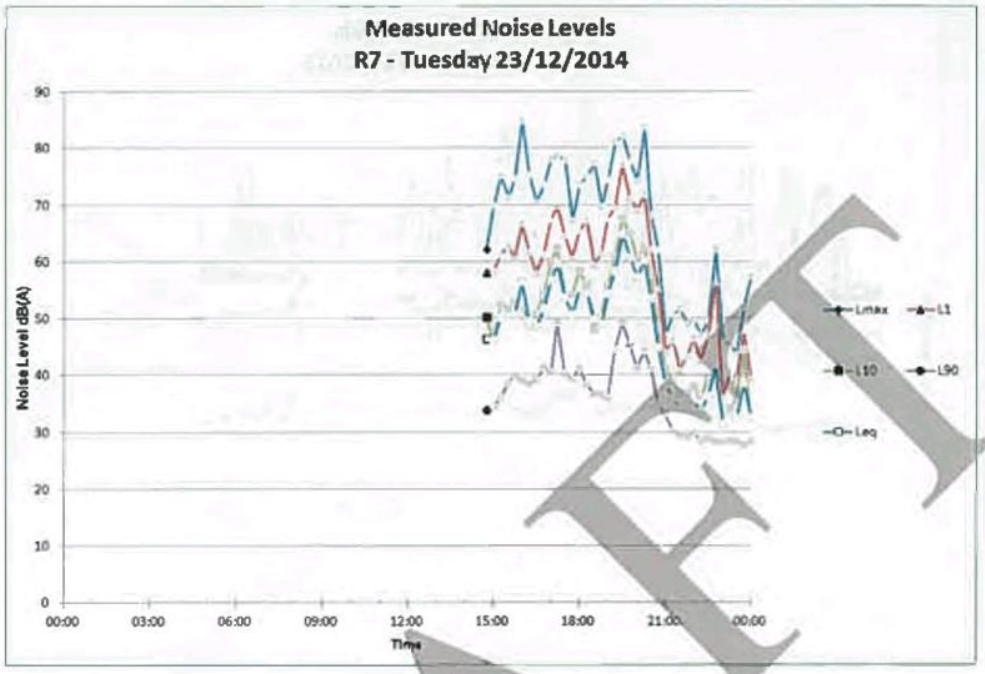
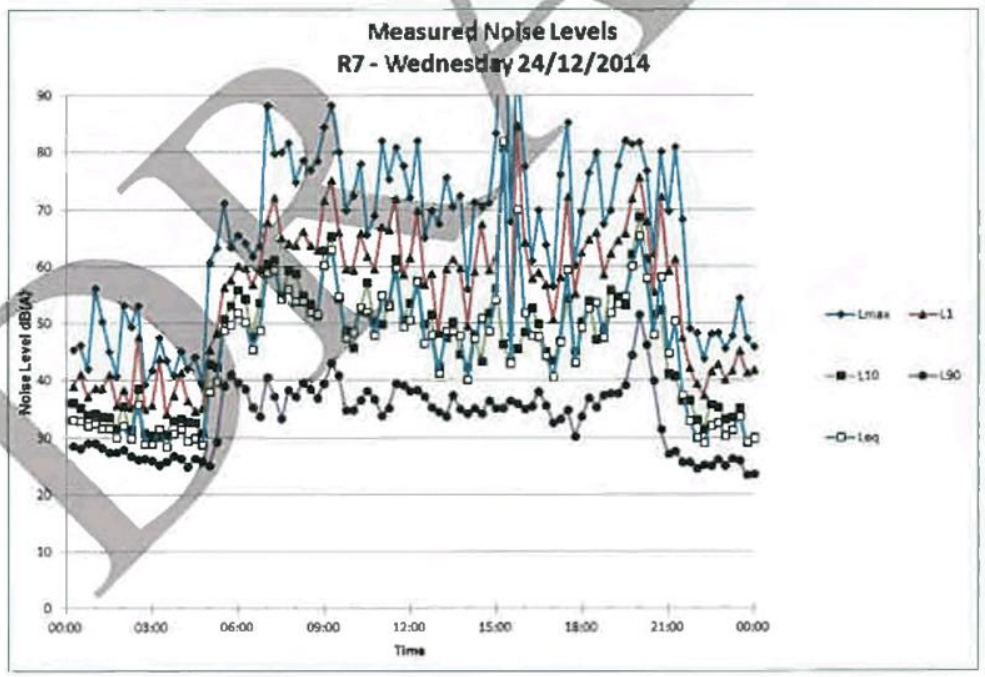
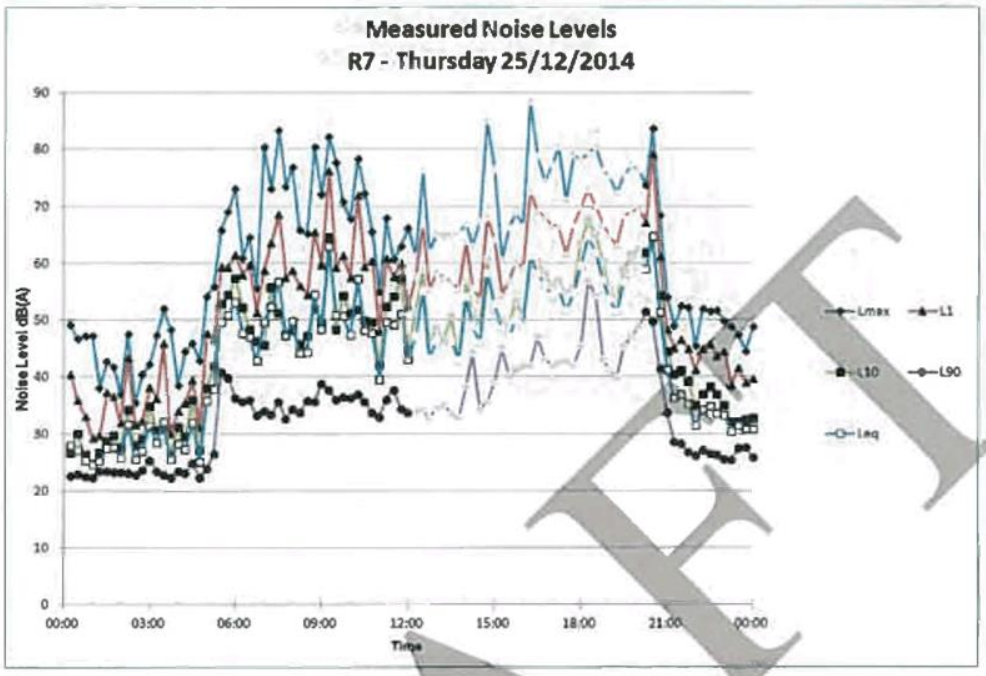
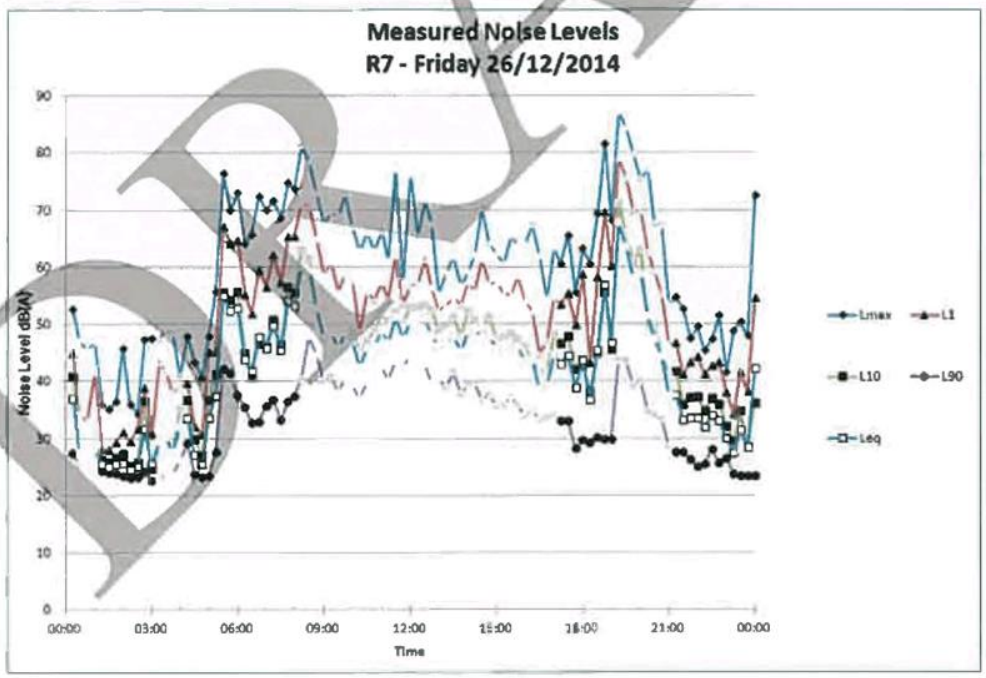
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

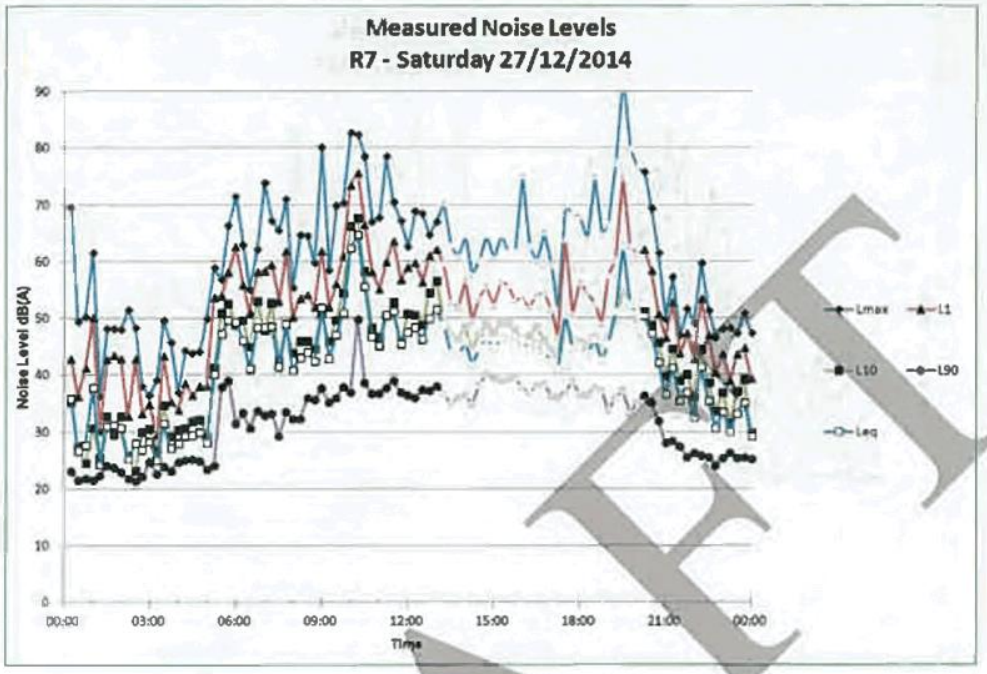

Measured Noise Levels
R5 - Thursday 08/01/2015
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

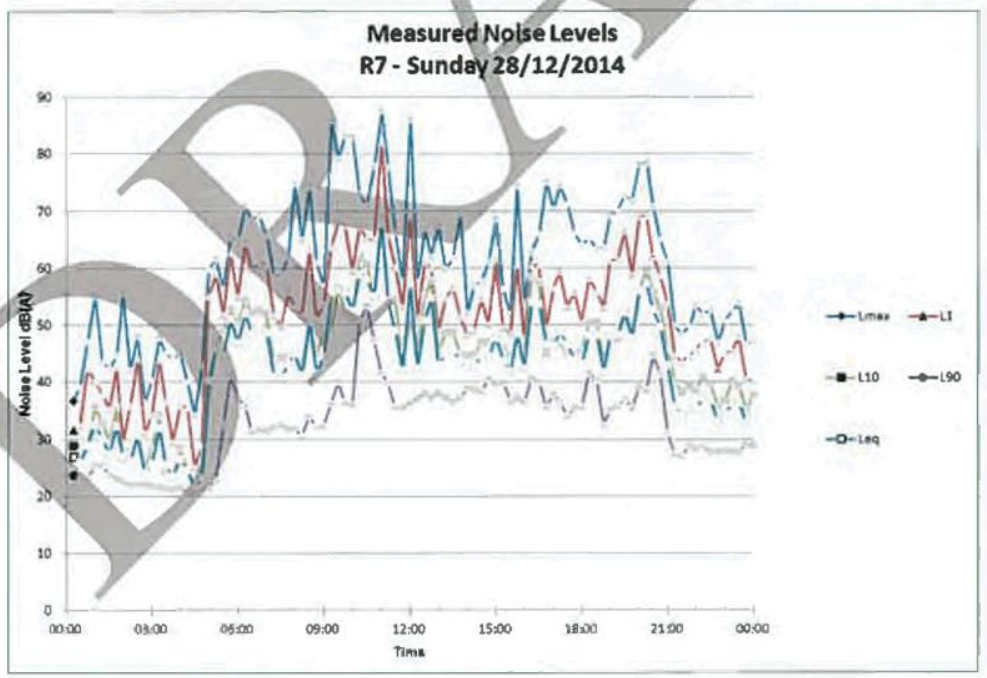

Measured Noise Levels
R7 - Tuesday 23/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

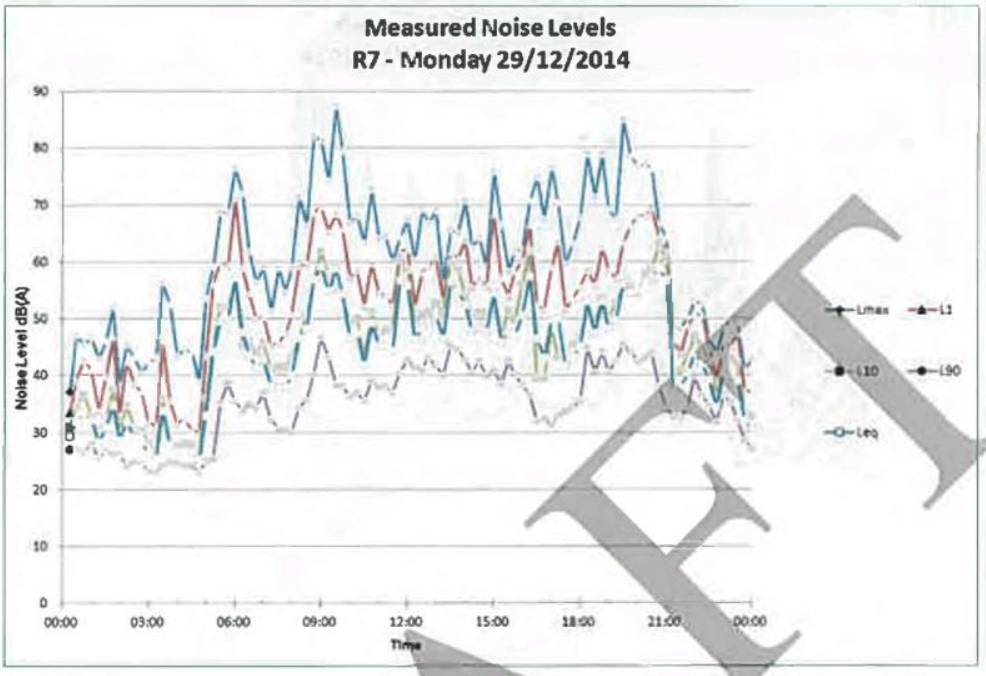

Measured Noise Levels
R7 - Wednesday 24/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

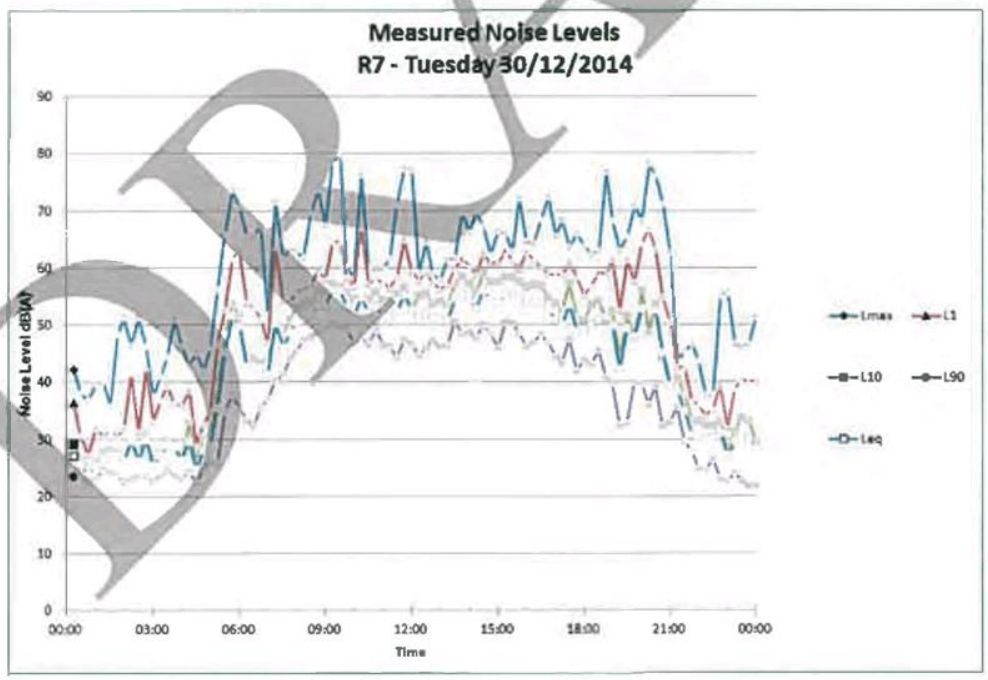

Measured Noise Levels
R7 - Thursday 25/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

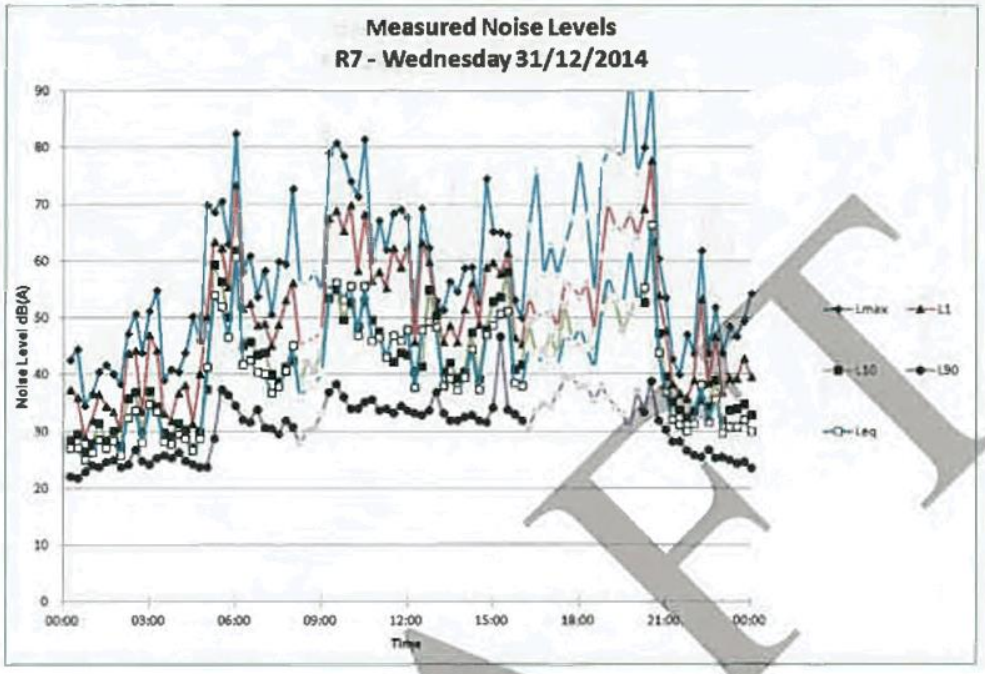

Measured Noise Levels
R7 - Friday 26/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

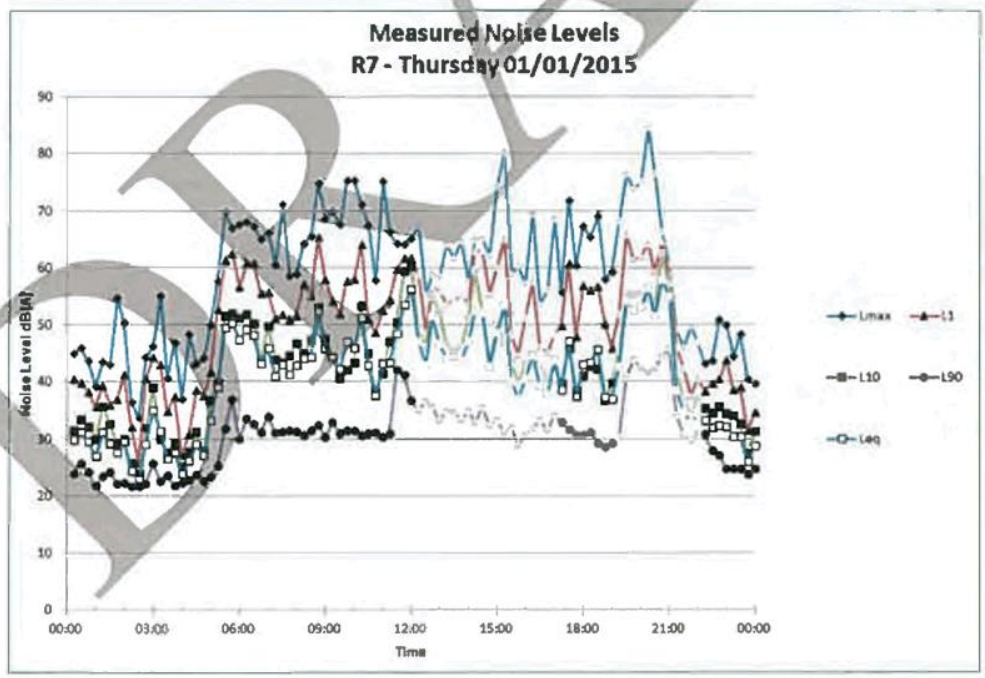

Measured Noise Levels
R7 - Saturday 27/12/2014
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

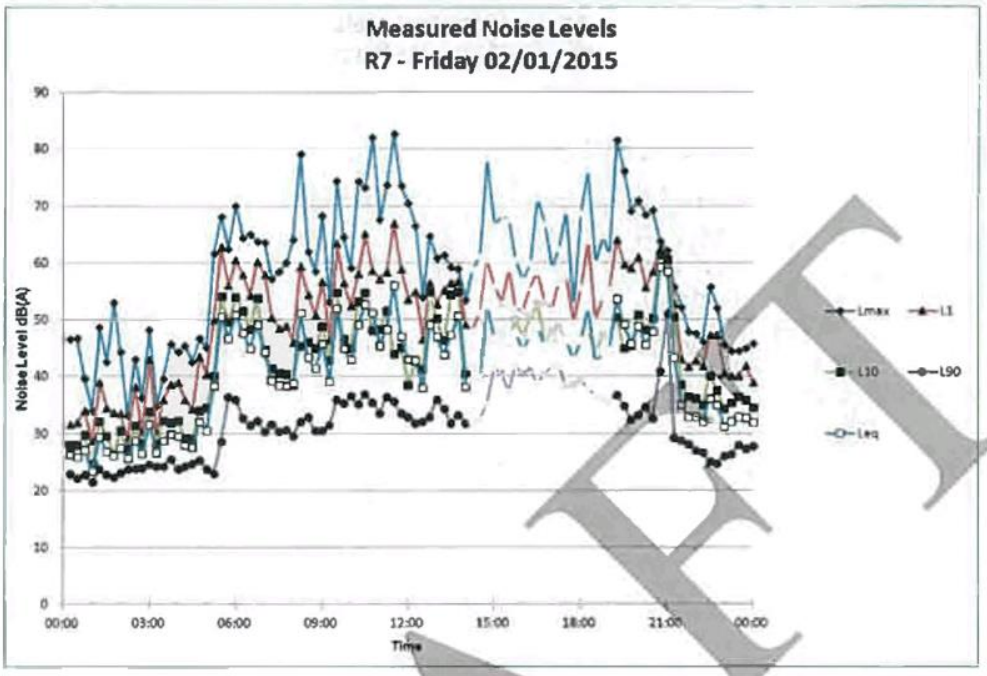

Measured Noise Levels
R7 - Sunday 28/12/2014
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

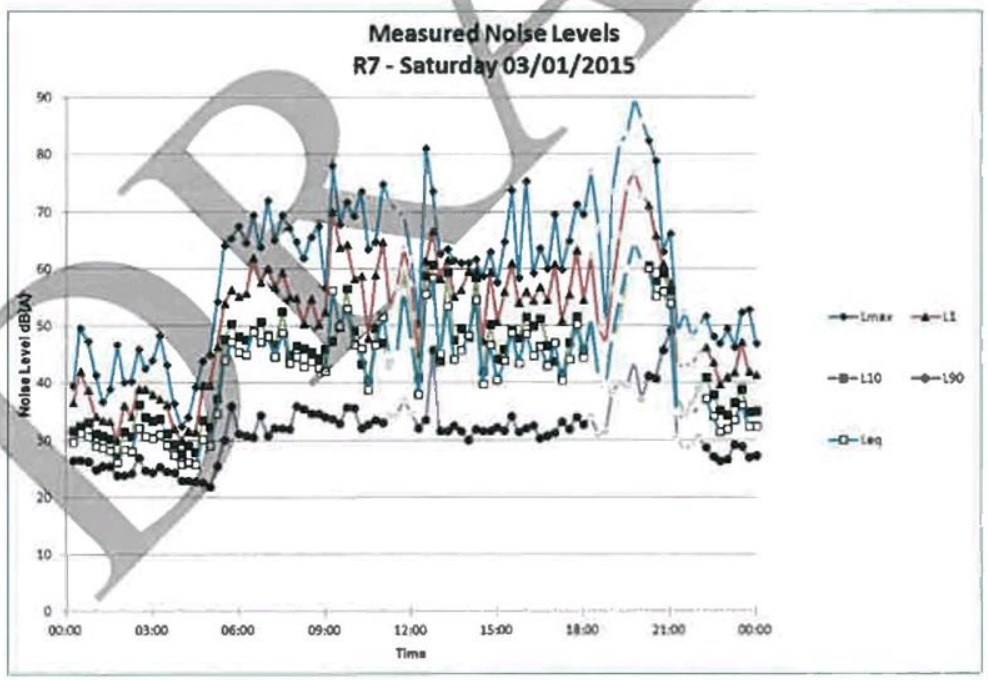

Measured Noise Levels
R7 - Monday 29/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

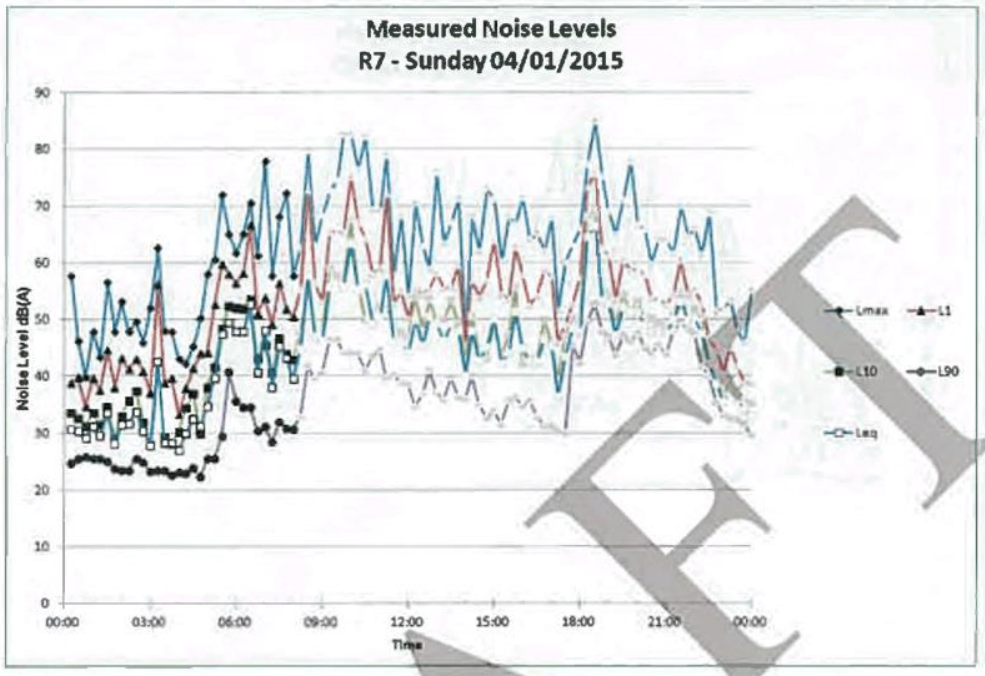

Measured Noise Levels
R7 - Tuesday 30/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq

