Construction and Operation of a Solid Recovered Fuel (SRF) Processing Area

Response to Submissions Report

November 2018

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1 INTRODUCTION

Veolia Environmental Services (Australia) Pty Limited (Veolia) own and operate the Woodlawn Bioreactor, Mechanical Biological Treatment (MBT) facility and Crisps Creek Intermodal Facility (IMF). The complex is commonly known as the Woodlawn Eco Precinct.

The MBT was approved in 2007 and has been designed to process the residual fraction of municipal solid waste (MSW) to extract recyclable materials and produce compost. The MBT facility currently comprises four building/processing areas (reception / drums, refining, buffer, fermentation / maturation) and is recognised as an example of best practice waste processing technology. The MBT has a maximum approved processing capacity of 280,000 tpa. The first stage of the MBT recently commenced operations processing up to 144,000 tpa of mixed waste and 40,000tpa of green waste.

Veolia proposes to construct and operate a new Solid Recovered Fuel (SRF) processing area next to the Woodlawn power station to further process MBT waste outputs into Solid Recovered Fuel (SRF). A key reason for locating the SRF processing area in this location is to enable the heat generated by the power station to be utilised for the SRF process (i.e. dryer).

An environmental assessment (EA) was prepared by SG Haddad Advisory to support the proposed modification to the development consent under Section 75W of the *Environment Planning and Assessment Act 1979* (EP&A Act). The EA also identifies that Veolia has addressed the potential environmental impacts of the proposal.

The modification application and EA were on notification from Friday 27 July 2018 to Friday, 17 August 2018. Fifteen submissions were received for the proposed modification. A response to these submissions has been provided in Section 3 of this report.

2 NOTIFICATION AND CONSULTATION

2.1 NOTIFICATION

The modification application and EA were on notification from Friday 27 July 2018 to Friday, 17 August 2018.

2.2 CONSULTATION POST NOTIFICATION

Veolia has consulted with a number of government agencies and the local community, as part of the modification assessment process. The purpose of this consultation was to discuss the status of the proposed SRF processing area, and where possible, address concerns raised in submissions received. Table 2.1 below summarises the consultation with government agencies.

2.2.1 Government Agencies

Table 2-1 Government Agency Consultation

Agency	Consultation	Comments
Department of Planning and Environment (DPE)	Regular phone conference	Discussed submissions received to date and proposed strategy to address concerns.
Environment Protection Authority (EPA)	Phone conference – 24 September 2018	Discussed EPA submission and proposed strategy to address concerns.
Meeting with DPE	29 October 2018	Discussed the initial comments received for Response to Submission Report.
Meeting with DPE and EPA	8 November 2018	Discussed the initial comments received from EPA for the Response to Submission Report.

2.2.2 Local Community

Veolia attends Tarago and District Progress Association Inc. (TADPAI) meetings to provide updates on various operational and development activities at Woodlawn. Veolia has also kept the community abreast with quarterly Community Liaison Committee (CLC) meetings to discuss broader environmental performance of the site .This proposed modification and local community submissions to this application were discussed at the TADPAI meeting held on 13 September 2018.

3 RESPONSE TO THE SUBMISSION RECEIVED

A total of 15 submissions were received during the notification period, including 5 responses from the local community, comprising 2 community groups, 2 residents and 1 business.

This section provides the details of each submission and issue raised, and the corresponding responses and clarification to each submission as well as a reference to the EA and supporting technical specialist reports (where applicable).

3.1 GOVERNMENT AGENCY SUBMISSIONS

Submissions on the proposed modification were received from the following government agencies:

- Environment Protection Authority (EPA)
- Department of Primary Industries (DPI)
- Water NSW
- Department of Planning and Environment (DPE)
- Fire and Rescue NSW
- Goulburn Mulwaree Council
- Queanbeyan-Palerang Regional Council
- Transport of New South Wales
- Office of Environment and Heritage (OEH)
- Roads and Maritime Services (RMS)

Table 3-1 provides a detailed response to the issues raised by these government agencies. It is noted that submissions where no issues were raised have not been included in this table.

3.2 COMMUNITY SUBMISSIONS

The local community group, Tarago and District Progress Association Inc. (TADPAI), Heron Resources Limited, Tarago Sporting Association (TSAI) and 2 local residents also submitted a response to the proposed modification. Table 3-1 also provides a detailed response to the issues raised by TADPAI in their submission.

Table 3-1 Responses to comments made in submissions received

<table>
<tr><th>Comments</th><th>Response</th><th>Reference</th></tr>
<tr><td colspan="3">EPA</td></tr>
<tr><td>1. Management of hazardous materials</td><td></td><td></td></tr>
<tr><td>The proponent states that contaminants such as batteries, light bulbs, electrical waste and other hazardous waste are removed prior to waste being processed at the MBT, but does not explain how this is achieved or what its effectiveness is. The proponent should provide more detail on (i) the characterisation of the hazardous material content of incoming waste streams and (ii) the methods, procedures, and processes that will be put in place to manage this hazardous material content.</td><td>The MBT Facility is not licensed to accept hazardous waste and accepts and processes the residual fraction of Municipal Solid Waste (MSW) received from Councils (Southern Sydney Regional Organisation of Councils (SSROC) and Northern Sydney Regional Organisation of Councils (NSROC)) in Sydney Metropolitan Area, to extract recyclable materials and produce compost. This is the residual waste stream following the implementation of source separation services by Councils including recyclable and organics collection services as well as house hold hazardous drop off services.

Waste audit data from participating member councils of the SSROC suggested that around 0.5 % of hazardous and 1.2 % of e waste (Please refer to table below for the type and typical percentage for each waste type) is expected in the mixed MSW.

<table><tr><td>Hazardous</td><td>Paint</td><td>0.2%</td></tr><tr><td></td><td>Flurorescent tubes</td><td>0.0%</td></tr><tr><td></td><td>Single use batteries</td><td>0.1%</td></tr><tr><td></td><td>Rechargable batteries</td><td>0.0%</td></tr><tr><td></td><td>Vehicle batteries</td><td>0.0%</td></tr><tr><td></td><td>Household chemicals</td><td>0.1%</td></tr></table></td><td>Appendix A this RTS Report</td></tr>
</table>

Comments	Response	Reference

	Asbestos	0.0%
	Clinical	0.1%
	Gas bottles	0.0%
	Hazardous other	0.0%
		0.5%
Ewaste	Computer equipment	0.1%
	TVs	0.0%
	Mobile phones	0.0%
	Electrical items & peripherals	1.1%
	toner cartridges	0.0%
		1.2%

Councils are constantly building on initiatives to promote the use of community recycling centres and various free e-waste drop off days to minimise the presence of hazardous waste in the residual waste stream.

The SSROC kerbside Waste Audit Regional Report-2015 suggested that hazardous items like Dry-Cell batteries, Fluorescent tubes, Toner cartridges and Computer Equipment's are decreasing in numbers.

Further, the sorting procedures are in place to remove non-conforming waste that are easily extractable include the following:

Comments	Response	Reference
	• Prior to the loading of waste into the containers, waste is screened at the Clyde and Banksmeadow Transfer Terminal sites in accordance with the Veolia's NSW Resource Recovery Screening and Recording of Waste procedure (Appendix A). Any waste detected that is not acceptable through the screening process, such as bulky items, is removed from the residual waste stream at the transfer stations and not loaded into the containers. • After the receipt of waste via rail at IMF, waste is delivered on transfer trailers to the MBT reception building. Once the waste is received at the MBT facility, the waste is inspected again prior to loading into the drums, to check for non-conforming waste (Appendix A) and the ballistic separators remove material from the 50mm trommel holes. This material will not form part of the SRF process. Residual waste received from MBT will be further processed in the SRF building using additional mechanical sorting equipment including an electromagnet belt, air separator and optical sorter to remove the ferrous metals, inert material (glass and stones) and undesirable plastics (PVC). Further SRF design consultant indicated that: *the process as proposed includes a density separator (Walair Drum Air Separator) separating high density materials such as batteries, ferrous & non ferrous metals, inerts, hard plastics, filled containers, nappies etc. and after the density separation, the light fraction before going to be shredded is passing a Near Infrared (NIR) separator sorting PVC's*	

Comments	Response	Reference
	and if wanted this unit can additionally executed with an electromagnetic sensor to separate any leftover metals. During the operations of the SRF, Veolia will implement audit process for the final SRF product (bails) to check effectiveness of the density separator and management of hazardous waste.	
2. Halogenated substance content of the fuel		
The proponent has not provided any information on what the halogenated substance content of the SRF will be. The application states that a typical specification for SRF material <0.20% m/m Cl and <0.25% m/m F, Br and I, but it is not clear if and how the SRF material will meet these specifications.	PVC plastics are the key potential source of high halogenated content (specifically high chlorine content) in SRF material and will be removed through the following processes: : • Ballistic separator in the existing MBT refining area. • Air separator and optical sorter in the proposed SRF processing area. In addition to these sorting processes, quality control processes will be in place to ensure SRF material meets customer specification: • The testing regime performed by a third party NATA accredited laboratory. • An online analyser to monitor chlorine content, calorific content and moisture in real time. The online anlyser will assist with continual refinement of the process to ensure the key parameters remain within specification. The calibration procedure for the online analyser will be in place to ensure that online unit is performing well and within the required	Section 2.3 of the SRF Modification report

Comments	Response	Reference
	specifications.	
3. Other considerations		
In addition to the information requested above, Section 3.5.4 of the application states that it is ultimately the energy recovery facility's responsibility to meet the technical criteria and the thermal efficiency criteria outlined in the Policy Statement. In practice, the responsibility of meeting the technical and thermal efficiency criteria, especially the air emissions requirements, is shared, because the supplier of the SRF has a responsibility to ensure that the fuel they supply is fit for purpose and free from hazardous substances. This responsibility is typically managed through the development of specifications between the producer of the SRF and the facility where it will be used to generate energy. The proponent has provided an example of a specification for an SRF to be used in a cement kiln, but it is not clear whether the proposed process would be capable of meeting this specification. An example of a SRF specification for a purpose-built energy from waste facility has not been provided, even though it has been identified as a possible end user of the SRF. We recommend that the proponent be asked to provide a real-world example of a SRF specification for a purpose-built energy from waste facility, and to explain whether the proposed SRF will be able to meet either or both of these specifications. The proponent should also identify specific end users of the SRF and confirm what their specifications will be. Otherwise, there is a risk that the facility may be built and may not be able to meet the specifications of the receiving facility(s).	Veolia is currently in discussions with facilities in NSW as well as overseas to finalise the end use market for SRF material. Based on discussions so far, SRF material produced is most likely to be used in cement kilns based locally or overseas. The SRF processing area has been designed to meet typical specifications for the cement kiln industry. Specifications provided in the modification report for the SRF material are typical for Australian cement kilns based on refined specifications to high benchmark standards with consideration for the acceptance of SRF material as part of their process. In the future if a purpose-built waste to energy facility is identified as an end user for SRF material, Veolia will review the process, and refine if required, to ensure that the material produced can meet the required specifications.	

Comments	Response	Reference
Finally, given that the application suggests that the SRF may be used in cement kilns in NSW, it should be noted that many cement kilns may not be immediately capable of meeting the technical criteria and/or the thermal efficiency criteria, and that significant work may be required to allow the use of the SRF/RDF in a cement kiln.		
DPE		
1. NSW Energy from Waste Policy Statement 2015-The end use/market must be provided, the modification request states the waste will be exported and/or processed locally. The NSW Energy from Waste Policy Statement 2015 (EfW Policy) has not been adequately addressed. Whilst specifications for the Solid Recovered Fuel (SRF) material are provided.it is unclear where these specifications are sourced from. The modification report states that the SRF specifications and test procedures will be determined in conjunction with each customer and that the key parameters and sampling process may be modified if the customer is satisfied. The report states that the technical criteria and thermal efficiency criteria are requirements of the facility that uses the fuel. There are no details on what happens if the specifications can't be met .Its recommended that Veolia discuss the requirements of Eft Policy with the EPA, the end markets and specifications be provided along with the contingency measures should the waste not meet the required specifications.	Refer to above response to EPA, '3. Other considerations'.	
Logistics		

Comments	Response	Reference
2. Please confirm how many train wagons/containers are currently able to be parked at the Crisps Creek Intermodal Facility (IMF). It appears that 2 locomotives and 34 wagons/containers can currently be parked at the Crisps Creek IMF, however, the proposal requires 55 wagons/containers to be loaded and parked at the Crisps Creek IMF. Please provide further details of the IMF siding upgrade including:	Currently Crisps Creek IMF typically receives two trains per day, five days per week, with up to 55 wagons/containers per train. The existing approval for the Bioreactor and IMF allows for two trains per day, up to six days per week to and from Sydney. Based on this, the IMF has approval for and the capacity to accommodate the proposed movements required for the SRF material. It is proposed that every fortnight on Saturday one train loaded with containers of SRF would travel from the IMF to suitable intermodal facility for local and off shore delivery. Therefore, no upgrade works are required for the IMF siding to accommodate the SRF material. It should be noted that the Tarago Loop Extension project is independent of this modification for the SRF processing area or any other approvals relating to Veolia's operations at Woodlawn and Crisps Creek. The Tarago Loop Extension project is part of the Country Regional Network, which is owned by Transport for New South Wales and operated by John Holland Rail.	Section 2.4 of the SRF Modification Report
(a) any further development approvals required to facilitate the upgrade		
(b) the staging and timing of the works		
(c) the status of the application submitted to Transport for NSW		
3. The details of the proposal and its logistics are unclear please provide further information in relation to :		
(a) where in Port Botany the containerised waste will be dispatched to;	Containers with SRF material will be dispatched to the Port Botany Container Terminal or another suitable intermodal facility (Port Kembla) for shipping to market based on the customer's requirements.	

Comments	Response	Reference
(b) whether the transfer station at Port Botany will need to secure additional transfer capacity to receive, store and distribute SRF material;	No, this modification does not relate to Veolia's Port Botany Transfer Station.	
(c) where the 55 containers will be sourced i.e. from the MBT or the Bioreactor	The containers will be issued to Veolia on consignment for overseas or local markets. For the local market, containers similar to the existing waste disposal operations may be procured.	
Traffic And Transport		
4. Please details how the SRF containers will be loaded onto the trucks and trains	SRF containers will be loaded on to trucks and trains using a container handler. Please refer to IMF loading and unloading containers procedure in Appendix B of this report.	Appendix B of this RTS Report
5. Please details where the 'Shuttle trucks' referred to in Sections 4.1.1 of the modification request would park at the site	The Shuttle trucks would be parked at the Woodlawn Bioreactor.	
6. Demonstrate that the additional 55 heavy vehicles in and out of the Crisps Creek IMF over a four -hour period will not result in queuing along Bungendore Road. Please detail how long it will take to unload and re-load the containers and how many heavy vehicles the Crisps Creek can hold before heavy vehicles start to queue.	The SRF containers will be transported fortnightly from the SRF processing area to the Crisps Creek IMF using quad axle trailers and this does not represent additional truck movements over and above what has previously been assessed and is approved under the current consent. The relevant assessment was the Traffic Assessment (URS 2010) (Appendix C), which was completed as a part of the Woodlawn Expansion Project. This assessment looked at the impacts on Crisps Creek IMF site access / Bungendore Road intersection from the truck movements. The Degree of Saturation outputs for the intersection were well below the 0.90-0.95 threshold and the results indicated no significant traffic impacts of the truck movements associated with the activities at the Woodlawn Bioreactor site.	Appendix C of this RTS Report

Comments	Response	Reference
	Based on current operations, it takes approximately 3.5 minutes to loading or unloading a container and IMF can hold a queue of approximately 30 trucks within the Crisps Creek IMF site access / Bungendore Road intersection It should be further noted that: • Veolia has only 10 trucks on rotation so chances of queuing at intersection are minimal; and • trucks transporting SRF material will be returning to Woodlawn Bioreactor unladed and therefore these trucks climbing the hill from Crisps Creek to Collector Road will have less impact on other users than the current transportation of waste containers, which climb this hill fully laden.	
7. The traffic impact assessment does not provide details of the heavy vehicles types proposed for the construction and operation phases (e g. 12.5 or 19m)	Map 30 of the RTA's *Travel Restrictions Vehicle Routes* indicates that Collector Road (between the Bioreactor site and Bungendore Road) and Bungendore Road (between Collector Road and Braidwood Road) are declared to be suitable for B-Double vehicle movements (Refer to Section 4.3 of the Traffic Assessment 2010 in Appendix C of this report). These road sections incorporate the full route between the IMF and Bioreactor sites and as such there are no limitations in the existing infrastructure for vehicle sizes up to and including the B-Doubles. For the operations phase of the SRF processing area, quad axle semi-trailers of approximate16.65m length will be used. The construction phase of the SRF processing area will not involve more than 25 m trucks (B-doubles) as per the current approved road access.	Appendix C of this RTS Report

Comments	Response	Reference
8. Please provide the swept paths for the SRF and its access	The SRF processing area footprint is within the existing Woodlawn Eco Precinct and is surrounded by a significant amount of disturbed mine land that is yet to be developed or rehabilitated. Therefore there is ample room for manoeuvring of vehicles on the site. Swept path analysis will be undertaken during the detail design phase to ensure that the final design is suitable for all relevant trucks	
Fire and Incident Management		
9. The location of the Fire hydrant/s at the SRF need to be provided on a plan along with the hydrant flow capabilities	Refer to the Appendix D1 for the proposed location of fire hydrants. Containers will be stored at distance of approximate 18 m from the building to allow the access to fire fighting vehicles. As part of the detailed design, Veolia will engage a consultant to conduct a fire safety engineering review of the design and ensure all required engineering inputs for fire management are incorporated into the final design of the SRF area. Relevant management Plans will be updated to include the details of the SRF processing area.	Appendix D 1 of this RTS Report
10. Please details how the containers at the SRF will be managed to prevent fires occurring at the site and demonstrated how the access to the containers will be maintained for fire fighting vehicles		
Noise		
11.Please confirm the operating hours for the SRF facility will be same as MBT	The operating hours for the SRF processing area will be same as MBT Facility – Monday to Saturday - 6:00 am to 10:00pm.	
12. The noise assessment must be based off a worst-case scenario and consider the cumulative impacts of the Woodlawn Eco-Precinct	Detailed worst-case noise modelling has been provided for the SRF as part of the modification in the noise assessment prepared by the Wilkinson Murray. In response to DPE's comments, Wilkinson Murray has advised the following: *"the noise modelling concluded that noise levels from the SRF at*	Appendix E of this RTS Report

Comments	Response	Reference
	nearby receivers are well below noise criteria. The predicted noise level at the nearest sensitive receptor not owned by Veolia (Torokina) is well below (>25dB below) the noise criteria for the day, evening and night time noise criteria, and will not contribute to the existing noise levels from the Woodlawn facility. The levels are so low that they would not result in a material change in the overall noise level. The predicted SRF facility noise levels are at a level that indicates inaudibility at the nearest sensitive receptor."	
13. Section 4.1 of the Noise Impact Assessment states that the day time noise modelling was conducted using the neutral meteorological conditions while night time used adverse meteorological conditions. It should be noted that only BRS drums are permitted to operate over 24 - hour's period. However, in general the facility is not permitted to be operating at night. Please define day and evening for operations and re-model the noise assessment do that the noise impacts during adverse meteorological conditions during the days are also considered	The Operational Noise Impact Assessment has been revised as requested.	Appendix E of this RTS Report
14. Please details how the containers are normally loaded , the noise assessment must consider the noise associated with loading and unloading the containers at the Crisps Creek IMF	Please refer to the IMF loading/unloading containers procedure in Appendix B of this report. Loading and unloading of the containers at the IMF will be carried out under the existing approvals of the Woodlawn Bioreactor and Crisps Creek IMF.	Appendix B of this RTS Report
15. The noise assessment must be updated and provide the predicted road traffic noise associated with the additional trucks movement from SRF. The Applicant must demonstrate the traffic noise generated by the project on the road between the Crisps Creek IMF and the site access road will not exceed 60 DBA at any resident on privately-owned land	Noise modelling was completed as part of the Environmental Assessment for the expanded operations at Woodlawn and Crisps Creek, and did not indicate that noise levels from the expanded operations would impact on sensitive receptors. Please refer to	Appendix F of this RTS Report

Comments	Response	Reference
16. In relation to the Crisps Creek Intermodal facility , it should be demonstrated that the proposal complies with Condition 101-103 of development consent DA 31-02-99	Appendix F of this report. The truck movements for the SRF material do not represent additional truck movements above this previous assessment. Veolia uses feedback from the community to demonstrate that the site is operating within acceptable levels. Noise sources at the site are from truck movements, train movements and container handler operations. To minimise noise from trucks, a circular traffic route around the IMF minimises the need for reversing and sounding of reverse alarms	
Ground Water		
17. The depth to excavation needs to be provided along with whether groundwater will be intercepted during excavation and whether de-watering is required.	Fill material will be brought in to raise the site levels by approximately 2 m above the existing ground levels. Current ground water levels at the site are approximately 5.22 metres below the existing ground level and so with the filling material in place, ground water will be at approximately at 7 m and ground water is not likely to be intercepted during the construction. Details for the earth works will be included in the Construction Environment Management Plan.	Refer to Section 4.5 of the SRF Modification Report
Surface Water		
18. Please detail the existing Woodlawn Bioreactor wash-down facility and show where it is located on a plan	Washing of the waste containers is not a regular activity at Woodlawn and containers are washed only before carrying out any maintenance on the containers. Please refer to Appendix G for the location of wash-down facility. It should be noted that containers to be used for the SRF material will be separate from the ones used at Woodlawn Bioreactor and MBT	Appendix G of this RTS Report

Comments	Response	Reference
	Facility to transport waste.	
19. An assessment of surface water must be provided it needs to be demonstrated that the existing stormwater management system has the capacity to receive the additional surface water inputs	There will no additional surface water inputs from the SRF processing area, as surface water ruff from this area currently drains to the plant collection dam, which then drains to the ED1 Dam. After the construction of the SRF processing area, quantity of the surface water run-off will be reduced as the runoff from the roof of the SRF building will be captured in the rain water tanks, potentially to be used in fire hydrants.	Section 4.5 of the SRF Modification Report
20. Section 2.6 of the modification request refers to a rainwater tank (location, design capacity), fire water tank and extended pipework. These components all need to be shown on the plan	The key operational water management infrastructure for the SRF processing area will be: • 1 x 30 kL rainwater tank and • 2 x 144 kL firewater tanks. Please refer to Appendix D1 for the indicative location .The final location of water management infrastructure will be determined as part of the detail design phase of the SRF processing area.	Section 2.6 of the SRF Modification Report
21. Please detail how fire water at the site would be contained and managed	Before the commencement of the construction of the SRF processing area, Veolia will engage fire safety engineer to prepare detailed fire safety study and detail fire safety design.	
Construction		
22. Please detail the construction duration.	Approximately 6 to 12 months (Construction is proposed to commence in the August 2019 and finishing in May 2020)	

Comments	Response	Reference
23. Please detail how many jobs would be created during construction	Approximately 25 jobs are expected to be created during construction phase of the SRF processing area.	
24. Please detail the stockpile locations during the construction	Stockpiles will be constructed away from areas of drainage flows, as and when required and further Stockpiles will be minimised through effective management of excavated or incoming fill material. Further details for the stockpile management will be included in the Construction Environment Management Plan.	
25. As the Site is located within the former mine processing area, there is likelihood of contamination, therefore mitigation measures to manage the mobilisation of contaminants to surface water and ground water need to be provided	The construction of SRF building will form the part of the rehabilitation of the area. Any contamination on the proposed site for the SRF processing area during the construction will be managed in accordance with Construction Site Contamination Management Plan (CSCMP) for the MBT Facility. Before the commencement of the CSCMP will be updated to incorporate any required additional mitigation measures.	
26. Please provide photo examples of the waste material before and after processing.	Refer to Appendix H of this report.	Appendix H of this RTS Report
27. Please detail how long it will take to process the residual waste at the SRF and where in the SRF it would be stockpiled .Please detail how much waste can be stockpiled within the SRF each day	Approximately 160 tonnes of the residual material from the MBT facility will be delivered, processed and containerised at the SRF processing area on a daily basis. The SRF material that will be stockpiled will be inside the building upon delivery and prior to feeding into the process line.	
28. Please detail what 'heavier fraction in Section 2.3 of the modification request means	Heavier fraction refers to the rejects fraction from the air separator and will be disposed of at Woodlawn Bioreactor Landfill.	