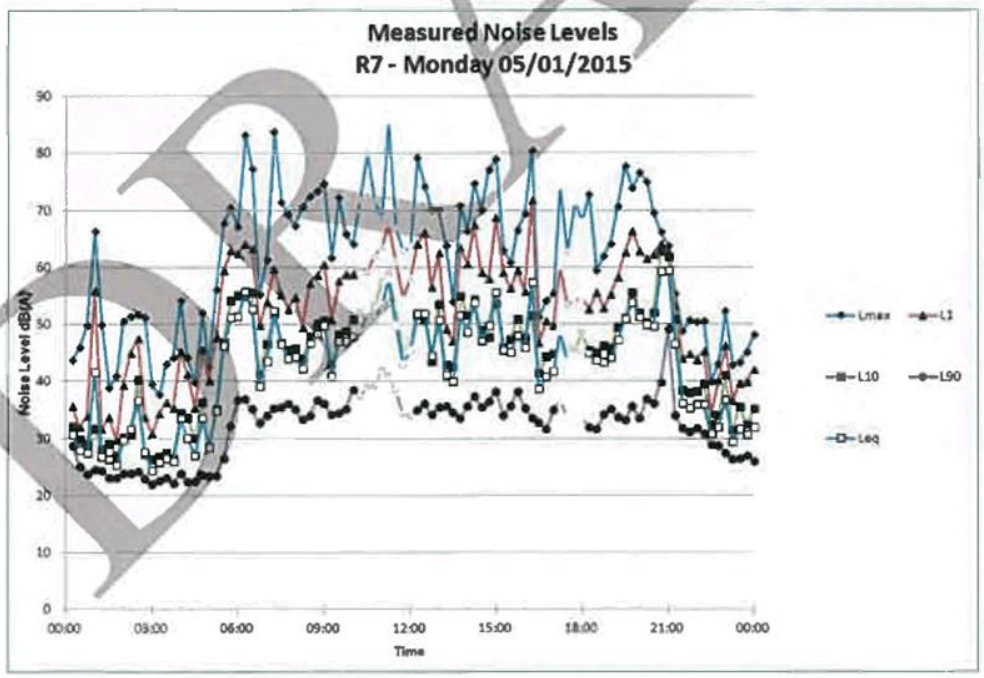

Measured Noise Levels
R7 - Wednesday 31/12/2014
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

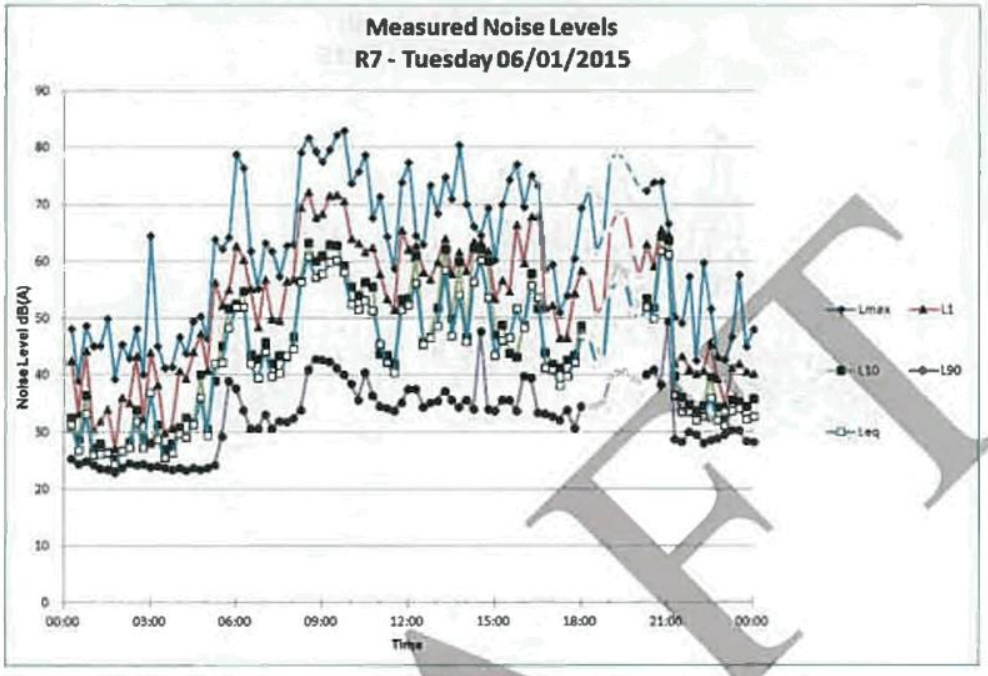

Measured Noise Levels
R7 - Thursday 01/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

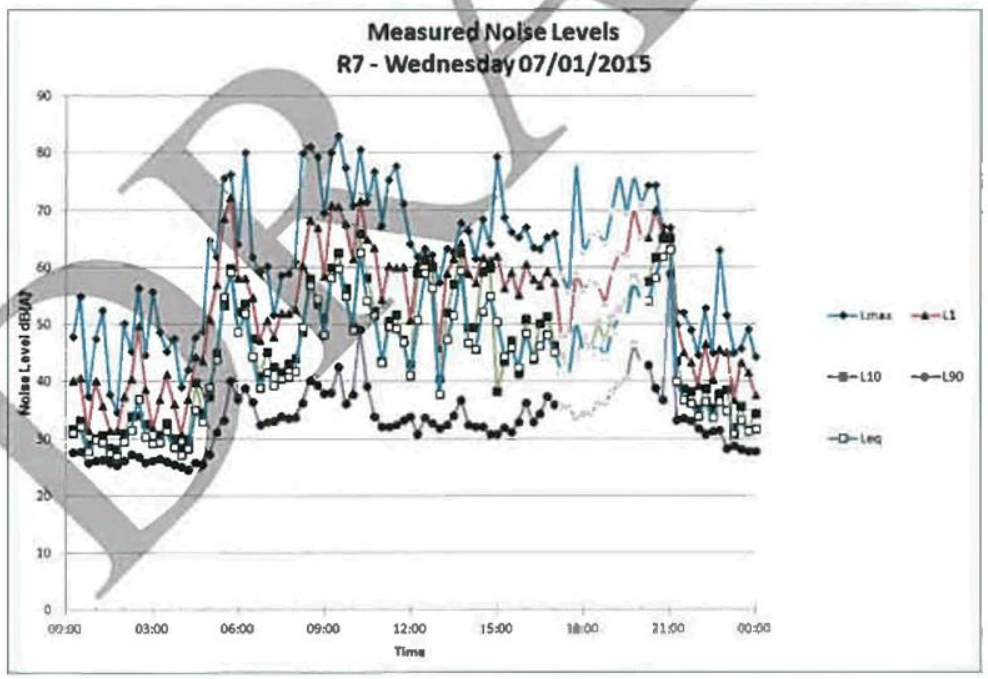

Measured Noise Levels
R7 - Friday 02/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

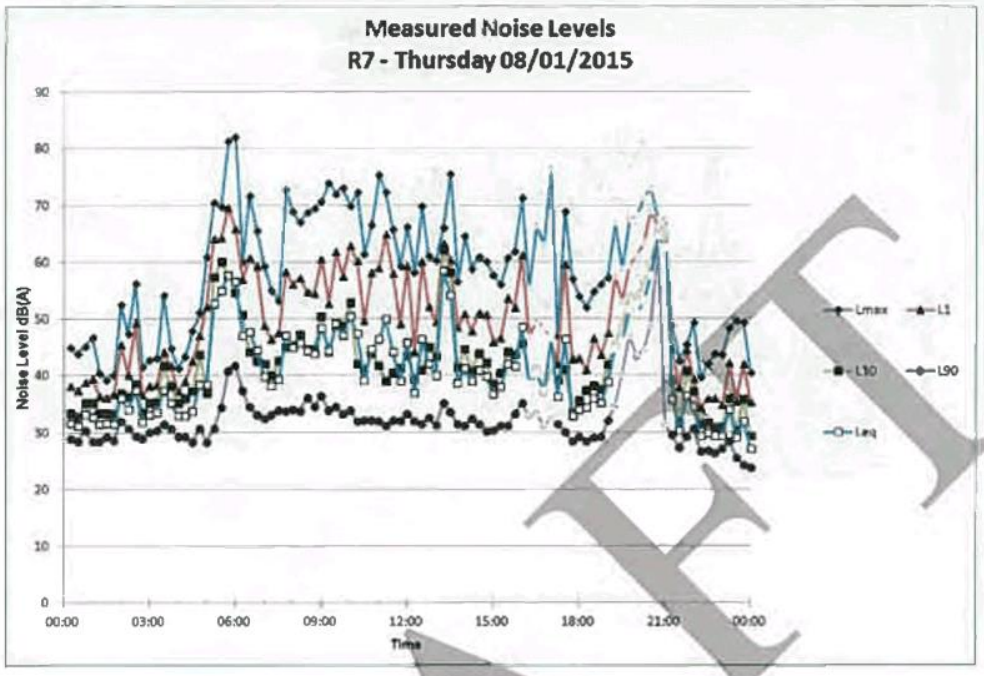

Measured Noise Levels
R7 - Saturday 03/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

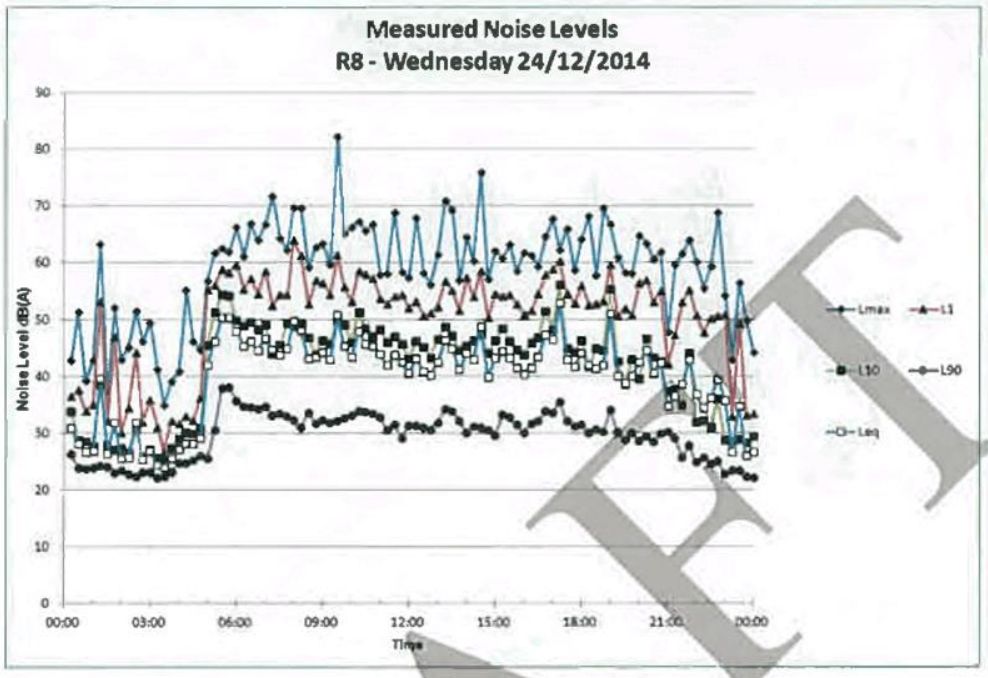

Measured Noise Levels
R7 - Sunday 04/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

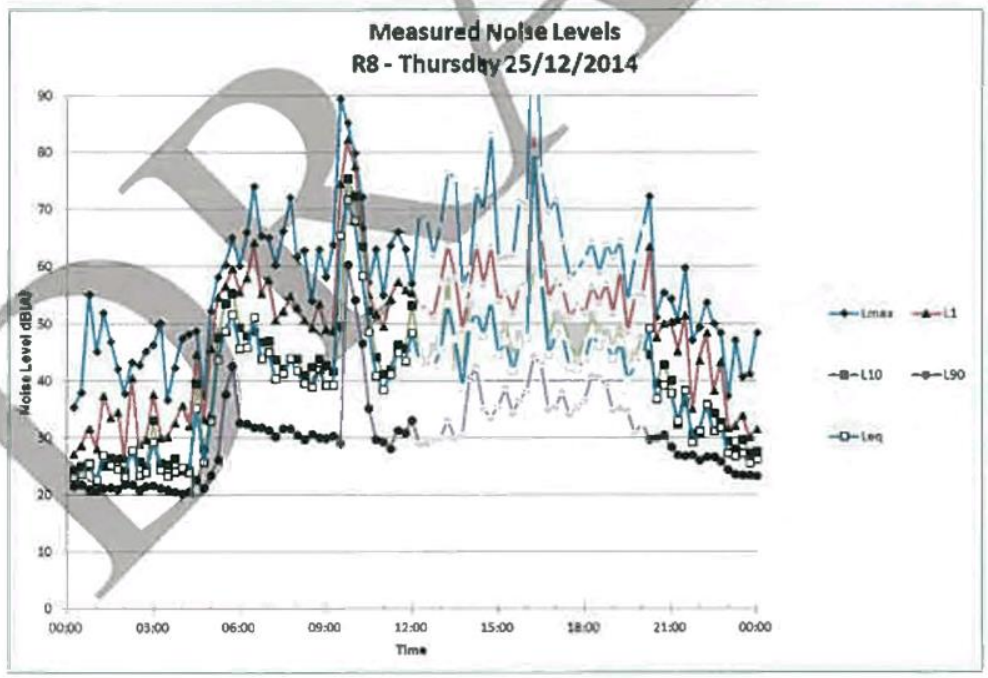

Measured Noise Levels
R7 - Monday 05/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

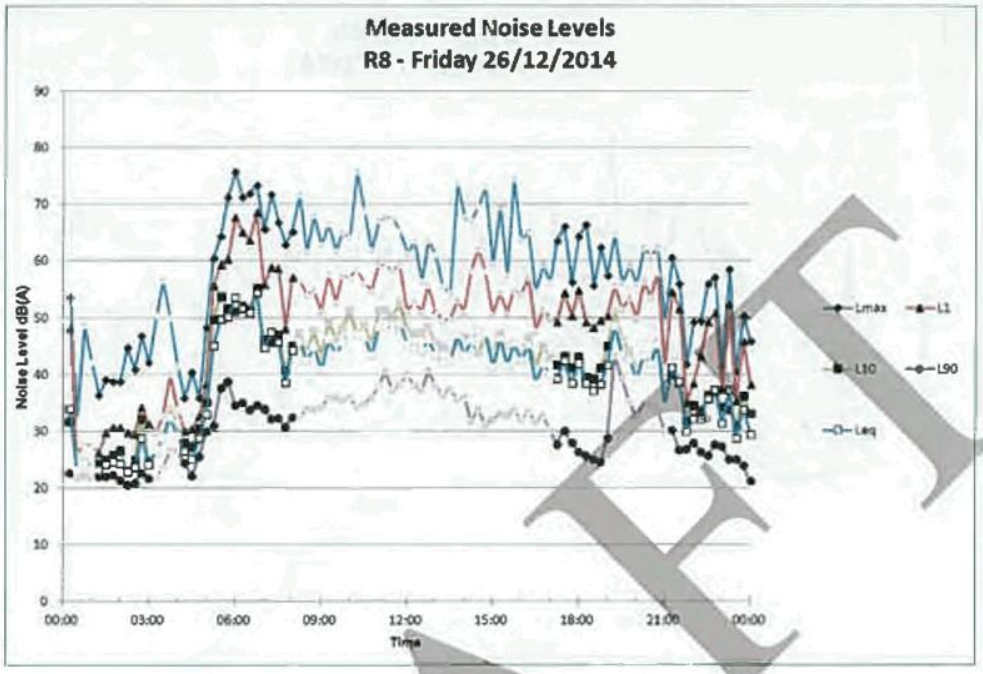

Measured Noise Levels
R7 - Tuesday 06/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq

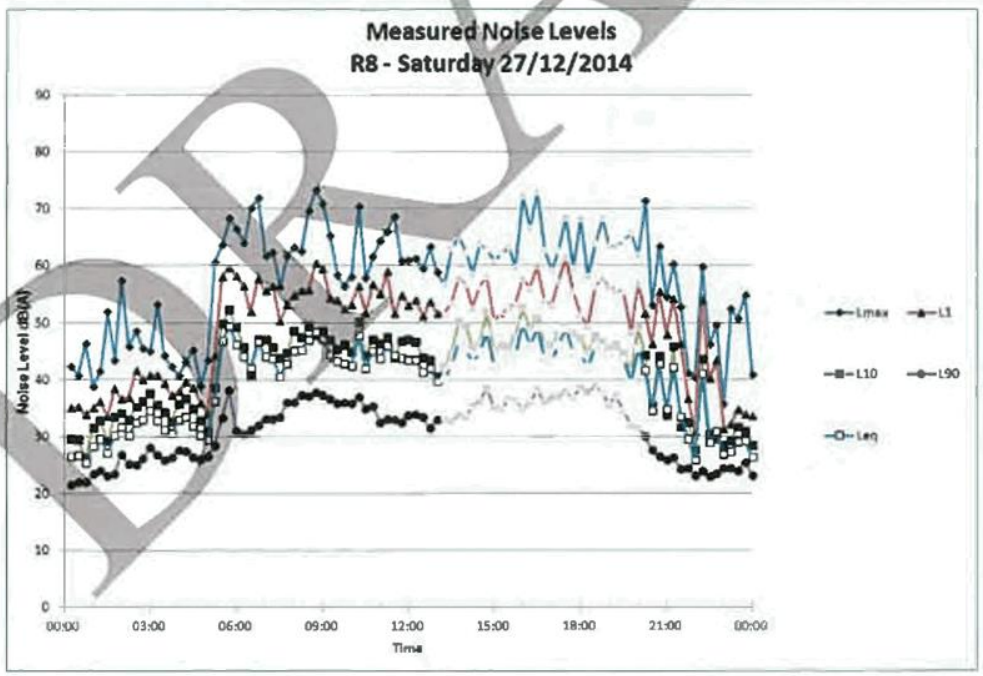

Measured Noise Levels
R7 - Wednesday 07/01/2015
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R7 - Thursday 08/01/2015
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R8 - Wednesday 24/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R8 - Thursday 25/12/2014
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
R8 - Friday 26/12/2014
Noise Level dB(A)
Time
Lmax
L1
L10
L90
Leq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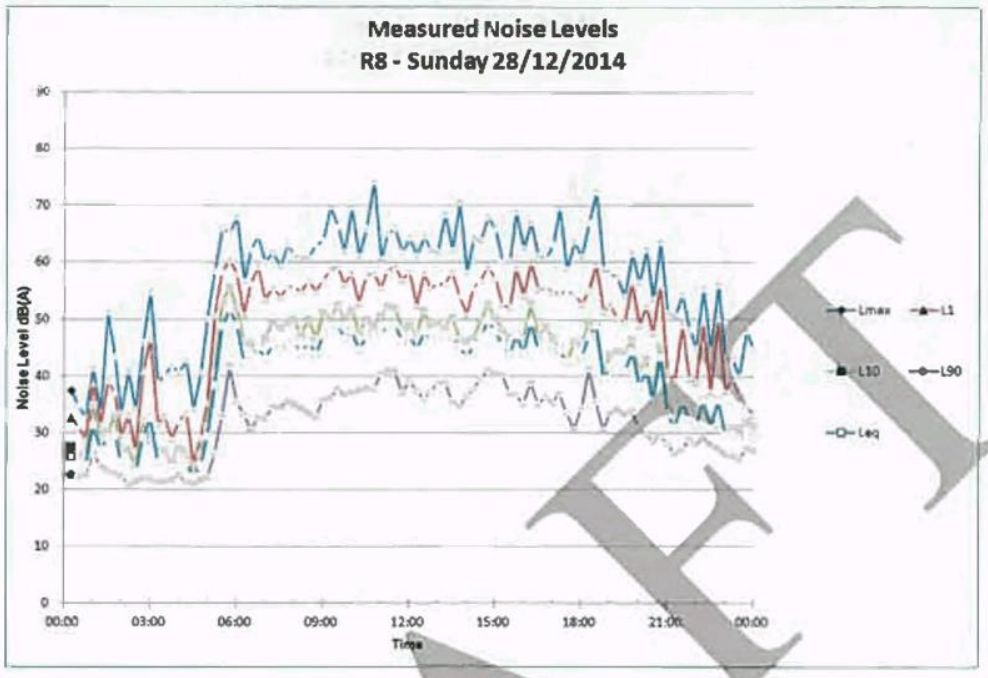
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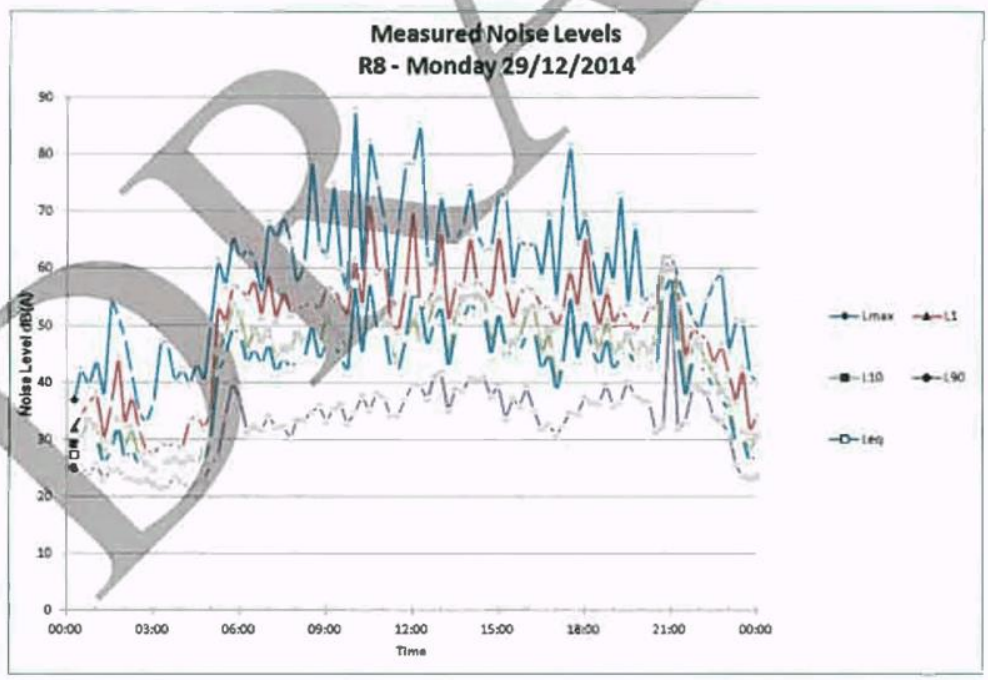
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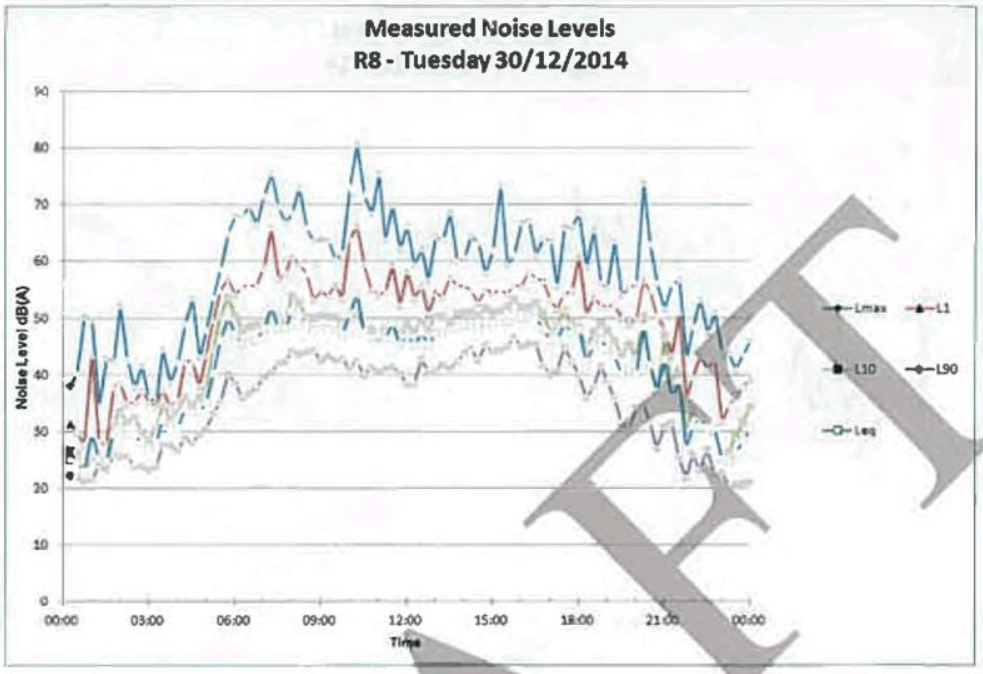
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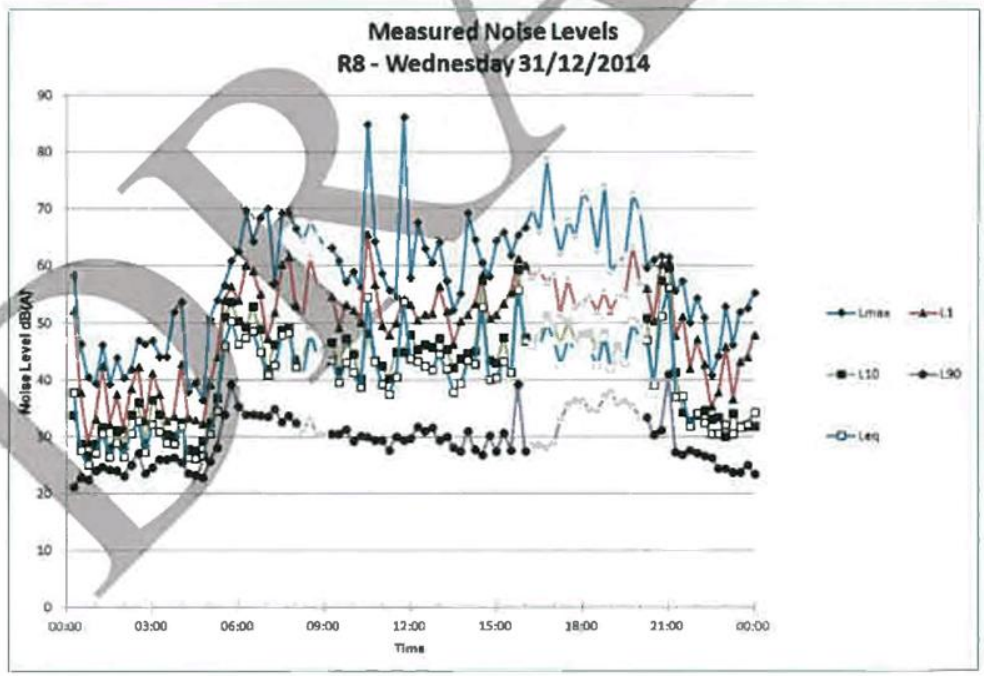
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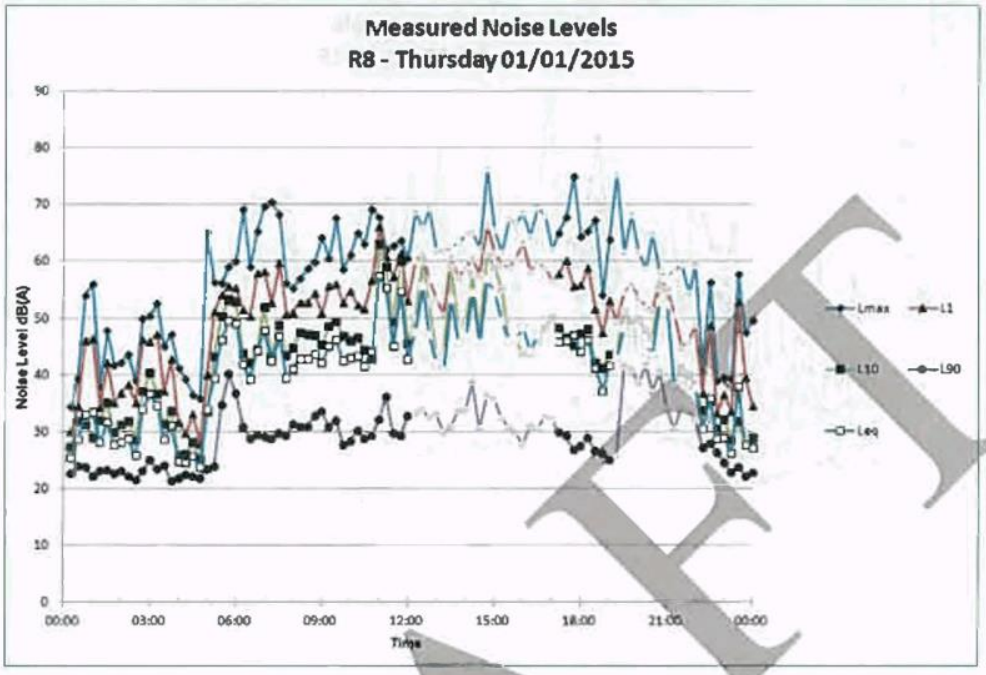
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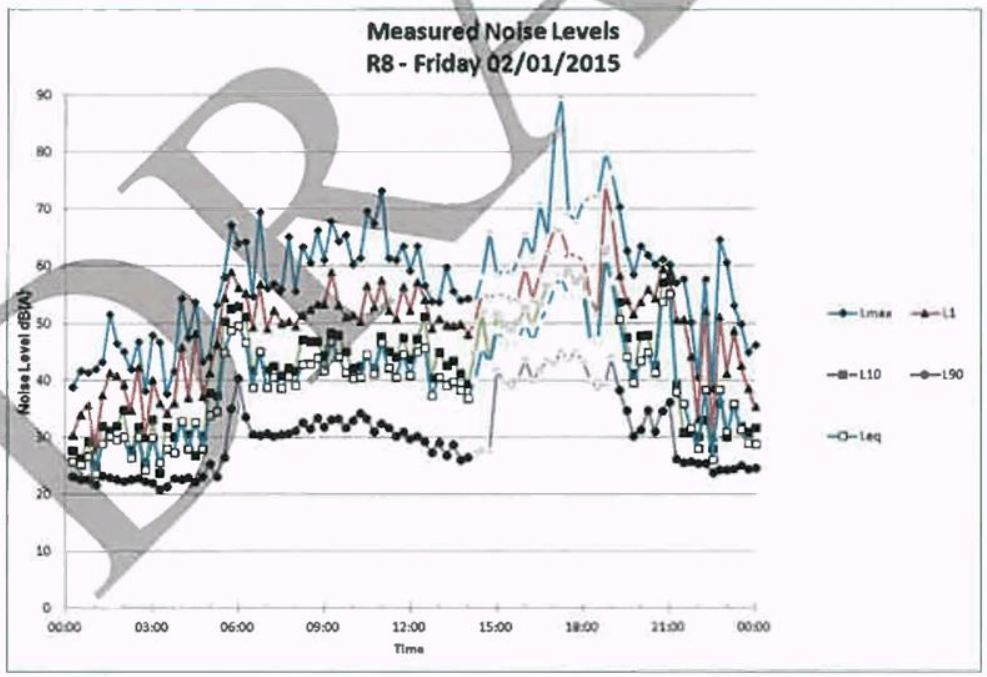
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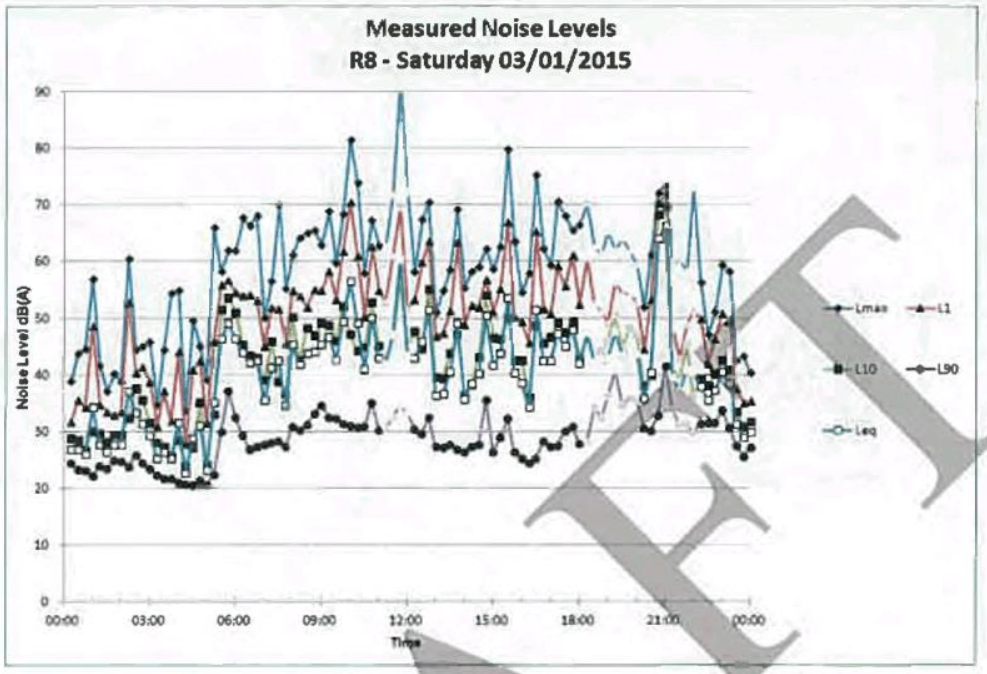
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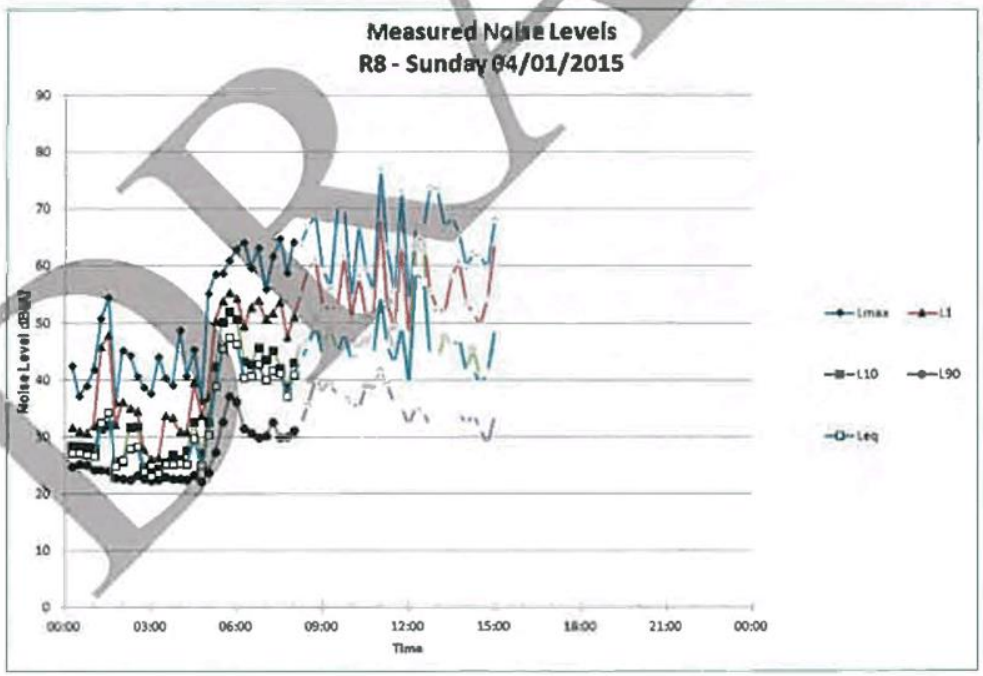
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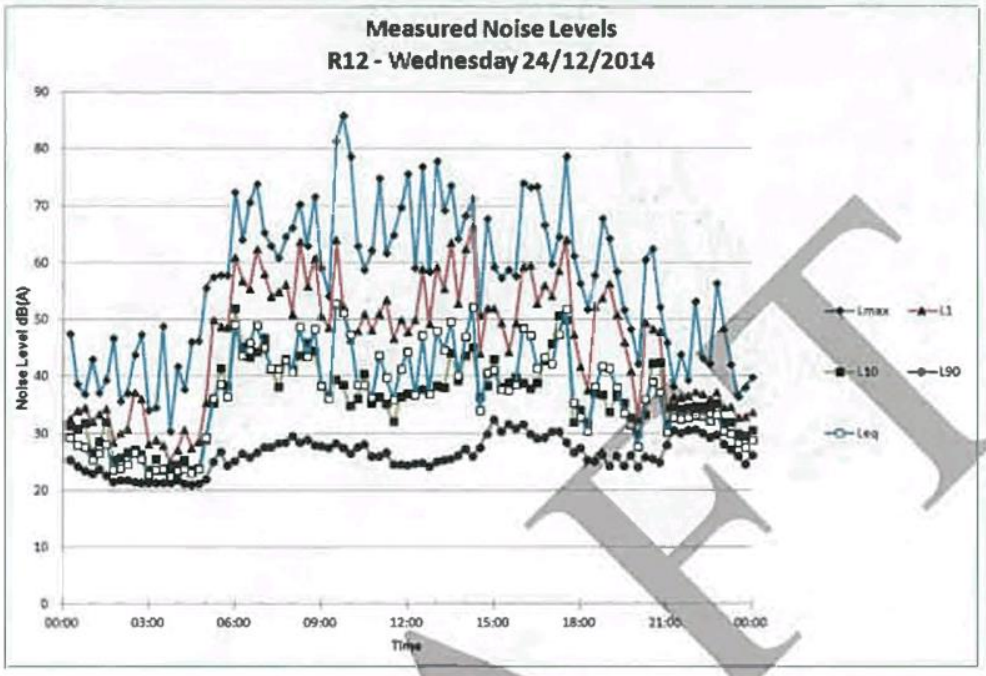
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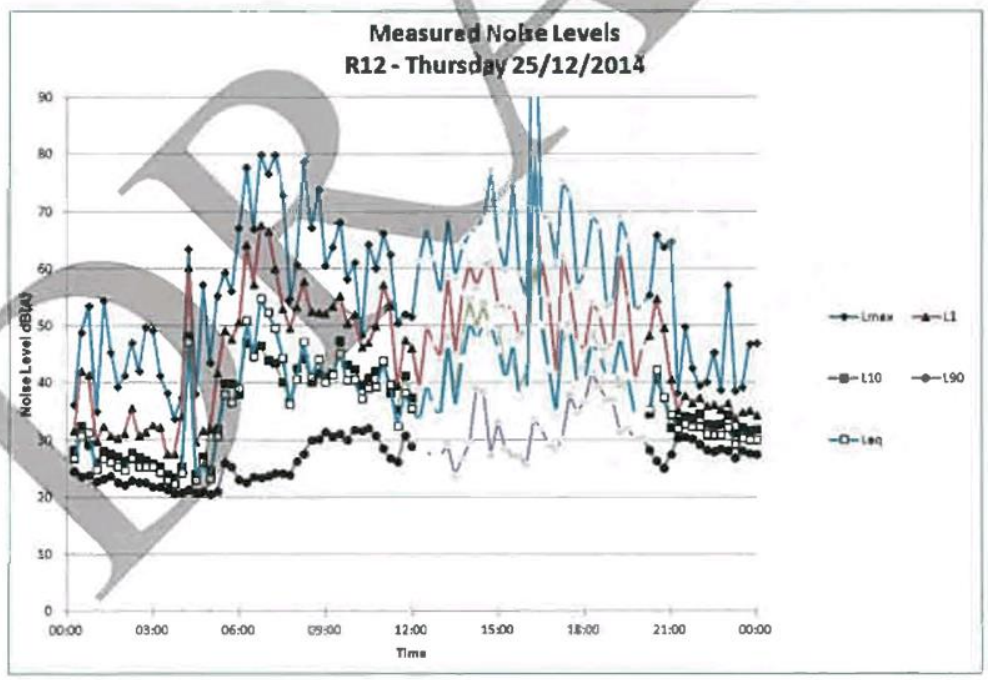
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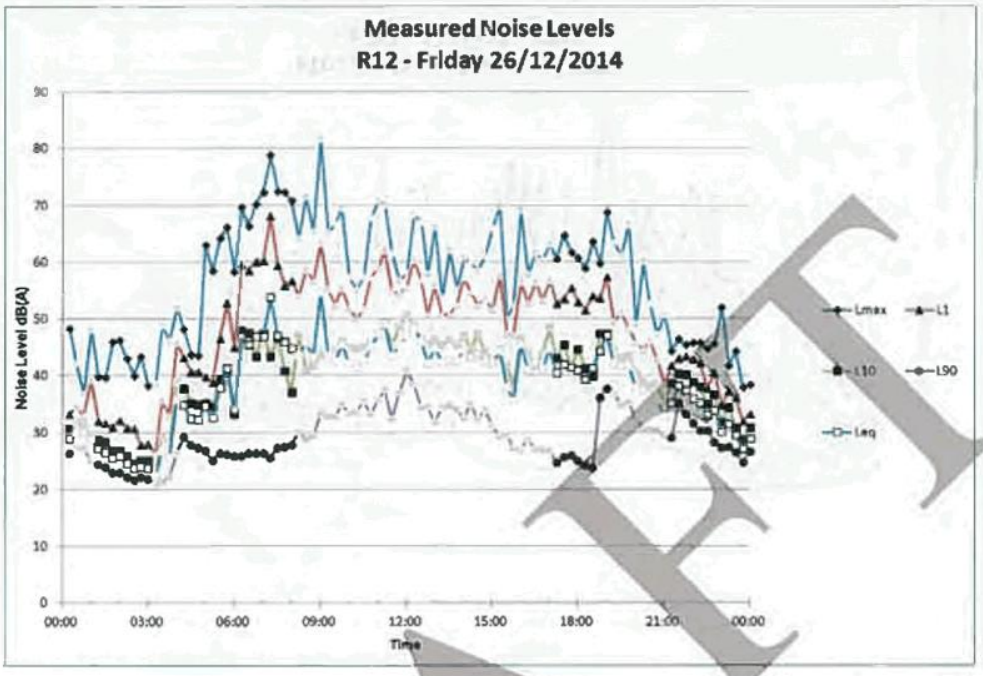
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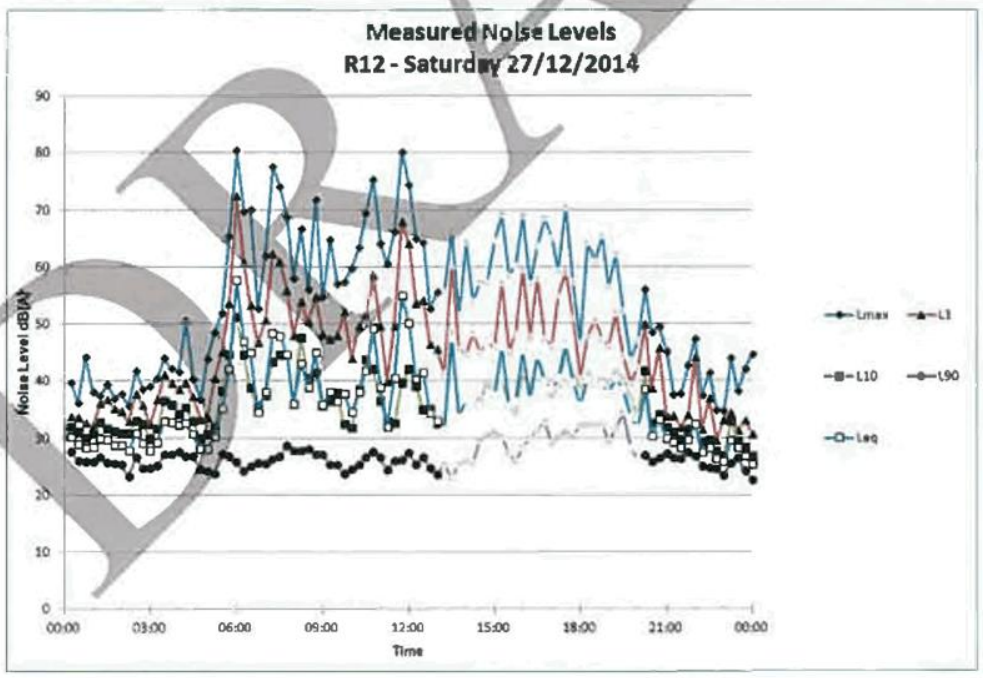
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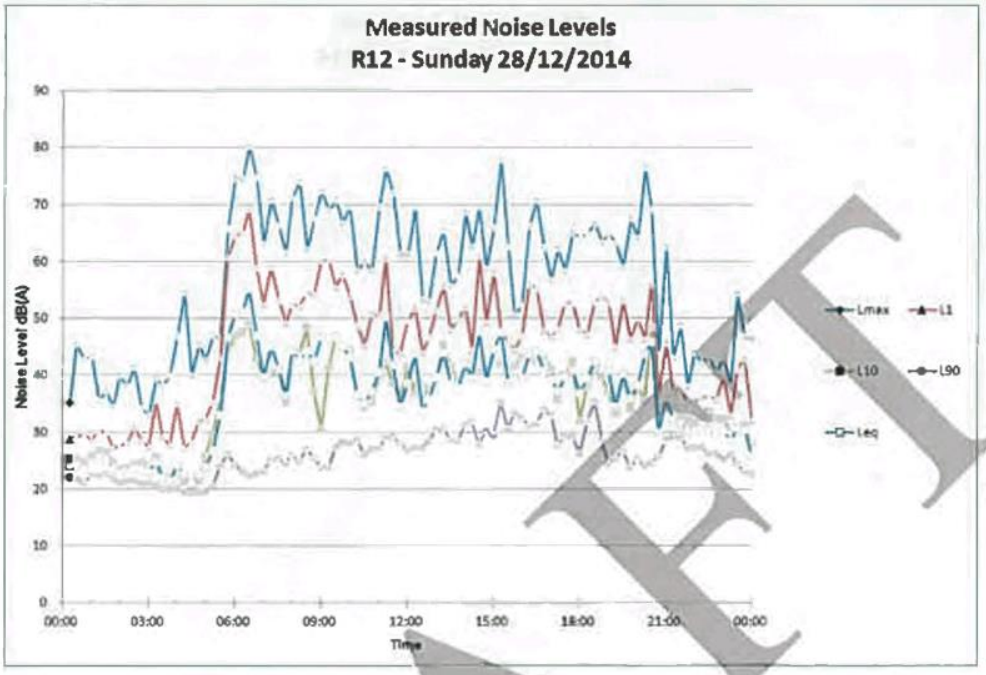
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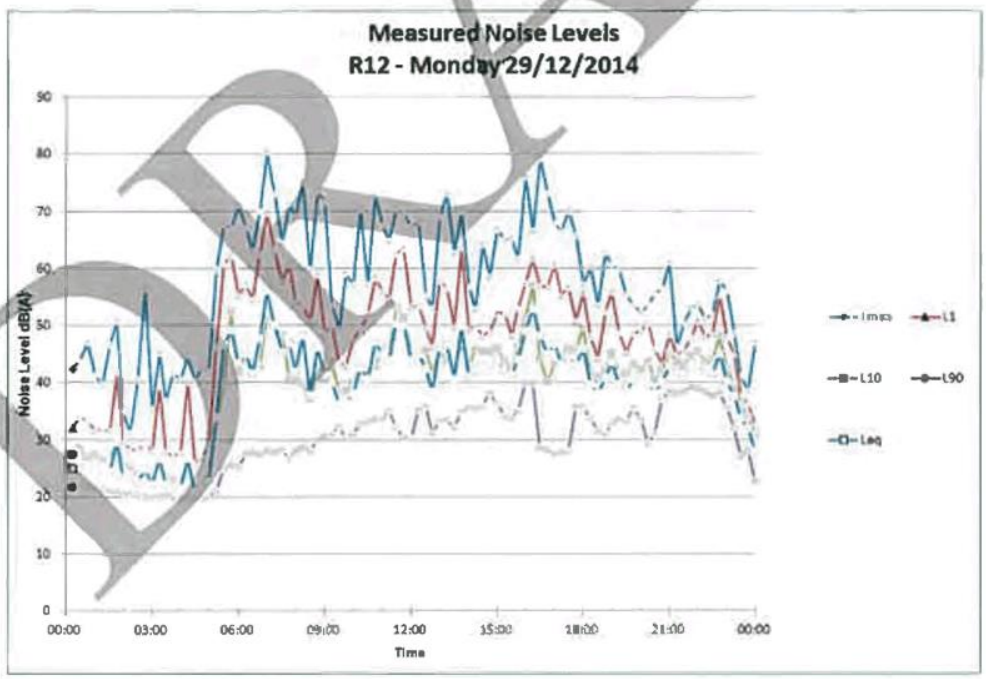
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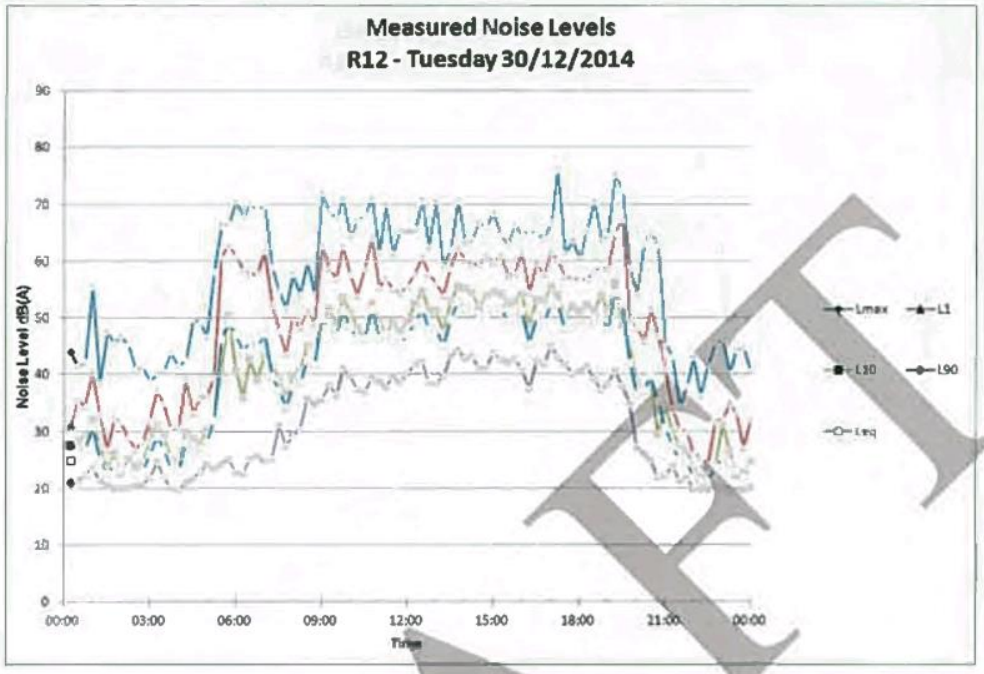
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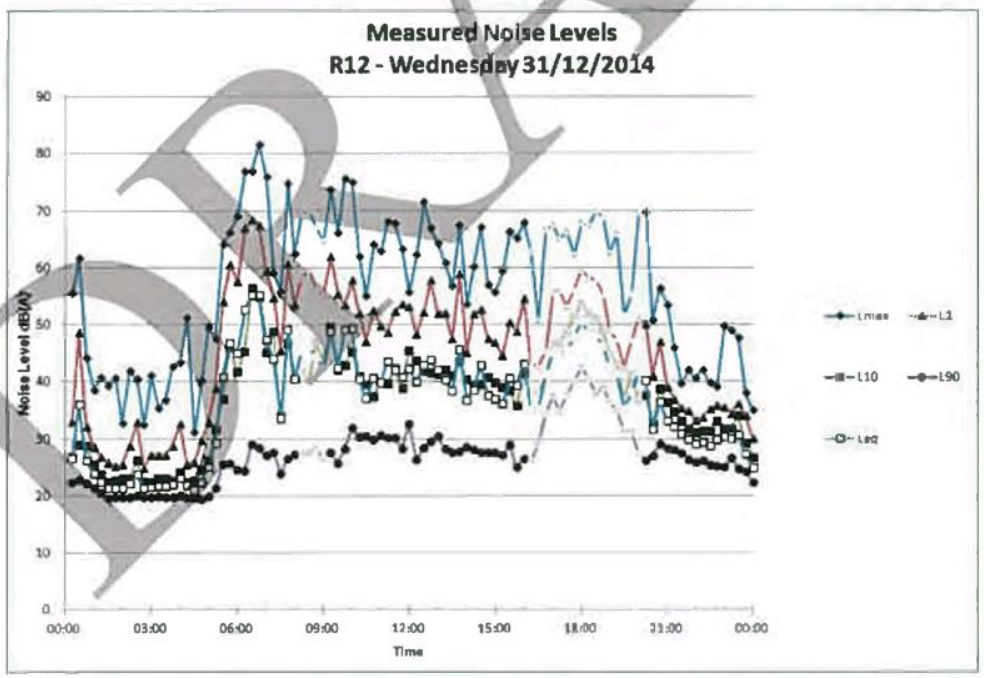
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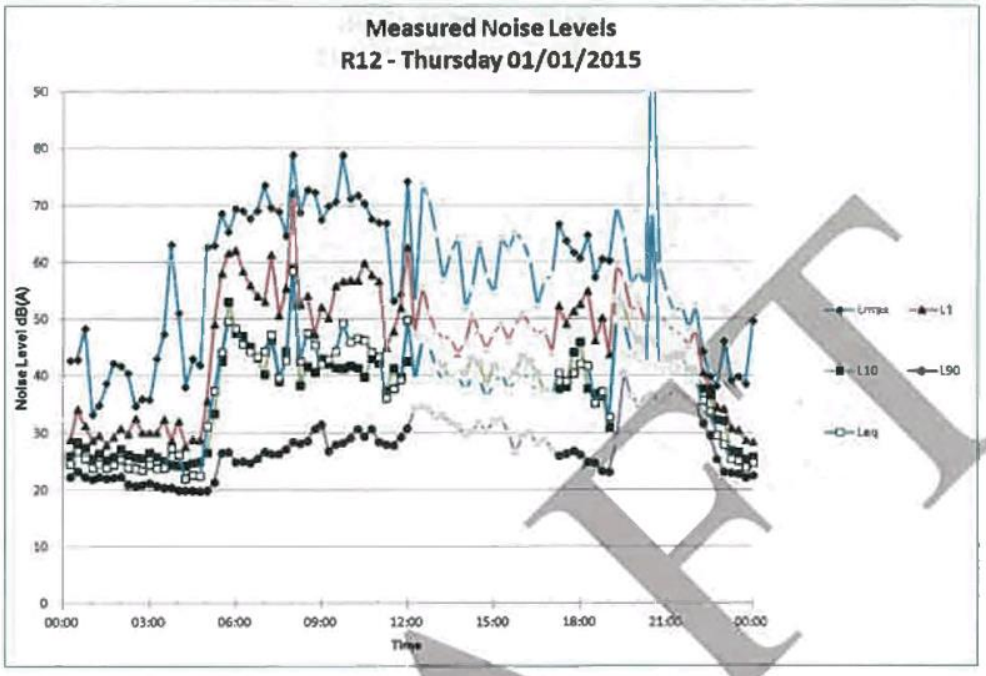
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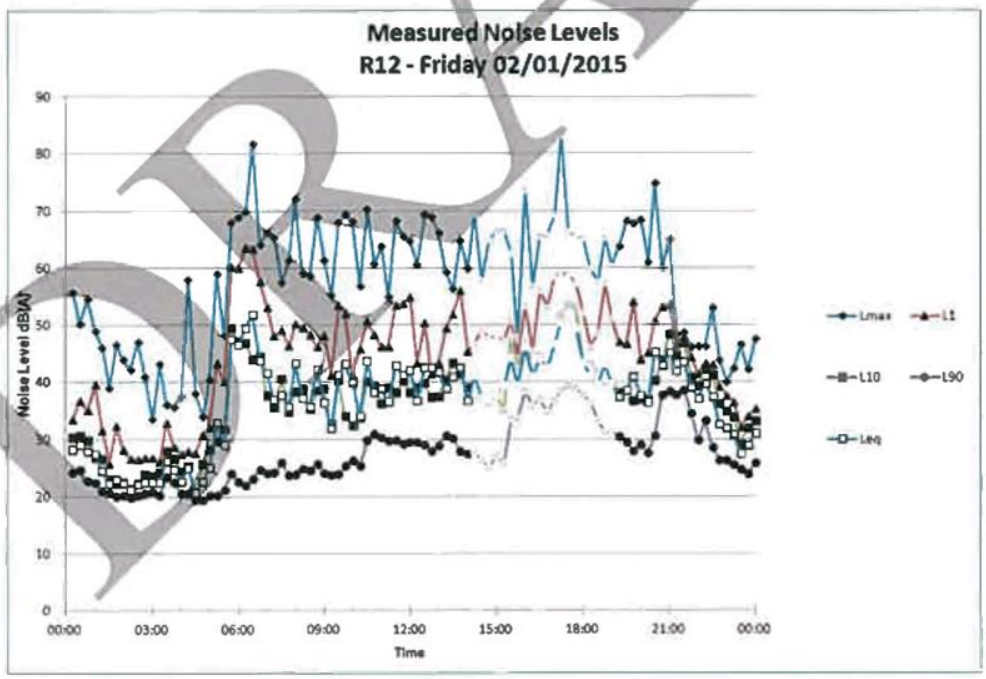
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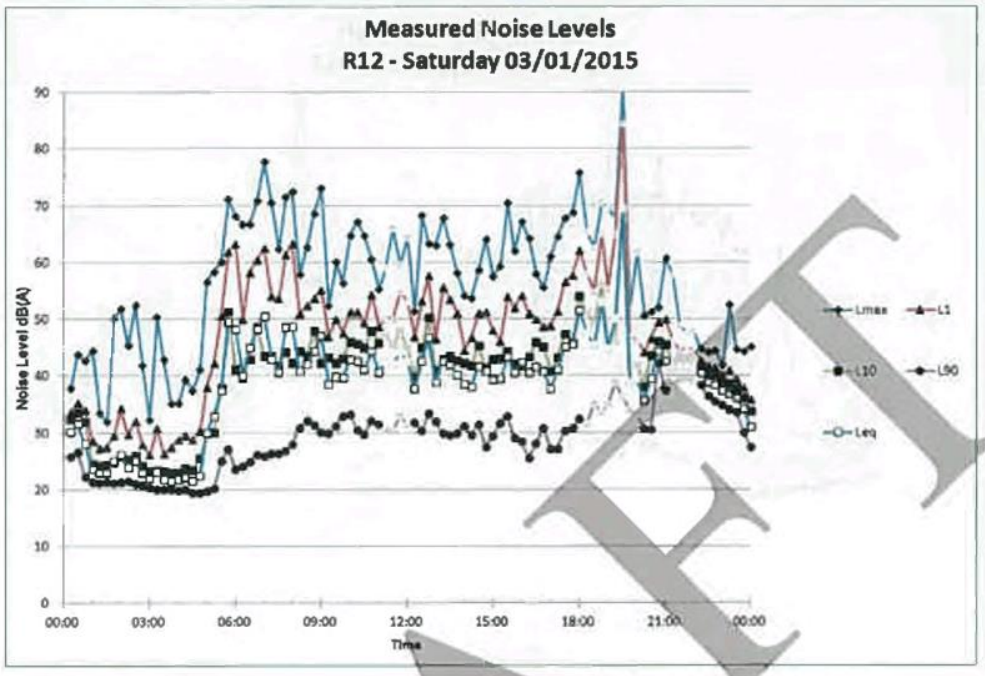
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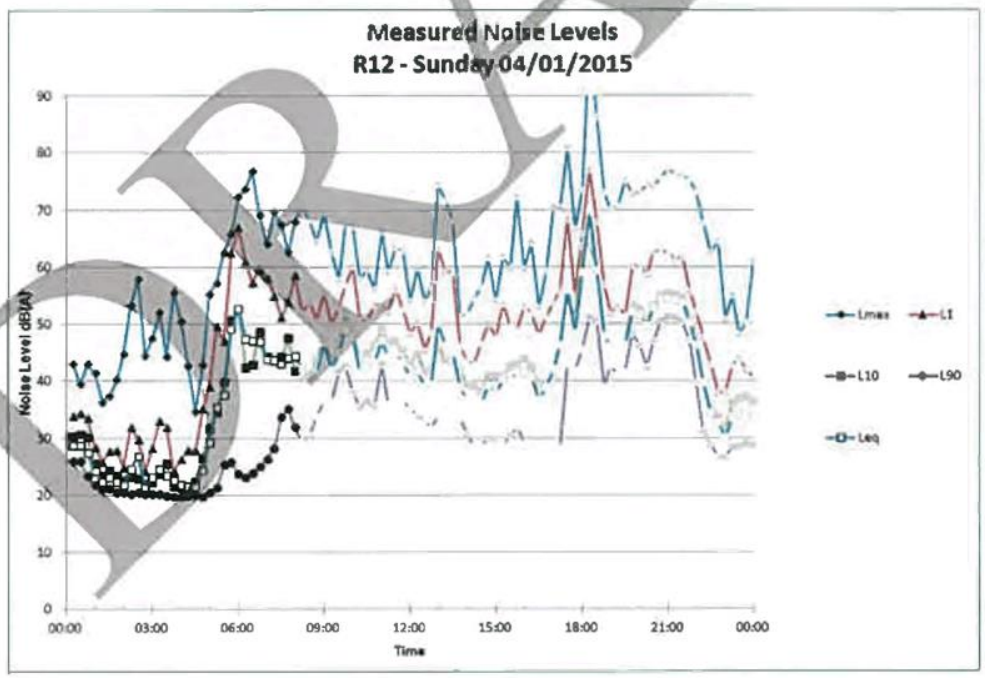
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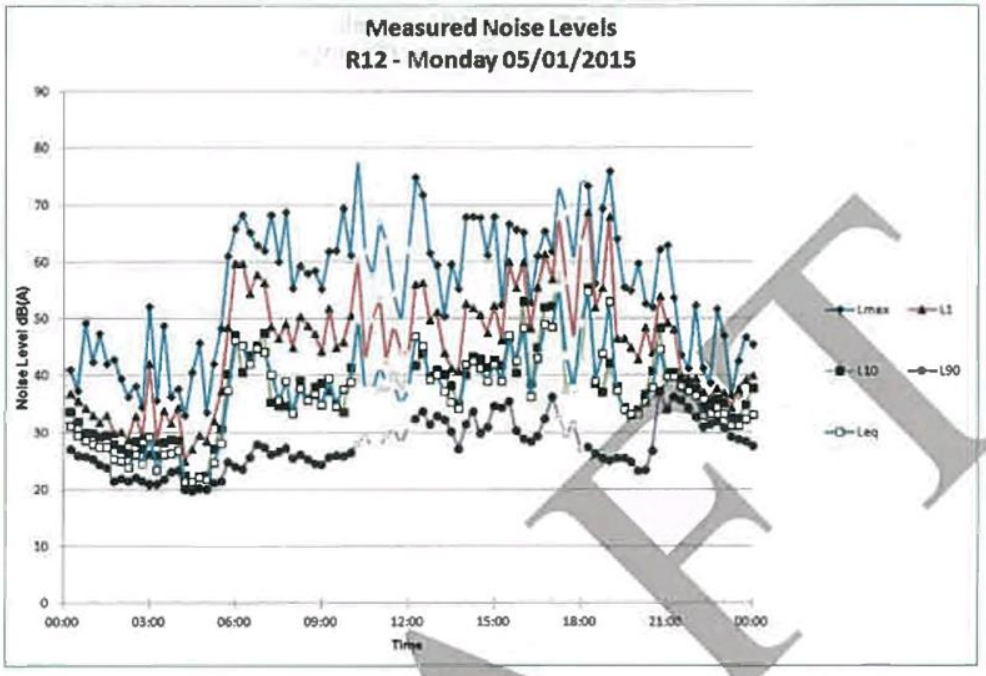
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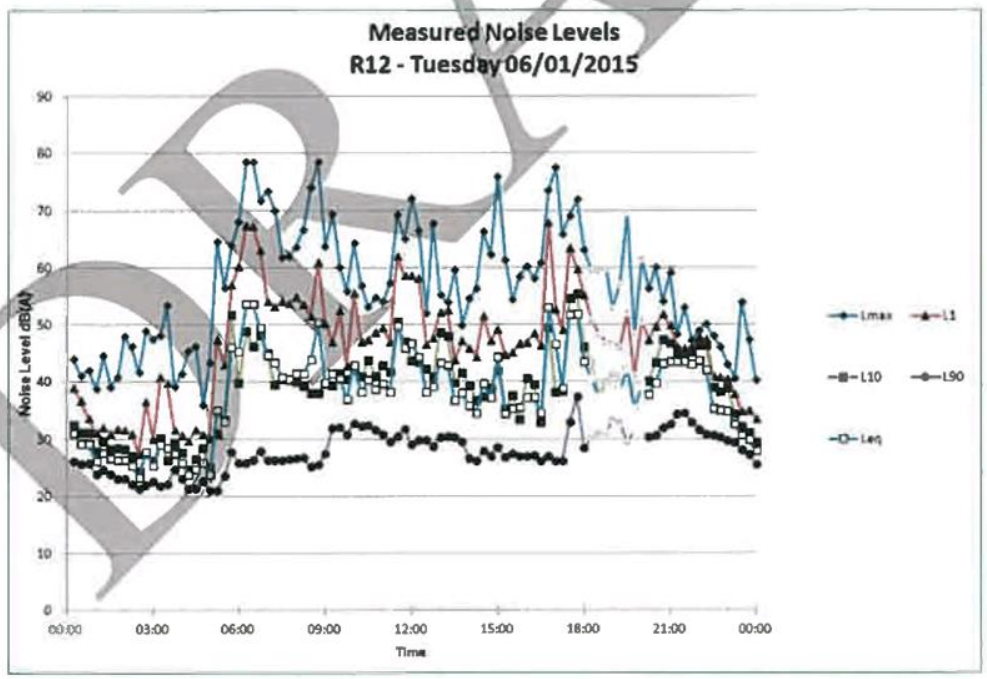
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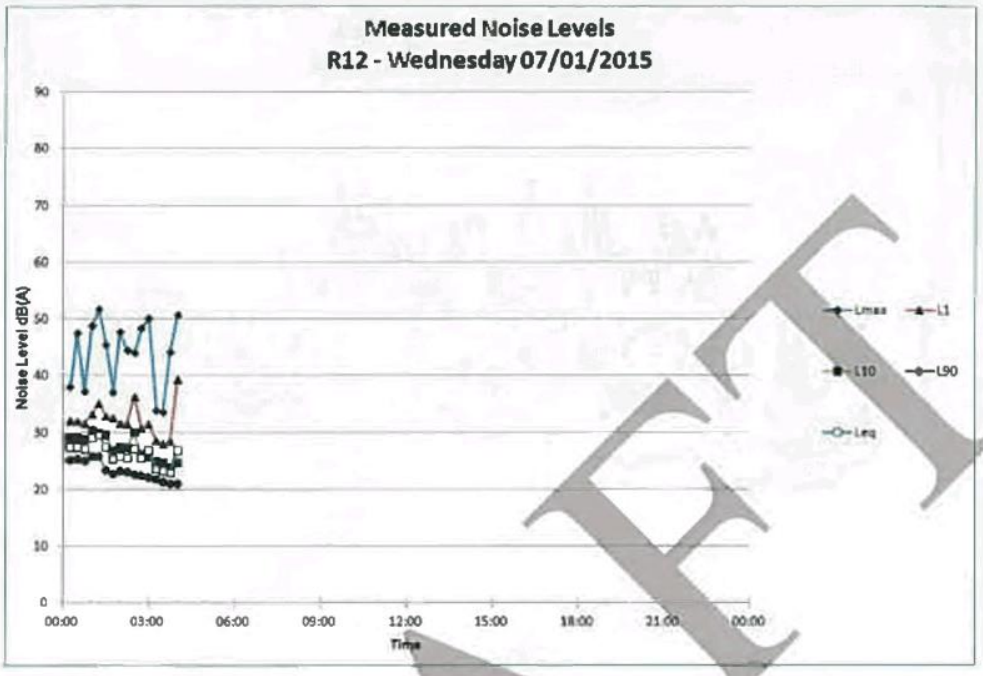
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Attachment 5: Case Study No. 2 from *'Noise Guide for Local Government'*