Comments	Response	Reference
29.Please detail the total volume of waste that can be stored within the containers	Based on the container storage area and the expected payload per container, it is estimated that up to 3,000 tonnes of baled SRF material may be stored within the containers on the site.	
30. Please show on plan where the Woodlawn Bioreactor weighbridge is located; please confirm that the weighbridge can record the waste from the MBT to the SRF facility. Please detail how waste being dispatched from the SRF facility will be tracked.	Please refer to Appendix G of this report for the location of the weighbridge for the Woodlawn Bioreactor. The weighbridge is the primary location on site for tracking waste, including monitoring the quantity, type and source of waste received on site, and the quantity, type and quality of the outputs produced on site. Veolia utilises the same integrated Weighbridge Management System, across all sites. This involves the connection of Veolia's own Paperless Weighbridge System (PWS) with the SAP accounting and record keeping software/database. The PWS architecture is designed for 24/7 operation, store and forward technology is used in all components to ensure data is not lost, and following information is recorded: • Date • Vehicle Registration • Customer • Waste type • Gross and Tare Weight • Gross and Tare Time • PWS Docket Number	Appendix G of this RTS report and Waste Receipt and Vehicle Control Plan for the MBT Facility
31. Please detail how non-conforming and/or organic waste at the SRF	Non-conforming waste at the SRF processing area will be managed in	Appendix A of

Comments	Response	Reference
facility would be managed and disposed of; please provide estimated quantities of the waste.	accordance with Veolia's control of non-conforming waste procedure. Based on the mass balance it is estimated that there will be approximately 12,600 tonnes per annum of residual material from the SRF process area, which will be disposed of at the Woodlawn Bioreactor.	this RTS report
32. Section 2.3 of the modification request states that material is baled and wrapped with plastic (polyethylene) to prevent any potential odour emissions and then packed into 40 ft boxes and into containers. Please provide details of whether waste will be generated from the bailing process and packaging process and how this will be managed.	Any waste generated from the baling and wrapping will either be recycled at local recycling facility or disposed at Woodlawn Bioreactor Landfill.	
Air Quality		
33.An assessment of potential air quality and dust impacts must be provided in accordance with the NSW EPA's approved Methods for the Modelling and Assessment for Air Pollutants in New South Wales (2016) and include proposed mitigation measures	The Odour Assessment undertaken by The Odour Unit (TOU) for the proposed SRF Facility at the Woodlawn Eco-Precinct was based on a qualitative, desktop approach which reviewed all relevant technical information and proposed process operations as to form an expert opinion on the likely odour outcomes.	Appendix B of this SRF Modification Report
34. Evidence that the MBT's Air Quality Monitoring Program is suitable for the SRF must be provided including justification that the air quality monitoring locations are sufficient to measure dust impacts from the SRF	The MBT's Air Quality Monitoring Program will be updated to include the monitoring regime for the SRF processing area prior to operations. A new dust gauge will be installed to the west of the SRF processing area to monitor the dust during the construction and operational phase of the SRF processing area.	
35. Please detail whether the SRF will include a mister system	The current concept design of the SRF processing area does not include a mister system.	

Comments	Response	Reference
36. Please details on how the odour control system can be retrofitted if required	As indicated in TOU report and their recent response relating to the proposed SRF processing area, there will be a need to undertake an odour validation assessment to determine the actual odour emission general levels. If this assessment does not validate the expected outcomes, data could be used as a basis to consider any requirement for additional controls. It is noted that the SRF processing area has made provisions for a double-pass cyclone prior to discharge via a dedicated stack if a dryer is required. Should the odour validation assessment indicate the need for additional controls, there are a range of options that could be implemented, which are detailed in Appendix I of this RTS report. The selection of the most suitable odour control option can be assessed as part of a technical review study, if required.	Appendix I of this RTS Report and Appendix B of the SRF Modification Report
Design and Visual		
37.Please detail any proposed landscaping	Landscaping around the SRF processing area will be carried out in accordance with approved Landscape Vegetation Management Plan for the Woodlawn Bioreactor.	Landscape Vegetation Management Plan for Woodlawn Bioreactor
Statement of commitments		

Comments	Response	Reference
38.The Statement of Commitments must be revised to include the mitigation measures in relation to the construction and operations of the SRF facility	The adoption of the mitigation measures is an important component of this modification and reiterates Veolia's commitment to mitigation and management of any potential impacts as result of this modification. The original draft statement of commitments has been amended to address concerns raised in submissions to the Environment Assessment of this modification. Appendix J summarises the additional Statement of Commitments relating to the proposed SRF modification. Please note this list is in addition to existing mitigation measures included in the existing MP - 06_0239 consent conditions. These will be incorporated into the existing operational and management procedures on site should approval be granted.	Appendix J of this RTS Report
Other		
39. Please detail why the container loading area and the container loading rails are not near each other	The two areas are separate to minimise any interaction between processed and unprocessed material on site and enable manoeuvring of the container handler between these areas. There will be only one container handler at any one point in time to operate both the areas to prevent any traffic related incidents on site.	
40. Section 2.3 and Figure 5 of the modification request states that the SRF process involves a drying process and Section 1.2 and Table 1 states that the heating process will be supplied by the existing power station. However, Appendix B: Odour Assessment Figure 4 appears to depict a drying unit operating independent of the power station. That is a separate	If required, a rolling bed dryer will be used to reduce the moisture content from the SRF material to the required specifications. The safety controls for the dryer will be determined during the detailed design of the SRF processing area, based on the recommendations from the supplier of the dryer and HAZOP exercise	

Comments	Response	Reference
natural gas burner for the drying unit. In addition, Appendix B figure 4 shows a bed dryer while Section 2.3 of the modification request mentions a tumble dryer. As such , it is recommended that drying process be clearly described , in particular: ● what heating process/equipment's will be employed; how the heating is performed ;the maximum heating temperature in comparison with ignition /hazardous temperatures of materials within the dryer ,taking into account the average time any material will be within the dryer; safe guards to ensure that this maximum heating temperature is not exceeded;	for the SRF processing area.	
If the steam heating is delivered from the existing power station to the SRF drying unit, provide description of main equipment (heat exchangers, etc with relevant diagrams) to enable this delivery and steam pressure and temperature; and	Details for the steam heating will be provided during the detailed design phase of the SRF processing area.	
if the natural gas is delivered from the bioreactor landfill to the SRF drying unit, provide description of main delivery equipment (burners including pilot compressors, etc with relevant diagrams) to enable this delivery, and natural gas pressure and temperature.	Delivery of the natural gas is not included in the current scope of the SRF processing area modification.	
41. Please clarify the ownership of Cowley Hills property and property boundary of Woodlawn Farm	Cowley Hills and the Woodlawn Farm are both owned by Veolia.	
42. Please provide the total SRF development site area	Approximate area for SRF development site is 12,000m^2	Appendix D 2 of this RTS Report
43. Provide the location of the ventilation point/exhaust stacks on Drawing A120 A3.	The location of the ventilation point/exhaust stacks will be determined during the detailed design phase of the SRF processing	

Comments	Response	Reference
	area, however is expected to be located above the dryer within the building.	
44. Please detail the interaction between Heron's mining operations and the proposal.	There is no interaction between Heron mining operations and the proposed SRF processing area. Appendix D 3 highlights the Heron operational area along with proposed SRF processing area	Appendix D 3 of this RTS Report
Water NSW		
1. Water NSW requests information on the capacity of the sewage treatment plant (STP) and whether the STP has adequate capacity for the increase in personnel at the site due to the establishment of the Solid Recovered Fuel facility.	STP was originally designed for 3500 L/ Day and the current average daily pumping rate is approximately 1031 L/ Day. Therefore the existing sewerage treatment plant (STP) has adequate capacity to accommodate for the increase in personnel due to SRF processing area.	
2. The Soil and Water Management Plan as required by Schedule 2, Condition 17 of MP 10_0012 and associated monitoring programs be amended to reflect the proposed site layout changes and that any revisions be referred to Water NSW for comment	Noted	
3. The requirements outlined as Statement of Commitments in Section 5 of the Statement of Environmental Effects be referred to in an amended approval to ensure a regulatory basis for the proposed controls to be maintained.	Noted	
NSW Department of Industry		
Additional information should be requested to confirm the water requirements for construction and operation of the project and to confirm an adequate and reliable supply is available.	SRF is a dry process and as such the only water requirement for the building would be for amenities and fire management. The water will be stored in tanks on site and sourced by extending the potable and	

Comments	Response	Reference
If the supply is not an existing licensed source, additional information is requested on the potential impacts of accessing that supply and whether additional entitlement can be acquired.	raw water pipes from the Bioreactor. Potable water for Bioreactor is sourced from the Willeroo Borefield. Veolia has a licence to draw water from the Willeroo Borefield for operational purposes and this supply has adequate capacity to meet the requirements for constructions and operations of the project.	
Goulburn Mulwaree Council		
It is Council's view that contributions under the Goulburn Mulwaree Section 94 Development Contributions Plan 2009 will apply to the additional heavy vehicle haulage movements proposed for the Collector Rd and Bungendore Rd transportation route as specified in this modification (i.e. the movement of containers from the site to the Crisps Creek Inter-Modal Facility).	Noted	
Local Community Response		
The key issues raised in the submission received from the local community include the following		
1. Odour concerns regarding Woodlawn operation generally	Noted, response below relates specifically to the SRF modification. As described in Section 2.3 of the SRF modification report, prior to waste material being transferred from the existing MBT process line (mechanical pre-treatment) to the SRF processing area, all organics will be removed via the drum and refining process leaving only the dry non organics fraction. Subsequently, it is generally inert residual with no organics which possesses a very small odour profile and materials that contain significant amounts of plastic film, hard plastics, textiles,	Section 2.3 of the SRF Modification Report

Comments	Response	Reference
	contaminated paper and cardboard that will be processed at the SRF processing area. Further following controls will be in place to minimise any potential odour emissions from the SRF processing area: • All the processing activity for the SRF material will be carried out inside enclosed building with roller doors for the entrance / exit for the tipping trucks. • No un-containerised material will be stockpiled outside the SRF processing area. • The Odour Unit (TOU) report identified the dryer as a potential odour source in the SRF process. To minimise any fugitive emissions from the dryer, airstream will be treated through via a double-cyclone system to remove particulate matter prior to discharge. • SRF processing area will be included in the Annual Odour audits for the Woodlawn Bioreactor and any critical actions recommended from the Audits will be implemented as soon as practically possible.	
2. Requests that NSW Independent Planning Commission (and Minister) direct Transport for NSW to use the secured $8.6m to build the slow vehicle lane on Tarago-Bungendore Road from Crisps Creek to Collector Road commencing this financial year.	The Tarago Loop Extension project process, including funding arrangements, is separate to this modification, however the fixing country rail project was discussed by a Veolia Representative at a community meeting held in Tarago on 13 September 2018.	
3. Community Consultation – recommendations for existing Veolia Community Liaison committee VCLC be replaced by a Community	Veolia is currently going through a nomination process for CLC members in accordance with condition 1, schedule 7 of PA 10_0012.	

Comments	Response	Reference
Consultative Committee as per current legislation and policies.	Veolia will be opening up the nomination period again, as recent attempts have failed to attract the required numbers of interested parties to form a committee. Veolia will be implementing a letter drop process within the coming month to target further nominations to form a CLC. Veolia is open to discussing the option of setting up of Community Consultative Committees (CCC) in accordance with DPE's current State Significant Project CCC guidelines following the outcome of the current nomination process.	
Fire and Rescue NSW		
Responses to Recommendations by FRNSW for the Leachate Treatment Plant (LTP)	It is noted that this comment relates to the LTP, which is a separate project from the proposed SRF modification. However, as requested by FRNSW, our response to this comment is provided in Appendix K of this report.	Appendix K of this RTS Report
Clauses E1.10 and E2.3 of volume one of the National Construction Code (NCC) be compiled with to the satisfaction of FRNSW. In particular , that the following aspects of the development be assessed and appropriately addressed:		
(a) That stockpile storage within any building and /or open yard storage on the allotment be limited in size and volume and arranged to minimize of the likelihood of fire spread	Noted	
(b) that the arrangement of stockpile of combustible material, stored externally , on the allotments be sufficiently separated to permit fire	Un-containerised SRF material will not be stored externally. Following processing inside the SRF building, material will be baled, wrapped	

Comments	Response	Reference
services vehicle assess between stockpile	and containerised.	
(c) That the site is served by a fire hydrant system that has a minimum water supply capability appropriate to the site's largest stockpile's fire load	Refer to Appendix D 1 of this report for the proposed location of fire hydrants. Containers will be stored at distance of approximate 18 m from the building to allow the access to fire fighting vehicles. As part of the detailed design, Veolia will engage a consultant to conduct a fire safety engineering review of the design and ensure all required engineering inputs for fire management are incorporated into the final design of the SRF area. Relevant management plans will be updated to include the details of the SRF processing area.	Appendix D 1 of this RTS report
(d) That significant buildings used to process waste material are provided with a smoke hazard management system that facilities extended fire fighting operations		
(e) If deemed necessary , by virtue of applying clause E1.10 and E2.3 to the development , that any significant building used to process waste material is provided with an appropriate automatic fire suppression system		
(f) That the site be provided with an effective means to contain contaminated fire water runoff. The Capacity of containment to be commensurate with the concurrent discharge rate of the facility hydraulic fire system	Noted and will be assessed as part of the detailed design for the SRF.	

4 APPENDICES

APPENDIX A: Waste Processing Procedures

Veolia‘s NSW Resource Recovery Screening and Recording of Waste Procedure

Veolia’s NSW Procedure for Non-Conforming Waste

Aim and Scope

This procedure covers the waste screening and recording requirements at the NSW Resource Recovery Facilities. These facilities each have Environment Protection Licenses which need to be complied with when receiving waste at the facilities. Whilst the types of waste accepted at each of these facilities can vary, the process for screening and recording waste are substantially the same.

Acts, Regulations, Codes of Practice and Australian Standards

Protection of the Environment Operations Act 1997

Accountabilities and Responsibilities

The Operations Manager is accountable for ensuring that this procedure is implemented onsite.

All workers onsite are responsible with following this procedure. All customers are also responsible in following these procedures where they apply to the transport and tipping of their waste.

Procedure

Site inductions and Customer Contracts

There are three types of customers that will tip waste at NSW Resource Recovery facilities:

1. Internal Customers (VES NSW)
2. External Account Customers
3. one-off COD customers (where applicable)

All account customer's waste taken directly to site needs to be preapproved by the NSW Resource Recovery Sales Team or Site Management to ensure that it meets the site Environment Protection License requirements. Sites have induction materials available for all drivers coming onsite, including pamphlets and videos. Inductions include the site safety requirements as well as the environmental requirements, including waste types permitted by the Environment Protection License.

Waste Screening and Inspection

There are two main screening points when waste is delivered to the site:

- At the Weighbridge, site staff confirm the source of the waste material and provide access to the site, before allowing vehicle to proceed to the tipping facility. All details of the waste accepted onto site are recorded.
- At the Tipping area, Site staff inspection of waste as it is discharged from vehicle at the tipping area, to check for non-conforming waste. Site operators are trained to recognise wastes that are not to be accepted at the site. If the site operator sees a non-conforming waste, the truck driver will be

informed and asked to wait. The site manager will be immediately informed who will arrange for the customer to be notified.

Where a non-conforming waste is identified, if appropriate, the site operator will isolate the load, either by leaving it or by moving it to a separate place so as not to cause hazard or disruption to others. The operator should follow the Procedure for Waste Rejection.

Should there be any reason to not permit the load onto the site, the customer will be informed and a record of waste rejected will be kept. The Procedure for Waste Rejection will be followed.

Inspection at Unloading Point

If the operator is in any doubt as to the contents of the load, the load will be left in place and the Site Manager consulted. If possible, the driver will be asked to provide any further information on the contents. In the event that part or the entire load is to be rejected, Procedure for Waste Rejection will be followed.

Recording of Waste

The customer details are verified on PWS. If there are any concerns or queries, the site manager will be contacted and the driver's office may be contacted.

Once VES staff are satisfied that the waste is acceptable, the following details are recorded on PWS:

- Date
- Time
- Vehicle Registration
- Customer
- Gross weight
- Waste type

Once the load has been tipped the vehicle will proceed to the weighbridge and a tare weight will be recorded. A transaction docket will be produced confirming the key details above, and the weighbridge operator will obtain the driver's signature (where applicable) to confirm the details. A copy will be given to the driver.

Procedure for Waste Rejection

If a load of waste is rejected at the facility, one of the following processes will take place:

1. If it can be loaded easily and safely, the load will be reloaded into the same vehicle to allow the driver to dispose of the waste material at another facility.
2. If it cannot be reloaded into the same vehicle, the waste will be segregated and reloaded into a suitable vehicle.

Any costs associated with Waste rejection will be borne by the customer.

End of Procedure

VES Control of Non Conforming Waste Procedure

Aim

To outline the process for identifying and rejecting non conforming waste / materials received at a VES facility or collected from a Client site, ensuring these meet all legislative requirements, protect the health and safety of VES employees and minimise potential impact to the surrounding environment.

Scope

This procedure applies to all VES operations, employees and contractors, involved in the collection and transport of liquid and solid waste and materials for resource recovery / recycling. The procedure covers circumstances where non conforming waste is identified at VES treatment facilities and transfer stations as well as at the point of collection from a Client site. Where site-specific operations must be detailed that would not also apply on a national level, these are to be recorded in a Work Instruction document.

Responsibility

Site / Transport Manager

It is the responsibility of the Site Manager (or appointed representative) to:

- ensure this procedure is conveyed to and understood by all Operators / Drivers and/or VLO's;
- ensure all Operators are trained to recognise non conforming waste/materials;
- ensure all incidents of non conforming waste are logged in the internal Incident Management System.

Sales

It is the responsibility of Sales Representatives / Managers to:

- ensure that wastes are properly classified prior to quoting;
- ensure that clients understand responsibility regarding providing consistent waste streams;
- ensure that any special requirements are communicated to Site / Transport Managers and / or Operations, as appropriate.

Landfill / Treatment Facility Operators

It is the responsibility of Facility Operators to:

- follow this procedure;
- ensure all waste loads (and accompanying paperwork) delivered to the site are correctly checked for any non conforming waste at the weighbridge and disposal point or by sampling and testing of liquid wastes;
- report incidents of non conforming waste to the Site Manager (or equivalent);

- apply the appropriate controls outlined below to ensure non conforming waste is correctly isolated and not removed from the premises unless authorised by relevant management.

Drivers

It is the responsibility of the Drivers to:

- follow collection and transport procedure;
- reasonably and adequately check waste loads to ensure non-conforming waste is identified;
- report incidents of non-conforming waste to Site Manager (or equivalent);
- not pick up non-conforming waste;
- not pick up waste that deviates from classification/service agreement.

Procedure

Licences

Where applicable, an Environment Protection Licence, issued by the relevant state / territory government environmental authority must be held by the VES waste storage / treatment / disposal facility. This facility licence prescribes the types of waste able to be received at the facility.

Where applicable, a Waste Transport Licence, issued by the relevant state / territory government environmental authority must accompany a VES vehicle/driver and waste types able to be transported by VES trucks / Drivers. Where VES uses contractors they must ensure that they hold appropriate permits and licences.

Signage and Registers at Receiving Facilities

Signage at the entrance of the receiving facility and weighbridge area (if applicable) must be clearly visible and state which types of waste / materials are permitted and not permitted at the facility. Each site must also have a register of acceptable (and unacceptable, if relevant) waste codes and a description of these materials. Both signage and the register are to be used as controls for waste acceptance facilities.

Transport Businesses are to have methods to determine acceptable storage / treatment / disposal facilities for the types of waste / material transported. Environmental licences (if applicable) will determine types of waste allowed to be transported.

Records Management

All paperwork related to these operations is to be maintained and filed as indicated in the relevant legislation. A copy of the *VES Non Conforming Waste Form* is to be issued to the Client and a copy is to be retained on file for the site's records. For sites using waste tracking systems, which allow rejection of wastes to be formally recorded, communicated to the client and filed, the *VES Non Conforming Waste Form* does not need to be used.

Training

All Operators / Drivers are to be trained to recognise non conforming waste (as detailed in site registers of acceptable waste codes). See *VES Collection and Transport of Controlled Waste Procedure* for additional areas of training.

Non Conforming Waste at Collection Point

The following outlines situations where a waste load is to be identified as non conforming prior to loading onto the vehicle:

The Driver is to reasonably inspect the waste load prior to loading and check to see if:

- it is inconsistent with the waste classification identified either on the run sheet or on the Waste Transport Certificate (or equivalent)as it contains other materials or if client advises to pick up other materials from different areas leading to mixing and contamination of load;
- packaging is inappropriate for the waste type e.g. asbestos, is not stored in sealed heavy duty polyethylene bag meeting EPA regulated weight and dimensions;
- packaging is defective i.e. containers show deterioration or damage (leaking), or where seals, clamps and lids are not secure, or show residues on the outside;
- labelling is inadequate or absent (e.g. especially in the case of DG); and / or
- there is any other doubt about the waste stream.

The driver must **not** load waste that is inconsistent with the Waste Transport Certificate or that result in mixing and/or contaminating waste loads, even if instructed to by Client on collection.

Where the waste is recognised as non conforming the Driver is **not** to proceed with the loading and transportation of the load and is to escalate the issue to the Site Manager and Supervisor.

The Site Manager and/or Supervisor must notify the Client, determine waste type and resolve uncertainties.

Classification of waste must be obtained prior to waste being loaded.

Waste is only be loaded once classification is confirmed and the appropriate conditions for transport are met. This includes correct waste transport certificates etc.

The Site Manager/Supervisor shall report to Group Services - Environment (or equivalent). All Incidents are to be logged on NIMS.

Non Conforming Waste Received at a VES Facility

The two main screening points for waste delivered to a VES site are at the Weighbridge and at the Storage / Treatment / Disposal point. The following procedure outlines the steps for identifying and handling non conforming waste at each of these points.

At the Weighbridge or Load Testing Point:

- **For solid waste / materials:** Upon arrival at the site, the weighbridge operator (where applicable) or site manager shall question the driver as to contents of load, visually inspect vehicle, checking the accompanying paperwork (Waste Transport Certificate etc.) the weighbridge operator (where applicable) is to ascertain whether the material is acceptable on

the site based on the Environmental Protection licence, other statutory requirements and also operational restrictions.

- **For liquid waste:** Upon arrival at the site, a sample is to be taken from the load and tested on site for:
  - Treatability
  - Consistency with the Environmental Protection Licence conditions
  - Consistency with the Waste Transport Certificate; and
  - Consistency with the initial waste sample provided to / by Sales.

  The sample must be labeled and kept for at least one month.
- **For storage sites:** All solid and liquid wastes received must be pre-determined before collection by way of sales feedback and controlled waste collection manifests or equivalent. Items not listed on controlled waste manifests or equivalent shall not be collected without confirmation from the site manager.
- Any concerns or queries are to be referred to the site manager, who will liaise with the transporter and generator, or consignment authorisation applicant as appropriate.
- If the waste is found to be unacceptable for the facility to process, then,
  - **For Solid waste/materials:** the transporter delivering the waste is to be notified using the *VES Non Conforming Waste Form,* and be instructed to remove the waste / material off site to an appropriate facility licensed to accept the waste or returned to the client.
  - **For Liquid waste:** The waste is to be rejected, once confirmed by authorised personnel, using the formal waste tracking process or equivalent. Other disposal / storage options are to be considered in liaison with the client. All testing results and reasons for rejection are to be filed with the Waste Transport Certificate where applicable.

At the Storage/Treatment/Disposal Point (excluding Liquid Waste):

In the event the waste is not identified at the weighbridge (or weighbridge is unmanned), and the load has proceeded to the storage / treatment / disposal area, an operator can establish the waste / material type as the waste is tipped.

- Site operators are to inspect loads of waste while they are being unloaded. Where waste does not meet the Environmental Protection Licence conditions and /or waste load documentation does not meet site requirements (classification, testing and assessment), the weighbridge operator must stop the driver immediately and notify the site manager and/or leading hand. The site manager and / or leading hand must then inspect the load to establish the type of waste.
- If waste is found to be nonconforming, the operator is to record the company, time of delivery and registration of the vehicle and ask the driver to wait on site.
- The transport company delivering the load is to be notified and arrangements made as per the *VES Non Conforming Waste Form*.

- A copy of this form is to be given to the driver and faxed to the Client immediately so that appropriate action may be taken and a copy is retained on site.
- If the non conforming waste cannot be taken off site immediately, the site operator is to segregate the non conforming waste to an isolated area and meet any temporary storage requirements (e.g. in the case of asbestos to be wetted and covered, leaking chemical drums contained) and all necessary and appropriate OHSE controls (dust control, PPE etc.) If the vehicle is still on site, the waste is to be reloaded.
- Where a facility handles more than one type of treatment, any waste detected in the wrong part of the site is to be isolated and moved to the correct location for processing. If a waste load is deposited in an area that is not licensed to receive it, the operator is to isolate the load. This is to apply in cases where, for example, waste is detected after discharge of the load in the recycling area, where the load should be disposed of in the landfill. The material is to be transported to the correct area of the site for storage / treatment / disposal.
- In the case where particular types of controlled wastes, such as asbestos, are found to be in a non conforming load, and it is a legislative requirement to report to State Environment Authorities, VES shall advise the Client and / or transport company and report to the State Environment Authority.
- The Site Manager must ensure that incidents are reported on the National Incident Management System on HIPPO Station.
- Should the Client for any reason not comply with direction specified in the *VES Non Conforming Waste Form*, VES is to arrange for the collection, transport and disposal of such waste at a cost to be borne by the Client. Any cost is to be clearly communicated to the Client.
- Management must inspect daily all recorded incidences of rejected loads and will advise Client of the incident by phone and reminded of permitted waste types. Further occurrences may result in this Client's Loads being banned from the site, at the discretion of Site Management.
- Normal operations may resume once the risks of non conforming waste have been controlled.