**Figure 3.3: Summary of Prevention Notice No. 2 – Sydney Cricket and Sports Ground Trust**

| | |
|---|---|
| All events | Monitoring to be undertaken within 1 metre of the boundary of most affected residential premises (these locations are specified on the Notices). |
| Both venues | Maximum of 4 concerts per calendar year at either the cricket ground or football stadium. |
| Both venues | Concerts must only be held between 10 am and 10.30 pm and not be greater than 3 hours duration.<br>Rehearsals for each concert must be held between 10 am and 7 pm and be kept to an absolute minimum.<br>Sound tests for each concert must be held between 10 am and 7 pm and be kept to an absolute minimum. |
| For the cricket ground | $L_{A\ Max}$ must not exceed 70 dB(A).<br>$L_{C\ Max}$ must not exceed 90 dB(C). |
| For the football stadium | $L_{A\ Max}$ must not exceed 80 dB(A).<br>$L_{C\ Max}$ must not exceed 100 dB(C). |

**Notes:**

1. The precinct where the football stadium and cricket ground are located is historically a major noisy entertainment area (speedway events were held in this area in the past). However, the area is in close proximity to residential areas, particularly the football stadium.
2. The distance from the stage to neighbouring residents when events are held at the football stadium is around 50 to 100 metres.
3. This Notice requires justification to be provided to DECCW as to why an event needs to be held at the football stadium, for example, evidence of the unavailability of alternative suitable venues etc.
4. The maximum permitted noise levels, which are designed to enable a large concert to be just viable, have been set to prevent any unnecessarily excessive noise levels affecting residences.

Other conditions also apply on these notices which detail requirements regarding prior notification of residents and monitoring and reporting procedures etc. The complete notices may be viewed at: www.environment.nsw.gov.au/prpoeoapp/searchregister.aspx

## Case study 2: Noise from a motor sport facility

Council received inquiries about a proposal to establish a motor racing facility, which would involve drag racing and circuit racing. Council advised that any proposal for such a facility would require a noise assessment predicting noise impact from the proposed development. Council further advised that the noise assessment should be undertaken in two stages. The first stage would focus on site planning, thereby providing input into the facility location, siting and orientation. The second stage would address operational noise impacts.

In this scenario the noise assessment should assess:

- the sound power level of the different types of racing vehicle
- the number and type of events planned for the facility (e.g. drag racing, motocross, circuit racing, speedway or go-karts)
- the number and location of racing cars on the circuit and in any pit or warm-up areas
- potential meteorological effects on noise propagation and impacts in the surrounding area (the *NSW Industrial Noise Policy* (EPA 2000) provides guidance on this aspect).

The noise assessment should also identify the vehicle numbers on the track and their configuration with the potential to cause maximum noise impact. Noise modelling that is applied to each proposal should be compared with actual measurements that would serve to validate the model for this use.

Council also asked that the noise assessment provide noise mitigation strategies for the facility as well as predicted noise level reductions. Council expected that such an assessment would discuss the feasibility of the following noise mitigation and management options.

**On-site noise mitigation**

- Orient the track to use existing topography to reduce noise at noise-sensitive receivers.
- Locate very noisy racing track types (e.g. drag racing) furthest from noise-sensitive receivers and orient them to minimise noise.
- Use earth mounds and barriers.

**Noise source controls**

- Use effective mufflers on racing vehicles and require all vehicles to meet Confederation of Australian Motor Sport noise specifications.
- Implement a program for testing the noise of racing vehicles to ensure they meet racing association noise limits.

**Operational noise controls**

- Restrict times for practice and race days.
- Use respite periods during the racing schedule of an event.
- Limit of the number and type of events.

**Receiver noise controls**

In extreme situations and as a last resort, council could consider attaching development consent conditions requiring the proponent to implement noise controls at receiver locations such as:

- noise insulation for nearby houses
- where noise impacts are totally unacceptable, and the facility continues to operate, the proponent offering to acquire nearby property.

Legal advice should be sought if these types of condition are proposed.

**Operational noise management plan**

In addition to implementing many of the noise mitigation strategies mentioned above, council decided to ask the motor racing organisation to develop an ongoing noise management plan for events at the proposed facility. This noise management plan was included as a development consent condition, providing clear requirements for noise from the site and enabling council to regulate the operation of the facility. The noise management plan identified the number of events that would be allowed to occur at the facility, the noise monitoring program and the operator's complaint management system.

The event schedule (Table 3.1) for the motor racing facility was based on achieving a balance between how loud different racing events were likely to be and how often they occur. In this way council felt there was some control over the amount of noise nearby residents would be exposed to.

Using this approach, council decided that the maximum number of events that would be permitted in any 12-month period would be 50 with noise of background plus 5 dB. Where some events were likely to be noisier than this, then the number of events would reduce according to a ratio shown in Figure 3.4. The graph allows for an event multiplication factor to be assigned where noise from the event exceeds background plus 5 dB(A). For example, an event that exceeded the background by 8 dB(A) would count as two events, as the multiplication factor from Figure 3.4 is 2. The determination of an equivalent number of events from the graph was a way of capping the total amount of noise that adjacent residents would be exposed to over a year.

**Differences between impacts from new versus existing facilities**

The community is generally more sensitive to a new source of noise (e.g. from a new sporting facility at a greenfield site) than from existing facilities at the same noise level. This means that the same noise impact on the community from a new facility compared with an existing facility would occur only if the activity levels at the new facility were lower. In this case the proposal is for a new development. Therefore the number of events allowed for this new facility may be less than council might have approved for an existing facility of comparable size and proximity to residences.

The noise assessment report provided details of the expected noise levels from each type of racing event and how much the background noise level was likely to be exceeded. The noise impacts of drag racing in particular appeared to contribute a disproportionate amount to the 50 equivalent events allowed. Council suggested that the event schedule for the coming year be amended to include one drag racing event each year instead of the two proposed. This meant that the whole event schedule would not exceed the maximum of 50 equivalent events over the year. The type and number of events were included in the noise management plan.

The assessment noted that most racing events were held between 9 am and 5 pm, and up to ten late-night events up to 10 pm would be held each year. These operating times were also included in the proponent's noise management plan.

Council decided that a condition of development consent would be:

> *that the type, timing and number of events would be as specified in the facility's operational noise management plan approved as part of the application, and that these could be varied only following agreement by council.*

This condition provided certainty to the operator and the local community while allowing some flexibility.

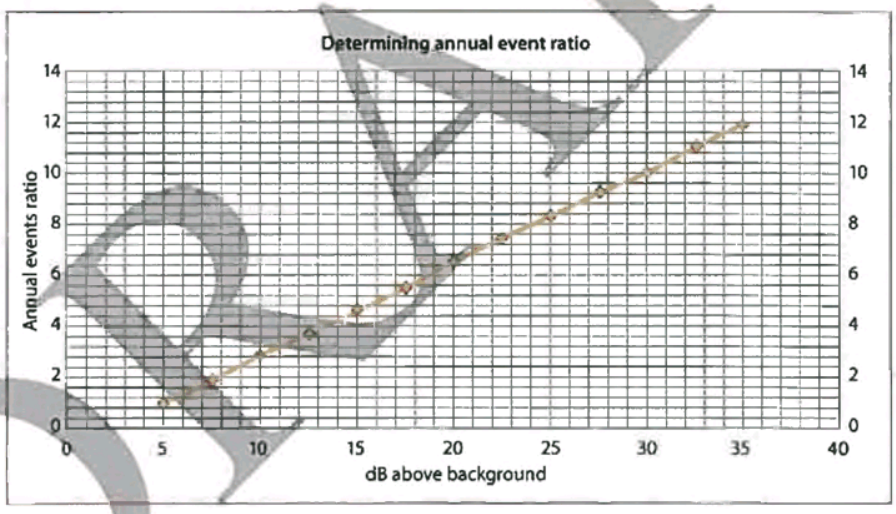
For existing motor sport facilities, where council is the ARA, council could regulate the activity under the POEO Act using a Noise Control Notice or a Prevention Notice to limit times of operation, noise levels and the way the activity is carried out.

A similar approach, balancing noise level against noise exposure, can be taken for other event-based activities such as target shooting ranges and lawful sporting events at specific sites.

Table 3.1: Motor sport event schedule

| Event description | Exceeds background by up to | Proposed no. of events x event multiplication ratio (from graph) | Equivalent no. of events | Amended equivalent events | Permitted no. of events |
|---|---|---|---|---|---|
| Super tourers | 20 dB | 3 x 6 | 18 | 18 | 3 |
| Drag racing | 30 dB | 2 x10 | 20 | 10 | 1 |
| Vintage series | 10 dB | 3 x 3 | 9 | 9 | 3 |
| 250/500 cc motorcycles | 18 dB | 2 x 6 | 12 | 12 | 2 |
| Proposed number of events | | | | 49 | 9 |
| **Total equivalent events allowed** | | | | **50** | |

Figure 3.4: Graph for determining event multiplication ratio from noise level



# NOISE MANAGEMENT PLAN
# PREPARED FOR
# WAKEFIELD PARK RACEWAY
# GOULBURN, NSW

*Prepared for:* Chris Lewis-Williams, Chief Executive Officer, Benalla Auto Club
Matthew Baragwanath, Operations Manager, Wakefield Park Raceway

*Prepared by:* Emma Hansma, Acoustic Consultant
Lauren O'Brien, Environmental Intern
R T Benbow, Principal Consultant

*Report No:* 171040_NMP_Final
August 2017
(Released: 30 August 2017)

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|---|---|---|---|
| Peter Gangemi | Acoustic Engineer |  | 30 August 2017 |

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| R T Benbow | Principal Consultant |  | 30 August 2017 |

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## Contents



## Tables



## Figures

# 1. INTRODUCTION

Benbow Environmental has been engaged by Benalla Auto Club Group to prepare a Noise Management Plan (NMP) for the current operations of the motor sports facility known as Wakefield Park Raceway at Lot 1 in DP 832905, being 4770 Braidwood Road, Tirrannaville, NSW, 2580 (the Site).

The Site is located within a rural area and Wakefield Park Raceway has been operating for 25 years. The nearest sensitive residential receptors were noted as being approximately 400 metres north of the Site boundary. Due to the community reaction to noise from the Wakefield Park Raceway, potential residential receptors up to 10 km from the Site have also been considered.

The purpose of this NMP is to implement management strategies for minimising the noise impacts at nearby residences from racing events held at Wakefield Park Raceway.

This NMP has been prepared in response to the letter from Goulburn Mulwaree Council dated 12 May 2017 (Council Letter).

# 2. SITE IDENTIFICATION

A brief outline of the subject Site has been provided below.

## 2.1 SITE LOCATION AND DESCRIPTION

The Site is located at Lot 1 in DP 832905, being 4770 Braidwood Road, Tirrannaville NSW. The Site is located approximately 11 km south of Goulburn and approximately 230 km south west of the Sydney CBD.

Figure 2-1 shows an aerial view of the Site. The Site is situated within the Local Government Area of Goulburn Mulwaree Council.

## 2.2 POTENTIAL RECEPTORS

Table 2-1 provides the list of the nearest identified sensitive receptors that could be potentially affected by the noise impacts from the Site's activities. The majority of receptors were selected based on their proximity and directional bearing from the Site. In addition, residential receptors R12, R13, R19, R20 and R21 have been included due to their previous feedback to Council.

The locations of all these receptors are shown in Figure 2-2 and more detailed in Figure 2-3.

Table 2-1: Nearest Identified Potentially Sensitive Receptors

| Receptor ID | Address | Easting, Northing (m) | Distance to Track (m) | Use |
|---|---|---|---|---|
| R1 | 4840 Braidwood Road, Tirrannaville | E: 196711 N: 6140252 | 410 | Residential |
| R2 | 4842 Braidwood Road, Tirrannaville | E: 197031 N: 6140350 | 410 | Residential |
| R3 | 4844 Braidwood Road, Tirrannaville | E: 197098 N: 6140452 | 530 | Residential |
| R4 | RFS Yattalunga Road, Tirrannaville | E: 196545 N: 6141229 | 1370 | Commercial |
| R5 | 24 Yattalunga Road, Tirrannaville | E: 197389 N: 6141220 | 1330 | Residential |
| R6 | Primary School - 4986 Braidwood Road Tirrannaville | E: 196484 N: 6141731 | 1850 | Education |
| R7 | 5006 Braidwood Road, Tirrannaville | E: 196570 N: 6141880 | 2000 | Residential |
| R8 | 2 Tirranna Lane, Tirrannaville | E: 196599 N: 6142058 | 2150 | Residential |
| R9 | Church - 5027 Braidwood Road, Tirrannaville | E: 196705 N: 6142098 | 2210 | Place of Worship |
| R10 | 182 Elm Grove Road, Tirrannaville | E: 198211 N: 6141927 | 2300 | Residential |
| R11 | 244 Elm Grove Road, Tirrannaville | E: 198943 N: 6142129 | 2850 | Residential |
| R12 | 305 Readers Road, Tirrannaville | E: 200232 N: 6130379 | 9540 | Residential |
| R13 | 264 Readers Road, Tirrannaville | E: 199799 N: 6130664 | 9110 | Residential |
| R14 | 91 Painters Lane, Tirrannaville | E: 197675 N: 6137572 | 1880 | Residential |
| R15 | 73 Painters Lane, Tirrannaville | E: 197565 N: 6137592 | 1800 | Residential |
| R16 | 4672 Braidwood Road, Tirrannaville | E: 197140 N: 6138617 | 690 | Residential |
| R17 | 333 Currawang Road, Tirrannaville | E: 194378 N: 6138060 | 2670 | Residential |
| R18 | 322 Currawang Road, Tirrannaville | E: 194249 N: 6138301 | 2650 | Residential |
| R19 | 270 Currawang Road, Tirrannaville | E: 194589 N: 6138710 | 2260 | Residential |
| R20 | 4971 Braidwood Road, Tirrannaville | E: 196006 N: 6141414 | 1470 | Residential |
| R21 | 5207 Braidwood Road, Tirrannaville | E: 195926 N: 6143237 | 3430 | Residential |

Figure 2-1: Site Aerial View


Image Source: © Google Earth

Figure 2-2: Aerial View of the Site Location with the Nearest Identified Receptors – Zoom Out

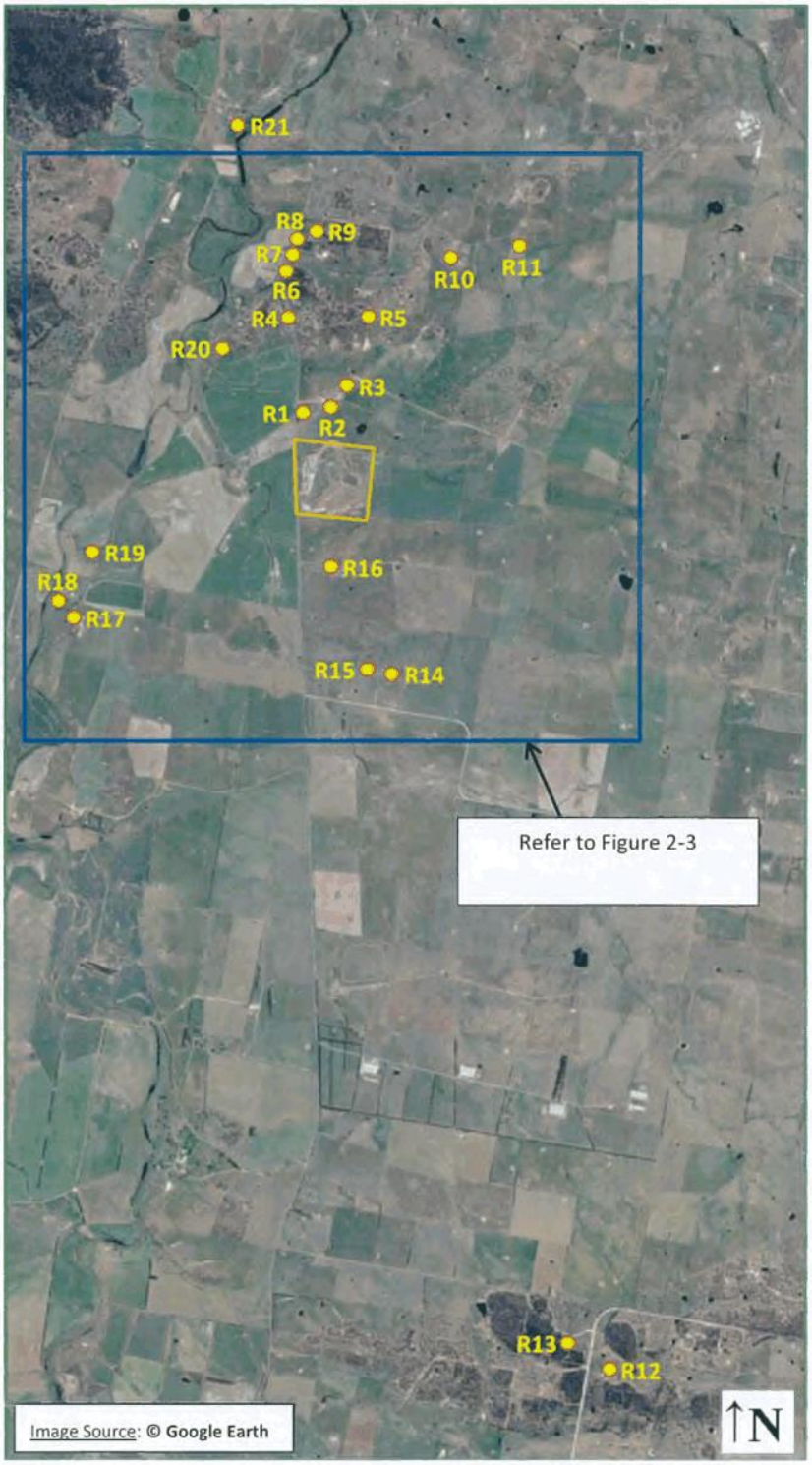
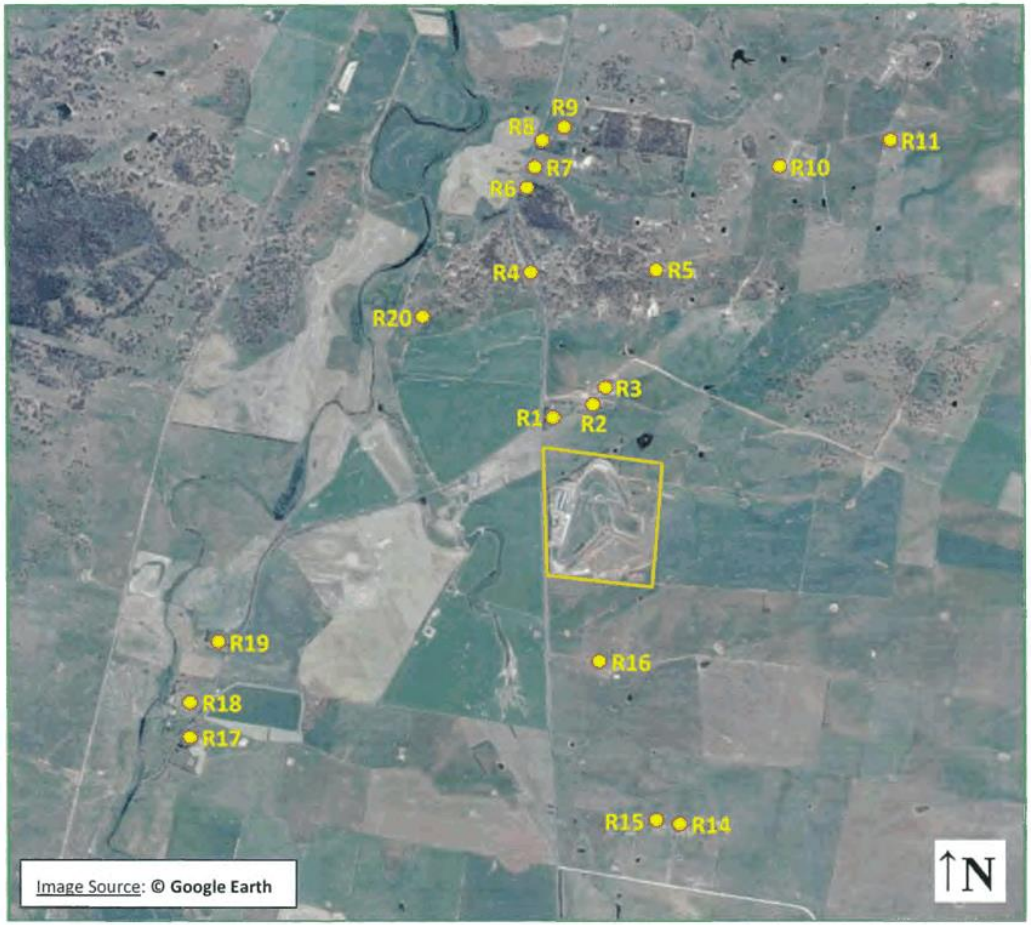


Figure 2-3: Aerial View of the Site Location with the Nearest Identified Receptors – Zoom In



# 3. NOISE MITIGATION MEASURES

This section examines all reasonable and feasible noise control strategies for the Site. Section 3.1 provides an overview of operational management practices that are recommended to be implemented at Wakefield Park Raceway, while section 3.2 addresses physical noise control measures at residential receivers and the track.