End of Procedure

Annex - Definitions

Non conforming waste

Is waste that is not permitted under the conditions of a VES EPL (Environmental Protection licence issued by State Environment Authority) to be transported by VES or received at a VES treatment facility. This may differ from facility to facility depending on the operations and legislative requirements in each state.

Licence and permit

A record of approval granted by an Agency in relation to vehicle for the purpose of moving controlled waste.

State Environment Authority

Refers to State or Territory government department or designated agency that oversees environmental laws and policies in that jurisdiction.

Waste Transport Certificate

A Waste Transport Certificate (WTC) records an individual waste movement. The WTC records details of the consignor (waste generator), transporter and disposal facility, the waste amount and waste characteristics, and the dates when the various stages in the waste movement occurred. It is a requirement that a paper WTC accompany all waste movements that must be tracked. Formerly called WDF in NSW.

Annex – References and Related Documents

Jurisdiction	Document Type	Issuing body	Title	Date
CTH	Act	CTH	National Environment Protection Act	1994
NSW	Act	NSW	Protection of the Environment Act (NSW) POEO	1997
NSW	Act	NSW	National Environment Protection Council (NSW)	1995
NSW	Regulation	NSW	The Protection of the Environment (Waste) Regulation	2005
NSW	Guidelines	NSW	Waste Classification Guidelines	2008
SA	Act	SA	Environment Protection Act	1993
SA	Act	SA	Zero Waste SA Act 2004	2004
SA	Policy	SA EPA	Environment Protection (Waste Management) Policy 1994	1994
TAS	Act	TAS	Environmental Management and Pollution Control Act (EMPCA)	1994
TAS	Regulation	TAS	Environmental Management & Pollution Control (Waste Management)	2000
VIC	Act	Vic EPA	Environmental Protection Act 1970	1970
VIC	Regulation	VIC	Environment Protection (prescribed waste) Regulations 1998	1998
WA	Act	DEC	Environmental Protection Act	1986
WA	Regulations	DEC	Environmental Protection (Controlled Waste) Regulations	2004
WA	Guidelines	DEC	Guideline for Controlled Waste Carriers	2004
National	Code	CTH	Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code)	
NSW	Guidelines	NSW	Waste Classification Guidelines (2009)	2009
National	Standard	NOHSC	National Code of Practice for the Labelling of Workplace Substances [NOHSC: 2012]	1994
National	Standard	NOHSC	National Code of Practice for Preparation of Material safety Data Sheets [NOHSC: 2011]	2003
National	Form	VES	FOR-COL-000-113 VES Non Conforming Waste Form	
National	Element	VES	ELE-COL-000-015 VES Incident Reporting	
National	Element	VES	ELE-COL-000-023 VES Emergency Crisis Preparedness and Response	
National	Manual	VES	MAN-COL-000-010 VES Driver Manual	
National	Procedure	VES	PRO-COL-000-043 VES Heavy Vehicle Driver / Operator	
National	Procedure	VES	PRO-COL-000-086 VES Spills Response	
National	Procedure	VES	PRO-COL-000-104 VES Collection and Transport of Chemicals (Incl. DG)	
National	Procedure	VES	PRO-COL-000-109 VES Collection and Transport of Asbestos	
National	Procedure	VES	PRO-COL-000-023 VES Managing Contractors in the Workplace	
National	Procedure	VES	PRO-COL-000-024 VES Contractor Requirements and Guidelines	
National	Training	VES	TRG-COL-000-052 VES Non Conforming Waste Transport Awareness Presentation	
National	Training	VES	TRG-COL-000-051 VES Controlled Waste Transport Awareness Training Guidelines	
National	Training	VES	TRG-COL-000-112 VES Non Conforming Waste Transport Awareness Training Assessment	

APPENDIX B: IMF Loading and Unloading Containers Procedure

WORK INSTRUCTION NSW Woodlawn Crisps Creek/IMF Loading and Unloading Containers

Process/Equipment:	**Container Forklift** **Prime movers**	**Division/Location:**	**Woodlawn Crisps Creek IMF**
Developed By:	**Rene Oosting**	**Reviewed By:**	**David Figueiredo**
Developed (Date):	**14.05.2015**	**Reviewed (Date):**	**10.02.2017**

Personal Protective Equipment Required:

SCOPE

Safe operational instruction for loading/unloading containers at the Crisps Creek IMF. Before commencing this activity assess the site, the traffic in the area, possible pedestrian issues and load to be managed. Use safety cones as required, wear PPE prescribed. Also, be aware of changes in traffic direction. Under no circumstances are containers permitted to be loaded/unloaded from the rail wagons when the locomotives are connected to the rack of wagons.

Un locking of all Twist locks and pins must be carried out to prevent lock downs when the container handler lifts the container from the wagon. To prevent a lock down and the associated risk of lifting the wagon deck off the king pin. The container handler operator must take to a two stage lift with every container, with the first stage at a slow speed. Once the container is clear of the wagon deck, normal lifting process may be carried out.

Step	Activity	Instruction
1	Truck Entering site	1. Follow site traffic rules and signs. 2. Speed limit on site is **20km / hr**. 3. Following the traffic signage indicated at the entrance to the hard stand area. *Note: The Forklift operator should change the centre crossing signage from "One Way" to "No Entry" when the forklift reaches the middle road crossing.*

WORK INSTRUCTION NSW Woodlawn Crisps Creek/IMF Loading and Unloading Containers

2	Unloading container	1. Truck driver to proceed to location where the container handler requests. 2. Container handler driver to position machine at central white lines, keeping machine clear of truck and driver. 3. Truck driver to engage brake and exit truck to unlock pins on container. 4. Container handler driver to remain stationary with park break engaged. 5. Truck driver to get back into truck. 6. Fork driver to unload container from truck. *Note: First Containers to unload at start of operation are the two containers either side of the central road on Line 2. Then proceed to the first container on Line 1 - Bungendore End. In the Event the containers arrive in opposite direction, the traffic signs must be adjusted to suit the direction of container removal (as per the Crisps Creek Intermodal Site Rules). Note: If the containers arrive with the large door facing towards Bungendore on line 1, after the road crossing containers are removed, the operation will continue at the Bungendore end Line 1.* *Note: Auto Twist locks process. When removing a container from a wagon that has automatic twist locks, the process is as follows: Take weight of container and pause (gives time for spring to release), then lift up slowly until clear of wagon.*
3	Loading container onto carriage / wagon	1. Truck driver to drive forward enough to be clear of forklift. 2. Forklift replaces empty container onto carriage / wagon.
4	Loading container	1. Forklift collects full container and positions machine at central white lines, keeping machine clear of truck and driver. 2. At direction from forklift driver, truck driver is to reverse truck to position of the container and forklift. 3. Forklift driver to sound horn to indicate stopping position for truck. 4. Truck driver to disembark truck and move to side of forklift, clear of forklift, truck and visible position of the forklift operator. 5. Forklift driver to acknowledge truck driver then load full container. 6. Forklift driver to position forklift at white lines. 7. Forklift driver to sound horn and/or verbally indicate the truck driver to lock container pins. 8. Truck driver is to lock pins from the forklift side to the driver side door. *Note: Truck driver is NOT to be in the cabin when full container is being loaded.* *Note: Tarago End Line 1 – When the last container Tarago End Line 1 is to be loaded/unloaded from the rail wagon and truck, the truck must park parallel to the rack of wagons line 1.*
5	Leaving site	1. Truck driver is to obey site speed rules and signs. 2. Truck driver are not permitted to drive within the yellow markers located 5 metres of the rail wagons when leaving the hardstand with a laden container. Only when the containers are being loaded and un loaded are the drivers permitted to drive inside the yellow lines 3. Follow directions of the IMF operator / supervisor.

All personnel involved are advised to speak to site management if issues / concerns are encountered.

All personnel are NOT to change the procedure which has been put forward unless this document is superseded.

Print Name: _____Signature: _____Date: _____

WORK INSTRUCTION NSW Woodlawn Crisps Creek/IMF Loading and Unloading Containers

The following instructions only apply to personnel who assist with the preparation of the container loading and loading

6	Unlocking/locking pins or twist locks on rail wagons	1. If required – turn lights on to illuminate the hardstand area in the morning 2. Place the “No Entry Shunting in Progress” sign out on the centre road crossing and the Tarago end road crossing. 3. Begin unlocking the twist locks and pins on each of the rake of wagons. Only when the rail wagons/train has come to a complete stop and VES personnel have been authorised to approach wagons from Pacific National Drivers. Do not come within 3 metres of a moving rail wagon. Do not climb over the rail wagon coupling at any time. 4. If any lock downs or issues are evident with the locking mechanism on the rail wagons, information **must** be passed on to the container handler operator and marker plates attached to the containers by the individual who finds the issue. The container handler operator is to collect the marker plates prior to sending the container to Woodlawn. 5. At **NO** stage is any VES personnel permitted to operate any handbrakes during the shunting and storage of wagons. 6. Second Operator - contact the Container handler and notify if any lock downs are evident for further assessment. *7.* Once Line 2 from the Bungendore end is placed into position, second operator is to assist in the removal of the nine containers at the Tarago end of both lines 1 and 2. ***Both operators are to place a red personal lock on the red lock out box located at the Tarago end once the locomotives have been disconnected from the wagons and the train reverser has been stored in the red lock box***. The second operator is to use the second container handler to remove 5 loaded containers from line 1, and 4 loaded containers from line 2 and replace them with the empty containers that are stored on the hardstand at the Tarago end. Both container handler operators are to be contactable on the two way radio at all times. *Note: The configuration of swapped out containers can be changed for operational purposes. However, where this occurs both operators must discuss the intended container swap overs to ensure the primary container handler operator is aware of which containers are being swapped out.* 8. Second Operator shall contact the Container handler operator to confirm that the duties have been complete and remove their red personal lock. 9. In the event of a faulty seal on the back door, a red marker plate will be placed on the side of the container on the bottom corner closest to the back door. The container handler will be notified of any containers with faulty seals to ensure that the container goes out up to the void on the first round. The container handler will notify the truck driver of the faulty doors so that the fault can be communicated to the tipper operators. Once the container has been loaded on the truck and prior to leaving the intermodal the truck driver will relocate the red marker plate on the side to the rear of the container door.

WORK INSTRUCTION NSW Woodlawn Crisps Creek/IMF Loading and Unloading Containers

7	Handing back rail line to Pacific National in a stage approached	10. When handing over line 1 to the Pacific National crew the Veolia container handler operator is to verbally notify the Pacific National Rail crew that they have completed all loading/unloading activities on line 1 and will remove their red personal lock. The container handler operator will suspend unloading/loading operations whilst the train crew use the train reverser to join the locomotives to the wagons and connect the air. Once the train crew have completed the aforementioned they will then place the reverser back into the lock out box and inform the Veolia container handler operator verbally so that they can replace their red personal lock back onto the lock box with the reverser stored in it. Once the Veolia container handler operator has locked on with their red personal lock they may recommence the loading/unloading of containers from line 2. When handing over line 2 to the Pacific National crew the Veolia container handler operator is to verbally notify the Pacific National Rail crew that they have completed all loading/unloading activities on line 2 and will remove their red personal lock. 11. The priority of the train leaving the IMF at its scheduled times take precedence over the nine containers stored in the middle of the hardstand. Therefore, once line 2 has been handed over all vehicle movements are to cease on the IMF hardstand.

All personnel involved are advised to speak to site management if issues / concerns are encountered.

All personnel are NOT to change the procedure which has been put forward unless this document is superseded.

Print Name: _____Signature: _____Date: _____

WORK INSTRUCTION NSW Woodlawn Crisps Creek/IMF Loading and Unloading Containers

Assessment

1. What is the speed limit at the Crisps Creek IMF

   ……

2. Container Handler Operator - when should the sign at the centre crossing be changed from “No Entry” to “One Way”

   ……

3. How many containers are to be swapped out by the second operator?

   …….

4. Are the Veolia Operators and Trucks Drivers permitted to apply handbrakes on the rail wagon?

   ……

5. Prior to the placement of a full container on the trailer, where must the driver stand?

   ……

6. What are the PPE requirements at the Crisps Creek Siding?

   ……

7. When should the container handler operators place their red personal locks on the red lock out box?

   ……

8. What should be stored in the red lock out box before placing the red personal lock to the lock out box?

   ……

Name	
Signature	
Assessor Name	
Assessor Signature	
Date	

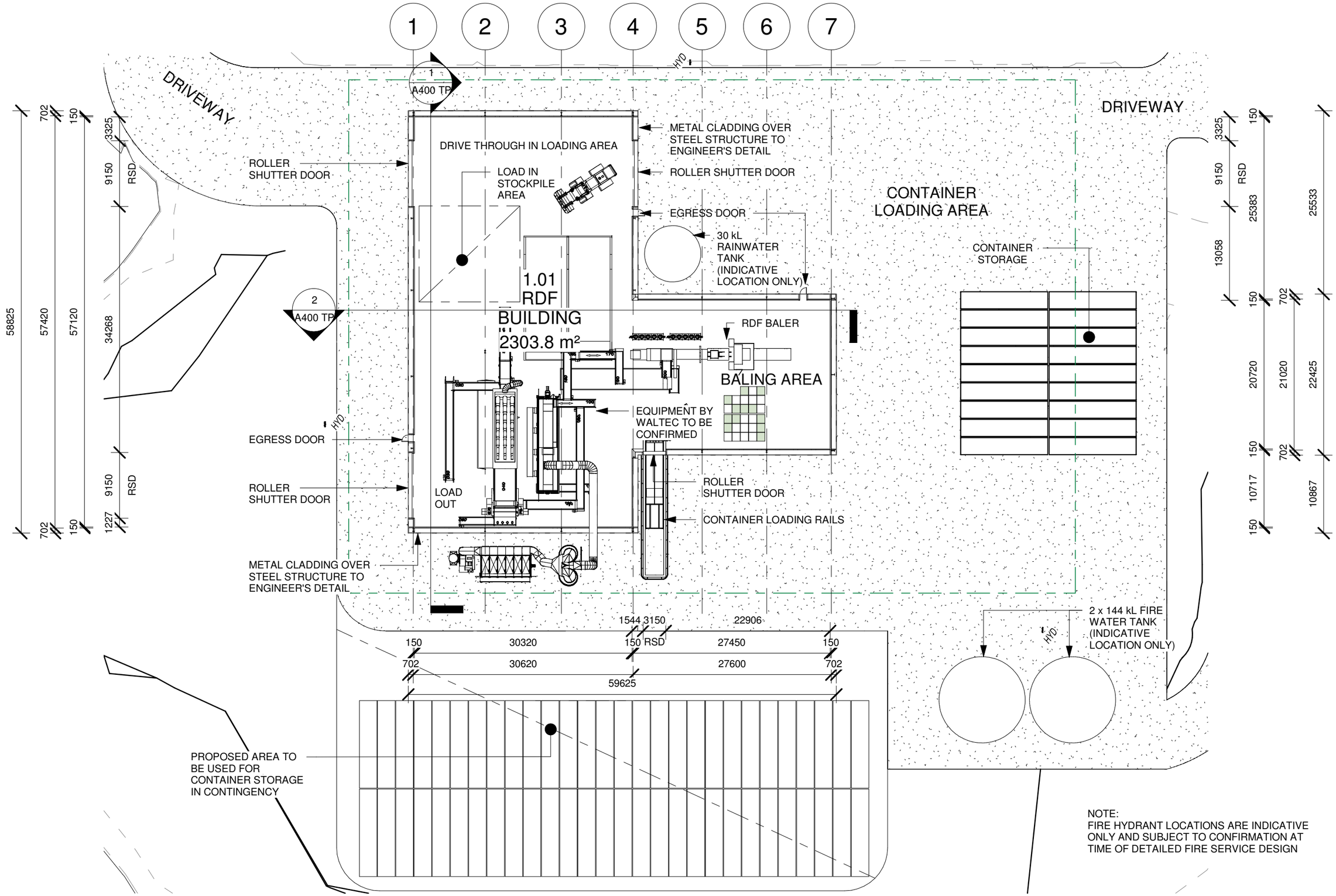
APPENDIX C: Traffic Assessment (URS 2010)

APPENDIX D: Plans Showing Proposed Location for Fire Hydrants

Appendix D 1- Ground Floor Plan

Appendix D 2- Site Plan

Appendix D 3 - Plan showing Woodlawn Eco Precinct infrastructure and affected land parcels



NOTE:
FIRE HYDRANT LOCATIONS ARE INDICATIVE ONLY AND SUBJECT TO CONFIRMATION AT TIME OF DETAILED FIRE SERVICE DESIGN

REV:	DETAILS	DATE	BY
T2	TENDER ISSUE	18/12/17	MC
T5	A3 SHEETS	30/04/2018	AIS
T8	PHILIP CHUN MARKUP	26/09/18	AD
T9	WATER TANKS	14/11/18	AIS

PROJECT
WOODLAWN RDF

CLIENT
VEOLIA

DRAWING STATUS
TENDER ISSUE

PROJECT NUMBER
1702

DRAWING NUMBER
A120 TP

REVISION
T9

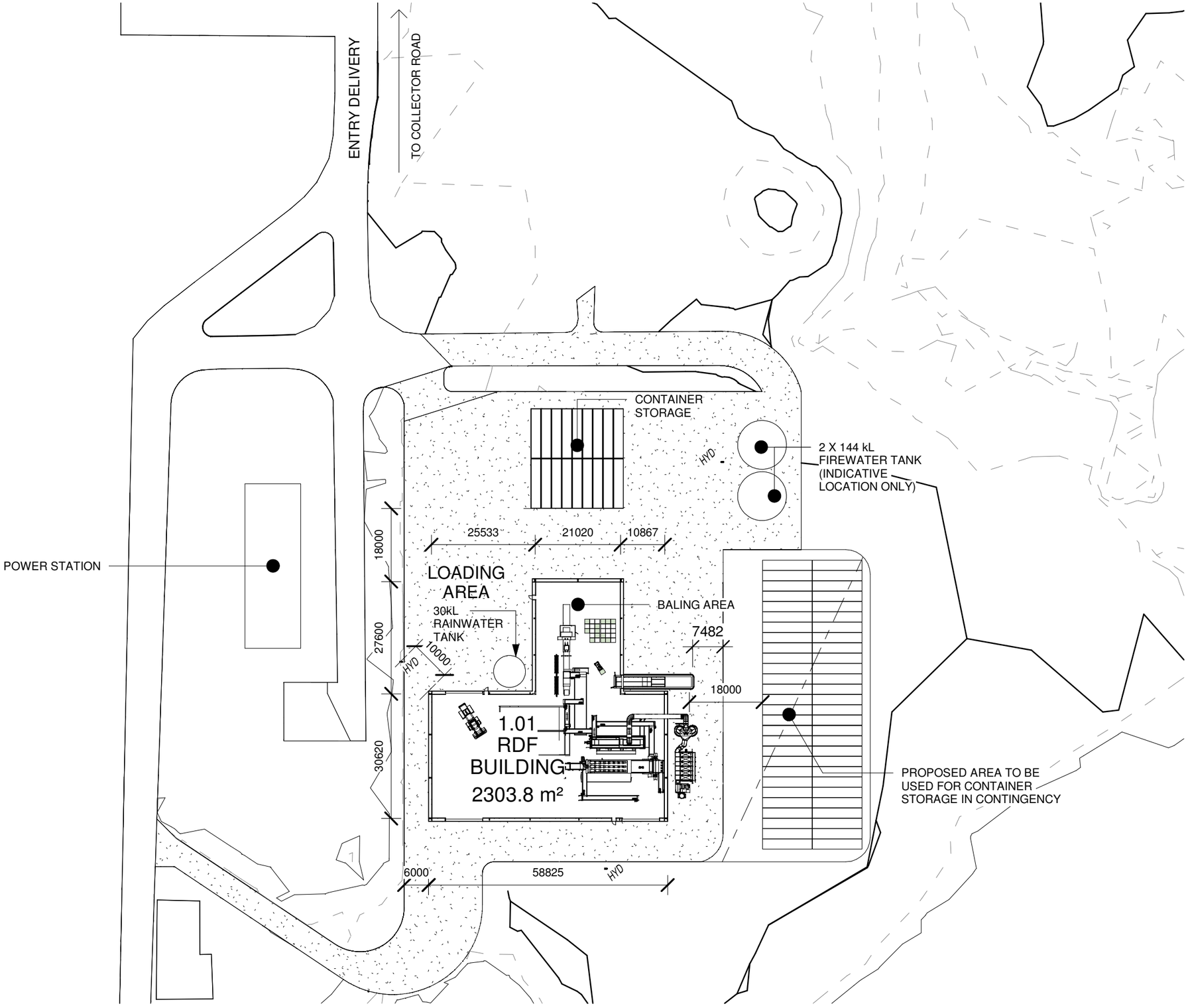
DRAWING NAME
GROUND FLOOR PLAN

SCALE
1 : 500 @ A3

DATE
30/04/2018

DRAWN
MC

davidson architecture
2/70 Kerr Street Fitzroy 3065
0415 12 57 56
ABN 29 600 077 487
ARBV Registration 51488
NSW Nominated Architect
Andrew Davidson 9345



NOTE:
FIRE HYDRANT LOCATIONS ARE INDICATIVE ONLY AND SUBJECT TO CONFIRMATION AT TIME OF DETAILED FIRE SERVICE DESIGN

REV:	DETAILS	DATE	BY
T5	A3 SHEETS	30/04/2018	AIS
T6	CONTAINER STORAGE	29/5/18	AD
T7	CONTINGENCY CONTAINERS ADDED	14/6/18	AD
T8	PHILIP CHUN MARKUP	26/09/18	AD
T9	WATER TANKS	14/11/18	AIS

PROJECT
WOODLAWN RDF

PROJECT NUMBER
1702

DRAWING NUMBER
A100 TP

REVISION
T9

CLIENT
VEOLIA

DRAWING NAME
SITE PLAN

DRAWING STATUS
TENDER ISSUE

SCALE
1 : 1000 @ A3

DATE
30/04/18

DRAWN
AIS

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0415 12 57 56
ABN 29 600 077 487
ARBV Registration 51488
NSW Nominated Architect
Andrew Davidson 9345

LEGEND

- LAND AFFECTED BY EXISTING CONSENT
- LAND AFFECTED BY PROPOSED CONSENT MODIFICATION
- HERON OPERATIONAL AREAS

MGA

55 DP 750056
54 DP 750056
7001 DP 1029633
17 DP 754919
95 DP 754919
35 DP 754919
1 DP 126600
87 DP 754919
96 DP 754919
16 DP 754919
12 DP 754919
1 DP 180491
6 DP 830765
68 DP 754919
90 DP 754919
34 DP 754919
9 DP 534616
97 DP 754919
1 DP241092
EVAPORATION DAM ED2
6 DP 830765
8 DP 534616
8 DP 830765
33 DP 754919
4 DP 830765
5 DP 830765
COLLECTOR ROAD
EVAPORATION DAM ED1
30 DP 754919
VISITORS CARPARK
VISITORS ENTRANCE
RECEPTION
MAIN ENTRANCE
ROAD
1 DP 1179305
SUB STATION
PROPOSED SRF SITE
GAS FLARE
POWER STATION
25 DP 754919
HAUL
MBT
MBT FACILITY
ED3N4
ED3N2
ED3N3
ED3N1
LEACHATE DAM
ED3S1
13 DP 754919
69 DP 754919
91 DP 754919
ED3S2
2 DP 1179305
BIOREACTOR VOID
RAW WATER DAM
88 DP 754919
21 DP 827588
5 DP 830765
WASTEROCK DUMP
20 DP 827588
91 DP 754919
TO WINDFARM TURBINES
WASTEROCK DAM
92 DP 754919
74 DP 754919

Note: Land boundaries have been plotted in approximate positions only. No survey investigation of boundaries has been undertaken.

File Name: J:\Surveyors\Jobs\Veolia\16800 Engineering\CAD\16800-501 Site Plan RDF Proposal & Affected Land Issue E.dwg

VEOLIA ENVIRONMENTAL SERVICES

SCALE 1:8000

0 160 320 480 640 800

Metres

ISSUE	AMENDMENT	DRAWN	DATE
A	INITIAL ISSUE	MK	16/11/2017
B	CONSENT AREA MODIFIED INSIDE LOT 2 DP 1179305	MK	16/11/2017
C	AFFECTED LAND SHOWN TO IMPACTED AREA ONLY	MK	21/11/2017
D	HERON OPERATIONAL AREAS ADDED	MK	27/09/2018
E	LEGEND UPDATED AND SRF SITE IDENTIFIED	MK	02/10/2018

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Integrated Management System

LandTeam

A1 SHEET

VEOLIA ENVIRONMENTAL SERVICES

WOODLAWN BIOREACTOR COLLECTOR ROAD, TARAGO

PLAN SHOWING
WOODLAWN ECO PRECINCT INFRASTRUCTURE AND AFFECTED LAND PARCELS
COLLECTOR ROAD, TARAGO

SURVEYED: N/A
DRAWN: MK
CHECKED: JK
ISSUE E

DRAWING No. 16800-501

DATUM N/A | CONTOUR INTERVAL N/A | DATE 02/10/2018

APPENDIX E: Operational Noise Impact Assessment (Wilkinson Murray)

ACOUSTICS AND AIR

WOODLAWN ECO PRECINCT MODIFICATION TO ENABLE THE CONSTRUCTION OF A SOLID RECOVERY FUEL FACILITY

OPERATIONAL NOISE IMPACT ASSESSMENT

REPORT NO. 17213
VERSION C

SEPTEMBER 2017

PREPARED FOR

VEOLIA ENVIRONMENTAL SERVICES (AUSTRALIA) PTY LTD
C/O CW STRATEGIC PLANNING SERVICES

DOCUMENT CONTROL

Version	Status	Date	Prepared By	Reviewed By
A	Draft	28 June 2017	John Wassermann	Nic Hall
B	Draft	29 September 2017	John Wassermann	Nic Hall
C	Final	24 September 1018	John Wassermann	John Wassermann

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Celebrating 50 Years in 2012
Wilkinson Murray is an independent firm established in 1962, originally as Carr & Wilkinson. In 1976 Barry Murray joined founding partner Roger Wilkinson and the firm adopted the name which remains today. From a successful operation in Australia, Wilkinson Murray expanded its reach into Asia by opening a Hong Kong office early in 2006. 2010 saw the introduction of our Queensland office and 2011 the introduction of our Orange office to service a growing client base in these regions. From these offices, Wilkinson Murray services the entire Asia-Pacific region.

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GLOSSARY OF ACOUSTIC TERMS

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors, which are demonstrated in the graph below, are here defined.

Maximum Noise Level (L_{Amax}) – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time.

L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise.

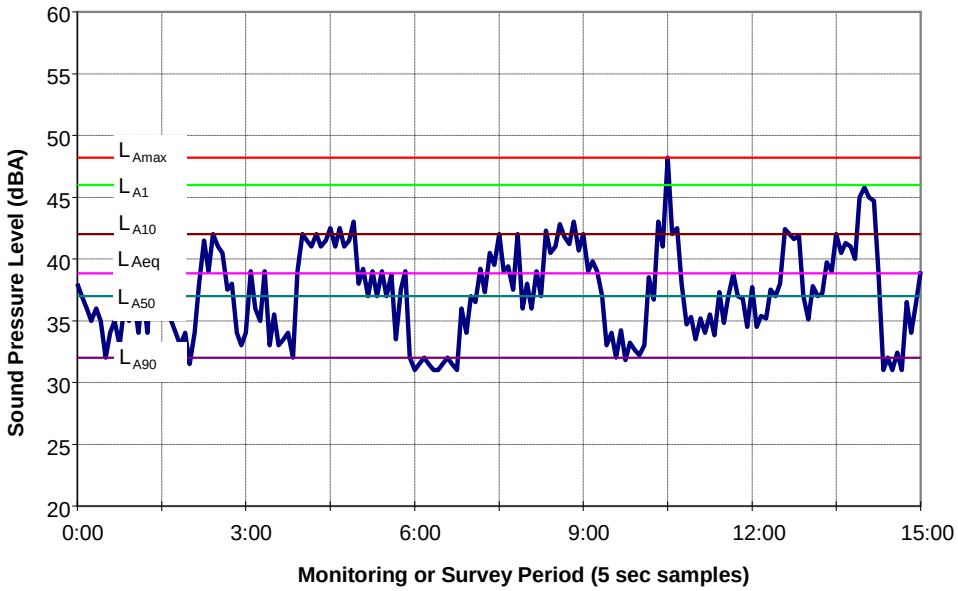
L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

ABL – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (L_{A90}) for each period.

RBL – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.

Typical Graph of Sound Pressure Level vs Time

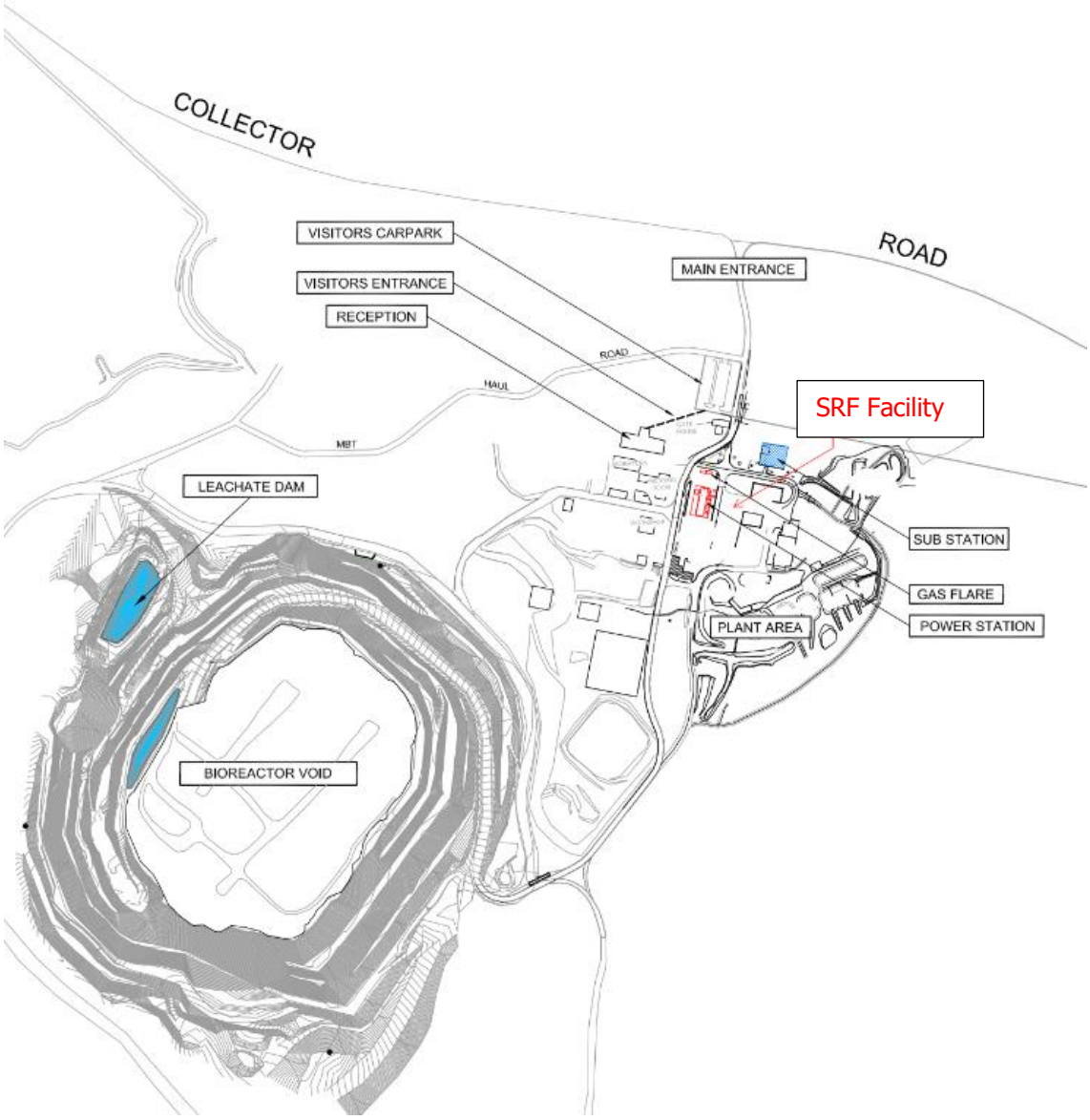


1 INTRODUCTION

Veolia Environmental Services (Australia) Pty Ltd (Veolia) own and operate the Woodlawn Bioreactor, Mechanical Biological Treatment (MBT) facility and Crips Creek Intermodal Facility (IMF). The complex is commonly known as the Woodlawn Eco Precinct.

Veolia proposes to construct and operate a new building near the entrance of the Eco Precinct (See Figure 1-1) to process MBT waste outputs into Solid Recovered Fuel (SRF). The SRF process will result in outputs with high calorific value being diverted from the waste stream and sold as fuel.

Figure 1-1 Site Location



The modification includes fortnightly transportation of approximately 55 containers of SRF by road to Crips Creak IMF for railing to Port Botany and the return of approximately 55 empty containers.

The additional rail movements would fit within Veolia's existing Approval and therefore does not require a rail noise assessment.

The fortnightly transportation of the containers by truck to the IMF site would occur along Collector Road and Bungendore Road. There are no sensitive receivers, not associated with the project along these roads, therefore no road traffic noise assessment has been conducted.

The typical operating hours of the SRF facility would be same as MBT Facility

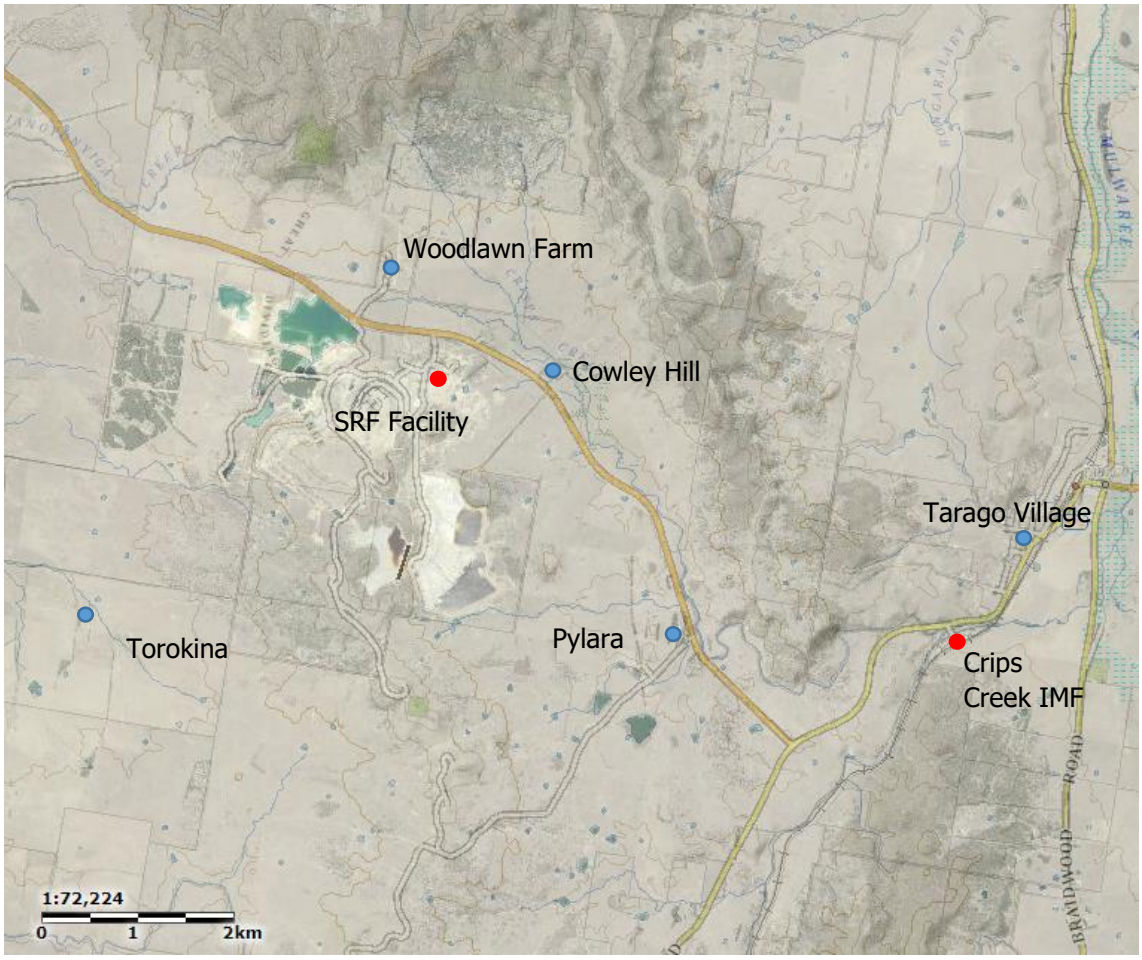
The following report documents an operational and construction noise impact assessment for the proposed new SRF facility. The assessment was conducted in general accordance with the NSW EPA's Industrial Noise Policy (INP) and Interim Construction Noise Guideline (ICNG).

2 SITE DESCRIPTION

2.1 Site Location

The Veolia Woodlawn Eco Precinct is located approximately 10 kilometres southwest of Tarago and 40 kilometres south of Goulburn. The site is typically surrounded by agricultural land uses (see Figure 2-1). The nearest sensitive receiver not associated with the site is approximately 4.4 kilometres away (Torokina).

Figure 2-1 Site Location



Woodlawn Farm, Cowley Hill and Pylara properties are all owned by Veolia.

3 NOISE CRITERIA

3.1 Operational Noise Criteria

In the original consent for the Woodlawn facility (DA 31-02-99), Condition 19 states the noise criteria for the facility at private residential receiver, being:

- 35 $L_{Aeq(15minutes)}$ from 6am to 10pm;
- 35 $L_{Aeq(15minutes)}$ from 10pm to 6am; and
- 45 $L_{A1(1minute)}$ from 10pm to 6am.

It also states that noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

The $L_{Aeq(15minute)}$ noise levels are considered intrusive noise levels which are energy averaged over a 15minute period. The $L_{A1(1minute)}$ level is the noise level exceeded 1 percent of a 1 minute period. The $L_{A1(1minute)}$ level is a typical a maximum noise level and is used to assess sleep disturbance.

3.2 Construction Noise Criteria

The *NSW Interim Construction Noise Guideline (ICNG)* presents the process to assess construction in NSW. The *ICNG* was developed by the Department of Environment Climate Change & Water (DECCW) taking into consideration that construction is temporary, noisy and difficult to ameliorate. As such, the *ICNG* was developed to focus on applying a range of work practices most suited to minimising construction noise impacts, rather than focusing only on achieving a numeric noise level.

The *ICNG* recommends that standard construction work hours should typically be as follows:

- Monday to Friday 7.00am to 6.00pm;
- Saturday 8.00am to 1.00pm; and
- No work on Sundays or public holiday

3.2.1 Residential Noise Criteria

Table 3-1 sets out management levels for noise at residences and how they are to be applied. Restrictions to the hours of construction may apply to activities that generate noise at residences above the 'highly noise affected' noise management level.

Table 3-1 Construction Noise at Residences using Quantitative Assessment

Time of Day	Management Level $L_{Aeq,15\ min}$	How to Apply
Recommended standard hours: Monday to Friday 7am to 6pm Saturday 8am to 1pm No work on Sundays or public holidays	Noise affected RBL + 10dBA	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured $L_{Aeq(15\ minute)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practises to meet the noise affected level. • The proponent should also inform all potentially affected residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. times identified by the community when they are less sensitive to noise (such as before and after school, or mid-morning or mid-afternoon for works near residents). 2. if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5dBA	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community.

The construction noise management level at the nearest sensitive receiver not associated with the project is (30+10) 40dBA $L_{Aeq(15minute)}$ assuming that background noise level of the area is 30dBA L_{A90} which is the lowest background used for developing noise criteria.

4 ASSESSMENT OF IMPACTS

This section of the report details the assessment methodology and presents the predicted operational noise levels at nearby receivers.

4.1 Noise Modelling Methodology and Assumptions

Operational and construction noise emissions from the site were modelled using the "CadnaA" acoustic noise prediction software using the CONCAWE noise algorithm. Factors that were addressed in the noise modelling are:

- Equipment noise level emissions and locations;
- Shielding from structures;
- Noise attenuation due to geometric spreading;
- Ground absorption; and,
- Atmospheric absorption.

The modelling was conducted for the following scenarios:

- Daytime clam meteorological condition equivalent to D class Pasquill stability category;
- Daytime noise enhancing meteorological condition with a 3m/s wind in all directions from source to receiver;
- Evening/ Night time noise enhancing meteorological condition equivalent to F class Pasquill stability category, which is equivalent to a temperature inversions of 3 to 4 degree Celsius/ 100 metres.

4.2 Assessment of Operational Noise

The SRF facility would be located in a new building constructed of Colourbond. Table 4-1 shows the typical plant that would be located within the building.

Table 4-1 Proposed SRF plant.

Proposed SRF plant
Disch. conv. A-1 heavies 1st
Disch. conv. A-1 heavies 2nd
Conveyor Titech 02
Disch. conv. PVC
Disch. conv. post shredder 1st
Disch. conv. post shredder 2nd
Feed conv. rev. Dryer
Disch. conv. Dryers_1

Proposed SRF plant
Disch. conv. Toploaders
Incline conv. from Toploaders
Conveyor rev. from Toploader
Conveyor from Top loader to Dryer
Conveyor from Top loader to Baler
Feed chain conveyor Baler
WALAIR Air system 1400 wide 2 way system
Acceleration conveyor 1400
Main Fan
Titech T-2 2800 POLYSORT PVC
Post shredder 0-30
Integration engineering
DRYER SYSTEM
Intermediate Storage 120 m3 Movingfloor with dosing grinders
Toploader system 1 with drop over chute (no side walls included)
Toploader system 2 (no side walls included)
Horizontal pre-press flap baler
Wrapping machine

Indicatively it has been estimated that the overall reverberant plant noise in the building would 84 dBA. The construction details of the existing building were used to calculate the sound power levels transmitted to the outside of the building as a result of the operation of the aforementioned indoor noise sources. Sound transmitted through the walls and roof of the building were included in the noise model.

The predicted operational noise levels at nearby residential receivers due to activities within the SRF facility are presented in Table 4-2.

Table 4-2 Predicted Operational Noise Levels

Receiver	Predicted Day time (Calm) $L_{Aeq, 15min}$ Level	Predicted Day time (Noise enhancing) $L_{Aeq, 15min}$ Level	Predicted Evening/ Night time (Noise enhancing) $L_{Aeq, 15min}$ Level	Criteria		
				Day	Evening	Night
Torokina Property	<10	<10	<10	35	35	35
Woodlawn Farm (property owned by Veolia)	22	27	27	35	35	35
Cowley Hill (property owned by Veolia)	22	25	25	35	35	35
Pylara (property owned by Veolia)	<10	<10	<10	35	35	35

Review of Table 4-2 reveals that noise levels from the SFR at nearby receivers are well below noise criteria. The predicted noise level at the nearest sensitive receptor (Torokina) not owned by Veolia is well below (over 25dB below the noise criteria) the day, evening and night time noise criteria and will not contribute to the existing noise levels from the Woodlawn facility. The levels are so low that they would not result in a material change in the overall noise level. The predicted SRF facility noise levels are at a level that indicates inaudibility at the at the nearest sensitive receptor

In assessing sleep disturbance, typical L_{Amax} noise levels of acoustically significant operations at night have been considered (i.e. the percussive impact noise associated with workshop activities). The use of the L_{Amax} noise level provides a worst-case prediction since the $L_{A1(1minute)}$ noise level of a noise event will be equal to or less than the L_{Amax}. It has been assumed that the noise source is inside the workshop with open doors and windows.

The noise events considered are the following:

- Hammering – Sound power level of 123 dBA L_{Amax}; and
- Grinding – Sound power level of 120 dBA L_{Amax}.

The highest L_{Amax} predicted at any potentially affected receiver was 40 dBA at "Woodlawn Farm". This predicted L_{Amax} noise level is compliant with the relevant sleep disturbance noise goal of 45 dBA.

4.3 Construction Noise Assessment

Construction is proposed to commence in the first half of 2018 and is predicted to be complete, inclusive of commissioning by the end of 2018. Two (2) potential construction scenarios have been modelled for construction of the SRF facility based on the likely stages of construction and are provided in Table 4-3.

Table 4-3 Construction Scenarios

Scenario	Description	Estimated Sound Power Level, dBA
Scenario 1	Site preparation; including excavation and pouring of a concrete slab	120
Scenario 2	Installation of MBT plant and equipment, construction of the buildings and delivery of materials.	115

Results of the construction noise modelling for each construction scenario during the day are provided in Table 4-4.

Table 4-4 Predicted Construction Noise Levels

Receiver	Predicted Day time Scenario 1 $L_{Aeq, 15min}$ Level	Predicted Day time Scenario 2 $L_{Aeq, 15min}$ Level	Construction Noise Management Levels $L_{Aeq, 15min}$ Level
Torokina Property	<10	<10	40
Woodlawn Farm (property owned by Veolia)	44	39	40
Cowley Hill (property owned by Veolia)	42	37	40
Pylara (property owned by Veolia)	23	18	40

Noise predictions indicate that noise emissions during construction of the SRF facility would comply with the relevant noise criteria at the closet receiver not owned by Veolia. Marginal exceedance of the Noise Management levels are predicted for scenario 1 at Woodlawn Farm and Cowley Hill which are owned by Veolia. The tenants of Woodlawn Farm and Cowley Hill would be notified of any noisy construction works and all reasonable and feasible noise management strategies would be considered to minimise noise.

5 CONCLUSION

Wilkinson Murray has conducted a noise impact assessment for the SRF facility. The purpose of the noise impact assessment was to identify the potential impacts of noise from the SRF facility.

Noise levels at potentially affected receivers were predicted under calm and noise enhancing weather conditions. Noise from operation of the SRF facility is predicted to comply with the noise limits under calm and prevailing conditions at all receiver locations.

The predicted noise level at the nearest sensitive receptor (Torokina) not owned by Veolia is well below (over 25dB below the noise criteria) the day and night time noise criteria and as such is will not to contribute to the existing noise levels from the Woodlawn facility. The predicted SRF facility noise levels are at a level that indicates inaudibility at the nearest sensitive receptor.

Night time sleep disturbance noise goals are also predicted to be met at all receiver locations.

Noise levels associated with construction activities at potentially affected receivers were predicted for two (2) scenarios and were predicted to meet the construction noise management levels at the closet receiver not owned by Veolia. Marginal exceedance of the Noise Management levels are predicted for scenario 1 at Woodlawn Farm and Cowley Hill which are owned by Veolia. The tenants of Woodlawn Farm and Cowley Hill would be notified of any noisy construction works and all reasonable and feasible noise management strategies would be considered to minimise noise.

APPENDIX F: Noise Impact Assessment - Woodlawn Expansion Project (Heggies Pty Ltd)

HEGGIES

REPORT 30-2464-R1

Revision 3

Noise Impact Assessment

Woodlawn Expansion Project

PREPARED FOR

Veolia Environmental Services (Australia) Pty Ltd
Cnr. Unwin & Shirley Streets
Rosehill NSW 2142

14 JULY 2010

HEGGIES PTY LTD
ABN 29 001 584 612

Incorporating New Environment Graeme E. Harding & Associates Eric Taylor Acoustics

Noise Impact Assessment

Woodlawn Expansion Project

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
30-2464-R1	Revision 3	14 July 2010	John Cotterill	Robert Hall	John Cotterill
30-2464-R1	Revision 2	21 June 2010	John Cotterill	Nathan Archer	John Cotterill
30-2464-R1	Revision 1	27 April 2010	John Cotterill	Katie Teyhan	John Cotterill
30-2464-R1	Revision 0	22 April 2010	John Cotterill	Katie Teyhan	John Cotterill

EXECUTIVE SUMMARY

Heggies Pty Ltd (Heggies) has been engaged by Veolia Environmental Services (Australia) Pty Limited (Veolia) to undertake an assessment of noise impacts associated with the proposed Woodlawn Expansion Project.

Existing Environment

Ambient noise surveys were conducted to characterise and quantify the acoustical environment in the area surrounding the project site.

These measurements were then used to develop noise goals for operation of the development in accordance with Department of Environment Climate Change and Water (DECCW) *NSW Industrial Noise Policy* (INP) and *NSW Environmental Noise Control Manual* (ENCM). Traffic generated by the operation was assessed with reference to the *Environmental Criteria for Road Traffic Noise* (ECRTN).

A background monitoring survey, which included unattended continuous monitoring and operator attended monitoring, was undertaken at three (3) residential locations as part of a previous assessment conducted for the approved Alternative Waste Treatment facility (AWT). The background assessment conducted for the AWT was considered appropriate for use in this assessment as the background levels recorded were conservative (low). The background levels recorded for the AWT were predominantly below the minimum levels set in the INP and therefore further monitoring could only have resulted in higher ambient levels and hence less stringent project specific criteria. Existing background noise was typical of a rural environment.