## 3.1 OPERATIONAL NOISE MANAGEMENT/CONTROL

This section outlines operational controls that will be implemented at the Site. In particular, Wakefield Park Raceway will introduce a "Static Vehicle Testing Program". This Program, as outlined below, will require a prescribed number of vehicles to be tested prior to participation to ensure they are compliant with the recommended noise criteria. If a vehicle fails to comply with the Static Vehicle Testing Program, the vehicle will not be able to be driven at the Site.

The following operational noise management procedures and controls are recommended to be implemented at Wakefield Park Raceway:

- Changes to operational hours to accommodate Temperature inversion in certain circumstances;
- Operational hours;
- Ongoing noise monitoring of the Site and vehicles;
- Recommended restrictions on track activities;
- Ongoing community consultation;
- Ongoing event notifications;
- Continuing education package; and
- Continual improvement program.

### 3.1.1 Static Vehicle Testing Program

A Static Vehicle Testing Program will be implemented at Wakefield Park Raceway to ensure, as far as possible, only vehicles which are compliant with the relevant noise criteria for the Site can participate in events at Wakefield Park Raceway. The Static Vehicle Testing Program will be implemented prior to the commencement of track activities on each operational day at Wakefield Park Raceway.

*Proposed Static Vehicle Testing Program Procedure*
To assist in achieving compliance with the 95 dB(A) noise criteria at 30 metres from the track, Wakefield Park Raceway will undertake static vehicle testing in accordance with the Static Vehicle Testing Program.

As part of the Static Vehicle Testing Program, Wakefield Park Raceway will designate a trained Sound Control Officer (SCO) for each event. The SCO will be trained in the Static Vehicle Sound Test as described in Section 3.1.2. The SCO will test whichever is the greater number of vehicles:

- 15 vehicles per operational day; or
- 20% of the total number of vehicles participating on that operational day.

The SCO will select vehicles for testing which he or she considers are most likely to trigger the noise criteria.
In addition, all exceedances at the Soundweb logger during an event will be alerted to the SCO. The SCO will investigate the cause of the exceedance. If it is likely that the exceedance is due to multiple cars passing the Soundweb logger simultaneously, this must be stated and signed off by an authorised member of staff. If it is observed that the exceedance is most likely due to a single vehicle, sound testing is recommended to be undertaken on the vehicle(s) likely to have caused the exceedance in accordance with the Static Vehicle Testing Program.

### 3.1.2 Static Vehicle Sound Test

Benbow Environmental has considered potentially suitable static vehicle sound test methods for implementation at Wakefield Park Raceway. Benbow Environmental has considered, for example, the National Stationary Exhaust Noise Test Procedures for In-Service Motor Vehicles. Benbow Environmental considered this test to be impractical to implement at a racetrack as it involves static tests for road vehicles that vary the rpm and monitoring location depending on the type of vehicle and do not provide limits corresponding to the 95 dB drive by limit.

Consequently, Benbow Environmental recommends that the Static Vehicle Test be based on the Motorcycling Australia's 'Two Metre Max' sound test. Benbow Environmental has calculated that a maximum sound level of 118 dB(A) using the 'Two Metre Max' method corresponds to 95 dB(A) at 30 m from track, but allows measurements to be carried out more quickly and to a more repeatable standard that can be implemented by scrutineers.

The Motorcycling Australia Two Metre Max Test is considered to be an acceptable method for both cars and motorcycles. Although this test is designed for motorcycles, it is considered to be also be suitable for cars and use at the Wakefield Park Raceway as the test and limit (118dB(A)) is based on the distance from the exhaust and the measurement location rather than the vehicle type.

Two metres is considered to be an appropriate distance from the vehicle to undertake the test as this distance will result in a noise measurement that will be equivalent to that experienced at 30 m during a drive by test.

Detailed descriptions of the Motorcycling Australia Two Metre Max method can be found in Appendix C of the 2017 Manual of Motorcycle Sport (Motorcycling Australia, 2017), but a summary of the method is outlined here for staff training purposes. A designated SCO is recommended to carry out the sound testing with an assistant.

#### 3.1.2.1 Overview of Two Metre Max Method

The following outlines the procedures that should generally be adopted for implementing the test. It is recommended a suitably qualified acoustic consultant assist the SCO in the initial implementation of the Two Metre Max Test procedure to ensure the method detailed in Appendix C of the 2017 Manual of Motorcycle Sport is followed or varied as recommended by Benbow Environmental where practicable.

If the result exceeds the limit of 118 dB(A), the SCO can test the vehicle again and if the result exceeds the limit a second time, the vehicle will not be permitted to undertake any track activities until such time as the test is performed again and the vehicle meets the required limit.

### 3.1.3 Temperature Inversion

Several different weather conditions affect the operation of the track at Wakefield Park Raceway. If there is fog, Wakefield Park has to delay the start time of the race to ensure the drivers have adequate visibility. Temperature inversion events also have the potential to result in an increase in noise impacts.

Accordingly, a Site-specific temperature inversion forecasting system is recommended to be implemented for the Site. If implemented, the site-specific onshore forecast will include a table of daily forecast values at 6 hourly intervals (6.00am, 12.00pm, 6.00pm, and 12.00am) for the following 60 hours, detailing:

- wind strength and direction and peak gust; and
- inversion strength (defined as none, weak, moderate, strong).

Once Wakefield Park Raceway has implemented this service, the forecast table would be disseminated to a group email address, subscription to which would be managed by Wakefield Park Raceway. A dedicated web page could also be set up for the Wakefield Park Raceway's forecasts.

#### 3.1.3.1 Temperature Inversion – Start Time

If temperature inversion for 6.00am is forecast as "strong" by the relevant provider, it is recommended that on-track activities not start before 10am, unless a race meeting for State or National level is planned, noting that on average Wakefield Park Raceway holds five or six such events a year. In order to provide a reliable venue for State or Nationally significant race meetings, Wakefield Park Raceway is unable to delay circuit start time due to forecast temperature inversion.

With the temperature inversion forecasting system in place, high resolution temperature inversions can be predicted 3 days in advance. This allows the proponent time to inform the guests of the later start time.

#### 3.1.3.2 Temperature Inversion – Race Scheduling

In addition to the above recommendations on temperature inversions, known noisy race categories, such as sports sedans, will be scheduled for later in the day to allow any strong temperature inversions to dissipate. It is recommended this race scheduling practice is implemented for **all** events, including State and National levels events, even when temperature inversion is not forecasted.

### 3.1.4 Hours of Operation

Subject to other recommendations outlined in this NMP, Wakefield Park Raceway's operating hours are as follows, Monday to Sunday:

- 9:00am – 5:00pm for use of the motor racing circuit ; or
- 9:00am – 6:00pm or sundown, whichever occurs first, for racing events

No racing will occur before 9:00am.

### 3.1.5 Restrictions on Track Activities

Benbow Environmental has developed the below set of recommended restrictions on track activities with the aim of reducing the current noise levels for residential receptors while allowing the Wakefield Park Raceway to remain financially viable.

In developing the recommended track restrictions, Benbow Environmental has:

- undertaken a detailed review of existing noise guidelines, including the Noise Guide for Local Government and the Industrial Noise Policy;
- analysed the existing noise impacts from the track;
- considered the wider community benefits of Wakefield Park Raceway; and
- had regard to the noise mitigation measures outlined in this NMP.

In light of the above, the recommended restrictions on track activities will allow for track activities to remain economically viable, maintaining the economic contribution to the Goulburn region whilst requiring Wakefield Park Raceway to adopt all reasonable and feasible noise measures stated within this NMP.

Section 8.2 of the Industrial Noise Policy states "Where, in the final analysis, the level of impact would still exceed the project-specific noise levels (set out in the INP), the economic and social benefits flowing from the proposed development to the community should be evaluated against the undesirable noise impacts. Where it can be demonstrated by the proponent that the development offers net benefits, a regulatory/consent authority may consider these as grounds for applying the achievable noise levels, rather than the project-specific noise levels, as the statutory compliance limit"

It is understood that Urban Enterprise have completed an economic study in which it was found that Wakefield Park Raceway contributes $14.9M per annum and 71 full time equivalent (FTE) jobs to the Goulburn Region.

Recommended restrictions on track activities

The recommended restrictions follow the format of the case study for the Noise Guide for Local Government, with brackets for below 5 dB(A) above background noise levels, up to 10 dB(A) above background noise levels and up to 20 dB(A) above background noise levels, bearing in mind the need for track activities to remain economically viable whilst, as stated above, requiring Wakefield Park Raceway to adopt all reasonable and feasible noise measures stated within this NMP.

Benbow Environmental therefore recommends the following:

- 6 weekends (12 days) per year in which noise levels may exceed the background noise level by over 20 dB(A)[1] at the relevant receivers;
- 50 days per year for events in which noise levels may exceed the background noise level by 10-20 dB(A) at the relevant receivers;
- 100 days per year for events in which noise levels may exceed the background noise level by 5-10 dB(A) at the relevant receivers; and
- Remainder of the calendar events in which noise levels may exceed the background noise level by up to 5 dB(A) at the relevant receivers.

Alongside managing the racing calendar to meet the recommended noise criteria, it is recommended that Wakefield Park implement all the noise management and physical control measures stated in this NMP.

The above restrictions are predicted to result in noise impacts being reduced from the current noise levels for the nearby residential receivers.

### 3.1.6 Community Consultation Committee

It is understood that there is a community consultation group between residents, Goulburn Mulwaree Council and Wakefield Park Raceway. It is recommended the group meet following the finalisation of this NMP to commence discussions about the implementation of the noise controls outlined in this NMP. It is recommended that the group meet on an ongoing, quarterly basis to assess the effectiveness of measures outlined in this NMP.

### 3.1.7 Event Notifications

All events will be placed on the event calendar on the Wakefield Park Raceway website as soon as practically possible.

### 3.1.8 Education Package

This NMP forms part of an education package for Wakefield Park Raceway management to train staff and clients in noise compliance. To avoid disputes between motor sports enthusiasts and Wakefield Park Raceway's clients and management, education on the need for noise compliant vehicles is of high importance. This Education Package will be implemented alongside the Continual Improvement Program outlined below at Section 3.1.10.

Wakefield Park Raceway management must ensure that all staff understand the importance of noise compliance to the future operation of the raceway. At least one trained SCO is recommended to be present at all events and complete noise testing as outlined in Section.3.1.1. The SCO must be familiar with the contents of this NMP, and a copy of this NMP should be available to staff at all times for reference. All staff must work together to communicate the importance of noise compliance to clients of Wakefield Park Raceway.

[1] This will allow Wakefield Park to continue their NSW Championship Events

In addition, Wakefield Park Raceway will engage directly with clients to ensure they are aware, and understand the importance, of noise compliance at the Site.

### 3.1.9 Soundweb Monitoring Procedures

The Site currently has a Simpson Group Soundweb system installed 30 m from the track. The Simpson Group Soundweb system performs continual noise monitoring at the Site. The data is measured in real time. If an exceedance of the 95 dB(A) limit is recorded, an image of the car(s) passing during the event and the noise level measured is sent to the operational manager and several members of staff at Wakefield Park Raceway. It is recommended that this practice continue and the information should also be sent to the trained SCO. A record of measurement recorded by the Soundweb system is to be maintained by Wakefield Park Raceway. Records will be kept for a period of 12 months.

### 3.1.10 Continual Improvement Program

Following the finalisation of this NMP, Wakefield Park Raceway will implement a Continual Improvement Program. As part of this program, Wakefield Park Raceway will undertake a strategic review of all its documents, agreements and policies to ensure they are compliant with this NMP.

In particular, as part of this program, Wakefield Park Raceway will implement measures to ensure that their clients explicitly understand and are required to adhere to the noise limits outlined in this NMP, and will not be allowed to drive or use their non-compliant vehicle(s) at the Site. For instance, Wakefield Park Raceway will amend any agreement or forms that clients are required to sign in order to ensure clients are aware of and adhere to the requirements of this NMP.

## 3.2 Physical Noise Mitigation Measures

### 3.2.1 Onsite Noise Controls

Onsite noise controls can be an effective way of reducing noise impacts at sensitive receptors. The potential construction of earth berms and noise walls at the track has been further investigated by Benbow Environmental and subsequently predicted using the noise modelling software SoundPLAN not to provide significant attenuation due primarily to the inability to position barriers immediately next to the track in some areas and the topography of the Site sloping uphill to the east. In some areas of the track, such as the outside of fast corners, barriers cannot be placed immediately next to the track for safety reasons.

In addition, it is predicted that the cost of constructing onsite noise controls would be very high for a relatively small reduction in noise impacts, and therefore onsite earth berms and noise barriers are not considered to be reasonable or feasible.

Benbow Environmental has reviewed the public address system and is of the view that it does not materially contribute to noise levels at the receptors.

### 3.2.2 Residential Noise Controls

Noise modelling predicts that controls at the receivers are a more effective management solution than onsite berms and barriers for the Site. Two options for potential noise controls at the receivers include:

- Courtyard walls; and
- Installation of double glazed or secondary windows.

SoundPLAN modelling found that courtyard walls 3 metres high and 10 metres from the receiver may provide up to 8 dB of attenuation at nearby receivers. Retrofitting double glazed or secondary windows in existing houses is also recommended to reduce internal noise levels at surrounding receivers.

Wakefield Park Raceway is recommended to consult sensitive receivers and offer to install appropriate noise controls at their residences, as described above, to reduce potential noise impacts. It is recommended that Wakefield Park Raceway:

- Provide/offer residents R5, R7, R8, R10, R11, R14, R15, R16, R17, R18, R19, R20 and 326 Currawang Road, Tirrannaville works aimed at reducing the noise impact to their properties. The extent of the works offered will reflect the noise impact at the relevant property as determined by testing undertaken by Benbow Environmental. By way of example, works may include the installation of the noise controls outlined above, namely, courtyard walls and double glazed/secondary windows; and
- Engage with the land owners represented by R1 - R3, regarding the existing arrangement for noise criteria at these locations (see Section 3.1.5);

## 4. REVISION OF NOISE MANAGEMENT PLAN

It is important to ascertain whether the recommendations stipulated in this NMP are effective at reducing noise impacts at nearby sensitive residential receptors. Therefore, it is recommended that this NMP be reviewed by Wakefield Park Raceway in 12 months' time.

This concludes the report.

| | | |
|---|---|---|
| Emma Hansma | Lauren O'Brien | R T Benbow |
| Environmental Engineer | Environmental Intern | Principal Consultant |

## 5. LIMITATIONS

Our services for this project are carried out in accordance with our current professional standards for site assessment investigations. No guarantees are either expressed or implied.

This report has been prepared solely for the use of Wakefield Park Raceway, as per our agreement for providing environmental services. Only Wakefield Park Raceway is entitled to rely upon the findings in the report within the scope of work described in this report. Otherwise, no responsibility is accepted for the use of any part of the report by another in any other context or for any other purpose.

Although all due care has been taken in the preparation of this study, no warranty is given, nor liability accepted (except that otherwise required by law) in relation to any of the information contained within this document. We accept no responsibility for the accuracy of any data or information provided to us by Wakefield Park Raceway for the purposes of preparing this report.

Any opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal advice.

## 6. REFERENCES

1. Motorcycling Australia. (2017). Sound emissions and fuel. In *2017 Manual of Motorcycle Sport* (pp. 320–322). South Melbourne: Motorcycling Australia. Retrieved from http://moms.org.au/wp-content/uploads/2014/01/2017-MoMS_v6_website.pdf

Wakefield Park Motorsports
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Tirrannaville NSW 2580
(02) 4822 2811
www.wakefieldpark.com.au

SCANNED

31 August 2017

Stewart Lloyd
Environmental Health Officer
Goulburn Mulwaree Council
Locked Bag 22, Goulburn NSW 2580

E: stewart.lloyd@goulburn.nsw.gov.au

INTERNAL REF: 941222
31 AUG 2017
Goulburn Mulwaree Council

Dear Stewart,

We refer to your letter of 3 August 2017 and the Direction Notice issued to us by Council on 12 May 2017. We also refer to our letter of 7 August 2017.

We **enclose** a copy of the proposed Noise Management Plan (the **NMP**) prepared by Benbow Environmental. We confirm that Wakefield Park Raceway has already taken steps to commence implementation of some of the measures outlined in the NMP and will continue to do so going forward.

Benbow Environmental and Matt Baragwanath, Operations Manager at Wakefield Park Raceway would like to meet with Council to discuss the implementation of the NMP. Please let us know a convenient time and we will organise a meeting.

As noted previously, we remain committed to working with Council to find the best long term solution to these issues. We believe that our Noise Management Plan will go a long way to clarifying the way forward for all parties.

We look forward to discussing this matter with you further.

Kind Regards

Chris Lewis-Williams
Chief Executive Officer
**Benalla Auto Club Group**

Matt Baragwanath
Operations Manager
**Wakefield Park Raceway**

**Wakefield Park Meeting with Residents – 29 June 2021**

**Attendees**

GMC: *Warwick Bennett, Scott Martin, Sarah Ainsworth*

Residents in Person: *Jane Reardon, Gerard Reardon, Robert France, Andrew Gibson, Angus Gibson*

Residents via Zoom: *Kerrie Moore, Mason Thomas, Randolph Griffiths, Jill O'Malley*

**Summary of Comments**

Resident – Noise needs to be measured at the receiver.

Resident – Methodology is important – based on residents sums, 20 days would cover the large events that bring the biggest economic impact to Goulburn. 30 days would therefore be a starting point?

Resident - The starting point for the DA/Prevention Notice was based on 2019 calendar.

Resident – Would be interested in obtaining WPR's key revenue/marquee days. Jane – could we put the list (Motor Racing Australia, Superbikes, Super Trucks, Historic Sports) to WPR as a starting point?

Resident – Track hire days are a big revenue raiser – i.e. Trackschool.

Resident – Perhaps methodology could be based around particular days? Eg. Every Wednesday is a loud day? Questionable as to whether track days keep people in town, and therefore are they actually contributing to the economy?

Resident - WPR refer to some events as different names, however these are trading names of other Benalla Auto Club events.

Resident – Balance 3 things – Goulburn's economy, track viability and resident amenity.

GMC – Let's look to previous reports – i.e. Benbow stated 12 days in a report commissioned by WPR – if the residents are at 30, this is a substantial concession in itself.

Resident – Need to anticipate WPR's viability comments? Should Council seek legal advice in relation to economic figures provided by WPR/evidence of income?

Resident – 30 days is more than WPR have accommodated in the past with the racing events/organisations on Jane's list.

Resident – In Amber category, R20 would receive 39-49 dB.

Resident – Phase-in period?

Resident – It could be dangerous to start talking about a transition period. Let's start with the numbers today, and see where this leads.

Resident – Huge philosophical problem – everything is always what the residents can bare, it should be the other way around. i.e. the residents can live with x, therefore WPR needs to fit in with this.

Resident – WPR have a history of non-compliance, therefore they should not be entitled to a transition period. The way that the DA was framed is not a transparent process. Transitioning would only give a few more years of non-compliance.

Resident – Achieving the 30 day red category would go a long, long way in achieving the outcome that residents are seeking.

Resident – Trees will take decades to grow.

Resident – Noise barriers should be required. WPR has no/little presence of acoustic measures. No barriers is like building a Westfield without a carpark.

Resident – Acknowledging position of GM in putting these conditions together. A transition makes for a way forward, and would encourage staff to make further recommendations reducing noisy days.

Resident – What is the correlation between noise in table compared to what is received by residents?

Resident – Can Council distribute maps that have been generated – i.e. noise correlations at receivers.

GMC – Perhaps a condition can be drafted in relation to verifying the Predictive Noise Model.

Resident – Can the consent be specific in saying that the noise will not exceed x dB at receiver x.

Resident – Can the one weekend per month be the first weekend per month? For ongoing clarity and certainty.

Resident – Condition 14 needs to be peak noise, not the 15min average.

Resident – Condition 18 and 19 – independent auditor – commissioned by Council, funded by WPR.

Resident – Penalty for breaching an amber day is that WPR lose a red day within the following 12 month period. Council to be notified within specified period as to which red day will be forfeited.

Resident – Mass, not trees, that makes a difference in terms of noise. CCC to fall under guidance of Council under DPIE guidelines, members only affected residents, any resident of the LGA. Would like to see a new condition to reflect this.

Resident – What will happen after the consent is granted, operations commence but the works are never undertaken?

Resident – Phase-in needs to be careful not to be linked to the construction of the building, etc.

**Meeting with Wakefield Park Representatives – 2 July 2021**

**Attendees**

GMC: *Warwick Bennett, Scott Martin, Sarah Ainsworth*

Representatives for Wakefield Park: *Chris Lewis-Williams, Dean Chapman, Michael Oliver*

**Summary of Comments**

- Intro from GMC. Report will be prepared by, will be distributed next Wednesday or Thursday to WPR and submitters. Will go on website Friday.
- WPR – Have provided some of their thoughts via conditions.
- GMC – We have met the submitters, they have provided their feedback.
- WPR – We're not battling with people wanting to shut us down, however WPR need a long term workable solution to ensure the viability of the facility. Limiting WPR into the long-term will jeopardise things – for example, track needs re-surfacing therefore we need to be able to generate an income to enable reinvestment back into the facility. We want to be a facility that benefits the community.
- WPR – DA assessment must be evidence based. Technical advice provides the basis for an approval moving forward.
- GMC – Explained Steven Cooper's notes, the reason for the maps GMC have had to extrapolate, the concerns we have with very close receivers.
- WPR – The consent must consider the facts at this point in time. Any future owners should be undertaking due diligence.
- GMC – Let's focus on condition 13 – re: number of days, etc.
- WPR – The Red category are the events that bring in the dollars. The other events are however still just as important.
- GMC – R20 is 55dBA when WPR is 95dBA at the track edge. What is WPR doing to reduce the impact at a receiver such as R20?
- WPR – Condition 16 if followed, will address this.
- WPR – Is there no opportunity to lower Red and Amber, or transition to a lower noise.
- WPR – No further opportunity – the numbers being put forward by WPR were previously negotiated as part of the Prevention Notice. Any less will impact viability.
- GMC – If WPR aren't prepared to negotiate further, that's fine, we will put that to Council. Also, the Prevention Notice process didn't provide an opportunity for Councillors or the residents to participate or contribute.
- WPR – Happy with Dr Tonin to meet with Council and talk further to discuss noise issues. Can Council explain the change of measurements with the Blue Category?
- GMC – These were made upon request from Council and based on our learnings from the Prevention Notice process as well as what was learnt from Dr Tonin and Mr Cooper.
- WPR – What would a transition to this consent look like? We would anticipate a commencement of Noise Conditions (13 to 22) on 1 January 2022. This aligns with calendar, operations, etc.
- WPR – It needs to be recognised that WPR have come a long, long way in the past 3 years. This should be reflected in any condition relating to the commencement of any consent.
- WPR – Parking area condition requires reviewing (Condition 66), as well timing in relation to proposed Condition 22 (landscaping).