Weather data from an on-site weather station was used to determine prevailing weather conditions for the site. Weather data was analysed in accordance with procedures outlined in the INP. Seasonal wind records indicate that wind from 0.5 m/s to 3 m/s exceeds the 30% threshold during summer nights and is therefore considered a feature of the area for the night-time period.

Meteorological data was analysed from the weather station to allow the determination of the percentage occurrence of temperature inversions during winter nights. Temperature inversion during the night-time period was identified to exceed the 30% criterion and has therefore been considered as part of this noise assessment.

The assessment of noise impacts during the occurrence of temperature inversions is confined to the night-time period (between 10.00 pm and 7.00 am) in accordance with the INP.

Potential Impacts

The noise assessment has considered the following potential environmental noise impacts:

- Noise impact of the Woodlawn Bioreactor and Crisps Creek Intermodal Facility as a result of the Woodlawn Expansion Project and extended hour of operation.
- Cumulative impact of noise from the existing Woodlawn Bioreactor, approved Woodlawn Wind Farm, and approved AWT.
- Traffic noise impact of the proposed additional transportation of waste from the Crisps Creek Intermodal Facility, the local area (50,000 tpa Section 75W modification), the proposed additional 80,000 tpa of regional waste and by the approved AWT facility.

EXECUTIVE SUMMARY

Noise Assessment

A computer model was used to predict noise emissions from operation of the proposed Woodlawn Expansion Project.

The operational noise modelling was undertaken using SoundPLAN v6.4 software, developed by Braunstein and Berndt Gmbh in Germany. A three-dimensional digital terrain map giving all relevant topographic information was used in the modelling process. The model used this map, together with noise source data, ground cover, shielding by barriers and/or adjacent buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers.

Conclusion

Operational noise emission levels from Woodlawn Bioreactor and the Crisps Creek Intermodal facility due to the proposed Woodlawn Expansion Project are predicted to meet the relevant project specific noise goals over the extended hours at all existing non-project related residential dwellings surrounding the site.

The cumulative impact of noise from the existing Woodlawn Bioreactor, approved Woodlawn Wind Farm, and approved AWT are predicted to comply with the relevant criteria set in accordance with the INP at residential receivers surrounding the site.

The contribution to traffic noise from heavy vehicles associated with the Woodlawn site, including the additional traffic generated from the Crisps Creek Intermodal Facility (IMF) and the regional waste component is predicted to comply with the ECRTN criteria.

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1 INTRODUCTION

Heggies Pty Ltd (Heggies) has been engaged by Veolia Environmental Services (Australia) Pty Limited (Veolia) to undertake an assessment of noise impacts associated with the proposed Woodlawn Expansion Project (the Project).

Broadly, the objective of the assessment was to identify the potential impacts of noise from the proposed Project. The noise impacts include that from transport and processing of up to 1.13 million tonnes per annum (tpa) of putrescible waste at the Woodlawn Bioreactor and up to 1.18 million tonnes per annum at the Crisps Creek Intermodal Facility (IMF).

The noise assessment has been prepared with reference to Australian Standard AS 1055:1997 *Description and Measurement of Environmental Noise* Parts 1, 2 and 3 and in accordance with the Department of Environment, Climate Change and Water (DECCW) *NSW Industrial Noise Policy* (INP). Where issues relating to noise are not addressed in the INP, such as sleep disturbance, reference has been made to the *NSW Environmental Noise Control Manual* (ENCM). Traffic generated by the operation has been assessed with reference to the *Environmental Criteria for Road Traffic Noise* (ECRTN).

Reference has also been made to the following previous reports for the site:

- Woodward-Clyde *Woodlawn Waste Management Facility Environmental Impact Statement* dated 1999.
- Wilkinson Murray Report No. 04098 Version B *Woodlawn Wind Farm Noise Assessment* dated 2004.
- Heggies report 30-1392R1R3 *Woodlawn Alternative Waste Technology (AWT) Facility Noise Impact Assessment* dated January 2006.
- Heggies report 30-2474R1 *Noise Impact Assessment Woodlawn Regional Waste Modification* dated January 2010.

2 PROJECT DESCRIPTION

The purpose of the application is to assess the receival of up to 1.13 million tpa of general solid waste (putrescible) per annum at the Woodlawn Bioreactor and up to 1.18 million tpa through the IMF. The additional tonnage would enable waste to be received either by road or rail from the local region, as well as increasing the volume of waste received by rail from the greater Sydney region through the Crisps Creek Intermodal Facility (IMF).

To facilitate the additional tonnage and provide for adequate contingency in the operations, an extension to the hours of operation is being sought at both Crisps Creek and the Woodlawn Bioreactor. The proposed hours of operation are contained in **Table 1**.

Table 1 Hours of Operation

Description	Current	Proposed
Train operations at Crisps Creek Intermodal	6:00 am to 6:00 pm	6:00 am to 10:00 pm
Train unloading at Crisps Creek Intermodal	7:00 am to 6:00 pm	7:00 am to 10:00 pm
Woodlawn Bioreactor operations	6:00 am to 7:00 pm	6:00 am to 10:00 pm

This proposal would require an increase in equipment and personnel at both facilities. It is estimated that an additional 11 employees would be required between these two facilities and the additional equipment would include an extra forklift, bulldozer, landfill compactor and a container tipper. It should be noted that the additional equipment will be used for contingencies and not in normal operating purposes.

There would be no major construction work required for the proposed project, with the exception of additional lighting in Crisps Creek IMF, along the access road and in working areas within the void and the installation of additional gas collection and extraction infrastructure within the void.

While this application proposes to increase the annual input rate to the Bioreactor, the size of the void and therefore the total volume of waste that could be received at the facility throughout the life of the site would remain unchanged.

2.1 Nearest Residences

The nearest most potentially affected residences are summarised in **Table 2**.

Table 2 Potentially Affected Residences

Property ID	Property Name	Approximate Distance to Woodlawn Bioreactor (m)
A	“Cowley Hills”(owned by Veolia)	2,000
B	“Woodlawn Farm” (owned by Veolia)	1,600
C	“Pylara” (owned by Veolia)	4,000
D	“Torkina”	3,700
E	“Willeroo”	5,900
F	“Bernallah”	4,500
G*	“Chinnery”	680 (from IMF)

* Location G is the closest affected residence to the IMF. A residence on Lime St is closer but due to topographic shielding is less affected than Location G

2.2 Local Traffic

It is expected that the Project will generate a maximum of 15 heavy vehicle movements per hour between the Crisps Creek Intermodal facility and the Woodlawn Bioreactor site. The current traffic generation between the Intermodal and Woodlawn is approximately 10 heavy vehicle movements per hour.

It is also envisaged that there will be addition waste transported by road from regional areas, further to that proposed for the Section 75 W Regional Waste Modification (50,000 tpa total from Goulbourn Mulwaree, Palerang, Queanbeyan and Bega Valley Councils). This application include waste from Upper Lachlan & Yass Valley (3,000 tpa - for each Council), Eurobodalla (21,000 tpa) and the ACT (53,000 tpa – 50 percent of the total "Commercial & Industrial" and "Private" waste streams). Proposed traffic movement are discussed further in **Section 7** of this report.

3 IMPACT ASSESSMENT PROCEDURES

3.1 General Objectives

Responsibility for the control of noise emission in New South Wales is vested in Local Government and the DECCW. The INP was released in January 2000 and provides a framework and process for deriving noise criteria for consents and licences that will enable the DECCW to regulate premises that are scheduled under the Protection of the Environment Operations Act, 1997.

The specific policy objectives are:

- To establish noise criteria that would protect the community from excessive intrusive noise and preserve amenity for specific land uses.
- To use the criteria as the basis for deriving project specific noise levels.
- To promote uniform methods to estimate and measure noise impacts, including a procedure for evaluating meteorological effects.
- To outline a range of mitigation measures that could be used to minimise noise impacts.
- To provide a formal process to guide the determination of feasible and reasonable noise limits for consents or licences that reconcile noise impacts with the economic, social and environmental considerations of industrial development.
- To carry out functions relating to the prevention, minimisation and control of noise from premises scheduled under the Act.

The INP provides two forms of noise criteria with the aim of achieving environmental noise objectives; one to account for intrusive noise which involves setting a noise goal relative to the existing acoustic environment and the other to protect the amenity of particular land uses.

3.2 Assessing Intrusiveness

For assessing intrusiveness, the background noise level must be measured. The intrusiveness criterion essentially means that the equivalent continuous noise level (L_{Aeq}) of the source should not be more than five decibels above the measured background level (L_{A90}).

3.3 Assessing Amenity

The amenity assessment is based on noise criteria specific to land use and associated activities. The criteria relate only to industrial-type noise and do not include road, rail or community noise. The existing noise level from industry is measured. If it approaches the criterion value, then noise levels from new industries need to be designed so that the cumulative effect does not produce noise levels that would significantly exceed the criterion.

An extract from the INP that relates to the amenity criteria is given in **Table 3** and **Table 4**.

Table 3 Amenity Criteria - Recommended L_{Aeq} Noise Levels from Industrial Noise Sources

Type of Receiver	Indicative Noise Amenity Area	Time of Day	Recommended $L_{Aeq(Period)}$ Noise Level (dBA)	
			Acceptable	Recommended Maximum
Residence	Rural	Day	50	55
		Evening	45	50
		Night	40	45
	Suburban	Day	55	60
		Evening	45	50
		Night	40	45
	Urban	Day	60	65
		Evening	50	55
		Night	45	50
School classrooms - internal	All	Noisiest 1 hour period when in use	35	40
Hospital wards	All	Noisiest 1 hour period		
- internal			35	40
- external			50	55
Place of worship - internal	All	When in use	40	45
Area specifically reserved for passive recreation (eg National Park)	All	When in use	50	55
Active recreation area (eg school playground, golf course)	All	When in use	55	60
Commercial premises	All	When in use	65	70
Industrial premises	All	When in use	70	75

Note: Daytime 7.00 am to 6.00 pm; Evening 6.00 pm to 10.00 pm; Night-time 10.00 pm to 7.00 am, On Sundays and Public Holidays, Daytime 8.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night-time 10.00 pm - 8.00 am.
The L_{Aeq} index corresponds to the level of noise equivalent to the energy average of noise levels occurring over a measurement period.

Table 4 Modification to Acceptable Noise Level (ANL)* to Account for Existing Levels of Industrial Noise

Total Existing L_{Aeq} noise level from Industrial Noise Sources	Maximum L_{Aeq} Noise Level for Noise from New Sources Alone, dBA
≥ Acceptable noise level plus 2 dBA	If existing noise level is *likely to decrease* in future acceptable noise level minus 10 dBA If existing noise level is *unlikely to decrease* in future existing noise level minus 10 dBA
Acceptable noise level plus 1 dBA	Acceptable noise level minus 8 dBA
Acceptable noise level	Acceptable noise level minus 8 dBA
Acceptable noise level minus 1 dBA	Acceptable noise level minus 6 dBA
Acceptable noise level minus 2 dBA	Acceptable noise level minus 4 dBA
Acceptable noise level minus 3 dBA	Acceptable noise level minus 3 dBA
Acceptable noise level minus 4 dBA	Acceptable noise level minus 2 dBA
Acceptable noise level minus 5 dBA	Acceptable noise level minus 2 dBA
Acceptable noise level minus 6 dBA	Acceptable noise level minus 1 dBA
< Acceptable noise level minus 6 dBA	Acceptable noise level

* ANL = recommended acceptable L_{Aeq} noise level for the specific receiver, area and time of day from **Table 3**

3.4 Assessing Sleep Disturbance

The DECCW has acknowledged that the relationship between maximum noise levels and sleep disturbance is not currently well defined. Criteria for assessing sleep disturbance has not been identified under the INP and hence, sleep arousal has been assessed using the guidelines set out in the ENCM Chapter 19-3.

To avoid the likelihood of sleep disturbance the ENCM recommends that the $L_{A1(1minute)}$ noise level of the source under consideration should not exceed the background noise level (L_{A90}) by more than 15 dBA when measured outside the bedroom window of the receiver during the night-time hours (10.00 pm to 7.00 am).

3.5 Road Traffic Noise

The Environment Protection Authority released the "*Environmental Criteria for Road Traffic Noise*" in May 1999. The policy sets out noise criteria applicable to different road classifications for the purpose of defining traffic noise impacts.

4 EXISTING ACOUSTICAL AND METEOROLOGICAL ENVIRONMENT

4.1 Ambient Background Noise Monitoring

Ambient noise levels were measured during a previous assessment conducted by Heggies for the AWT refer Heggies report 30-1392R1R3 *Woodlawn Alternative Waste Technology Facility Noise Impact Assessment* dated January 2006). A background monitoring survey was undertaken at the nearest residential locations given in **Table 5**. The noise monitoring locations are identified in the location maps contained in **Figure 1** and **Figure 2**. **Figure 1** includes associated residences that are owned by Veolia, as well as the nearest affected residences

Table 5 Background Noise Monitoring Locations

Noise Monitoring Location	Description
Location A	Cowley Hills (owned by Veolia)
Location B	Woodlawn Farm (owned by Veolia)
Location G	Chinnery

The background noise monitoring consisted of continuous, unattended noise logging and operator attended noise surveys. The operator attended noise surveys help to define noise sources and the character of noise in the area and are, therefore, used to qualify unattended noise logging results.

The background assessment conducted for the AWT was considered appropriate for use in this assessment as the background levels recorded were conservative (low). The background levels recorded for the AWT were predominantly below the minimum levels set in the INP and therefore further monitoring could only have resulted in higher ambient levels and hence less stringent project specific criteria.

Figure 1 Location of Nearest Residences (Source: Umwelt 2006 AWT Report)

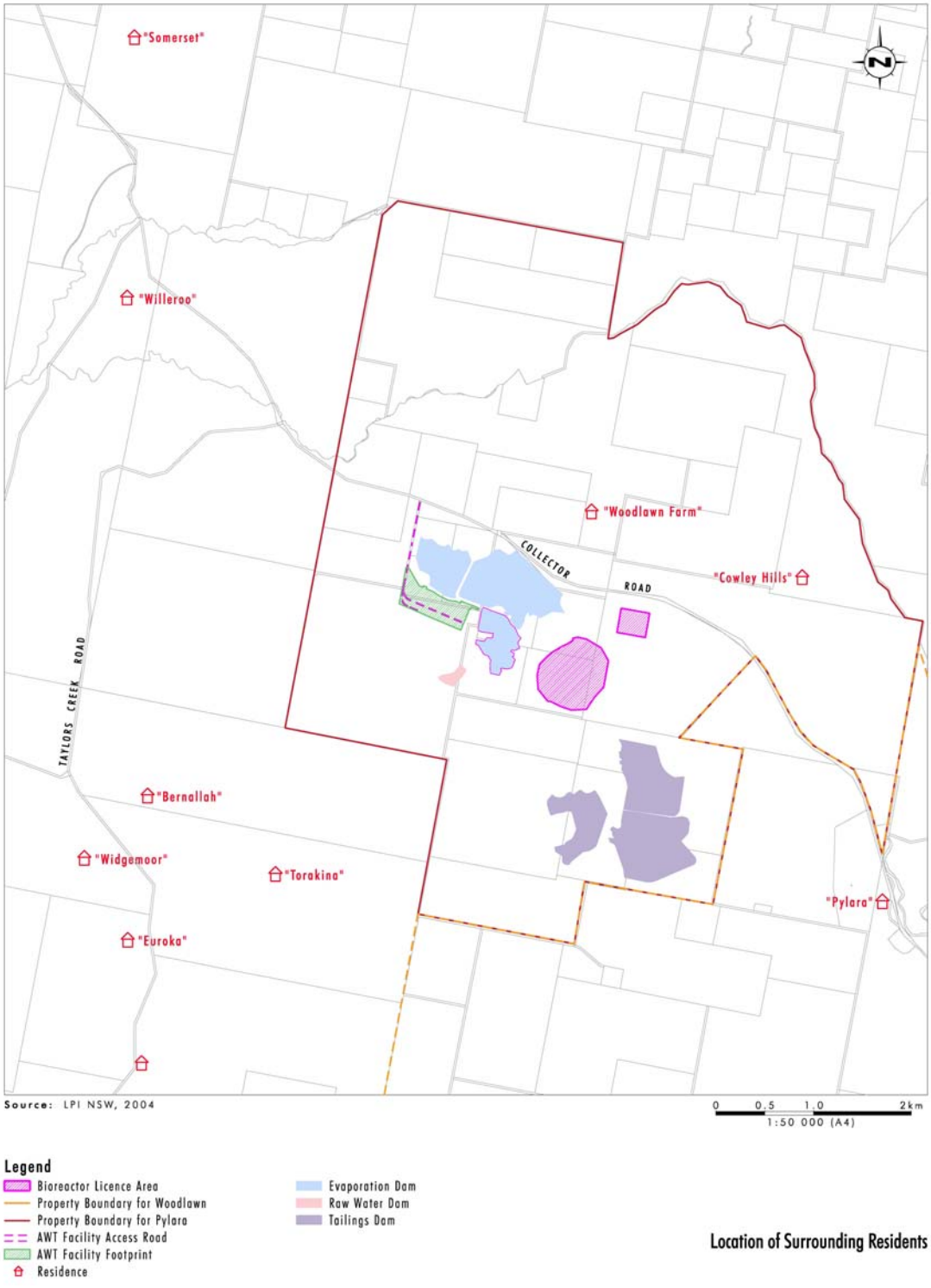
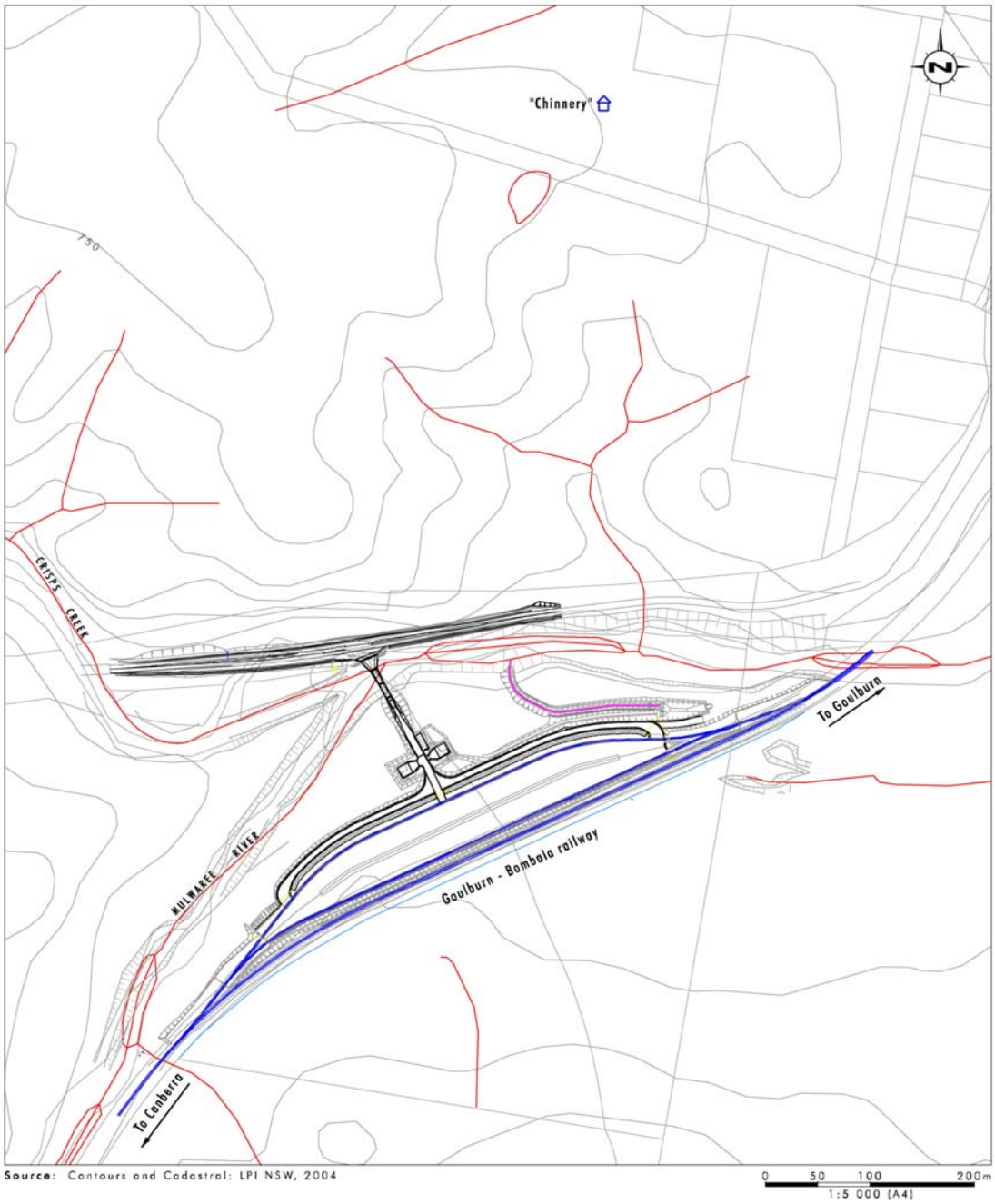


Figure 2 Location Nearest Affected Residence* – Crisps Creek IMF (Source: Umwelt 2006 AWT Report)



* Chinnery is the closest affected residence to the IMF. A residence on Lime St is closer but due to topographic shielding is less affected than Chinnery.

4.2 Unattended Continuous Noise Monitoring

The objective of the background monitoring survey was to measure $L_{A90(15minute)}$ and $L_{Aeq(15\ minute)}$ noise levels at the nearest potentially affected receptors during proposed operational periods to determine the intrusiveness and amenity criteria for the development.

Background noise levels were monitored by Heggies using ARL Type EL316 and Type EL215 environmental noise loggers at Locations A, B and G from Wednesday 4 May 2005 to Saturday 21 May 2005.

Noise data during periods of any rainfall and/or wind speeds in excess of 5 m/s (approximately 9 knots) were discarded in accordance with INP weather affected data exclusion methodology.

A summary of the results of the unattended continuous noise monitoring are given in **Table 6**. The ambient noise levels from each monitoring location are presented in graphical format in **Appendix B**.

Table 6 Summary of Existing Ambient Background Noise Levels

Location	Description	Background Noise Level (L_{A90} dBA)	Existing industrial noise contribution L_{Aeq} (dBA)
		Rating Background Level	
Location A Cowley Hills (owned by Veolia)	Daytime	30 dBA	<44 dBA
	Evening	30 dBA	<39 dBA
Logger serial number 16-203-506	Night	30 dBA	<34 dBA
Location B Woodlawn Farm (owned by Veolia)	Daytime	31 dBA	<44 dBA
	Evening	30 dBA	<39 dBA
Logger serial number 16-203-509	Night	30 dBA	<34 dBA
Location G Chinerry	Daytime	30 dBA	<34 dBA
	Evening	30 dBA	<34 dBA
Logger serial number 16-203-506	Night	30 dBA	<34 dBA

Notes: Monday to Saturday, Daytime 7.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night-time 10.00 pm - 7.00 am. Sundays & Public Holidays, Daytime 8.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night-time 10.00 pm - 8.00 am
The L_{A90} represents the level exceeded for 90% of the interval period and is referred to as the average minimum or background noise level
The L_{Aeq} descriptor corresponds to the level of noise equivalent to the energy average of noise levels occurring over a measurement period.

Existing industrial noise contributions were determined from attended measurements at each of the monitoring locations. The existing industrial noise contribution was not discernable at the monitored locations.

4.3 Operator Attended Noise Monitoring

Operator-attended surveys were conducted at each of the noise monitoring locations to verify the unattended logging results and to determine the character and contribution of noise sources to the total ambient noise level.

Operator attended noise surveys were conducted during logger deployment on Wednesday 4 May 2005 at Locations A and B and Friday 13 May 2005 at Location G. Results of these surveys are shown in **Table 7**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds, and local activities. The table provides the following information:

- Monitoring location
- Date /Start time/ Weather Conditions
- Typical maximum (L_{Amax}) and contributed noise levels

Table 7 Operator Attended Noise Measurements

Location	Date/ Start time/ Weather	Primary Noise Descriptor (dBA re 20 μPa)					Description of Noise Emission Typical Maximum Levels L_{Amax} (dBA)
		L_{Amax}	LA1	LA10	LA90	LAeq	
Location A Cowley Hills (owned by Veolia)	4/5/05 10:15 Day W=1 m/s NW Temp=17°C	77	72	46	35	56	Truck passby 74, 75, 76 Birds Insects 34 -38 Wind in trees 35-36
Location B Woodlawn Farm (owned by Veolia)	4/5/05 11:15 Day W=1 m/s NW Temp=16°C	66	57	50	44	49	Birds Insects 45-46 Wind in trees 45-50
Location G Chinnery	13/5/05 14:50 Day W=0.5 m/s NW Temp=17°C	61	46	36	26	35	Truck on Highway 40 Car on Highway 35 Farm activity (farm car) 49 Birds 50

It should be noted that the typical maximum noise levels recorded during the operator attended surveys do not reflect the L_{Aeq} contribution of these sources.