| | | Modelling Conditions | LAeq,15 Max SoundWeb | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 | R16 | R17 | R18 | R19 | R20 | R21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Standard Conditions | 87.2 | | | | | 51.4 | | 45.2 | 44.6 | | 44.7 | 42.1 | 25.7 | 26.4 | 45.4 | 43.7 | 56.4 | 31.3 | 31.7 | 36.7 | 51.2 | 39.6 |
| 1 | 2 | 3 | 4 | | | | | | | | | | | | | | | | | | | | | |
| Date | Day | Event Name | LAeq,15 Max SoundWeb | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 | R16 | R17 | R18 | R19 | R20 | R21 |
| 1/01/2018 | Monday | | | | | | | | | | | | | | | | | | | | | | | |
| 2/01/2018 | Tuesday | | | | | | | | | | | | | | | | | | | | | | | |
| 3/01/2018 | Wednesday | | | | | | | | | | | | | | | | | | | | | | | |
| 4/01/2018 | Thursday | | | | | | | | | | | | | | | | | | | | | | | |
| 5/01/2018 | Friday | | | | | | | | | | | | | | | | | | | | | | | |
| 6/01/2018 | Saturday | | | | | | | | | | | | | | | | | | | | | | | |
| 7/01/2018 | Sunday | | | | | | | | | | | | | | | | | | | | | | | |
| 8/01/2018 | Monday | | | | | | | | | | | | | | | | | | | | | | | |
| 9/01/2018 | Tuesday | | | | | | | | | | | | | | | | | | | | | | | |
| 10/01/2018 | Wednesday | | | | | | | | | | | | | | | | | | | | | | | |
| 11/01/2018 | Thursday | | | | | | | | | | | | | | | | | | | | | | | |
| 12/01/2018 | Friday | | | | | | | | | | | | | | | | | | | | | | | |
| 13/01/2018 | Saturday | WPM Ride day | 86.6 | | | | | 50.8 | | 44.6 | 44.0 | | 44.1 | 41.5 | 25.1 | 25.8 | 44.8 | 43.1 | 55.8 | 30.7 | 31.1 | 36.1 | 50.6 | 39.0 |
| 14/01/2018 | Sunday | WPM Track Day | 84.3 | | | | | 48.5 | | 42.3 | 41.7 | | 41.8 | 39.2 | 22.8 | 23.5 | 42.5 | 40.8 | 53.5 | 28.4 | 28.8 | 33.8 | 48.3 | 36.7 |
| 15/01/2018 | Monday | NSW Police | 54.4 | | | | | 18.6 | | 12.4 | 11.8 | | 11.9 | 9.3 | -7.1 | -6.4 | 12.6 | 10.9 | 23.6 | -1.5 | -1.1 | 3.9 | 18.4 | 6.8 |
| 16/01/2018 | Tuesday | NSW Police | 58.1 | | | | | 22.3 | | 16.1 | 15.5 | | 15.6 | 13.0 | -3.4 | -2.7 | 16.3 | 14.6 | 27.3 | 2.2 | 2.6 | 7.6 | 22.1 | 10.5 |
| 17/01/2018 | Wednesday | NSW Police | 58.1 | | | | | 22.3 | | 16.1 | 15.5 | | 15.6 | 13.0 | -3.4 | -2.7 | 16.3 | 14.6 | 27.3 | 2.2 | 2.6 | 7.6 | 22.1 | 10.5 |
| 18/01/2018 | Thursday | NSW Police | 66.9 | | | | | 31.1 | | 24.9 | 24.3 | | 24.4 | 21.8 | 5.4 | 6.1 | 25.1 | 23.4 | 36.1 | 11.0 | 11.4 | 16.4 | 30.9 | 19.3 |
| 19/01/2018 | Friday | Raceaway | 81 | | | | | 45.2 | | 39.0 | 38.4 | | 38.5 | 35.9 | 19.5 | 20.2 | 39.2 | 37.5 | 50.2 | 25.1 | 25.5 | 30.5 | 45.0 | 33.4 |
| 20/01/2018 | Saturday | Champion's Ride Day | 82.2 | | | | | 46.4 | | 40.2 | 39.6 | | 39.7 | 37.1 | 20.7 | 21.4 | 40.4 | 38.7 | 51.4 | 26.3 | 26.7 | 31.7 | 46.2 | 34.6 |
| 21/01/2018 | Sunday | SOS/T&T | 82.9 | | | | | 47.1 | | 40.9 | 40.3 | | 40.4 | 37.8 | 21.4 | 22.1 | 41.1 | 39.4 | 52.1 | 27.0 | 27.4 | 32.4 | 46.9 | 35.3 |
| 22/01/2018 | Monday | | | | | | | | | | | | | | | | | | | | | | | |
| 23/01/2018 | Tuesday | | | | | | | | | | | | | | | | | | | | | | | |
| 24/01/2018 | Wednesday | SOS/T&T | 82.5 | | | | | 46.7 | | 40.5 | 39.9 | | 40.0 | 37.4 | 21.0 | 21.7 | 40.7 | 39.0 | 51.7 | 26.6 | 27.0 | 32.0 | 46.5 | 34.9 |
| 25/01/2018 | Thursday | WPM Ride Day | 84.7 | | | | | 48.9 | | 42.7 | 42.1 | | 42.2 | 39.6 | 23.2 | 23.9 | 42.9 | 41.2 | 53.9 | 28.8 | 29.2 | 34.2 | 48.7 | 37.1 |
| 26/01/2018 | Friday | | | | | | | | | | | | | | | | | | | | | | | |
| 27/01/2018 | Saturday | WPM Track Day | 82.3 | | | | | 46.5 | | 40.3 | 39.7 | | 39.8 | 37.2 | 20.8 | 21.5 | 40.5 | 38.8 | 51.5 | 26.4 | 26.8 | 31.8 | 46.3 | 34.7 |
| 28/01/2018 | Sunday | | | | | | | | | | | | | | | | | | | | | | | |
| 29/01/2018 | Monday | Trackschool | 77.7 | | | | | 41.9 | | 35.7 | 35.1 | | 35.2 | 32.6 | 16.2 | 16.9 | 35.9 | 34.2 | 46.9 | 21.8 | 22.2 | 27.2 | 41.7 | 30.1 |
| 30/01/2018 | Tuesday | | | | | | | | | | | | | | | | | | | | | | | |
| 31/01/2018 | Wednesday | SOS/T&T | 83.1 | | | | | 47.3 | | 41.1 | 40.5 | | 40.6 | 38.0 | 21.6 | 22.3 | 41.3 | 39.6 | 52.3 | 27.2 | 27.6 | 32.6 | 47.1 | 35.5 |
| 1/02/2018 | Thursday | | | | | | | | | | | | | | | | | | | | | | | |
| 2/02/2018 | Friday | WPM Ride Day | 83.6 | | | | | 47.8 | | 41.6 | 41.0 | | 41.1 | 38.5 | 22.1 | 22.8 | 41.8 | 40.1 | 52.8 | 27.7 | 28.1 | 33.1 | 47.6 | 36.0 |
| 3/02/2018 | Saturday | PCRA | 84.2 | | | | | 48.4 | | 42.2 | 41.6 | | 41.7 | 39.1 | 22.7 | 23.4 | 42.4 | 40.7 | 53.4 | 28.3 | 28.7 | 33.7 | 48.2 | 36.6 |
| 4/02/2018 | Sunday | Champion Ride Days | 82.6 | | | | | 46.8 | | 40.6 | 40.0 | | 40.1 | 37.5 | 21.1 | 21.8 | 40.8 | 39.1 | 51.8 | 26.7 | 27.1 | 32.1 | 46.6 | 35.0 |
| 5/02/2018 | Monday | DO NOT SELL | | | | | | | | | | | | | | | | | | | | | | |
| 6/02/2018 | Tuesday | DO NOT SELL | | | | | | | | | | | | | | | | | | | | | | |
| 7/02/2018 | Wednesday | SOS/T&T | 81.8 | | | | | 46.0 | | 39.8 | 39.2 | | 39.3 | 36.7 | 20.3 | 21.0 | 40.0 | 38.3 | 51.0 | 25.9 | 26.3 | 31.3 | 45.8 | 34.2 |
| 8/02/2018 | Thursday | Wall Racing | 79.5 | | | | | 43.7 | | 37.5 | 36.9 | | 37.0 | 34.4 | 18.0 | 18.7 | 37.7 | 36.0 | 48.7 | 23.6 | 24.0 | 29.0 | 43.5 | 31.9 |
| 9/02/2018 | Friday | Veloce Racing | 86.4 | | | | | 50.6 | | 44.4 | 43.8 | | 43.9 | 41.3 | 24.9 | 25.6 | 44.6 | 42.9 | 55.6 | 30.5 | 30.9 | 35.9 | 50.4 | 38.8 |
| 10/02/2018 | Saturday | WPM Ride day | 82.7 | | | | | 46.9 | | 40.7 | 40.1 | | 40.2 | 37.6 | 21.2 | 21.9 | 40.9 | 39.2 | 51.9 | 26.8 | 27.2 | 32.2 | 46.7 | 35.1 |
| 11/02/2018 | Sunday | MX5 CLUB | 77.6 | | | | | 41.8 | | 35.6 | 35.0 | | 35.1 | 32.5 | 16.1 | 16.8 | 35.8 | 34.1 | 46.8 | 21.7 | 22.1 | 27.1 | 41.6 | 30.0 |
| 12/02/2018 | Monday | WPM/Trackschool/OPL | 79.3 | | | | | 43.5 | | 37.3 | 36.7 | | 36.8 | 34.2 | 17.8 | 18.5 | 37.5 | 35.8 | 48.5 | 23.4 | 23.8 | 28.8 | 43.3 | 31.7 |
| 13/02/2018 | Tuesday | WPM Track Day | 78 | | | | | 42.2 | | 36.0 | 35.4 | | 35.5 | 32.9 | 16.5 | 17.2 | 36.2 | 34.5 | 47.2 | 22.1 | 22.5 | 27.5 | 42.0 | 30.4 |
| 14/02/2018 | Wednesday | GEAR | 83 | | | | | 47.2 | | 41.0 | 40.4 | | 40.5 | 37.9 | 21.5 | 22.2 | 41.2 | 39.5 | 52.2 | 27.1 | 27.5 | 32.5 | 47.0 | 35.4 |
| 15/02/2018 | Thursday | Paul Taylor 9am-12pm | 72.1 | | | | | 36.3 | | 30.1 | 29.5 | | 29.6 | 27.0 | 10.6 | 11.3 | 30.3 | 28.6 | 41.3 | 16.2 | 16.6 | 21.6 | 36.1 | 24.5 |
| 16/02/2018 | Friday | T&T | 87.2 | | | | | 51.4 | | 45.2 | 44.6 | | 44.7 | 42.1 | 25.7 | 26.4 | 45.4 | 43.7 | 56.4 | 31.3 | 31.7 | 36.7 | 51.2 | 39.6 |
| 17/02/2018 | Saturday | WPM Race Meeting | 90.2 | | | | | 54.4 | | 48.2 | 47.6 | | 47.7 | 45.1 | 28.7 | 29.4 | 48.4 | 46.7 | 59.4 | 34.3 | 34.7 | 39.7 | 54.2 | 42.6 |
| 18/02/2018 | Sunday | WPM Race Meeting | 90.1 | | | | | 54.3 | | 48.1 | 47.5 | | 47.6 | 45.0 | 28.6 | 29.3 | 48.3 | 46.6 | 59.3 | 34.2 | 34.6 | 39.6 | 54.1 | 42.5 |
| 19/02/2018 | Monday | NSW Police | 66.4 | | | | | 30.6 | | 24.4 | 23.8 | | 23.9 | 21.3 | 4.9 | 5.6 | 24.6 | 22.9 | 35.6 | 10.5 | 10.9 | 15.9 | 30.4 | 18.8 |
| 20/02/2018 | Tuesday | NSW Police | 61.9 | | | | | 26.1 | | 19.9 | 19.3 | | 19.4 | 16.8 | 0.4 | 1.1 | 20.1 | 18.4 | 31.1 | 6.0 | 6.4 | 11.4 | 25.9 | 14.3 |
| 21/02/2018 | Wednesday | NSW Police | 56.6 | | | | | 20.8 | | 14.6 | 14.0 | | 14.1 | 11.5 | -4.9 | -4.2 | 14.8 | 13.1 | 25.8 | 0.7 | 1.1 | 6.1 | 20.6 | 9.0 |
| 22/02/2018 | Thursday | NSW Police | 67.6 | | | | | 31.8 | | 25.6 | 25.0 | | 25.1 | 22.5 | 6.1 | 6.8 | 25.8 | 24.1 | 36.8 | 11.7 | 12.1 | 17.1 | 31.6 | 20.0 |
| 23/02/2018 | Friday | SOS/T&T | 84.7 | | | | | 48.9 | | 42.7 | 42.1 | | 42.2 | 39.6 | 23.2 | 23.9 | 42.9 | 41.2 | 53.9 | 28.8 | 29.2 | 34.2 | 48.7 | 37.1 |
| 24/02/2018 | Saturday | WPM Track Day | 84.5 | | | | | 48.7 | | 42.5 | 41.9 | | 42.0 | 39.4 | 23.0 | 23.7 | 42.7 | 41.0 | 53.7 | 28.6 | 29.0 | 34.0 | 48.5 | 36.9 |
| 25/02/2018 | Sunday | MRA | 82.4 | | | | | 46.6 | | 40.4 | 39.8 | | 39.9 | 37.3 | 20.9 | 21.6 | 40.6 | 38.9 | 51.6 | 26.5 | 26.9 | 31.9 | 46.4 | 34.8 |
| 26/02/2018 | Monday | Anglo M'Sport | 73.1 | | | | | 37.3 | | 31.1 | 30.5 | | 30.6 | 28.0 | 11.6 | 12.3 | 31.3 | 29.6 | 42.3 | 17.2 | 17.6 | 22.6 | 37.1 | 25.5 |
| 27/02/2018 | Tuesday | | | | | | | | | | | | | | | | | | | | | | | |
| 28/02/2018 | Wednesday | Anglo M'Sport | 71.8 | | | | | 36.0 | | 29.8 | 29.2 | | 29.3 | 26.7 | 10.3 | 11.0 | 30.0 | 28.3 | 41.0 | 15.9 | 16.3 | 21.3 | 35.8 | 24.2 |
| 1/03/2018 | Thursday | WPM Ride day | 82.8 | | | | | 47.0 | | 40.8 | 40.2 | | 40.3 | 37.7 | 21.3 | 22.0 | 41.0 | 39.3 | 52.0 | 26.9 | 27.3 | 32.3 | 46.8 | 35.2 |
| 2/03/2018 | Friday | SOS/T&T | 80.2 | | | | | 44.4 | | 38.2 | 37.6 | | 37.7 | 35.1 | 18.7 | 19.4 | 38.4 | 36.7 | 49.4 | 24.3 | 24.7 | 29.7 | 44.2 | 32.6 |
| 3/03/2018 | Saturday | Marulan/WPM Sprint | 85.7 | | | | | 49.9 | | 43.7 | 43.1 | | 43.2 | 40.6 | 24.2 | 24.9 | 43.9 | 42.2 | 54.9 | 29.8 | 30.2 | 35.2 | 49.7 | 38.1 |
| 4/03/2018 | Sunday | Champion Ride Day | 87.4 | | | | | 51.6 | | 45.4 | 44.8 | | 44.9 | 42.3 | 25.9 | 26.6 | 45.6 | 43.9 | 56.6 | 31.5 | 31.9 | 36.9 | 51.4 | 39.8 |
| 5/03/2018 | Monday | Aus Fed POL -- ACT | 64.5 | | | | | 28.7 | | 22.5 | 21.9 | | 22.0 | 19.4 | 3.0 | 3.7 | 22.7 | 21.0 | 33.7 | 8.6 | 9.0 | 14.0 | 28.5 | 16.9 |
| 6/03/2018 | Tuesday | ASBK TEST | 86.8 | | | | | 51.0 | | 44.8 | 44.2 | | 44.3 | 41.7 | 25.3 | 26.0 | 45.0 | 43.3 | 56.0 | 30.9 | 31.3 | 36.3 | 50.8 | 39.2 |
| 7/03/2018 | Wednesday | ASBK TEST | 87.7 | | | | | 51.9 | | 45.7 | 45.1 | | 45.2 | 42.6 | 26.2 | 26.9 | 45.9 | 44.2 | 56.9 | 31.8 | 32.2 | 37.2 | 51.7 | 40.1 |
| 8/03/2018 | Thursday | Gulsons Porsche | 76.1 | | | | | 40.3 | | 34.1 | 33.5 | | 33.6 | 31.0 | 14.6 | 15.3 | 34.3 | 32.6 | 45.3 | 20.2 | 20.6 | 25.6 | 40.1 | 28.5 |
| 9/03/2018 | Friday | Foster/Tuncurry | 85.7 | | | | | 49.9 | | 43.7 | 43.1 | | 43.2 | 40.6 | 24.2 | 24.9 | 43.9 | 42.2 | 54.9 | 29.8 | 30.2 | 35.2 | 49.7 | 38.1 |
| 10/03/2018 | Saturday | Trackday Club | 80.8 | | | | | 45.0 | | 38.8 | 38.2 | | 38.3 | 35.7 | 19.3 | 20.0 | 39.0 | 37.3 | 50.0 | 24.9 | 25.3 | 30.3 | 44.8 | 33.2 |
| 11/03/2018 | Sunday | Lotus CC | 83 | | | | | 47.2 | | 41.0 | 40.4 | | 40.5 | 37.9 | 21.5 | 22.2 | 41.2 | 39.5 | 52.2 | 27.1 | 27.5 | 32.5 | 47.0 | 35.4 |
| 12/03/2018 | Monday | WPM Track Day | 80.4 | | | | | 44.6 | | 38.4 | 37.8 | | 37.9 | 35.3 | 18.9 | 19.6 | 38.6 | 36.9 | 49.6 | 24.5 | 24.9 | 29.9 | 44.4 | 32.8 |
| 13/03/2018 | Tuesday | SOS/T&T | 83.5 | | | | | 47.7 | | 41.5 | 40.9 | | 41.0 | 38.4 | 22.0 | 22.7 | 41.7 | 40.0 | 52.7 | 27.6 | 28.0 | 33.0 | 47.5 | 35.9 |
| 14/03/2018 | Wednesday | WPM Ride day | 83.7 | | | | | 47.9 | | 41.7 | 41.1 | | 41.2 | 38.6 | 22.2 | 22.9 | 41.9 | 40.2 | 52.9 | 27.8 | 28.2 | 33.2 | 47.7 | 36.1 |
| 15/03/2018 | Thursday | ASBK (bump in) | 70.5 | | | | | 34.7 | | 28.5 | 27.9 | | 28.0 | 25.4 | 9.0 | 9.7 | 28.7 | 27.0 | 39.7 | 14.6 | 15.0 | 20.0 | 34.5 | 22.9 |
| 16/03/2018 | Friday | ASBK | 90.5 | | | | | 54.7 | | 48.5 | 47.9 | | 48.0 | 45.4 | 29.0 | 29.7 | 48.7 | 47.0 | 59.7 | 34.6 | 35.0 | 40.0 | 54.5 | 42.9 |
| 17/03/2018 | Saturday | ASBK | 89.8 | | | | | 54.0 | | 47.8 | 47.2 | | 47.3 | 44.7 | 28.3 | 29.0 | 48.0 | 46.3 | 59.0 | 33.9 | 34.3 | 39.3 | 53.8 | 42.2 |
| 18/03/2018 | Sunday | ASBK | 90.9 | | | | | 55.1 | | 48.9 | 48.3 | | 48.4 | 45.8 | 29.4 | 30.1 | 49.1 | 47.4 | 60.1 | 35.0 | 35.4 | 40.4 | 54.9 | 43.3 |
| 19/03/2018 | Monday | | | | | | | | | | | | | | | | | | | | | | | |
| 20/03/2018 | Tuesday | Velocity/WPM | 79.1 | | | | | 43.3 | | 37.1 | 36.5 | | 36.6 | 34.0 | 17.6 | 18.3 | 37.3 | 35.6 | 48.3 | 23.2 | 23.6 | 28.6 | 43.1 | 31.5 |
| 21/03/2018 | Wednesday | | | | | | | | | | | | | | | | | | | | | | | |
| 22/03/2018 | Thursday | Device ???? | 71.5 | | | | | 35.7 | | 29.5 | 28.9 | | 29.0 | 26.4 | 10.0 | 10.7 | 29.7 | 28.0 | 40.7 | 15.6 | 16.0 | 21.0 | 35.5 | 23.9 |
| 23/03/2018 | Friday | SOS/T&T | 83.6 | | | | | 47.8 | | 41.6 | 41.0 | | 41.1 | 38.5 | 22.1 | 22.8 | 41.8 | 40.1 | 52.8 | 27.7 | 28.1 | 33.1 | 47.6 | 36.0 |
| 24/03/2018 | Saturday | FOSC | 85.4 | | | | | 49.6 | | 43.4 | 42.8 | | 42.9 | 40.3 | 23.9 | 24.6 | 43.6 | 41.9 | 54.6 | 29.5 | 29.9 | 34.9 | 49.4 | 37.8 |
| 25/03/2018 | Sunday | MRA | 89.7 | | | | | 53.9 | | 47.7 | 47.1 | | 47.2 | 44.6 | 28.2 | 28.9 | 47.9 | 46.2 | 58.9 | 33.8 | 34.2 | 39.2 | 53.7 | 42.1 |
| 26/03/2018 | Monday | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27/03/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 28/03/2018 | Wednesday | WPM Ride day | 85.8 | 50.0 | 43.8 | 43.2 | 43.3 | 40.7 | 24.3 | 25.0 | 44.0 | 42.3 | 55.0 | 29.9 | 30.3 | 35.3 | 49.8 | 38.2 | |
| 29/03/2018 | Thursday | SOS/T&T | 81.5 | 45.7 | 39.5 | 38.9 | 39.0 | 36.4 | 20.0 | 20.7 | 39.7 | 38.0 | 50.7 | 25.6 | 26.0 | 31.0 | 45.5 | 33.9 | |
| 30/03/2018 | Friday | | | | | | | | | | | | | | | | | | |
| 31/03/2018 | Saturday | WPM Track Day | 79.1 | 43.3 | 37.1 | 36.5 | 36.6 | 34.0 | 17.6 | 18.3 | 37.3 | 35.6 | 48.3 | 23.2 | 23.6 | 28.6 | 43.1 | 31.5 | |
| 1/04/2018 | Sunday | | | | | | | | | | | | | | | | | | |
| 2/04/2018 | Monday | | | | | | | | | | | | | | | | | | |
| 3/04/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 4/04/2018 | Wednesday | | | | | | | | | | | | | | | | | | |
| 5/04/2018 | Thursday | SOS/T&T | 83.3 | 47.5 | 41.3 | 40.7 | 40.8 | 38.2 | 21.8 | 22.5 | 41.5 | 39.8 | 52.5 | 27.4 | 27.8 | 32.8 | 47.3 | 35.7 | |
| 6/04/2018 | Friday | HSRCA PRACTICE | 85.4 | 49.6 | 43.4 | 42.8 | 42.9 | 40.3 | 23.9 | 24.6 | 43.6 | 41.9 | 54.6 | 29.5 | 29.9 | 34.9 | 49.4 | 37.8 | |
| 7/04/2018 | Saturday | HSRCA | 86.8 | 51.0 | 44.8 | 44.2 | 44.3 | 41.7 | 25.3 | 26.0 | 45.0 | 43.3 | 56.0 | 30.9 | 31.3 | 36.3 | 50.8 | 39.2 | |
| 8/04/2018 | Sunday | HSRCA | 87.9 | 52.1 | 45.9 | 45.3 | 45.4 | 42.8 | 26.4 | 27.1 | 46.1 | 44.4 | 57.1 | 32.0 | 32.4 | 37.4 | 51.9 | 40.3 | |
| 9/04/2018 | Monday | Trackschool | 81.6 | 45.8 | 39.6 | 39.0 | 39.1 | 36.5 | 20.1 | 20.8 | 39.8 | 38.1 | 50.8 | 25.7 | 26.1 | 31.1 | 45.6 | 34.0 | |
| 10/04/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 11/04/2018 | Wednesday | WPM Track day | 73.4 | 37.6 | 31.4 | 30.8 | 30.9 | 28.3 | 11.9 | 12.6 | 31.6 | 29.9 | 42.6 | 17.5 | 17.9 | 22.9 | 37.4 | 25.8 | |
| 12/04/2018 | Thursday | WPM/Trackschool/OPL | 77.7 | 41.9 | 35.7 | 35.1 | 35.2 | 32.6 | 16.2 | 16.9 | 35.9 | 34.2 | 46.9 | 21.8 | 22.2 | 27.2 | 41.7 | 30.1 | |
| 13/04/2018 | Friday | WPM Ride Day | 83.1 | 47.3 | 41.1 | 40.5 | 40.6 | 38.0 | 21.6 | 22.3 | 41.3 | 39.6 | 52.3 | 27.2 | 27.6 | 32.6 | 47.1 | 35.5 | |
| 14/04/2018 | Saturday | St George | 86.7 | 50.9 | 44.7 | 44.1 | 44.2 | 41.6 | 25.2 | 25.9 | 44.9 | 43.2 | 55.9 | 30.8 | 31.2 | 36.2 | 50.7 | 39.1 | |
| 15/04/2018 | Sunday | St George | 86.4 | 50.6 | 44.4 | 43.8 | 43.9 | 41.3 | 24.9 | 25.6 | 44.6 | 42.9 | 55.6 | 30.5 | 30.9 | 35.9 | 50.4 | 38.8 | |
| 16/04/2018 | Monday | Revolution M'Sport | 84.6 | 48.8 | 42.6 | 42.0 | 42.1 | 39.5 | 23.1 | 23.8 | 42.8 | 41.1 | 53.8 | 28.7 | 29.1 | 34.1 | 48.6 | 37.0 | |
| 17/04/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 18/04/2018 | Wednesday | GEAR | 82.6 | 46.8 | 40.6 | 40.0 | 40.1 | 37.5 | 21.1 | 21.8 | 40.8 | 39.1 | 51.8 | 26.7 | 27.1 | 32.1 | 46.6 | 35.0 | |
| 19/04/2018 | Thursday | SOS/T&T | 83.3 | 47.5 | 41.3 | 40.7 | 40.8 | 38.2 | 21.8 | 22.5 | 41.5 | 39.8 | 52.5 | 27.4 | 27.8 | 32.8 | 47.3 | 35.7 | |
| 20/04/2018 | Friday | Trackschool | 83.6 | 47.8 | 41.6 | 41.0 | 41.1 | 38.5 | 22.1 | 22.8 | 41.8 | 40.1 | 52.8 | 27.7 | 28.1 | 33.1 | 47.6 | 36.0 | |
| 21/04/2018 | Saturday | Exe Club | 83.9 | 48.1 | 41.9 | 41.3 | 41.4 | 38.8 | 22.4 | 23.1 | 42.1 | 40.4 | 53.1 | 28.0 | 28.4 | 33.4 | 47.9 | 36.3 | |
| 22/04/2018 | Sunday | WPM Track day | 80.6 | 44.8 | 38.6 | 38.0 | 38.1 | 35.5 | 19.1 | 19.8 | 38.8 | 37.1 | 49.8 | 24.7 | 25.1 | 30.1 | 44.6 | 33.0 | |
| 23/04/2018 | Monday | | | | | | | | | | | | | | | | | | |
| 24/04/2018 | Tuesday | WPM Ride Day | 81.6 | 45.8 | 39.6 | 39.0 | 39.1 | 36.5 | 20.1 | 20.8 | 39.8 | 38.1 | 50.8 | 25.7 | 26.1 | 31.1 | 45.6 | 34.0 | |
| 25/04/2018 | Wednesday | Circuit Club | 80.3 | 44.5 | 38.3 | 37.7 | 37.8 | 35.2 | 18.8 | 19.5 | 38.5 | 36.8 | 49.5 | 24.4 | 24.8 | 29.8 | 44.3 | 32.7 | |
| 26/04/2018 | Thursday | Circuit Club | 78 | 42.2 | 36.0 | 35.4 | 35.5 | 32.9 | 16.5 | 17.2 | 36.2 | 34.5 | 47.2 | 22.1 | 22.5 | 27.5 | 42.0 | 30.4 | |
| 27/04/2018 | Friday | PR Tech | 77.9 | 42.1 | 35.9 | 35.3 | 35.4 | 32.8 | 16.4 | 17.1 | 36.1 | 34.4 | 47.1 | 22.0 | 22.4 | 27.4 | 41.9 | 30.3 | |
| 28/04/2018 | Saturday | Porsche Car Club | 82.3 | 46.5 | 40.3 | 39.7 | 39.8 | 37.2 | 20.8 | 21.5 | 40.5 | 38.8 | 51.5 | 26.4 | 26.8 | 31.8 | 46.3 | 34.7 | |
| 29/04/2018 | Sunday | Nissan SCC | 81.7 | 45.9 | 39.7 | 39.1 | 39.2 | 36.6 | 20.2 | 20.9 | 39.9 | 38.2 | 50.9 | 25.8 | 26.2 | 31.2 | 45.7 | 34.1 | |
| 30/04/2018 | Monday | SOS/T&T | 84.8 | 49.0 | 42.8 | 42.2 | 42.3 | 39.7 | 23.3 | 24.0 | 43.0 | 41.3 | 54.0 | 28.9 | 29.3 | 34.3 | 48.8 | 37.2 | |
| 1/05/2018 | Tuesday | Pasquale Lucitti | 81.5 | 45.7 | 39.5 | 38.9 | 39.0 | 36.4 | 20.0 | 20.7 | 39.7 | 38.0 | 50.7 | 25.6 | 26.0 | 31.0 | 45.5 | 33.9 | |
| 2/05/2018 | Wednesday | | | | | | | | | | | | | | | | | | |
| 3/05/2018 | Thursday | T&T Only | 84.9 | 49.1 | 42.9 | 42.3 | 42.4 | 39.8 | 23.4 | 24.1 | 43.1 | 41.4 | 54.1 | 29.0 | 29.4 | 34.4 | 48.9 | 37.3 | |
| 4/05/2018 | Friday | Hi Tec Drift All Stars | 80 | 44.2 | 38.0 | 37.4 | 37.5 | 34.9 | 18.5 | 19.2 | 38.2 | 36.5 | 49.2 | 24.1 | 24.5 | 29.5 | 44.0 | 32.4 | |
| 5/05/2018 | Saturday | Hi Tec/WPM Race Meet | 87.9 | 52.1 | 45.9 | 45.3 | 45.4 | 42.8 | 26.4 | 27.1 | 46.1 | 44.4 | 57.1 | 32.0 | 32.4 | 37.4 | 51.9 | 40.3 | |
| 6/05/2018 | Sunday | WPM Race Meeting | 85.9 | 50.1 | 43.9 | 43.3 | 43.4 | 40.8 | 24.4 | 25.1 | 44.1 | 42.4 | 55.1 | 30.0 | 30.4 | 35.4 | 49.9 | 38.3 | |
| 7/05/2018 | Monday | TRACKSCHOOL | 79.7 | 43.9 | 37.7 | 37.1 | 37.2 | 34.6 | 18.2 | 18.9 | 37.9 | 36.2 | 48.9 | 23.8 | 24.2 | 29.2 | 43.7 | 32.1 | |
| 8/05/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 9/05/2018 | Wednesday | WPM Ride Day | 82.6 | 46.8 | 40.6 | 40.0 | 40.1 | 37.5 | 21.1 | 21.8 | 40.8 | 39.1 | 51.8 | 26.7 | 27.1 | 32.1 | 46.6 | 35.0 | |
| 10/05/2018 | Thursday | SOS/T&T | 84.3 | 48.5 | 42.3 | 41.7 | 41.8 | 39.2 | 22.8 | 23.5 | 42.5 | 40.8 | 53.5 | 28.4 | 28.8 | 33.8 | 48.3 | 36.7 | |
| 11/05/2018 | Friday | Andrew Wiefler | 75 | 39.2 | 33.0 | 32.4 | 32.5 | 29.9 | 13.5 | 14.2 | 33.2 | 31.5 | 44.2 | 19.1 | 19.5 | 24.5 | 39.0 | 27.4 | |
| 12/05/2018 | Saturday | WPM Ride Day | 77 | 41.2 | 35.0 | 34.4 | 34.5 | 31.9 | 15.5 | 16.2 | 35.2 | 33.5 | 46.2 | 21.1 | 21.5 | 26.5 | 41.0 | 29.4 | |
| 13/05/2018 | Sunday | WPM Track day | 84.1 | 48.3 | 42.1 | 41.5 | 41.6 | 39.0 | 22.6 | 23.3 | 42.3 | 40.6 | 53.3 | 28.2 | 28.6 | 33.6 | 48.1 | 36.5 | |
| 14/05/2018 | Monday | Adrian Sarkis | 79.4 | 43.6 | 37.4 | 36.8 | 36.9 | 34.3 | 17.9 | 18.6 | 37.6 | 35.9 | 48.6 | 23.5 | 23.9 | 28.9 | 43.4 | 31.8 | |
| 15/05/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 16/05/2018 | Wednesday | AFP | 76.4 | 40.6 | 34.4 | 33.8 | 33.9 | 31.3 | 14.9 | 15.6 | 34.6 | 32.9 | 45.6 | 20.5 | 20.9 | 25.9 | 40.4 | 28.8 | |
| 17/05/2018 | Thursday | Wall Racing | 75 | 39.2 | 33.0 | 32.4 | 32.5 | 29.9 | 13.5 | 14.2 | 33.2 | 31.5 | 44.2 | 19.1 | 19.5 | 24.5 | 39.0 | 27.4 | |
| 18/05/2018 | Friday | SOS/T&T | 86.1 | 50.3 | 44.1 | 43.5 | 43.6 | 41.0 | 24.6 | 25.3 | 44.3 | 42.6 | 55.3 | 30.2 | 30.6 | 35.6 | 50.1 | 38.5 | |
| 19/05/2018 | Saturday | Trackday Club | 87.2 | 51.4 | 45.2 | 44.6 | 44.7 | 42.1 | 25.7 | 26.4 | 45.4 | 43.7 | 56.4 | 31.3 | 31.7 | 36.7 | 51.2 | 39.6 | |
| 20/05/2018 | Sunday | Mini Car Club | 85.7 | 49.9 | 43.7 | 43.1 | 43.2 | 40.6 | 24.2 | 24.9 | 43.9 | 42.2 | 54.9 | 29.8 | 30.2 | 35.2 | 49.7 | 38.1 | |
| 21/05/2018 | Monday | | | | | | | | | | | | | | | | | | |
| 22/05/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 23/05/2018 | Wednesday | | | | | | | | | | | | | | | | | | |
| 24/05/2018 | Thursday | WPM Ride Day | 80.9 | 45.1 | 38.9 | 38.3 | 38.4 | 35.8 | 19.4 | 20.1 | 39.1 | 37.4 | 50.1 | 25.0 | 25.4 | 30.4 | 44.9 | 33.3 | |
| 25/05/2018 | Friday | T&T | 91.9 | 56.1 | 49.9 | 49.3 | 49.4 | 46.8 | 30.4 | 31.1 | 50.1 | 48.4 | 61.1 | 36.0 | 36.4 | 41.4 | 55.9 | 44.3 | |
| 26/05/2018 | Saturday | CAMS State | 93.8 | 58.0 | 51.8 | 51.2 | 51.3 | 48.7 | 32.3 | 33.0 | 52.0 | 50.3 | 63.0 | 37.9 | 38.3 | 43.3 | 57.8 | 46.2 | |
| 27/05/2018 | Sunday | CAMS State | 94.1 | 58.3 | 52.1 | 51.5 | 51.6 | 49.0 | 32.6 | 33.3 | 52.3 | 50.6 | 63.3 | 38.2 | 38.6 | 43.6 | 58.1 | 46.5 | |
| 28/05/2018 | Monday | | | | | | | | | | | | | | | | | | |
| 29/05/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 30/05/2018 | Wednesday | WPM Track day | 83.3 | 47.5 | 41.3 | 40.7 | 40.8 | 38.2 | 21.8 | 22.5 | 41.5 | 39.8 | 52.5 | 27.4 | 27.8 | 32.8 | 47.3 | 35.7 | |
| 31/05/2018 | Thursday | | | | | | | | | | | | | | | | | | |
| 1/06/2018 | Friday | SOS/T&T | 76.7 | 40.9 | 34.7 | 34.1 | 34.2 | 31.6 | 15.2 | 15.9 | 34.9 | 33.2 | 45.9 | 20.8 | 21.2 | 26.2 | 40.7 | 29.1 | |
| 2/06/2018 | Saturday | WPM Open Pit Lane | 81.4 | 45.6 | 39.4 | 38.8 | 38.9 | 36.3 | 19.9 | 20.6 | 39.6 | 37.9 | 50.6 | 25.5 | 25.9 | 30.9 | 45.4 | 33.8 | |
| 3/06/2018 | Sunday | MX5 CLUB | 83.1 | 47.3 | 41.1 | 40.5 | 40.6 | 38.0 | 21.6 | 22.3 | 41.3 | 39.6 | 52.3 | 27.2 | 27.6 | 32.6 | 47.1 | 35.5 | |
| 4/06/2018 | Monday | | | | | | | | | | | | | | | | | | |
| 5/06/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 6/06/2018 | Wednesday | ZEN Automotive | | | | | | | | | | | | | | | | | |
| 7/06/2018 | Thursday | WPM Ride Day | 80.9 | 45.1 | 38.9 | 38.3 | 38.4 | 35.8 | 19.4 | 20.1 | 39.1 | 37.4 | 50.1 | 25.0 | 25.4 | 30.4 | 44.9 | 33.3 | |
| 8/06/2018 | Friday | Trackshool | 82.6 | 46.8 | 40.6 | 40.0 | 40.1 | 37.5 | 21.1 | 21.8 | 40.8 | 39.1 | 51.8 | 26.7 | 27.1 | 32.1 | 46.6 | 35.0 | |
| 9/06/2018 | Saturday | WRX CC | 75.7 | 39.9 | 33.7 | 33.1 | 33.2 | 30.6 | 14.2 | 14.9 | 33.9 | 32.2 | 44.9 | 19.8 | 20.2 | 25.2 | 39.7 | 28.1 | |
| 10/06/2018 | Sunday | WRX CC | 80.4 | 44.6 | 38.4 | 37.8 | 37.9 | 35.3 | 18.9 | 19.6 | 38.6 | 36.9 | 49.6 | 24.5 | 24.9 | 29.9 | 44.4 | 32.8 | |
| 11/06/2018 | Monday | WPM Track day | 81.6 | 45.8 | 39.6 | 39.0 | 39.1 | 36.5 | 20.1 | 20.8 | 39.8 | 38.1 | 50.8 | 25.7 | 26.1 | 31.1 | 45.6 | 34.0 | |
| 12/06/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 13/06/2018 | Wednesday | | | | | | | | | | | | | | | | | | |
| 14/06/2018 | Thursday | SOS/T&T | 81.4 | 45.6 | 39.4 | 38.8 | 38.9 | 36.3 | 19.9 | 20.6 | 39.6 | 37.9 | 50.6 | 25.5 | 25.9 | 30.9 | 45.4 | 33.8 | |
| 15/06/2018 | Friday | Device Tech | 77 | 41.2 | 35.0 | 34.4 | 34.5 | 31.9 | 15.5 | 16.2 | 35.2 | 33.5 | 46.2 | 21.1 | 21.5 | 26.5 | 41.0 | 29.4 | |
| 16/06/2018 | Saturday | Austin Healey | 81.9 | 46.1 | 39.9 | 39.3 | 39.4 | 36.8 | 20.4 | 21.1 | 40.1 | 38.4 | 51.1 | 26.0 | 26.4 | 31.4 | 45.9 | 34.3 | |
| 17/06/2018 | Sunday | Circuit Club | 81.1 | 45.3 | 39.1 | 38.5 | 38.6 | 36.0 | 19.6 | 20.3 | 39.3 | 37.6 | 50.3 | 25.2 | 25.6 | 30.6 | 45.1 | 33.5 | |
| 18/06/2018 | Monday | | | | | | | | | | | | | | | | | | |
| 19/06/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 20/06/2018 | Wednesday | GEAR | 82.6 | 46.8 | 40.6 | 40.0 | 40.1 | 37.5 | 21.1 | 21.8 | 40.8 | 39.1 | 51.8 | 26.7 | 27.1 | 32.1 | 46.6 | 35.0 | |
| 21/06/2018 | Thursday | WPM Ride Day | 83.3 | 47.5 | 41.3 | 40.7 | 40.8 | 38.2 | 21.8 | 22.5 | 41.5 | 39.8 | 52.5 | 27.4 | 27.8 | 32.8 | 47.3 | 35.7 | |
| 22/06/2018 | Friday | SOS/T&T | 86.8 | 51.0 | 44.8 | 44.2 | 44.3 | 41.7 | 25.3 | 26.0 | 45.0 | 43.3 | 56.0 | 30.9 | 31.3 | 36.3 | 50.8 | 39.2 | |
| 23/06/2018 | Saturday | NSW Time Attack | 86 | 50.2 | 44.0 | 43.4 | 43.5 | 40.9 | 24.5 | 25.2 | 44.2 | 42.5 | 55.2 | 30.1 | 30.5 | 35.5 | 50.0 | 38.4 | |
| 24/06/2018 | Sunday | WPM Track day | 83.5 | 47.7 | 41.5 | 40.9 | 41.0 | 38.4 | 22.0 | 22.7 | 41.7 | 40.0 | 52.7 | 27.6 | 28.0 | 33.0 | 47.5 | 35.9 | |
| 25/06/2018 | Monday | PR Tech ?? | 79.7 | 43.9 | 37.7 | 37.1 | 37.2 | 34.6 | 18.2 | 18.9 | 37.9 | 36.2 | 48.9 | 23.8 | 24.2 | 29.2 | 43.7 | 32.1 | |
| 26/06/2018 | Tuesday | | | | | | | | | | | | | | | | | | |
| 27/06/2018 | Wednesday | | | | | | | | | | | | | | | | | | |
| 28/06/2018 | Thursday | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29/06/2018 | Friday | SOS/T&T | 85.8 | 50.0 | 43.8 | 43.2 | 43.3 | 40.7 | 24.3 | 25.0 | 44.0 | 42.3 | 55.0 | 29.9 | 30.3 | 35.3 | 49.8 | 38.2 |
| 30/06/2018 | Saturday | Trackshool | 82.1 | 46.3 | 40.1 | 39.5 | 39.6 | 37.0 | 20.6 | 21.3 | 40.3 | 38.6 | 51.3 | 26.2 | 26.6 | 31.6 | 46.1 | 34.5 |
| 1/07/2018 | Sunday | MX5 CLUB | 76.5 | 40.7 | 34.5 | 33.9 | 34.0 | 31.4 | 15.0 | 15.7 | 34.7 | 33.0 | 45.7 | 20.6 | 21.0 | 26.0 | 40.5 | 28.9 |
| 2/07/2018 | Monday | WPM Ride Day (cancelled) | | | | | | | | | | | | | | | | |
| 3/07/2018 | Tuesday | | | | | | | | | | | | | | | | | |
| 4/07/2018 | Wednesday | | | | | | | | | | | | | | | | | |
| 5/07/2018 | Thursday | | | | | | | | | | | | | | | | | |
| 6/07/2018 | Friday | SOS/T&T | 81.4 | 45.6 | 39.4 | 38.8 | 38.9 | 36.3 | 19.9 | 20.6 | 39.6 | 37.9 | 50.6 | 25.5 | 25.9 | 30.9 | 45.4 | 33.8 |
| 7/07/2018 | Saturday | WPM Track Day | 81.9 | 46.1 | 39.9 | 39.3 | 39.4 | 36.8 | 20.4 | 21.1 | 40.1 | 38.4 | 51.1 | 26.0 | 26.4 | 31.4 | 45.9 | 34.3 |
| 8/07/2018 | Sunday | WPM Ride Day(cancelled) | | | | | | | | | | | | | | | | |
| 9/07/2018 | Monday | | | | | | | | | | | | | | | | | |
| 10/07/2018 | Tuesday | | | | | | | | | | | | | | | | | |
| 11/07/2018 | Wednesday | | | | | | | | | | | | | | | | | |
| 12/07/2018 | Thursday | WPM Ride day | 77.3 | 41.5 | 35.3 | 34.7 | 34.8 | 32.2 | 15.8 | 16.5 | 35.5 | 33.8 | 46.5 | 21.4 | 21.8 | 26.8 | 41.3 | 29.7 |
| 13/07/2018 | Friday | SOS/T&T | 84.6 | 48.8 | 42.6 | 42.0 | 42.1 | 39.5 | 23.1 | 23.8 | 42.8 | 41.1 | 53.8 | 28.7 | 29.1 | 34.1 | 48.6 | 37.0 |
| 14/07/2018 | Saturday | Simply Sports Cars | 83 | 47.2 | 41.0 | 40.4 | 40.5 | 37.9 | 21.5 | 22.2 | 41.2 | 39.5 | 52.2 | 27.1 | 27.5 | 32.5 | 47.0 | 35.4 |
| 15/07/2018 | Sunday | Revolution Motorsport | 84.6 | 48.8 | 42.6 | 42.0 | 42.1 | 39.5 | 23.1 | 23.8 | 42.8 | 41.1 | 53.8 | 28.7 | 29.1 | 34.1 | 48.6 | 37.0 |
| 16/07/2018 | Monday | | | | | | | | | | | | | | | | | |
| 17/07/2018 | Tuesday | | | | | | | | | | | | | | | | | |
| 18/07/2018 | Wednesday | CAMS -- Pravin | 62.6 | 26.8 | 20.6 | 20.0 | 20.1 | 17.5 | 1.1 | 1.8 | 20.8 | 19.1 | 31.8 | 6.7 | 7.1 | 12.1 | 26.6 | 15.0 |
| 19/07/2018 | Thursday | WPM Track Day | 80.5 | 44.7 | 38.5 | 37.9 | 38.0 | 35.4 | 19.0 | 19.7 | 38.7 | 37.0 | 49.7 | 24.6 | 25.0 | 30.0 | 44.5 | 32.9 |
| 20/07/2018 | Friday | T&T | 87 | 51.2 | 45.0 | 44.4 | 44.5 | 41.9 | 25.5 | 26.2 | 45.2 | 43.5 | 56.2 | 31.1 | 31.5 | 36.5 | 51.0 | 39.4 |
| 21/07/2018 | Saturday | CAMS STATE | 90 | 54.2 | 48.0 | 47.4 | 47.5 | 44.9 | 28.5 | 29.2 | 48.2 | 46.5 | 59.2 | 34.1 | 34.5 | 39.5 | 54.0 | 42.4 |
| 22/07/2018 | Sunday | CAMS STATE | 90.3 | 54.5 | 48.3 | 47.7 | 47.8 | 45.2 | 28.8 | 29.5 | 48.5 | 46.8 | 59.5 | 34.4 | 34.8 | 39.8 | 54.3 | 42.7 |
| 23/07/2018 | Monday | Maintenance | | | | | | | | | | | | | | | | |
| 24/07/2018 | Tuesday | Maintenance | | | | | | | | | | | | | | | | |
| 25/07/2018 | Wednesday | Maintenance | | | | | | | | | | | | | | | | |
| 26/07/2018 | Thursday | Maintenance | | | | | | | | | | | | | | | | |
| 27/07/2018 | Friday | T&T | 83.1 | 47.3 | 41.1 | 40.5 | 40.6 | 38.0 | 21.6 | 22.3 | 41.3 | 39.6 | 52.3 | 27.2 | 27.6 | 32.6 | 47.1 | 35.5 |
| 28/07/2018 | Saturday | FOSC | 85.1 | 49.3 | 43.1 | 42.5 | 42.6 | 40.0 | 23.6 | 24.3 | 43.3 | 41.6 | 54.3 | 29.2 | 29.6 | 34.6 | 49.1 | 37.5 |
| 29/07/2018 | Sunday | MRA | 88.4 | 52.6 | 46.4 | 45.8 | 45.9 | 43.3 | 26.9 | 27.6 | 46.6 | 44.9 | 57.6 | 32.5 | 32.9 | 37.9 | 52.4 | 40.8 |
| 30/07/2018 | Monday | WPM Ride day | 78.2 | 42.4 | 36.2 | 35.6 | 35.7 | 33.1 | 16.7 | 17.4 | 36.4 | 34.7 | 47.4 | 22.3 | 22.7 | 27.7 | 42.2 | 30.6 |
| 31/07/2018 | Tuesday | Garmin | 80 | 44.2 | 38.0 | 37.4 | 37.5 | 34.9 | 18.5 | 19.2 | 38.2 | 36.5 | 49.2 | 24.1 | 24.5 | 29.5 | 44.0 | 32.4 |
| 1/08/2018 | Wednesday | Daron 9am-11 Brake test | 53.4 | 17.6 | 11.4 | 10.8 | 10.9 | 8.3 | -8.1 | -7.4 | 11.6 | 9.9 | 22.6 | -2.5 | -2.1 | 2.9 | 17.4 | 5.8 |
| 2/08/2018 | Thursday | | | | | | | | | | | | | | | | | |
| 3/08/2018 | Friday | | | | | | | | | | | | | | | | | |
| 4/08/2018 | Saturday | Trackday Club | 84.8 | 49.0 | 42.8 | 42.2 | 42.3 | 39.7 | 23.3 | 24.0 | 43.0 | 41.3 | 54.0 | 28.9 | 29.3 | 34.3 | 48.8 | 37.2 |
| 5/08/2018 | Sunday | SOS/T&T | 80.6 | 44.8 | 38.6 | 38.0 | 38.1 | 35.5 | 19.1 | 19.8 | 38.8 | 37.1 | 49.8 | 24.7 | 25.1 | 30.1 | 44.6 | 33.0 |
| 6/08/2018 | Monday | Adrian Sarkas | 81.2 | 45.4 | 39.2 | 38.6 | 38.7 | 36.1 | 19.7 | 20.4 | 39.4 | 37.7 | 50.4 | 25.3 | 25.7 | 30.7 | 45.2 | 33.6 |
| 7/08/2018 | Tuesday | | | | | | | | | | | | | | | | | |
| 8/08/2018 | Wednesday | Radical (Tahlia) | 89.8 | 54.0 | 47.8 | 47.2 | 47.3 | 44.7 | 28.3 | 29.0 | 48.0 | 46.3 | 59.0 | 33.9 | 34.3 | 39.3 | 53.8 | 42.2 |
| 9/08/2018 | Thursday | SOS/T&T | 85.6 | 49.8 | 43.6 | 43.0 | 43.1 | 40.5 | 24.1 | 24.8 | 43.8 | 42.1 | 54.8 | 29.7 | 30.1 | 35.1 | 49.6 | 38.0 |
| 10/08/2018 | Friday | PR Tech | 81.9 | 46.1 | 39.9 | 39.3 | 39.4 | 36.8 | 20.4 | 21.1 | 40.1 | 38.4 | 51.1 | 26.0 | 26.4 | 31.4 | 45.9 | 34.3 |
| 11/08/2018 | Saturday | Porsche CC | 82.9 | 47.1 | 40.9 | 40.3 | 40.4 | 37.8 | 21.4 | 22.1 | 41.1 | 39.4 | 52.1 | 27.0 | 27.4 | 32.4 | 46.9 | 35.3 |
| 12/08/2018 | Sunday | Circuit club | 80.5 | 44.7 | 38.5 | 37.9 | 38.0 | 35.4 | 19.0 | 19.7 | 38.7 | 37.0 | 49.7 | 24.6 | 25.0 | 30.0 | 44.5 | 32.9 |
| 13/08/2018 | Monday | WPM Track Day | 80.5 | 44.7 | 38.5 | 37.9 | 38.0 | 35.4 | 19.0 | 19.7 | 38.7 | 37.0 | 49.7 | 24.6 | 25.0 | 30.0 | 44.5 | 32.9 |
| 14/08/2018 | Tuesday | Suzuki ATV | | | | | | | | | | | | | | | | |
| 15/08/2018 | Wednesday | GEAR | 82.6 | 46.8 | 40.6 | 40.0 | 40.1 | 37.5 | 21.1 | 21.8 | 40.8 | 39.1 | 51.8 | 26.7 | 27.1 | 32.1 | 46.6 | 35.0 |
| 16/08/2018 | Thursday | WPM Ride Day | 78.2 | 42.4 | 36.2 | 35.6 | 35.7 | 33.1 | 16.7 | 17.4 | 36.4 | 34.7 | 47.4 | 22.3 | 22.7 | 27.7 | 42.2 | 30.6 |
| 17/08/2018 | Friday | AMRS | 90.7 | 54.9 | 48.7 | 48.1 | 48.2 | 45.6 | 29.2 | 29.9 | 48.9 | 47.2 | 59.9 | 34.8 | 35.2 | 40.2 | 54.7 | 43.1 |
| 18/08/2018 | Saturday | AMRS | 91.4 | 55.6 | 49.4 | 48.8 | 48.9 | 46.3 | 29.9 | 30.6 | 49.6 | 47.9 | 60.6 | 35.5 | 35.9 | 40.9 | 55.4 | 43.8 |
| 19/08/2018 | Sunday | AMRS | 93 | 57.2 | 51.0 | 50.4 | 50.5 | 47.9 | 31.5 | 32.2 | 51.2 | 49.5 | 62.2 | 37.1 | 37.5 | 42.5 | 57.0 | 45.4 |
| 20/08/2018 | Monday | Ian Macalister 1/2 day | 74.4 | 38.6 | 32.4 | 31.8 | 31.9 | 29.3 | 12.9 | 13.6 | 32.6 | 30.9 | 43.6 | 18.5 | 18.9 | 23.9 | 38.4 | 26.8 |
| 21/08/2018 | Tuesday | | | | | | | | | | | | | | | | | |
| 22/08/2018 | Wednesday | SOS/T&T | 83.4 | 47.6 | 41.4 | 40.8 | 40.9 | 38.3 | 21.9 | 22.6 | 41.6 | 39.9 | 52.6 | 27.5 | 27.9 | 32.9 | 47.4 | 35.8 |
| 23/08/2018 | Thursday | WPM/Trackshool/OPL | 82.9 | 47.1 | 40.9 | 40.3 | 40.4 | 37.8 | 21.4 | 22.1 | 41.1 | 39.4 | 52.1 | 27.0 | 27.4 | 32.4 | 46.9 | 35.3 |
| 24/08/2018 | Friday | Trackshool | 83.8 | 48.0 | 41.8 | 41.2 | 41.3 | 38.7 | 22.3 | 23.0 | 42.0 | 40.3 | 53.0 | 27.9 | 28.3 | 33.3 | 47.8 | 36.2 |
| 25/08/2018 | Saturday | WPM Track Day | 78.2 | 42.4 | 36.2 | 35.6 | 35.7 | 33.1 | 16.7 | 17.4 | 36.4 | 34.7 | 47.4 | 22.3 | 22.7 | 27.7 | 42.2 | 30.6 |
| 26/08/2018 | Sunday | MX5 CLUB | 77.4 | 41.6 | 35.4 | 34.8 | 34.9 | 32.3 | 15.9 | 16.6 | 35.6 | 33.9 | 46.6 | 21.5 | 21.9 | 26.9 | 41.4 | 29.8 |
| 27/08/2018 | Monday | ALFIO /ALFA | 81.8 | 46.0 | 39.8 | 39.2 | 39.3 | 36.7 | 20.3 | 21.0 | 40.0 | 38.3 | 51.0 | 25.9 | 26.3 | 31.3 | 45.8 | 34.2 |
| 28/08/2018 | Tuesday | Raceaway Trackday | 81.7 | 45.9 | 39.7 | 39.1 | 39.2 | 36.6 | 20.2 | 20.9 | 39.9 | 38.2 | 50.9 | 25.8 | 26.2 | 31.2 | 45.7 | 34.1 |
| 29/08/2018 | Wednesday | WPM Ride Day | 79.6 | 43.8 | 37.6 | 37.0 | 37.1 | 34.5 | 18.1 | 18.8 | 37.8 | 36.1 | 48.8 | 23.7 | 24.1 | 29.1 | 43.6 | 32.0 |
| 30/08/2018 | Thursday | SOS/T&T | 85.4 | 49.6 | 43.4 | 42.8 | 42.9 | 40.3 | 23.9 | 24.6 | 43.6 | 41.9 | 54.6 | 29.5 | 29.9 | 34.9 | 49.4 | 37.8 |
| 31/08/2018 | Friday | ALL Historic/Amaroo | 77.1 | 41.3 | 35.1 | 34.5 | 34.6 | 32.0 | 15.6 | 16.3 | 35.3 | 33.6 | 46.3 | 21.2 | 21.6 | 26.6 | 41.1 | 29.5 |
| 1/09/2018 | Saturday | ALL Historic/Amaroo | 86.4 | 50.6 | 44.4 | 43.8 | 43.9 | 41.3 | 24.9 | 25.6 | 44.6 | 42.9 | 55.6 | 30.5 | 30.9 | 35.9 | 50.4 | 38.8 |
| 2/09/2018 | Sunday | ALL Historic/Amaroo | 85.5 | 49.7 | 43.5 | 42.9 | 43.0 | 40.4 | 24.0 | 24.7 | 43.7 | 42.0 | 54.7 | 29.6 | 30.0 | 35.0 | 49.5 | 37.9 |
| 3/09/2018 | Monday | TRACKSCHOOL | 80.5 | 44.7 | 38.5 | 37.9 | 38.0 | 35.4 | 19.0 | 19.7 | 38.7 | 37.0 | 49.7 | 24.6 | 25.0 | 30.0 | 44.5 | 32.9 |
| 4/09/2018 | Tuesday | | | | | | | | | | | | | | | | | |
| 5/09/2018 | Wednesday | WPM/TRACKSCHOOL | 81.1 | 45.3 | 39.1 | 38.5 | 38.6 | 36.0 | 19.6 | 20.3 | 39.3 | 37.6 | 50.3 | 25.2 | 25.6 | 30.6 | 45.1 | 33.5 |
| 6/09/2018 | Thursday | Race Spec (Adrian Weir) | 70.7 | 34.9 | 28.7 | 28.1 | 28.2 | 25.6 | 9.2 | 9.9 | 28.9 | 27.2 | 39.9 | 14.8 | 15.2 | 20.2 | 34.7 | 23.1 |
| 7/09/2018 | Friday | T&T | 92.2 | 56.4 | 50.2 | 49.6 | 49.7 | 47.1 | 30.7 | 31.4 | 50.4 | 48.7 | 61.4 | 36.3 | 36.7 | 41.7 | 56.2 | 44.6 |
| 8/09/2018 | Saturday | CAMS State | 93 | 57.2 | 51.0 | 50.4 | 50.5 | 47.9 | 31.5 | 32.2 | 51.2 | 49.5 | 62.2 | 37.1 | 37.5 | 42.5 | 57.0 | 45.4 |
| 9/09/2018 | Sunday | CAMS State | 92.1 | 56.3 | 50.1 | 49.5 | 49.6 | 47.0 | 30.6 | 31.3 | 50.3 | 48.6 | 61.3 | 36.2 | 36.6 | 41.6 | 56.1 | 44.5 |
| 10/09/2018 | Monday | TRACKSCHOOL | 81.6 | 45.8 | 39.6 | 39.0 | 39.1 | 36.5 | 20.1 | 20.8 | 39.8 | 38.1 | 50.8 | 25.7 | 26.1 | 31.1 | 45.6 | 34.0 |
| 11/09/2018 | Tuesday | Maintenance | | | | | | | | | | | | | | | | |