4.4 Effects of Meteorology on Noise Levels

Wind

Wind has the potential to increase noise at a receiver when it is light and stable and blows from the direction of the source of the noise. As the strength of the wind increases the noise produced by the wind will obscure noise from most industrial and transport sources.

Wind effects need to be considered when wind is a feature of the area under consideration. Where wind blows from the source to the receiver at speeds up to 3 m/s for more than 30% of the time in any season, then wind is considered to be a feature of the area and noise level predictions must be made under these conditions.

Weather data was obtained, for a period of 12 months - December 2008 to December 2009, from a weather station located on the Woodlawn site. The weather data was analysed to determine the frequency of occurrence of winds up to speeds of 3 m/s for daytime, evening and night in each season. A summary of the most frequently occurring winds is contained within **Table 8**, **Table 9** and **Table 10**. The percentage occurrence figures provided in bold are those that exceed the 30% threshold.

Table 8 Seasonal Frequency of Occurrence of Wind Speed Intervals - Daytime

Period	Calm	Wind Direction	0.5 - 2 m/s	2 - 3 m/s	0.5 - 3 m/s
Summer	0.2%	ENE±45°	3.8%	9.3%	13.1%
Autumn	3.5%	W±45°	11.4%	9.8%	21.2%
Winter	100.0%	NNW±45°	0.0%	0.0%	0.0%
Spring	0.5%	NE±45°	4.6%	6.4%	11.0%

Table 9 Seasonal Frequency of Occurrence of Wind Speed Intervals - Evening

Period	Calm	Wind Direction	0.5 - 2 m/s	2 - 3 m/s	0.5 - 3 m/s
Summer	2.3%	ENE±45°	6.8%	11.6%	18.3%
Autumn	8.0%	E±45°	13.2%	13.9%	27.1%
Winter	8.3%	WSW±45°	10.2%	13.3%	23.5%
Spring	2.7%	ENE±45°	7.0%	11.4%	18.4%

Table 10 Seasonal Frequency of Occurrence of Wind Speed Intervals - Night

Period	Calm	Wind Direction	0.5 - 2 m/s	2 - 3 m/s	0.5 - 3 m/s
Summer	10.9%	ENE±45	17.4%	13.7%	**31.0%**
Autumn	26.3%	E±45	17.1%	9.5%	26.6%
Winter	10.7%	WSW±45	12.9%	11.9%	24.8%
Spring	11.8%	ENE±45	11.7%	10.6%	22.3%

Seasonal wind records indicate that winds from 0.5 m/s to 3 m/s exceed the 30% threshold during the night from the east-north-east and are therefore a feature of the area during this period. Consequently, prevailing wind has been considered as part of this assessment.

4.5 Temperature Inversion

Temperature inversions, when they occur, have the ability to increase noise levels by focusing sound waves. Temperature inversions occur predominantly at night during the winter months. For a temperature inversion to be a significant characteristic of the area it needs to occur for approximately 30% of the total night-time during winter, or about two nights per week.

Weather data from an on-site weather station was used to determine prevailing weather conditions for the site. Weather data was analysed in accordance with procedures outlined in the INP. Seasonal wind records indicate that wind from 0.5 m/s to 3 m/s exceeds the 30% threshold during summer nights and is therefore considered a feature of the area for the night-time period.

Meteorological data was analysed from the weather station to allow the determination of the percentage occurrence of temperature inversions during winter nights. Temperature inversion during the night-time period was identified to exceed the 30% criterion and has therefore been considered as part of this noise assessment.

5 PROJECT SPECIFIC NOISE CRITERIA

5.1 Operational Noise Design Criteria

The noise emission design criteria for the Woodlawn Bioreactor have been established with reference to the INP as outlined in **Section 3** of this report.

The amenity criteria have been set from **Table 3**, with adjustments to account for existing industrial noise contributions, from **Table 4** as necessary.

The acoustical environment typifies that of a rural environment. The residences in the general area have been assessed under the relevant receiver type as shown in **Table 11**.

The intrusive and amenity noise assessment criteria for the assessment localities, with reference to the INP, are presented in **Table 11**.

Table 11 Operational Project Specific Noise Criteria

Location	Locality (Noise Amenity Area)	Period	Intrusiveness Criteria $L_{Aeq(15minute)}$ (dBA)	Amenity Criteria $L_{Aeq(Period)}$ (dBA)
A	Cowley Hills (owned by Veolia) (Rural)	Day	35	50
		Evening	35	45
		Night	35	40
B	Woodlawn Farm (owned by Veolia) (Rural)	Day	36	50
		Evening	35	45
		Night	35	40
G	Chinnery (Rural)	Day	35	50
		Evening	35	45
		Night	35	40

For Monday to Saturday, Daytime 7.00 am - 6.00pm; Evening 6.00pm - 10.00pm; Night-time 10.00pm - 7.00am.
On Sundays and Public Holidays, Daytime 8.00am - 6.00pm; Evening 6.00pm - 10.0 pm; Night-time 10.0 pm - 8.00am.

The intrusive criteria will be the limiting criteria at all areas during all periods.

The INP states that these criteria have been selected to protect at least 90% of the population, living in the vicinity of industrial noise sources, from the adverse effects of noise for at least 90% of the time. Provided the criteria in the INP are achieved, it is unlikely that most people would consider the resultant noise levels excessive.

5.2 Existing Licence Conditions IMF

The current Crisps Creek IMF Environmental Protection Licence (EPL) noise limits are outlined as follows:

L6 Noise Limits

L6.1 Except as provided in condition L6.2, noise from the premises must not exceed an $L_{Aeq\ (15\ minute)}$ noise emission criterion of 35 dB(A) at the most affected residential receiver.

L6.2 Noise emissions from freight trains entering and leaving the premises must not exceed the noise limit of 45 dB(A) $L_{Aeq\ (15\ minutes)}$ prior to 7:00 am and 50 dB(A) $L_{Aeq\ (15\ minutes)}$ after 7:00 am. These limits apply only where there are no more than two freight trains entering and leaving the premises per day, otherwise the limit in condition L6.1 applies.

L6.3 For the purpose of Conditions L6.1 and L6.2

The L_{Aeq} noise level must be measured or computed at the most affected residential receiver over a period of 15 minutes using "FAST" response on the sound level meter. In the case of condition L6.2, the period is the duration of a train entering and/or leaving the premises if this is less than 15 minutes.

5dB(A) must be added to the measured level if the noise is substantially tonal or impulsive in character.

Measurement locations are:

for night time (10 pm to 7 am) assessment – 1 metre from the façade of the residence; and

for day time (7 am to 10 pm) assessment – at the residential boundary or 30 metres from the residence where the boundary is more than 30 metres from the residence.

The noise emission limits apply for prevailing meteorological conditions and winds up to 3 metres per second, except under conditions of temperature inversions.

Currently, the Intermodal does not operate during the evening period. It would be expected that a noise limit of 35 dBA $L_{Aeq(15minute)}$ would be applied to the evening period for normal operations and a noise limit of 45 dB(A) $L_{Aeq(15minute)}$ for freight trains entering and leaving the premises during the evening period.

5.3 Sleep Disturbance Noise Goals

The relevant sleep disturbance noise goals for each residential area are provided in **Table 12**.

Table 12 Sleep Disturbance Criteria

Location	Locality (Noise Amenity Area)	Period	Sleep Disturbance Criteria $L_{A1(1minute)}$ dBA
A	Cowley Hills (owned by Veolia) (Rural)	Night	45
B	Woodlawn Farm (owned by Veolia) (Rural)	Night	45
G	Chinnery (Rural)	Night	45

5.4 Road Traffic Noise Design Criteria

Road traffic noise criteria are set out in the ECRTN. The criteria recommended in the policy document are based on the functional categories of the subject roads, as applied by the RTA. Bungendore Road would be classified as a sub-arterial road and Collector Road would be classified as a collector road. The relevant road traffic noise criteria for the subject development are provided in **Table 13**.

Table 13 Road Traffic Noise Criteria

Type of Development	Criteria		
	Day 7 am - 10 pm	Night 10 pm - 7 am	Where Criteria are Already Exceeded
Land use developments with potential to create additional traffic on existing freeways/ arterials	60 dBA $L_{Aeq(15hour)}$	55 dBA $L_{Aeq(9hour)}$	Where feasible, existing noise levels should be mitigated to meet the noise criteria. Examples of applicable strategies include appropriate location of private access roads; regulating times of use; using clustering; using 'quiet' vehicles; and using barriers and acoustic treatments. In all cases, traffic arising from the development should not lead to an increase in existing noise levels of more than 2 dB.
Land use developments with potential to create additional traffic on existing collector roads	60 dBA $L_{Aeq(1hour)}$	55 dBA $L_{Aeq(1hour)}$	

6 NOISE MODELLING

6.1 Noise Modelling Parameters

A computer model was used to predict noise emissions from operation of the proposed Project. The operational noise modelling was undertaken using SoundPLAN v6.4 software, developed by Braunstein and Berndt Gmbh in Germany. A three-dimensional digital terrain map giving all relevant topographic information was used in the modelling process. The model used this map, together with noise source data, ground cover, shielding by barriers and/or adjacent buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers.

Topographic contours and operational plans were supplied by Veolia for the purpose of modelling noise from the proposed development.

Prediction of noise emission levels was carried out under calm and prevailing atmospheric conditions. Atmospheric parameters under which noise predictions were made are given in **Table 14**.

Table 14 Meteorological Parameters for Noise Predictions

	Temperature	**Humidity**	**Wind Speed**	**Wind Direction** (degrees from north)	**Temperature Inversion**
Calm (All periods)	20°C	65%	n/a	n/a	n/a
Wind (Night only)	20°C	65%	3 m/s	67	n/a
Inversion (Night only)	10°C	90%	n/a	n/a	3°C/100m

Sound power levels of relevant equipment have been obtained from measurements on the Woodlawn site or have been sourced from a Heggies database of similar equipment. Relevant noise source data is contained within **Appendix A**.

6.2 Operational Scenario - Noise Model Summary

The operational scenario modelled during each period is summarised in **Table 15**. A tick (✓) indicates that the equipment is in operation during the relevant period. A cross (×) indicates that the equipment is not in operation during the relevant period. Where there is a number in brackets following a tick, this represents the number of items of equipment that have been considered in the noise model during the relevant period.

Table 15 Operational Scenario Considered in Noise Model

Plant and Equipment	Moring Shoulder (night) 6.00 am - 7.00 am	Day 7.00 am - 6.00 pm	Evening 6.00 pm – 10.00 pm
Woodlawn Bioreactor			
Trucks	×	✓ (10)	✓ (10)
Container tipper	×	✓ (2)	✓ (2)
Dump trucks	×	✓(2)	✓(2)
Dozer	×	✓(2)	✓(2)
Compactor	×	✓(2)	✓(2)
Compressor	✓	✓	✓
FEL	×	✓	✓
Aerators	✓(2)	✓(2)	✓(2)
Generators	✓(24)	✓(24)	✓(24)
Crisps Creek IMF			
Forklifts	×	✓(2)	✓(2)
Train	✓(1)	✓(1)	✓(1)
Trucks	×	✓ (6)	✓ (6)

Note: Additional tipper, dump truck, dozer and compactor and forklift have been included in the model, however they are only expected to be used for contingency, not under operating conditions

6.3 Bioreactor Operational Noise Modelling Results and Discussion

Noise emission levels were predicted from the proposed Project for a typical operational scenario described in **Table 15**. Noise levels predicted at the nearest residential receiver locations are provided in **Table 16**.

Table 16 Predicted Woodlawn Bioreactor Noise Levels – Woodlawn Expansion Project

Location	Assessment Period	Predicted Noise Level $L_{Aeq(15minute)}$ (dBA)		Project Specific Noise Criteria
		Calm Conditions	Adverse Conditions	dBA $L_{Aeq(15minute)}$
Location A Cowley Hills (owned by Veolia)	Morning Shoulder	33	37	35
	Daytime	34	N/A	
	Evening	34	N/A	
Location B Woodlawn Farm (owned by Veolia)	Morning Shoulder	34	37	35
	Daytime	35	N/A	36
	Evening	35	N/A	35
Location C Pylara (owned by Veolia)	Morning Shoulder	< 30	< 30	35
	Daytime	< 30	N/A	
	Evening	< 30	N/A	
Location D Torkina	Morning Shoulder	< 30	< 30	35
	Daytime	< 30	N/A	
	Evening	< 30	N/A	
Location E Willeroo	Morning Shoulder	< 30	< 30	35
	Daytime	< 30	N/A	
	Evening	< 30	N/A	
Location F Bernallah	Morning Shoulder	< 30	< 30	35
	Daytime	< 30	N/A	
	Evening	< 30	N/A	

The noise impact of the proposed Project has minimal impact on noise generated by the current bioreactor operation. Operational noise levels of the bioreactor operation with the proposed Project are predicted to meet the project specific noise criteria at all residential locations under calm weather conditions. Operational noise levels of the bioreactor operation with the proposed Project are predicted to meet the project specific noise criteria at all but two (2) residential locations where exceedances of up to 2 dBA are predicted under prevailing weather conditions. These properties - Cowley Hills and Woodlawn Farm - are both owned by Veolia and as such are considered “project related” for this assessment.

6.4 Bioreactor Sleep Disturbance Analysis

The proposed expansion will not impact noise levels in the morning shoulder period between 6:00 am and 7:00 am (night) as no additional activities will occur during this period as a result of the proposal. Given the relative constant nature of existing approved noise sources that operate in the morning shoulder period it is not likely that sleep disturbance will occur as a result of the operation.

6.5 IMF Operational Noise Modelling Results and Discussion

Noise emission levels were predicted from the IMF for a typical operational scenario detailed in **Table 15**. The assessment included the arrival of trains, the unloading using of forklifts and truck movements on site. The noise emission from the site will be similar in character to that of the existing operation but will include an additional forklift. The hours of operation will also extend to the evening period between 6.00 pm and 10.00 pm. There is no increase in the approved number of trains to proposed for the IMF.

Noise levels predicted at Location G, which was deemed to be representative of the nearest affected residential receivers, are provided in **Table 17**. There is a residence on Lime Street that is closer to the IMF but this residence is afforded shielding by topographic features that reduce the predicted noise levels below those provided for Location G.

Table 17 Predicted Intermodal Noise Levels - Chinnery

Location/Activity	Assessment Period	Predicted Noise Level $L_{Aeq(15minute)}$ (dBA)		Project Specific Noise Criteria dBA $L_{Aeq(15minute)}$
		Calm Conditions	Adverse Conditions	
Location G Chinnery Train arrival	Morning Shoulder 6:00 am to 7:00 am	<30 dBA	<30 dBA	45 dBA
	Daytime 7.00 am to 6:00 pm	<30 dBA	N/A	50 dBA
	Evening 6:00 pm to 10:00 pm	<30 dBA	N/A	45 dBA
Location G Chinnery Loading/ unloading operations	Daytime 7.00 am to 6:00 pm	33 dBA	N/A	35 dBA
	Evening 6:00 pm to 10:00 pm	33 dBA	N/A	

Operational noise levels from the IMF are predicted to meet the project specific noise criteria at all residential locations during the morning shoulder, daytime and evening periods.

6.6 IMF Sleep Disturbance Analysis

The proposed expansion will not impact noise levels in the morning shoulder period between 6:00 am and 7:00 am (night) as no additional activities will occur during this period as a result of the proposal. Train arrival during the morning shoulder period (6:00 am to 7:00 am) has the potential to cause sleep disturbance. L_{Amax} levels measured during a train arrival were used as input to the noise model in order to assess sleep disturbance. The maximum noise level is predicted to be below 40 dBA during a train arrival and will therefore meet the sleep disturbance criteria set for residential Location G.

6.7 Cumulative Noise Assessment

The INP prescribes detailed calculation routines for establishing "project specific" $L_{Aeq(15minute)}$ intrusive criteria and $L_{Aeq(Period)}$ amenity criteria at potentially affected receivers for a development (in isolation).

Potential cumulative noise impacts from existing and successive developments are embraced by the INP procedures by ensuring that the appropriate noise emission criteria (and consent limits) are established with a view of maintaining acceptable noise *amenity* levels for residences.

In order to assess potential cumulative noise impacts it is important to appreciate and distinguish the INP's first and second environmental noise control objectives as follows:

Intrusive Noise Criteria $L_{Aeq(15minute)}$

The INP's first objective, that the intrusive noise emission from any single source does not exceed the background level by more than 5 dBA relates to each individual development and the intrusive noise limit is generally specified in the Development Consent and/or Licences and Approvals.

There is not an established procedure (or regulatory requirement) to determine the cumulative intrusive $L_{Aeq(15minute)}$ noise criterion in relation to the simultaneous operation of existing operations.

Cumulative Noise Amenity Criteria $L_{Aeq(period)}$

The INP's second objective is that the $L_{Aeq(period)}$ amenity level does not exceed the specified "acceptable" level appropriate for the particular locality and land use and is aimed at restricting the potential cumulative increase in noise *amenity* levels (otherwise known as "background creep").

Based on the INP, the acceptable $L_{Aeq(period)}$ noise *amenity* level in relation to the simultaneous operation of the Woodlawn Bioreactor, approved Wind Farm and AWT are daytime 50 dBA $L_{Aeq(11hour)}$, evening 45 dBA $L_{Aeq(4hour)}$ and night-time 40 dBA $L_{Aeq(9hour)}$.

The potential for the simultaneous operation of the Woodlawn Bioreactor, Wind Farm and AWT to exceed the acceptable and maximum noise amenity criteria can be assessed on a worst case scenario basis by adding the predicted intrusive noise levels from each individual site together for each period. The cumulative intrusive level is then adjusted (by -3 dBA) to the equivalent amenity level for comparison with the relevant amenity criteria for each location. The cumulative noise amenity levels during calm and adverse weather conditions for the areas of greatest potential cumulative impact are presented in **Table 18**. Predicted intrusive noise levels for the Woodlawn Wind Farm were sourced from Wilkinson Murray Report No. 04098 Version B "Woodlawn Wind Farm Noise Assessment" dated 2004. AWT predicted noise emission levels have been sourced from Heggies report 30-1392R1R3 *Woodlawn Alternative Waste Technology Facility Noise Impact Assessment.* Woodlawn Bioreactor existing and proposed modification predicted intrusive noise levels were taken from the data presented in **Table 16**.

Table 18 Predicted Cumulative Impact

Location	Period	Intrusive Predicted Noise Level LAeq(15minute) (dBA)						Cumulative Amenity Level LAeq(period)		Amenity Criteria (LAeq)
		Wind Farm		Bioreactor		AWT				
		Calm	Adverse	Calm	Adverse	Calm	Adverse	Calm	Adverse	
Location A Cowley Hills (owned by Veolia)	Day	< 30 dBA	30 dBA	34 dBA	N/A	< 30 dBA	N/A	34 dBA	<30 dBA	50 dBA
	Evening	< 30 dBA	30 dBA	34 dBA	N/A	< 30 dBA	N/A	34 dBA	<30 dBA	45 dBA
	Night	< 30 dBA	30 dBA	33 dBA	37 dBA	< 30 dBA	32 dBA	34 dBA	36 dBA	40 dBA
Location B Woodlawn Farm (owned by Veolia)	Day	< 30 dBA	34 dBA	35 dBA	N/A	34 dBA	N/A	36 dBA	31 dBA	50 dBA
	Evening	< 30 dBA	34 dBA	35 dBA	N/A	35 dBA	N/A	36 dBA	31 dBA	45 dBA
	Night	< 30 dBA	34 dBA	34 dBA	37 dBA	35 dBA	38 dBA	36 dBA	39 dBA	40 dBA
Location C Pylara (owned by Veolia)	Day	< 30 dBA	35 dBA	< 30 dBA	N/A	< 30 dBA	N/A	32 dBA	32 dBA	50 dBA
	Evening	< 30 dBA	35 dBA	< 30 dBA	N/A	< 30 dBA	N/A	32 dBA	32 dBA	45 dBA
	Night	< 30 dBA	35 dBA	< 30 dBA	< 30 dBA	< 30 dBA	< 30 dBA	32 dBA	34 dBA	40 dBA
Location D Torkina	Day	< 30 dBA	35 dBA	< 30 dBA	N/A	< 30 dBA	N/A	32 dBA	32 dBA	50 dBA
	Evening	< 30 dBA	35 dBA	< 30 dBA	N/A	30 dBA	N/A	32 dBA	32 dBA	45 dBA
	Night	< 30 dBA	35 dBA	< 30 dBA	< 30 dBA	30 dBA	35 dBA	32 dBA	36 dBA	40 dBA
Location E Willeroo	Day	< 30 dBA	< 30 dBA	< 30 dBA	N/A	< 30 dBA	N/A	32 dBA	32 dBA	50 dBA
	Evening	< 30 dBA	< 30 dBA	< 30 dBA	N/A	< 30 dBA	N/A	32 dBA	<30 dBA	45 dBA
	Night	< 30 dBA	< 30 dBA	< 30 dBA	< 30 dBA	< 30 dBA	< 30 dBA	32 dBA	32 dBA	40 dBA
Location F Bernallah	Day	< 30 dBA	< 30 dBA	< 30 dBA	N/A	< 30 dBA	N/A	32 dBA	<30 dBA	50 dBA
	Evening	< 30 dBA	< 30 dBA	< 30 dBA	N/A	31 dBA	N/A	32 dBA	<30 dBA	45 dBA
	Night	< 30 dBA	< 30 dBA	< 30 dBA	< 30 dBA	31 dBA	35 dBA	32 dBA	34 dBA	40 dBA

N/A: the meteorological condition is not relevant during this period

The results contained in **Table 18** show that the cumulative impact of the Project, Wind Farm, and AWT will comply with the relevant amenity criteria set in accordance with the INP at residential receivers surrounding the site.

6.8 Cumulative Intrusive Noise Assessment

Noise emissions from the Woodlawn Bioreactor and AWT have been assessed separately. Consents for each development were also issued as follows:

- Woodlawn Bioreactor – DA No. 31-02-99
- AWT – Application no 06_0239 Granted 6 November 2007

It should be noted that the EPL for the Woodlawn Bioreactor does not contain noise limits for the approved AWT facility.

Although the Woodlawn Bioreactor and AWT facilities are two distinct operations with separate development consents, as part of this noise assessment DECCW wish to examine the cumulative noise impact against the intrusive criteria for the Bioreactor and the AWT operations.

Notwithstanding this, the noise emission levels of the combined Bioreactor and AWT operations were modelled.

The operational scenario modelled during each period is summarised in **Table 19**. A tick (✓) indicates that the equipment is in operation during the relevant period. A cross (×) indicates that the equipment is not in operation during the relevant period. Where there is a number in brackets following a tick, this represents the number of items of equipment that have been considered in the noise model during the relevant period.

Table 19 Operational Scenario Considered in Noise Model

Plant and Equipment	Morning Shoulder (night) 6.00 am - 7.00 am	Day 7.00 am - 6.00 pm	Evening 6.00 pm – 10.00 pm
Woodlawn Bioreactor			
Trucks	×	✓ (10)	✓ (10)
Container tipper	×	✓ (2)	✓ (2)
Dump trucks	×	✓(2)	✓(2)
Dozer	×	✓(2)	✓(2)
Compactor	×	✓(2)	✓(2)
Compressor	✓	✓	✓
FEL	×	✓	✓
Aerators	✓(2)	✓(2)	✓(2)
Generators	✓(24)	✓(24)	✓(24)
Woodlawn AWT			
WASP Plant	✓	✓	✓
WASP FEL (Komatsu 320 or similar)	✓ (2)	✓(2)	✓(2)
WASP Truck Delivery	✓(2)	✓(2)	✓(2)
Alternative Fuel	✓(2)	✓(2)	✓(2)
Alternative Fuel Compactor	✓(2)	✓(2)	✓(2)
Resource Recovery Bins	✓	✓	✓
Organic Raw Material Bins	✓	✓	✓
Reject Bins - East	✓(2)	✓(2)	✓(2)
WOCOG Plant	✓	✓	✓
WOCOG Truck Delivery	✓(2)	✓(2)	✓(2)
WOCOG FEL	✓(2)	✓(2)	✓(2)
Windrow Turner (SCAT or similar)	×	✓	×
Sifter - de-stoner	×	✓	×
Final Screen/ trommel	×	✓	×

Note: Additional tipper, dump truck, dozer and compactor and forklift have been included in the model, however they are only expected to be used for contingency, not under operating conditions

As discussed in **Section 6.7** the INP does not establish a procedure to determine a cumulative intrusive criteria. To take into account the project specific noise levels for the proposed Bioreactor and the existing consent of the approved AWT a cumulative intrusive criteria was developed by logarithmically adding the two criteria. The predicted cumulative intrusive levels from the proposed Bioreactor and approved AWT against the relevant criteria are contained in **Table 20**.