| 12/09/2018 | Wednesday | WPM Ride Day | 81.1 | 45.3 | 39.1 | 38.5 | 38.6 | 36.0 | 19.6 | 20.3 | 39.3 | 37.6 | 50.3 | 25.2 | 25.6 | 30.6 | 45.1 | 33.5 |
| 13/09/2018 | Thursday | SOS/T&T | 82 | 46.2 | 40.0 | 39.4 | 39.5 | 36.9 | 20.5 | 21.2 | 40.2 | 38.5 | 51.2 | 26.1 | 26.5 | 31.5 | 46.0 | 34.4 |
| 14/09/2018 | Friday | Device Tech | 75 | 39.2 | 33.0 | 32.4 | 32.5 | 29.9 | 13.5 | 14.2 | 33.2 | 31.5 | 44.2 | 19.1 | 19.5 | 24.5 | 39.0 | 27.4 |
| 15/09/2018 | Saturday | WPM Track day | 80.7 | 44.9 | 38.7 | 38.1 | 38.2 | 35.6 | 19.2 | 19.9 | 38.9 | 37.2 | 49.9 | 24.8 | 25.2 | 30.2 | 44.7 | 33.1 |
| 16/09/2018 | Sunday | CAMS Sprint Series | 84 | 48.2 | 42.0 | 41.4 | 41.5 | 38.9 | 22.5 | 23.2 | 42.2 | 40.5 | 53.2 | 28.1 | 28.5 | 33.5 | 48.0 | 36.4 |
| 17/09/2018 | Monday | MX5 CLUB | 74.4 | 38.6 | 32.4 | 31.8 | 31.9 | 29.3 | 12.9 | 13.6 | 32.6 | 30.9 | 43.6 | 18.5 | 18.9 | 23.9 | 38.4 | 26.8 |
| 18/09/2018 | Tuesday | Jim Richards | 68.8 | 33.0 | 26.8 | 26.2 | 26.3 | 23.7 | 7.3 | 8.0 | 27.0 | 25.3 | 38.0 | 12.9 | 13.3 | 18.3 | 32.8 | 21.2 |
| 19/09/2018 | Wednesday | | | | | | | | | | | | | | | | | |
| 20/09/2018 | Thursday | SOS/T&T | 82.3 | 46.5 | 40.3 | 39.7 | 39.8 | 37.2 | 20.8 | 21.5 | 40.5 | 38.8 | 51.5 | 26.4 | 26.8 | 31.8 | 46.3 | 34.7 |
| 21/09/2018 | Friday | HSRCA | 86.6 | 50.8 | 44.6 | 44.0 | 44.1 | 41.5 | 25.1 | 25.8 | 44.8 | 43.1 | 55.8 | 30.7 | 31.1 | 36.1 | 50.6 | 39.0 |
| 22/09/2018 | Saturday | HSRCA | 89.8 | 54.0 | 47.8 | 47.2 | 47.3 | 44.7 | 28.3 | 29.0 | 48.0 | 46.3 | 59.0 | 33.9 | 34.3 | 39.3 | 53.8 | 42.2 |
| 23/09/2018 | Sunday | HSRCA | 89.3 | 53.5 | 47.3 | 46.7 | 46.8 | 44.2 | 27.8 | 28.5 | 47.5 | 45.8 | 58.5 | 33.4 | 33.8 | 38.8 | 53.3 | 41.7 |
| 24/09/2018 | Monday | Revolutin M'Sport | 81.7 | 45.9 | 39.7 | 39.1 | 39.2 | 36.6 | 20.2 | 20.9 | 39.9 | 38.2 | 50.9 | 25.8 | 26.2 | 31.2 | 45.7 | 34.1 |
| 25/09/2018 | Tuesday | | | | | | | | | | | | | | | | | |
| 26/09/2018 | Wednesday | WPM Ride Day | 81.1 | 45.3 | 39.1 | 38.5 | 38.6 | 36.0 | 19.6 | 20.3 | 39.3 | 37.6 | 50.3 | 25.2 | 25.6 | 30.6 | 45.1 | 33.5 |
| 27/09/2018 | Thursday | SOS/T&T | 82 | 46.2 | 40.0 | 39.4 | 39.5 | 36.9 | 20.5 | 21.2 | 40.2 | 38.5 | 51.2 | 26.1 | 26.5 | 31.5 | 46.0 | 34.4 |
| 28/09/2018 | Friday | Cobra Nats | 84.5 | 48.7 | 42.5 | 41.9 | 42.0 | 39.4 | 23.0 | 23.7 | 42.7 | 41.0 | 53.7 | 28.6 | 29.0 | 34.0 | 48.5 | 36.9 |
| 29/09/2018 | Saturday | Cobra Nats | 78.9 | 43.1 | 36.9 | 36.3 | 36.4 | 33.8 | 17.4 | 18.1 | 37.1 | 35.4 | 48.1 | 23.0 | 23.4 | 28.4 | 42.9 | 31.3 |
| 30/09/2018 | Sunday | Cobra Nats | 82.9 | 47.1 | 40.9 | 40.3 | 40.4 | 37.8 | 21.4 | 22.1 | 41.1 | 39.4 | 52.1 | 27.0 | 27.4 | 32.4 | 46.9 | 35.3 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/10/2018 | Monday | Circuit Club | 86 | 50.2 | 44.0 | 43.4 | 43.5 | 40.9 | 24.5 | 25.2 | 44.2 | 42.5 | 55.2 | 30.1 | 30.5 | 35.5 | 50.0 | 38.4 | | | | | | | | |
| 2/10/2018 | Tuesday | George K | 74.8 | 39.0 | 32.8 | 32.2 | 32.3 | 29.7 | 13.3 | 14.0 | 33.0 | 31.3 | 44.0 | 18.9 | 19.3 | 24.3 | 38.8 | 27.2 | | | | | | | | |
| 3/10/2018 | Wednesday | Fifth Gear | 56.4 | 20.6 | 14.4 | 13.8 | 13.9 | 11.3 | -5.1 | -4.4 | 14.6 | 12.9 | 25.6 | 0.5 | 0.9 | 5.9 | 20.4 | 8.8 | | | | | | | | |
| 4/10/2018 | Thursday | SOS/T&T | 78.1 | 42.3 | 36.1 | 35.5 | 35.6 | 33.0 | 16.6 | 17.3 | 36.3 | 34.6 | 47.3 | 22.2 | 22.6 | 27.6 | 42.1 | 30.5 | | | | | | | | |
| 5/10/2018 | Friday | Foster/Tuncurry | 87 | 51.2 | 45.0 | 44.4 | 44.5 | 41.9 | 25.5 | 26.2 | 45.2 | 43.5 | 56.2 | 31.1 | 31.5 | 36.5 | 51.0 | 39.4 | | | | | | | | |
| 6/10/2018 | Saturday | Nissan CC | 81.9 | 46.1 | 39.9 | 39.3 | 39.4 | 36.8 | 20.4 | 21.1 | 40.1 | 38.4 | 51.1 | 26.0 | 26.4 | 31.4 | 45.9 | 34.3 | | | | | | | | |
| 7/10/2018 | Sunday | WPM Open Pit Lane | 83.7 | 47.9 | 41.7 | 41.1 | 41.2 | 38.6 | 22.2 | 22.9 | 41.9 | 40.2 | 52.9 | 27.8 | 28.2 | 33.2 | 47.7 | 36.1 | | | | | | | | |
| 8/10/2018 | Monday | WPM Open Pit Lane | 77.8 | 42.0 | 35.8 | 35.2 | 35.3 | 32.7 | 16.3 | 17.0 | 36.0 | 34.3 | 47.0 | 21.9 | 22.3 | 27.3 | 41.8 | 30.2 | | | | | | | | |
| 9/10/2018 | Tuesday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10/10/2018 | Wednesday | GEAR | 82.6 | 46.8 | 40.6 | 40.0 | 40.1 | 37.5 | 21.1 | 21.8 | 40.8 | 39.1 | 51.8 | 26.7 | 27.1 | 32.1 | 46.6 | 35.0 | | | | | | | | |
| 11/10/2018 | Thursday | WPM Ride Day | 81.1 | 45.3 | 39.1 | 38.5 | 38.6 | 36.0 | 19.6 | 20.3 | 39.3 | 37.6 | 50.3 | 25.2 | 25.6 | 30.6 | 45.1 | 33.5 | | | | | | | | |
| 12/10/2018 | Friday | SOS/T&T | 86.2 | 50.4 | 44.2 | 43.6 | 43.7 | 41.1 | 24.7 | 25.4 | 44.4 | 42.7 | 55.4 | 30.3 | 30.7 | 35.7 | 50.2 | 38.6 | | | | | | | | |
| 13/10/2018 | Saturday | WPM Track Day | 81.3 | 45.5 | 39.3 | 38.7 | 38.8 | 36.2 | 19.8 | 20.5 | 39.5 | 37.8 | 50.5 | 25.4 | 25.8 | 30.8 | 45.3 | 33.7 | | | | | | | | |
| 14/10/2018 | Sunday | Trackday Club | 84.1 | 48.3 | 42.1 | 41.5 | 41.6 | 39.0 | 22.6 | 23.3 | 42.3 | 40.6 | 53.3 | 28.2 | 28.6 | 33.6 | 48.1 | 36.5 | | | | | | | | |
| 15/10/2018 | Monday | Drive.com | 61.4 | 25.6 | 19.4 | 18.8 | 18.9 | 16.3 | -0.1 | 0.6 | 19.6 | 17.9 | 30.6 | 5.5 | 5.9 | 10.9 | 25.4 | 13.8 | | | | | | | | |
| 16/10/2018 | Tuesday | Drive.com | 62.3 | 26.5 | 20.3 | 19.7 | 19.8 | 17.2 | 0.8 | 1.5 | 20.5 | 18.8 | 31.5 | 6.4 | 6.8 | 11.8 | 26.3 | 14.7 | | | | | | | | |
| 17/10/2018 | Wednesday | Defence | 67.7 | 31.9 | 25.7 | 25.1 | 25.2 | 22.6 | 6.2 | 6.9 | 25.9 | 24.2 | 36.9 | 11.8 | 12.2 | 17.2 | 31.7 | 20.1 | | | | | | | | |
| 18/10/2018 | Thursday | Drive.com | 77 | 41.2 | 35.0 | 34.4 | 34.5 | 31.9 | 15.5 | 16.2 | 35.2 | 33.5 | 46.2 | 21.1 | 21.5 | 26.5 | 41.0 | 29.4 | | | | | | | | |
| 19/10/2018 | Friday | SOS/T&T | 81.8 | 46.0 | 39.8 | 39.2 | 39.3 | 36.7 | 20.3 | 21.0 | 40.0 | 38.3 | 51.0 | 25.9 | 26.3 | 31.3 | 45.8 | 34.2 | | | | | | | | |
| 20/10/2018 | Saturday | Interclub Series | 84.5 | 48.7 | 42.5 | 41.9 | 42.0 | 39.4 | 23.0 | 23.7 | 42.7 | 41.0 | 53.7 | 28.6 | 29.0 | 34.0 | 48.5 | 36.9 | | | | | | | | |
| 21/10/2018 | Sunday | Triumph CC | 83.6 | 47.8 | 41.6 | 41.0 | 41.1 | 38.5 | 22.1 | 22.8 | 41.8 | 40.1 | 52.8 | 27.7 | 28.1 | 33.1 | 47.6 | 36.0 | | | | | | | | |
| 22/10/2018 | Monday | JAMES WINSLOW | 82.4 | 46.6 | 40.4 | 39.8 | 39.9 | 37.3 | 20.9 | 21.6 | 40.6 | 38.9 | 51.6 | 26.5 | 26.9 | 31.9 | 46.4 | 34.8 | | | | | | | | |
| 23/10/2018 | Tuesday | Gulsons Porshe | 81.3 | 45.5 | 39.3 | 38.7 | 38.8 | 36.2 | 19.8 | 20.5 | 39.5 | 37.8 | 50.5 | 25.4 | 25.8 | 30.8 | 45.3 | 33.7 | | | | | | | | |
| 24/10/2018 | Wednesday | WPM Ride Day | 83.7 | 47.9 | 41.7 | 41.1 | 41.2 | 38.6 | 22.2 | 22.9 | 41.9 | 40.2 | 52.9 | 27.8 | 28.2 | 33.2 | 47.7 | 36.1 | | | | | | | | |
| 25/10/2018 | Thursday | T&T / SOS | 79.1 | 43.3 | 37.1 | 36.5 | 36.6 | 34.0 | 17.6 | 18.3 | 37.3 | 35.6 | 48.3 | 23.2 | 23.6 | 28.6 | 43.1 | 31.5 | | | | | | | | |
| 26/10/2018 | Friday | 24 Hours Lemons | 80.6 | 44.8 | 38.6 | 38.0 | 38.1 | 35.5 | 19.1 | 19.8 | 38.8 | 37.1 | 49.8 | 24.7 | 25.1 | 30.1 | 44.6 | 33.0 | | | | | | | | |
| 27/10/2018 | Saturday | 24 Hours Lemons | 83.4 | 47.6 | 41.4 | 40.8 | 40.9 | 38.3 | 21.9 | 22.6 | 41.6 | 39.9 | 52.6 | 27.5 | 27.9 | 32.9 | 47.4 | 35.8 | | | | | | | | |
| 28/10/2018 | Sunday | 24 Hours Lemons | 81.8 | 46.0 | 39.8 | 39.2 | 39.3 | 36.7 | 20.3 | 21.0 | 40.0 | 38.3 | 51.0 | 25.9 | 26.3 | 31.3 | 45.8 | 34.2 | | | | | | | | |
| 29/10/2018 | Monday | RACE AWAY | 86.4 | 50.6 | 44.4 | 43.8 | 43.9 | 41.3 | 24.9 | 25.6 | 44.6 | 42.9 | 55.6 | 30.5 | 30.9 | 35.9 | 50.4 | 38.8 | | | | | | | | |
| 30/10/2018 | Tuesday | Anglo M'Sport | 71.1 | 35.3 | 29.1 | 28.5 | 28.6 | 26.0 | 9.6 | 10.3 | 29.3 | 27.6 | 40.3 | 15.2 | 15.6 | 20.6 | 35.1 | 23.5 | | | | | | | | |
| 31/10/2018 | Wednesday | WPM Track Day | 83 | 47.2 | 41.0 | 40.4 | 40.5 | 37.9 | 21.5 | 22.2 | 41.2 | 39.5 | 52.2 | 27.1 | 27.5 | 32.5 | 47.0 | 35.4 | | | | | | | | |
| 1/11/2018 | Thursday | SOS/T&T | 81.5 | 45.7 | 39.5 | 38.9 | 39.0 | 36.4 | 20.0 | 20.7 | 39.7 | 38.0 | 50.7 | 25.6 | 26.0 | 31.0 | 45.5 | 33.9 | | | | | | | | |
| 2/11/2018 | Friday | Bull Rush Rally | 77 | 41.2 | 35.0 | 34.4 | 34.5 | 31.9 | 15.5 | 16.2 | 35.2 | 33.5 | 46.2 | 21.1 | 21.5 | 26.5 | 41.0 | 29.4 | | | | | | | | |
| 3/11/2018 | Saturday | Cams National SS Champiomships | 85.5 | 49.7 | 43.5 | 42.9 | 43.0 | 40.4 | 24.0 | 24.7 | 43.7 | 42.0 | 54.7 | 29.6 | 30.0 | 35.0 | 49.5 | 37.9 | | | | | | | | |
| 4/11/2018 | Sunday | Cams National SS Champiomships | 84.1 | 48.3 | 42.1 | 41.5 | 41.6 | 39.0 | 22.6 | 23.3 | 42.3 | 40.6 | 53.3 | 28.2 | 28.6 | 33.6 | 48.1 | 36.5 | | | | | | | | |
| 5/11/2018 | Monday | Aussie Driver Search | 87.2 | 51.4 | 45.2 | 44.6 | 44.7 | 42.1 | 25.7 | 26.4 | 45.4 | 43.7 | 56.4 | 31.3 | 31.7 | 36.7 | 51.2 | 39.6 | | | | | | | | |
| 6/11/2018 | Tuesday | Aussie Driver Search | 86 | 50.2 | 44.0 | 43.4 | 43.5 | 40.9 | 24.5 | 25.2 | 44.2 | 42.5 | 55.2 | 30.1 | 30.5 | 35.5 | 50.0 | 38.4 | | | | | | | | |
| 7/11/2018 | Wednesday | Wall Racing | 87.4 | 51.6 | 45.4 | 44.8 | 44.9 | 42.3 | 25.9 | 26.6 | 45.6 | 43.9 | 56.6 | 31.5 | 31.9 | 36.9 | 51.4 | 39.8 | | | | | | | | |
| 8/11/2018 | Thursday | WPM Ride Day | 84.2 | 48.4 | 42.2 | 41.6 | 41.7 | 39.1 | 22.7 | 23.4 | 42.4 | 40.7 | 53.4 | 28.3 | 28.7 | 33.7 | 48.2 | 36.6 | | | | | | | | |
| 9/11/2018 | Friday | T&T | 85.4 | 49.6 | 43.4 | 42.8 | 42.9 | 40.3 | 23.9 | 24.6 | 43.6 | 41.9 | 54.6 | 29.5 | 29.9 | 34.9 | 49.4 | 37.8 | | | | | | | | |
| 10/11/2018 | Saturday | WPM Race Meeting | 87.3 | 51.5 | 45.3 | 44.7 | 44.8 | 42.2 | 25.8 | 26.5 | 45.5 | 43.8 | 56.5 | 31.4 | 31.8 | 36.8 | 51.3 | 39.7 | | | | | | | | |
| 11/11/2018 | Sunday | WPM Race Meeting | 86.6 | 50.8 | 44.6 | 44.0 | 44.1 | 41.5 | 25.1 | 25.8 | 44.8 | 43.1 | 55.8 | 30.7 | 31.1 | 36.1 | 50.6 | 39.0 | | | | | | | | |
| 12/11/2018 | Monday | Adam Cryer | 79.7 | 43.9 | 37.7 | 37.1 | 37.2 | 34.6 | 18.2 | 18.9 | 37.9 | 36.2 | 48.9 | 23.8 | 24.2 | 29.2 | 43.7 | 32.1 | | | | | | | | |
| 13/11/2018 | Tuesday | Radical | 86 | 50.2 | 44.0 | 43.4 | 43.5 | 40.9 | 24.5 | 25.2 | 44.2 | 42.5 | 55.2 | 30.1 | 30.5 | 35.5 | 50.0 | 38.4 | | | | | | | | |
| 14/11/2018 | Wednesday | YRT | 75 | 39.2 | 33.0 | 32.4 | 32.5 | 29.9 | 13.5 | 14.2 | 33.2 | 31.5 | 44.2 | 19.1 | 19.5 | 24.5 | 39.0 | 27.4 | | | | | | | | |
| 15/11/2018 | Thursday | Canberra Motorcycle Centre | 85.2 | 49.4 | 43.2 | 42.6 | 42.7 | 40.1 | 23.7 | 24.4 | 43.4 | 41.7 | 54.4 | 29.3 | 29.7 | 34.7 | 49.2 | 37.6 | | | | | | | | |
| 16/11/2018 | Friday | SOS/T&T | 81 | 45.2 | 39.0 | 38.4 | 38.5 | 35.9 | 19.5 | 20.2 | 39.2 | 37.5 | 50.2 | 25.1 | 25.5 | 30.5 | 45.0 | 33.4 | | | | | | | | |
| 17/11/2018 | Saturday | Circuit Club | 84.9 | 49.1 | 42.9 | 42.3 | 42.4 | 39.8 | 23.4 | 24.1 | 43.1 | 41.4 | 54.1 | 29.0 | 29.4 | 34.4 | 48.9 | 37.3 | | | | | | | | |
| 18/11/2018 | Sunday | WPM Track Day | 81.1 | 45.3 | 39.1 | 38.5 | 38.6 | 36.0 | 19.6 | 20.3 | 39.3 | 37.6 | 50.3 | 25.2 | 25.6 | 30.6 | 45.1 | 33.5 | | | | | | | | |
| 19/11/2018 | Monday | Revolutin M'Sport | 76.3 | 40.5 | 34.3 | 33.7 | 33.8 | 31.2 | 14.8 | 15.5 | 34.5 | 32.8 | 45.5 | 20.4 | 20.8 | 25.8 | 40.3 | 28.7 | | | | | | | | |
| 20/11/2018 | Tuesday | Realta Enterprises | 85 | 49.2 | 43.0 | 42.4 | 42.5 | 39.9 | 23.5 | 24.2 | 43.2 | 41.5 | 54.2 | 29.1 | 29.5 | 34.5 | 49.0 | 37.4 | | | | | | | | |
| 21/11/2018 | Wednesday | Zagame half day | | | | | | | | | | | | | | | | | | | | | | | | |
| 22/11/2018 | Thursday | SOS/T&T | 81 | 45.2 | 39.0 | 38.4 | 38.5 | 35.9 | 19.5 | 20.2 | 39.2 | 37.5 | 50.2 | 25.1 | 25.5 | 30.5 | 45.0 | 33.4 | | | | | | | | |
| 23/11/2018 | Friday | WPM Ride Day | 84.2 | 48.4 | 42.2 | 41.6 | 41.7 | 39.1 | 22.7 | 23.4 | 42.4 | 40.7 | 53.4 | 28.3 | 28.7 | 33.7 | 48.2 | 36.6 | | | | | | | | |
| 24/11/2018 | Saturday | PCRA | 84.2 | 48.4 | 42.2 | 41.6 | 41.7 | 39.1 | 22.7 | 23.4 | 42.4 | 40.7 | 53.4 | 28.3 | 28.7 | 33.7 | 48.2 | 36.6 | | | | | | | | |
| 25/11/2018 | Sunday | PCRA | 84.2 | 48.4 | 42.2 | 41.6 | 41.7 | 39.1 | 22.7 | 23.4 | 42.4 | 40.7 | 53.4 | 28.3 | 28.7 | 33.7 | 48.2 | 36.6 | | | | | | | | |
| 26/11/2018 | Monday | PR Tech | 81.9 | 46.1 | 39.9 | 39.3 | 39.4 | 36.8 | 20.4 | 21.1 | 40.1 | 38.4 | 51.1 | 26.0 | 26.4 | 31.4 | 45.9 | 34.3 | | | | | | | | |
| 27/11/2018 | Tuesday | Macquarie Racing | | | | | | | | | | | | | | | | | | | | | | | | |
| 28/11/2018 | Wednesday | WPM Track Day | 81.1 | 45.3 | 39.1 | 38.5 | 38.6 | 36.0 | 19.6 | 20.3 | 39.3 | 37.6 | 50.3 | 25.2 | 25.6 | 30.6 | 45.1 | 33.5 | | | | | | | | |
| 29/11/2018 | Thursday | SOS/T&T | 81 | 45.2 | 39.0 | 38.4 | 38.5 | 35.9 | 19.5 | 20.2 | 39.2 | 37.5 | 50.2 | 25.1 | 25.5 | 30.5 | 45.0 | 33.4 | | | | | | | | |
| 30/11/2018 | Friday | Hi Tec Oils Drift Championships | 80 | 44.2 | 38.0 | 37.4 | 37.5 | 34.9 | 18.5 | 19.2 | 38.2 | 36.5 | 49.2 | 24.1 | 24.5 | 29.5 | 44.0 | 32.4 | | | | | | | | |
| 1/12/2018 | Saturday | Hi Tech Oils Drift Championships | 80 | 44.2 | 38.0 | 37.4 | 37.5 | 34.9 | 18.5 | 19.2 | 38.2 | 36.5 | 49.2 | 24.1 | 24.5 | 29.5 | 44.0 | 32.4 | | | | | | | | |
| 2/12/2018 | Sunday | Trackday Club | 84.1 | 48.3 | 42.1 | 41.5 | 41.6 | 39.0 | 22.6 | 23.3 | 42.3 | 40.6 | 53.3 | 28.2 | 28.6 | 33.6 | 48.1 | 36.5 | | | | | | | | |
| 3/12/2018 | Monday | James Buttenshore | | | | | | | | | | | | | | | | | | | | | | | | |
| 4/12/2018 | Tuesday | Trackschool | 77.7 | 41.9 | 35.7 | 35.1 | 35.2 | 32.6 | 16.2 | 16.9 | 35.9 | 34.2 | 46.9 | 21.8 | 22.2 | 27.2 | 41.7 | 30.1 | | | | | | | | |
| 5/12/2018 | Wednesday | GEAR | 82.6 | 46.8 | 40.6 | 40.0 | 40.1 | 37.5 | 21.1 | 21.8 | 40.8 | 39.1 | 51.8 | 26.7 | 27.1 | 32.1 | 46.6 | 35.0 | | | | | | | | |
| 6/12/2018 | Thursday | WPM Ride Day | 84.2 | 48.4 | 42.2 | 41.6 | 41.7 | 39.1 | 22.7 | 23.4 | 42.4 | 40.7 | 53.4 | 28.3 | 28.7 | 33.7 | 48.2 | 36.6 | | | | | | | | |
| 7/12/2018 | Friday | Device Tech | 78.4 | 42.6 | 36.4 | 35.8 | 35.9 | 33.3 | 16.9 | 17.6 | 36.6 | 34.9 | 47.6 | 22.5 | 22.9 | 27.9 | 42.4 | 30.8 | | | | | | | | |
| 8/12/2018 | Saturday | Bernie H Ride Day TBC | 85.3 | 49.5 | 43.3 | 42.7 | 42.8 | 40.2 | 23.8 | 24.5 | 43.5 | 41.8 | 54.5 | 29.4 | 29.8 | 34.8 | 49.3 | 37.7 | | | | | | | | |
| 9/12/2018 | Sunday | SOS/T&T | 81.6 | 45.8 | 39.6 | 39.0 | 39.1 | 36.5 | 20.1 | 20.8 | 39.8 | 38.1 | 50.8 | 25.7 | 26.1 | 31.1 | 45.6 | 34.0 | | | | | | | | |
| 10/12/2018 | Monday | Aussie Driver Search | 87.6 | 51.8 | 45.6 | 45.0 | 45.1 | 42.5 | 26.1 | 26.8 | 45.8 | 44.1 | 56.8 | 31.7 | 32.1 | 37.1 | 51.6 | 40.0 | | | | | | | | |
| 11/12/2018 | Tuesday | Aussie Driver Search | 87.3 | 51.5 | 45.3 | 44.7 | 44.8 | 42.2 | 25.8 | 26.5 | 45.5 | 43.8 | 56.5 | 31.4 | 31.8 | 36.8 | 51.3 | 39.7 | | | | | | | | |
| 12/12/2018 | Wednesday | Aussie Driver Search | 83.1 | 47.3 | 41.1 | 40.5 | 40.6 | 38.0 | 21.6 | 22.3 | 41.3 | 39.6 | 52.3 | 27.2 | 27.6 | 32.6 | 47.1 | 35.5 | | | | | | | | |
| 13/12/2018 | Thursday | SOS/T&T | 70.4 | 34.6 | 28.4 | 27.8 | 27.9 | 25.3 | 8.9 | 9.6 | 28.6 | 26.9 | 39.6 | 14.5 | 14.9 | 19.9 | 34.4 | 22.8 | | | | | | | | |
| 14/12/2018 | Friday | WPM/Trackschool/OPL | 82.4 | 46.6 | 40.4 | 39.8 | 39.9 | 37.3 | 20.9 | 21.6 | 40.6 | 38.9 | 51.6 | 26.5 | 26.9 | 31.9 | 46.4 | 34.8 | | | | | | | | |
| 15/12/2018 | Saturday | WPM Track Day | 81.1 | 45.3 | 39.1 | 38.5 | 38.6 | 36.0 | 19.6 | 20.3 | 39.3 | 37.6 | 50.3 | 25.2 | 25.6 | 30.6 | 45.1 | 33.5 | | | | | | | | |
| 16/12/2018 | Sunday | WPM Ride Day | 84.2 | 48.4 | 42.2 | 41.6 | 41.7 | 39.1 | 22.7 | 23.4 | 42.4 | 40.7 | 53.4 | 28.3 | 28.7 | 33.7 | 48.2 | 36.6 | | | | | | | | |
| 17/12/2018 | Monday | MISSING EVENT NAME | 82 | 46.2 | 40.0 | 39.4 | 39.5 | 36.9 | 20.5 | 21.2 | 40.2 | 38.5 | 51.2 | 26.1 | 26.5 | 31.5 | 46.0 | 34.4 | | | | | | | | |
| 18/12/2018 | Tuesday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19/12/2018 | Wednesday | FIFTH GEAR | 75 | 39.2 | 33.0 | 32.4 | 32.5 | 29.9 | 13.5 | 14.2 | 33.2 | 31.5 | 44.2 | 19.1 | 19.5 | 24.5 | 39.0 | 27.4 | | | | | | | | |
| 20/12/2018 | Thursday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21/12/2018 | Friday | SOS/T&T | 85.3 | 49.5 | 43.3 | 42.7 | 42.8 | 40.2 | 23.8 | 24.5 | 43.5 | 41.8 | 54.5 | 29.4 | 29.8 | 34.8 | 49.3 | 37.7 | | | | | | | | |
| 22/12/2018 | Saturday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23/12/2018 | Sunday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24/12/2018 | Monday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25/12/2018 | Tuesday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26/12/2018 | Wednesday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27/12/2018 | Thursday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28/12/2018 | Friday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29/12/2018 | Saturday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30/12/2018 | Sunday | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31/12/2018 | Monday | | | | | | | | | | | | | | | | | | | | | | | | | |