Table 20 Predicted Cumulative Woodlawn Bioreactor and AWT Noise Levels

Location	Assessment Period	Predicted Noise Level $L_{Aeq(15minute)}$ (dBA)		Noise Criteria dBA $L_{Aeq(15minute)}$		
		Calm Conditions	Adverse Conditions	Bioreactor Project Specific	AWT Consent	Cumulative Intrusive
Location A Cowley Hills (owned by Veolia)	Morning Shoulder	33	38	35	35	38
	Daytime	34	N/A			
	Evening	34	N/A			
Location B Woodlawn Farm (owned by Veolia)	Morning Shoulder	38	41	35	35	38
	Daytime	38	N/A	36	35	38
	Evening	38	N/A	35	35	38
Location C Pylara (owned by Veolia)	Morning Shoulder	< 30	< 30	35	35	38
	Daytime	< 30	N/A			
	Evening	< 30	N/A			
Location D Torkina	Morning Shoulder	30	35	35	35	38
	Daytime	< 30	N/A			
	Evening	30	N/A			
Location E Willeroo	Morning Shoulder	< 30	< 30	35	35	38
	Daytime	< 30	N/A			
	Evening	< 30	N/A			
Location F Bernallah	Morning Shoulder	31	35	35	35	38
	Daytime	< 30	N/A			
	Evening	31	N/A			

The cumulative noise impact of the proposed Bioreactor operation and the approved AWT complies with the cumulative intrusive criteria for the developments at all residential locations except Location B Woodlawn farm. At this location, an exceedance of up to 3 dB during the morning shoulder period under prevailing weather conditions is predicted. The cumulative operational noise levels are at or below 35 dBA at all residential locations with the exception of Location A Cowley Hills and Location B Woodlawn Farm. These properties - Cowley Hills and Woodlawn Farm - are both owned by Veolia and as such are considered “project related” for this assessment.

7 ROAD TRAFFIC NOISE ASSESSMENT

7.1.1 Road Traffic Noise Modelling Parameters

Traffic noise modelling has considered the additional traffic that is proposed between the Intermodal and the Woodlawn Bioreactor as well as traffic from other local areas. This traffic was considered in addition to that proposed for the Section 75 W Regional Waste Modification and approved AWT facility. Proposed heavy vehicle movements used for traffic noise predictions are provided in **Table 21**.

Table 21 Proposed Heavy Vehicle Traffic Movements

Type of Delivery/Vehicle	Average Daily Movements	Average Hourly Movements
Woodlawn Bioreactor (total proposed)		
Transport to/from Crisps Creek Intermodal (total proposed)	240[1]	15
AWT Facility (approved)		
Transport to/from Crisps Creek Intermodal	64[2]	6
Product Despatch from AWT	16	3
Other Heavy Vehicles	10	2
Regional Waste Modification (proposed in separate modification),		
Goulburn Mulwaree Council	8[3]	0.8
Palerang Council	4[3]	0.4
Queanbeyan Council and Bega Valley Council	8[3]	0.8
Additional Regional Waste (proposed in this application)		
Yass Valley	2[3]	0.2
Upper Lachlan	2[3]	0.2
Eurobodalla	8[3]	0.8
ACT	18[3]	1.6

Note 1 These movements occur between 6:00 am and 10:00 pm
2 These movements occur between 6:00 am and 10:00 pm
3 These movements occur between 7:00 am and 6.00 pm however not expected to arrive until after 9:00 am

There is one (1) residential receiver along the transport route from the IMF along Bungendore Road (Chinnery approximately 530 metres from trucks exiting the IMF). There are two (2) residential receivers along Collector Road at Pylara and Cowley Hills, at which the closest residences are 40 metres and 140 metres respectively from the roadside. These residences on Collector Road are owned by Veolia. There no planned traffic movements along Collector Road west of the Woodlawn Bioreactor towards the Federal Highway.

7.1.2 Road Traffic Noise Modelling Results

Collector Road/Bungendore Road

Additional traffic along Collector Road and Bungendore Road has been considered during the daytime period as waste will arrive at the site between 7:00 am and 10:00 pm. Five (5) additional heavy vehicle movements per hour from Crisps Creek IMF will occur on Bungendore Road (North of Collector Road). Trucks travelling through Tarago and Bungendore are programmed to arrive at the Woodlawn Bioreactor site during daytime hours of 7:00 am to 6:00 pm, however, are expected not to arrive at the site until 9:00 am. This traffic has therefore not been assessed at Tarago and Bungendore before 7:00 am.

Road traffic noise contributions from the proposed Project have been predicted (at 40 metres from the roadside for Collector Road and 530 metres for Bungendore Road) and are presented in **Table 22**.

Table 22 Predicted Road Traffic Noise Levels – Collector Road

	Predicted Traffic Noise Level	**Criteria**
	Day	**Day**
	7 am - 10 pm	**7 am - 10 pm**
Bungendore Road	36 dBA $L_{Aeq(15hour)}$	60 dBA $L_{Aeq(15hour)}$
Collector Road	55 dBA $L_{Aeq(1hour)}$	60 dBA $L_{Aeq(1hour)}$

The road traffic noise level contribution from the Project is predicted to be below the relevant noise goal specified in the ECRTN for both Bungendore and Collector Roads.

Tarago and Bungendore Towns

An additional assessment of noise impacts associated with traffic movements for the transport through Tarago and Bungendore has been conducted using the following assumptions:

- Trucks are travelling at 50 km/hr (speed limit through Tarago and Bungendore).
- 42 truck movements occur during the daytime period through Bungendore.
- 8 truck movements occur during the daytime period through Tarago.
- The road is classified as Arterial or Sub-arterial.
- Sound pressure level from trucks of 75 dBA at 20 metres or 110 dBA SWL (flat terrain low speed environment).
- The nearest residence is 8 metres from the travel path of the truck.

As stated in **Table 21**, the proposed transportation of waste due to the Project will potentially generate an additional 30 truck movements per day from Upper Lachlan, Yass Valley, Eurobodalla and ACT (C&I and Private) through Bungendore. Only eight (8) heavy vehicle movements from the Goulburn Mulwaree Region would travel through Tarago (assessed for the regional waste modification). The traffic noise contribution from heavy vehicles has been predicted at 8 metres from the roadside for Tarago and Bungendore and is presented in **Table 23**.

Table 23 Predicted Road Traffic Noise Levels – Tarago and Bungendore Towns

	Predicted Traffic Noise Level	**Criteria**
	Day 7 am - 10 pm	**Day 7 am - 10 pm**
Tarago	46 dBA $L_{Aeq(15hour)}$	60 dBA $L_{Aeq(15hour)}$
Bungendore	53 dBA $L_{Aeq(15hour)}$	60 dBA $L_{Aeq(15hour)}$

The contribution to traffic noise from heavy vehicles associated with the Project, including the previously considered traffic generated by the regional waste modification, will comply with the daytime ECRTN criteria.

8 CONCLUSION

Operational noise emission levels from Woodlawn Bioreactor and the Crisps Creek IMF due to the proposed Project are predicted to meet the relevant project specific noise goals over the extended hours at all existing residential dwellings surrounding the site with the exception of Location A Cowley Hills and Location B Woodlawn Farm for which various marginal exceedances are predicted. These properties - Cowley Hills and Woodlawn Farm - are both owned by Veolia and as such are considered "project related" for this assessment.

The cumulative impact of noise from the existing Woodlawn Bioreactor, approved Wind Farm, and approved AWT are predicted to comply with the relevant criteria set in accordance with the INP at residential receivers surrounding the site.

The contribution to traffic noise from heavy vehicles associated with the Woodlawn site, including the additional traffic generated from the Crisps Creek Intermodal and additional local waste transportation, is predicted to comply with the ECRTN criteria.

Appendix A

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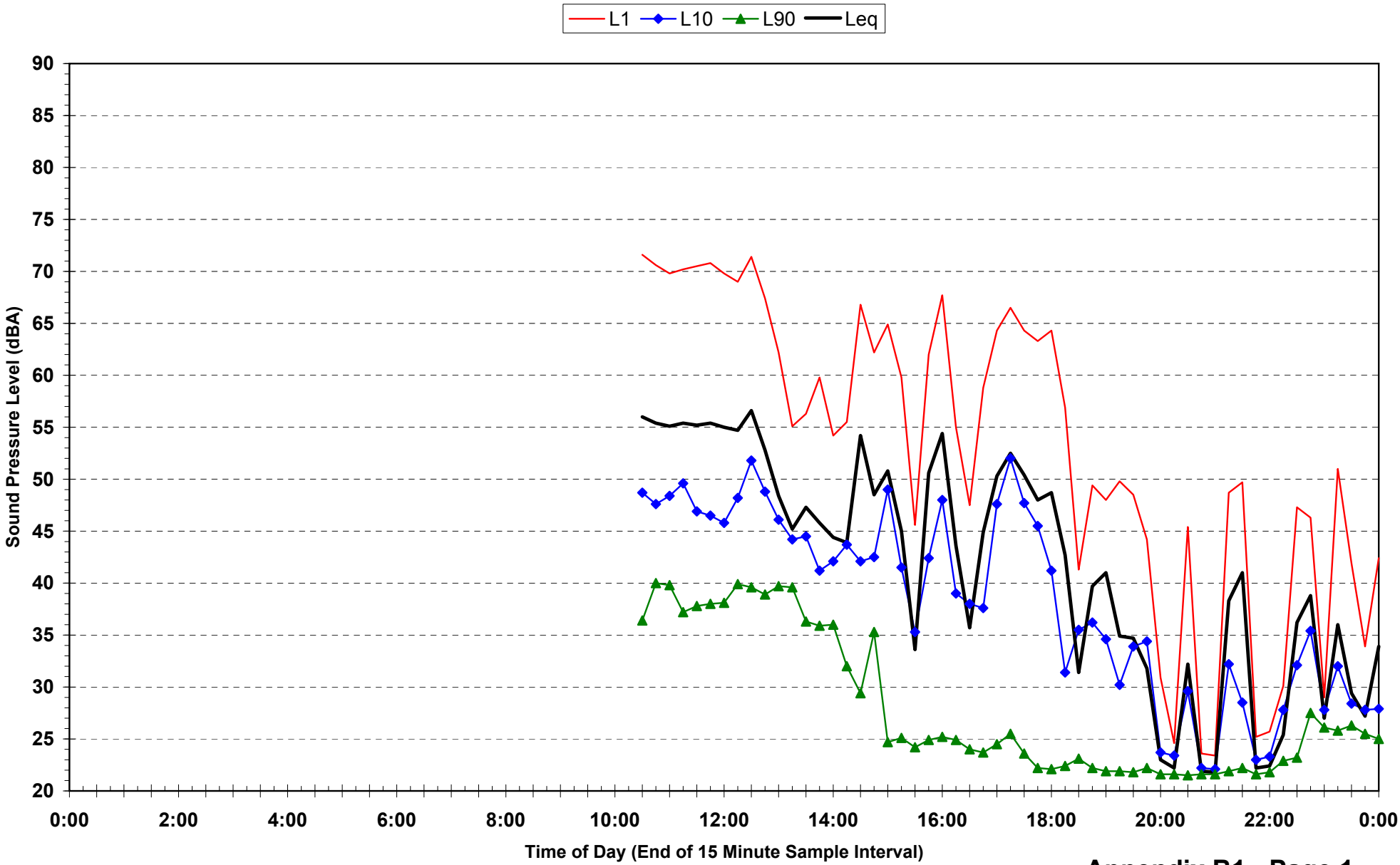
Equipment Sound Power Levels

Equipment	One Third Octave Band Frequency (Hz) - dB																																	Overall Sound	
	12.50	**16**	**20**	**25**	**31.5**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**	**630**	**800**	**1000**	**1250**	**1.6k**	**2K**	**2.5K**	**3.15K**	**4K**	**5K**	**6.3K**	**8K**	**10K**	**12.5K**	**16K**	**20K**	**A**	**L**
Waste Truck	96	95	97	95	95	99	96	99	112	109	103	103	106	102	106	108	104	104	102	103	102	100	99	98	97	96	95	93	93	95	89	88	84	112	**118**
Dump Truck	85	89	88	93	94	105	101	106	121	106	105	110	103	105	103	106	105	101	99	97	98	96	104	100	90	88	85	83	84	80	78	83	68	111	**122**
Compactor	93	88	88	93	102	101	100	97	97	109	95	98	98	96	102	103	100	102	101	100	99	98	98	94	93	90	88	87	87	84	81	80	73	109	**114**
Dozer	88	88	92	95	96	107	103	101	103	106	98	101	104	95	103	108	102	100	102	102	100	98	98	94	91	89	88	85	81	79	75	71	66	110	**116**
Front end Loader	86	85	82	87	92	102	101	102	101	100	97	100	103	96	104	101	96	94	94	95	105	95	94	94	90	89	86	83	83	81	77	73	71	109	**113**
Container Tipper	90	90	88	90	103	103	96	97	101	97	95	97	94	90	91	98	98	97	98	99	96	98	98	100	102	97	99	100	99	97	94	93	88	111	**113**
Air Compressor	69	75	72	75	76	77	77	78	76	77	78	80	80	78	73	75	77	76	74	72	71	71	69	71	69	65	61	58	54	51	48	50	-	83	**90**
Water Cart	93	94	90	91	87	91	100	100	102	104	100	98	99	95	100	101	97	98	98	98	97	95	95	94	89	87	87	89	84	83	82	81	77	107	**112**
Aerator	85	82	79	79	80	85	84	85	86	93	90	89	88	82	87	91	90	86	87	88	88	88	89	89	88	88	87	86	85	84	82	80	76	99	**103**
Generators	96	93	94	95	95	97	106	99	105	107	109	104	107	103	101	103	100	96	95	94	92	89	87	87	84	82	84	81	79	73	68	-	-	106	**116**
Grader	91	91	91	91	90	99	98	100	111	102	100	100	98	97	95	101	97	98	99	98	97	95	94	92	89	90	89	90	87	85	83	81	78	73	**114**
Excavator	-	63	58	61	67	72	67	70	70	78	71	75	68	64	70	69	71	68	69	68	66	64	63	62	60	56	55	52	49	46	45	-	-	77	**84**

Equipment Sound Power Levels IMF

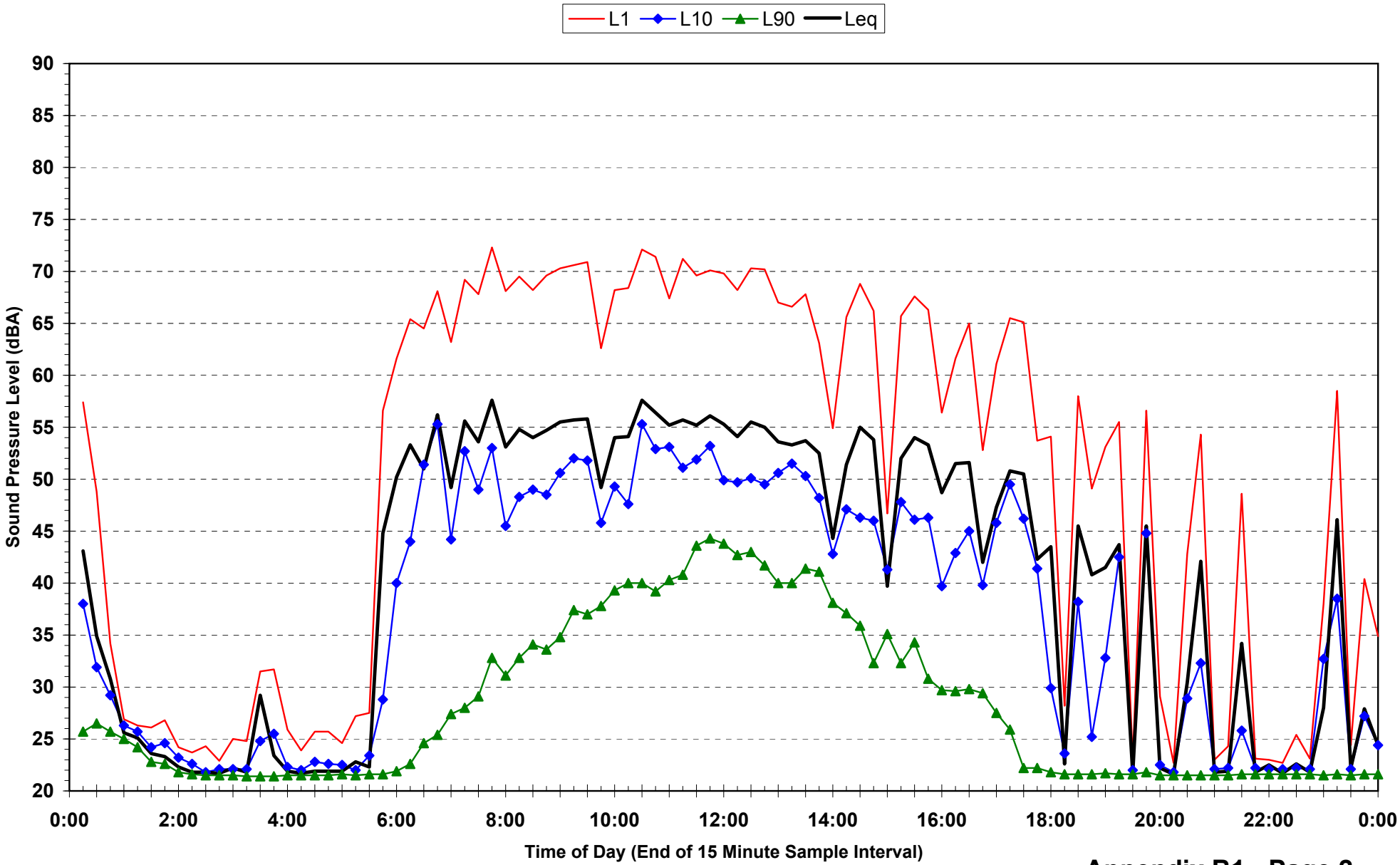
Equipment	One Third Octave Band Frequency (Hz) - dB																														Overall SWL	
	12.50	16	20	25	31.50	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1.6K	2K	2.5K	3.15K	4K	5K	6.3K	8K	10K	12.5K	16K	20K	A	L
Train Arrival	113	111	111	108	107	107	110	105	103	103	98	97	97	101	99	96	96	94	91	89	88	88	87	86	85	82	84	79	73	72	68	64	55	102	119
Forklift	103	106	101	97	106	101	92	99	96	92	92	93	90	87	90	94	93	93	98	97	96	95	92	88	89	82	80	78	74	71	69	67	64	104	113

Statistical Ambient Noise Levels
30-2464 Cowley Hills - Wednesday 4 May 2005



Appendix B1 - Page 1
Statistical Noise Levels
Heggies Report 30-2464

Statistical Ambient Noise Levels
30-2464 Cowley Hills - Thursday 5 May 2005



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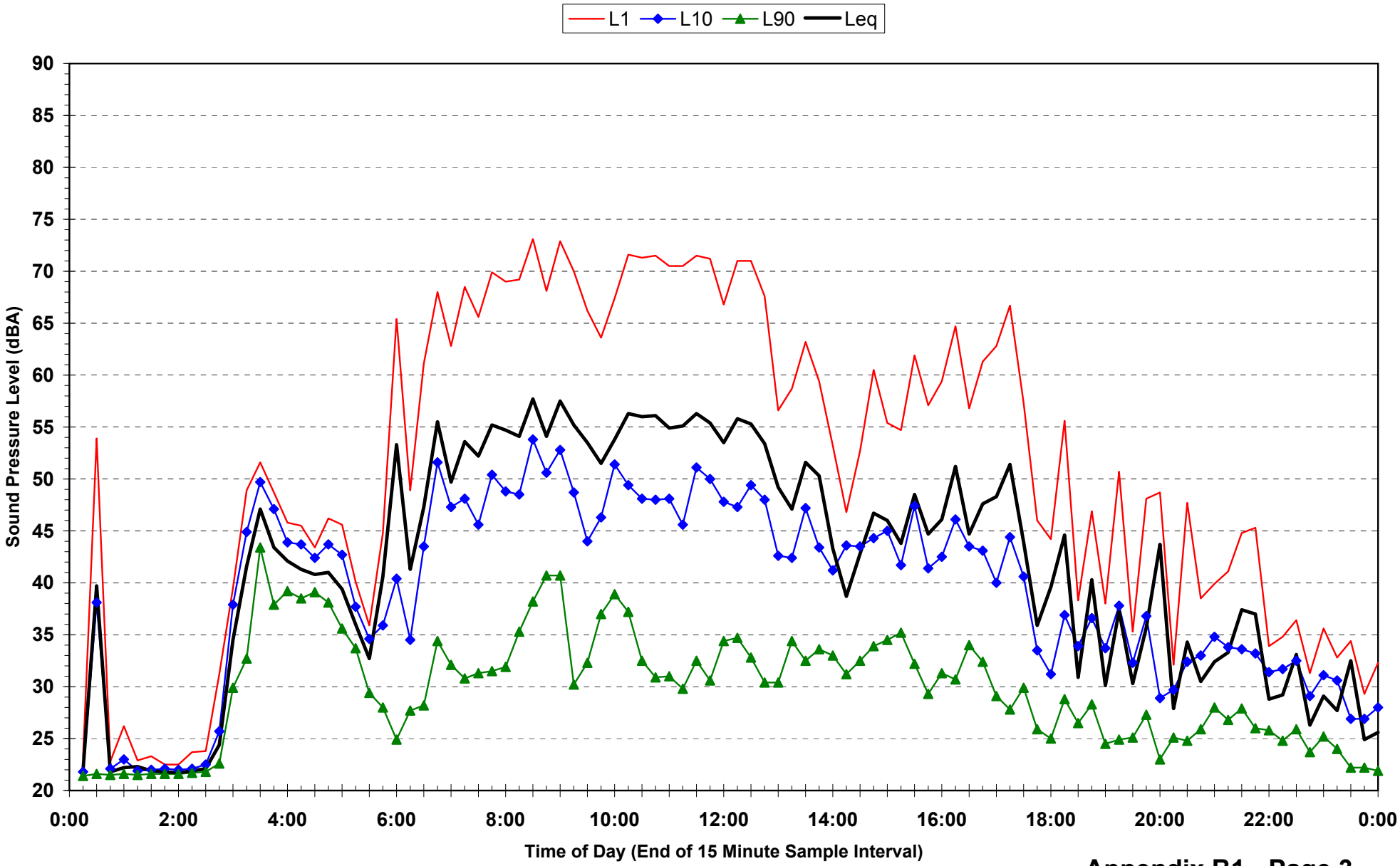
Statistical Ambient Noise Levels
30-2464 Cowley Hills - Friday 6 May 2005



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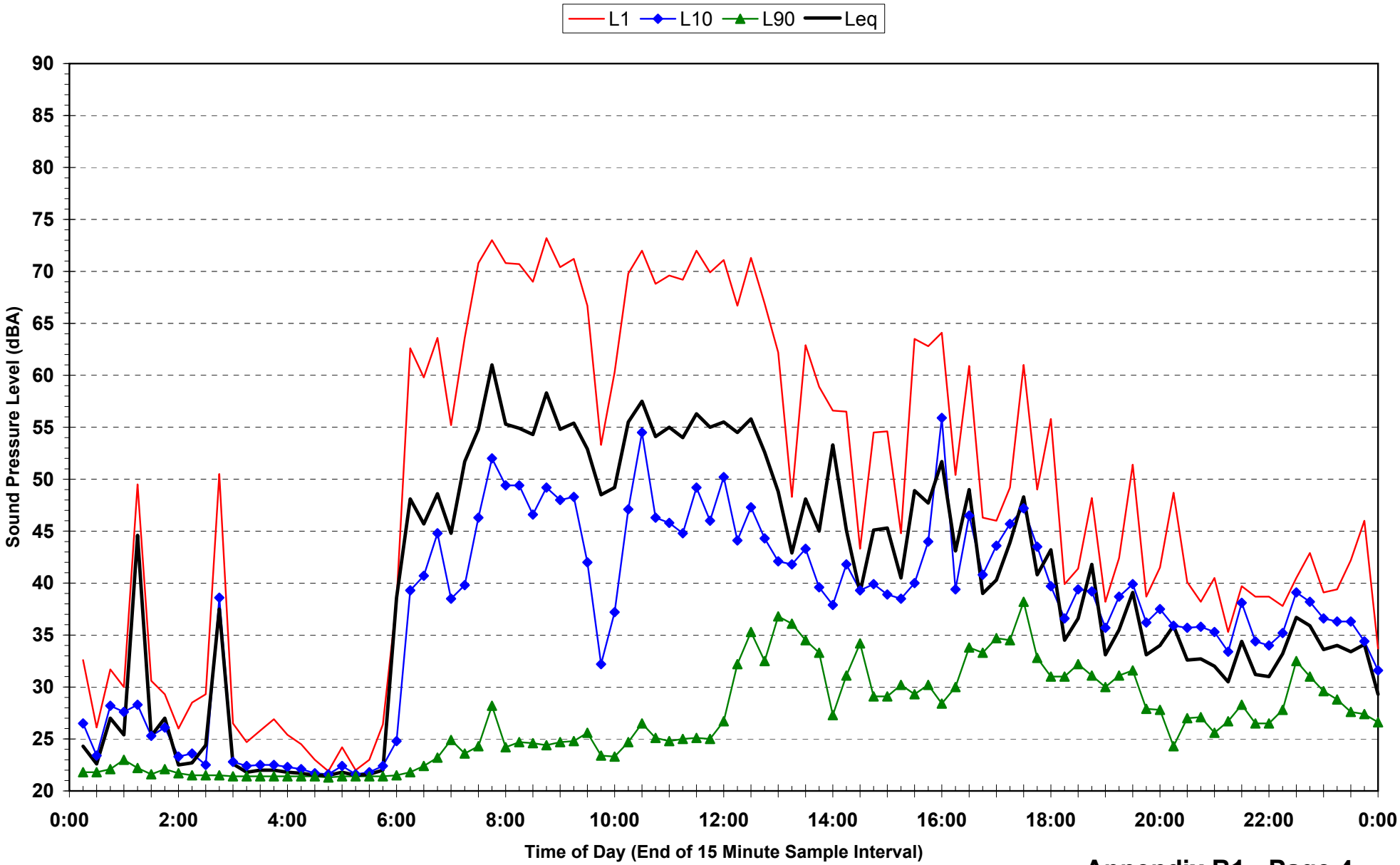
Statistical Ambient Noise Levels
30-2464 Cowley Hills - Saturday 7 May 2005



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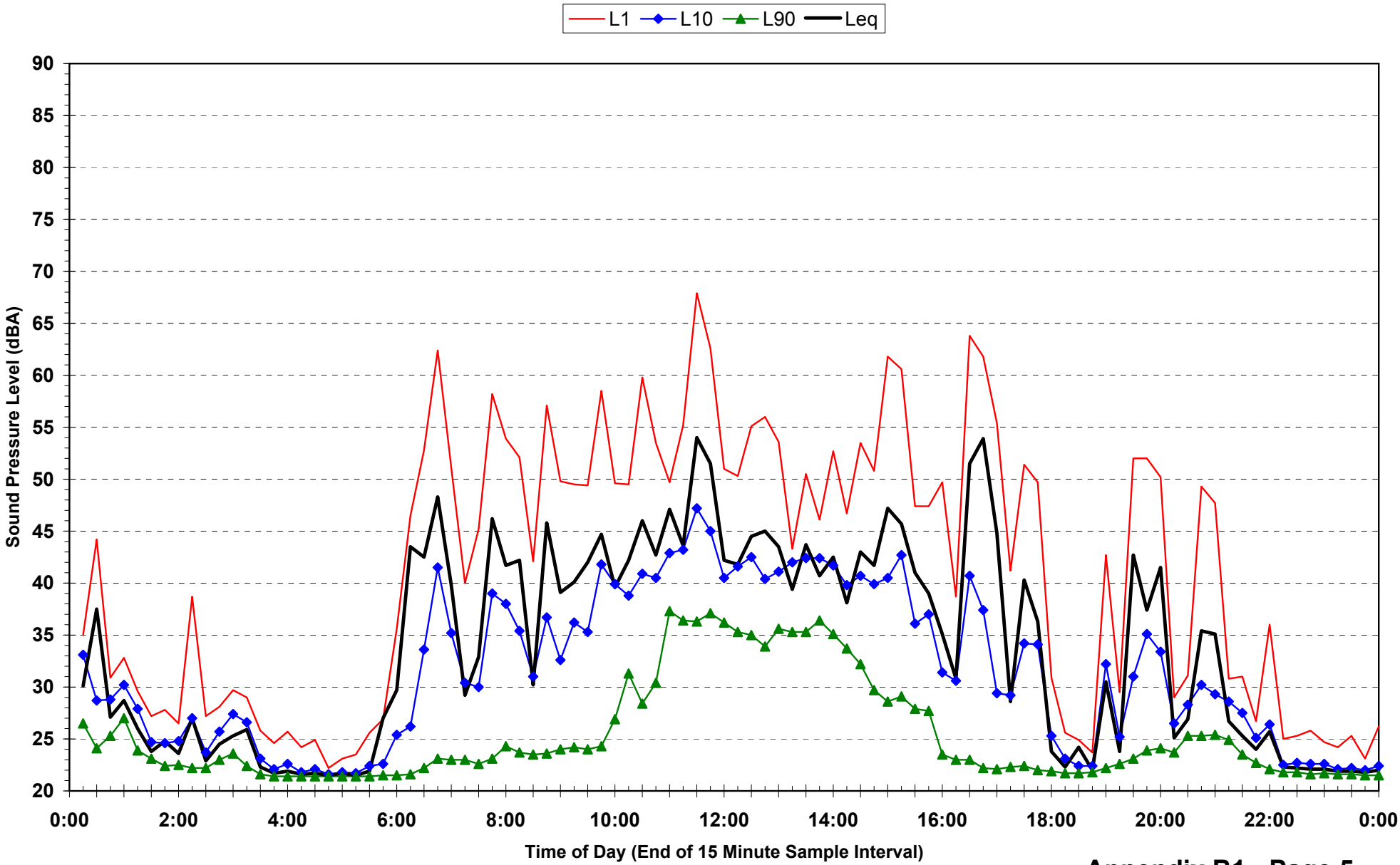
Statistical Ambient Noise Levels
30-2464 Cowley Hills - Sunday 8 May 2005



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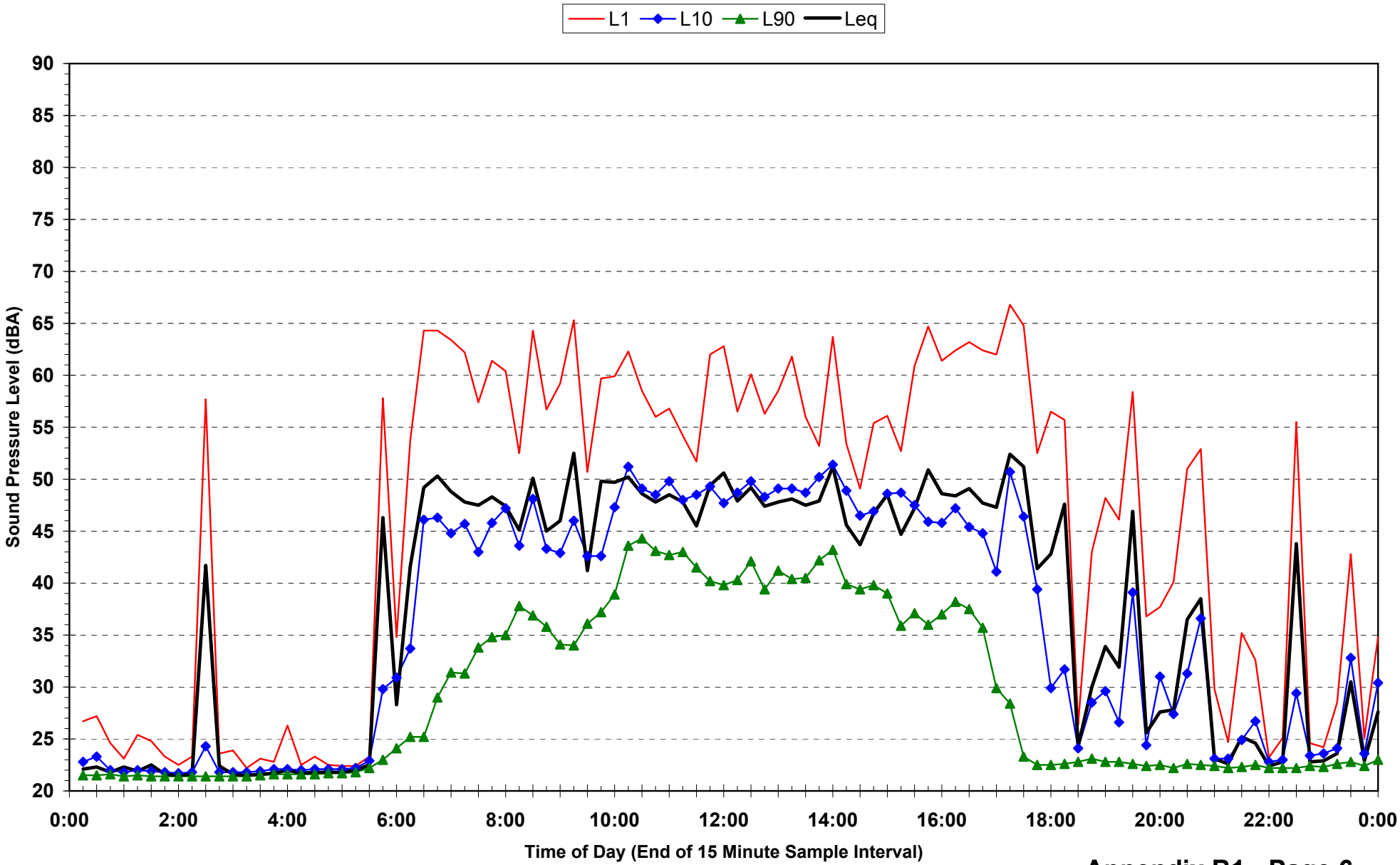
Sun 08-May-05 Printed 22-04-2010 4:48 PM

Statistical Ambient Noise Levels
30-2464 Cowley Hills - Monday 9 May 2005



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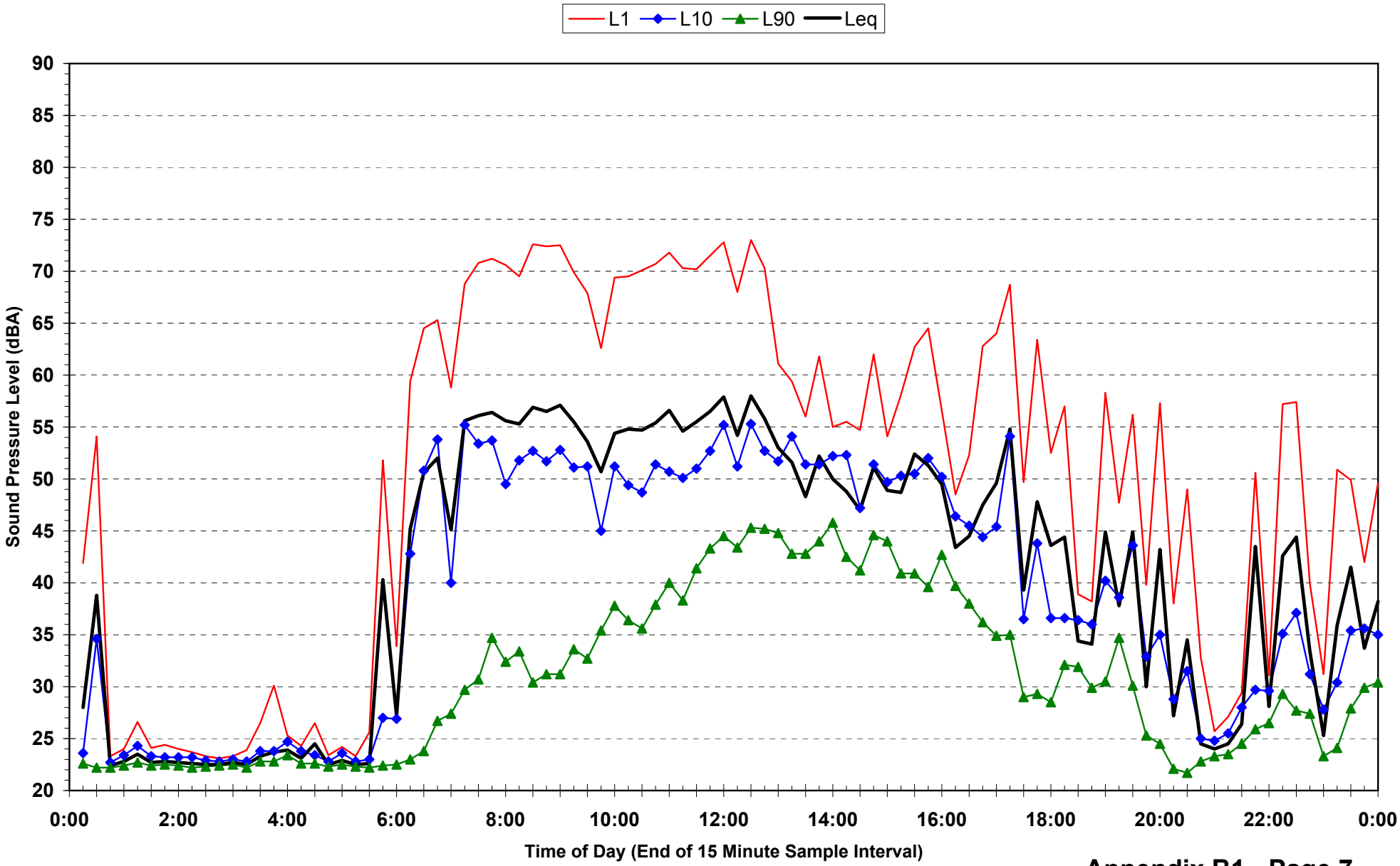
Statistical Ambient Noise Levels
30-2464 Cowley Hills - Tuesday 10 May 2005



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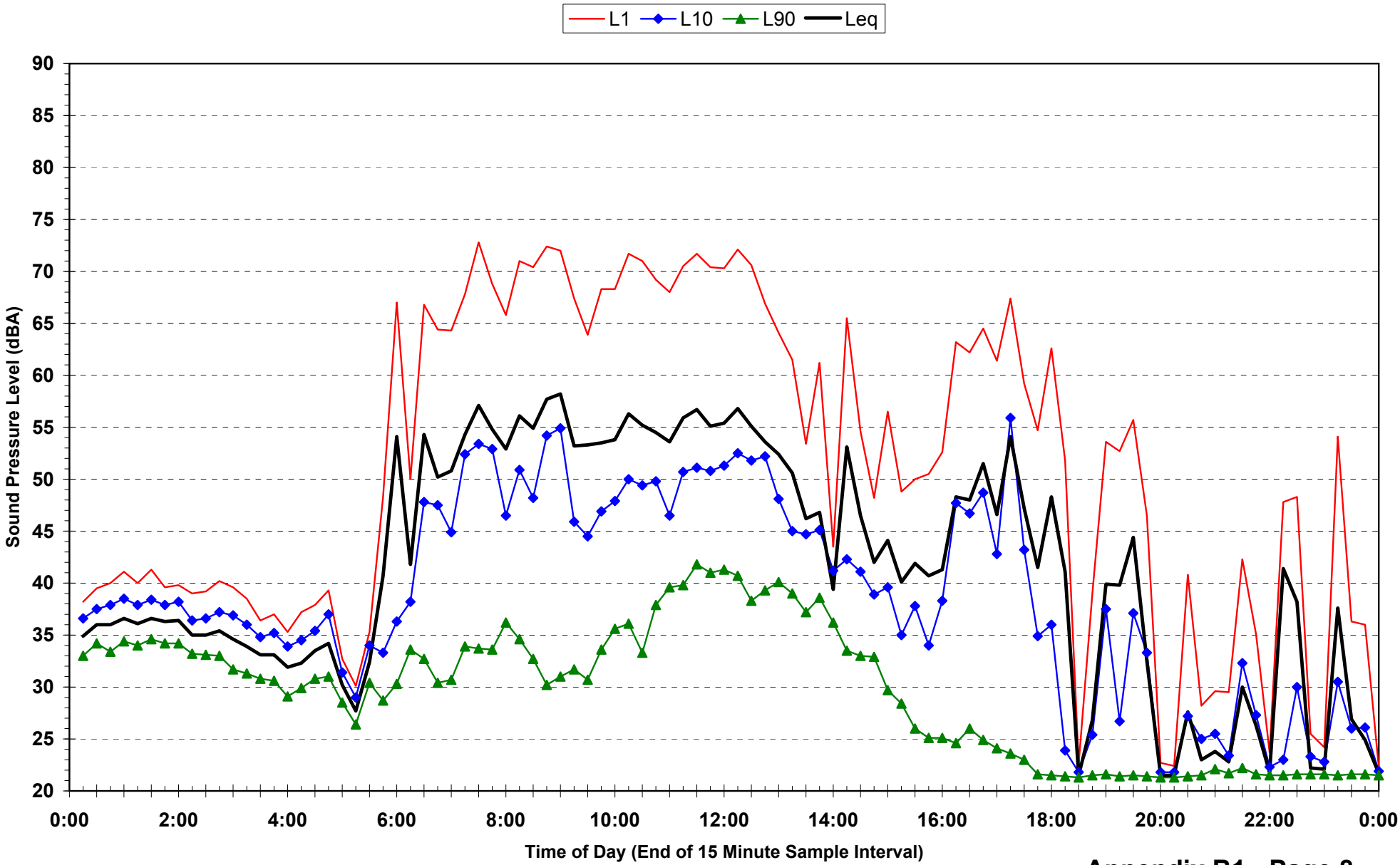
Statistical Ambient Noise Levels
30-2464 Cowley Hills - Wednesday 11 May 2005



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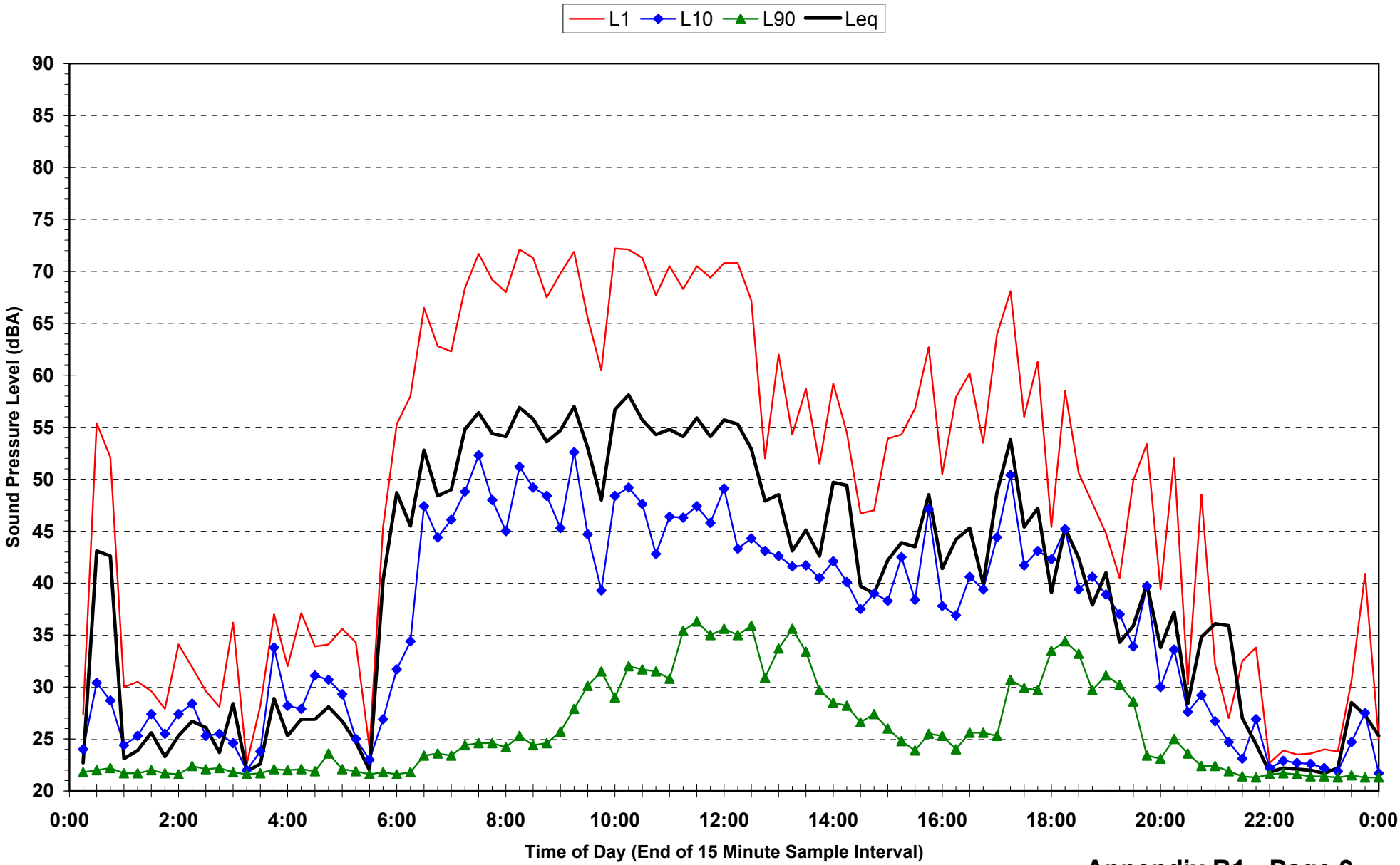
Statistical Ambient Noise Levels
30-2464 Cowley Hills - Thursday 12 May 2005



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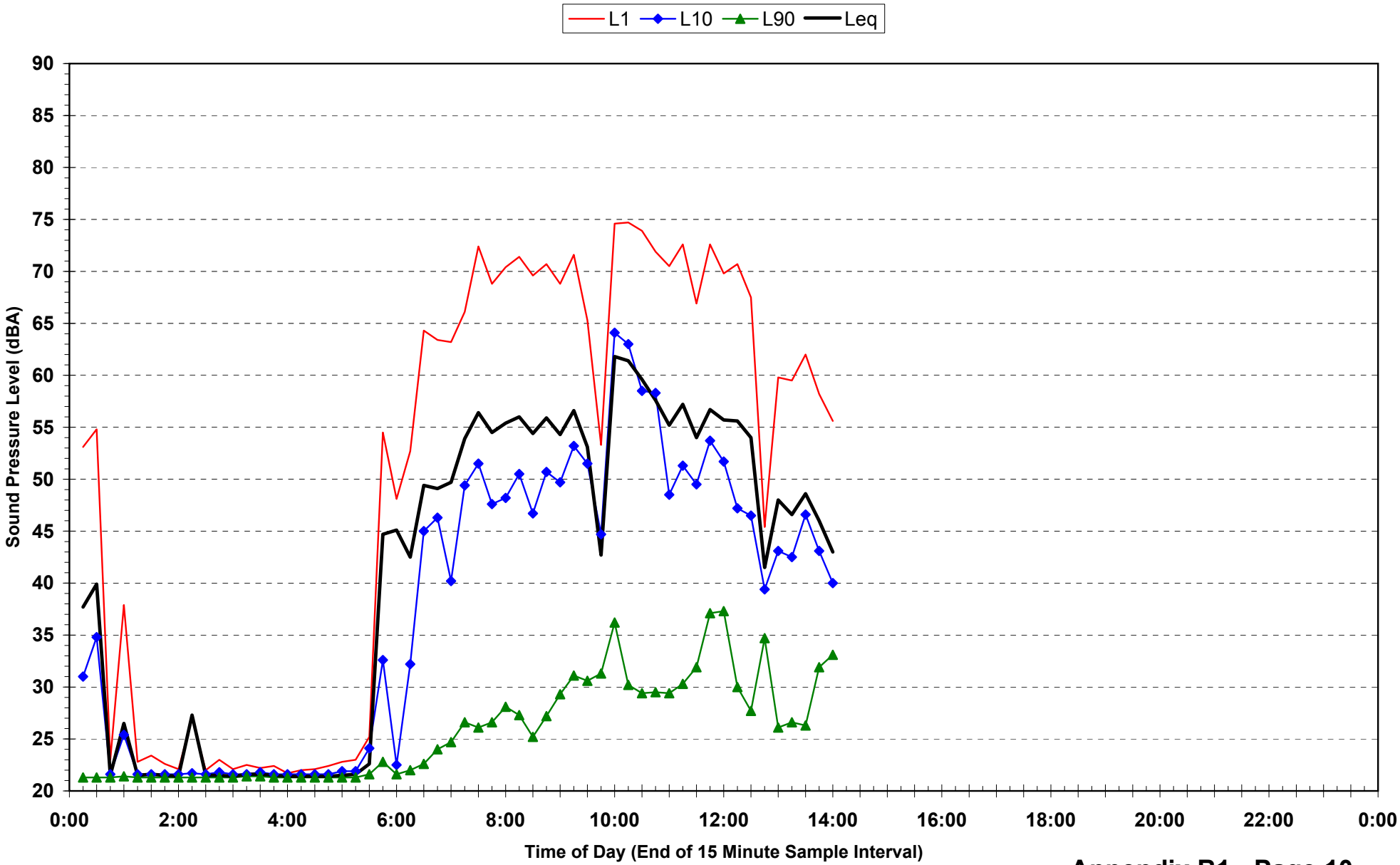
Statistical Ambient Noise Levels
30-2464 Cowley Hills - Friday 13 May 2005



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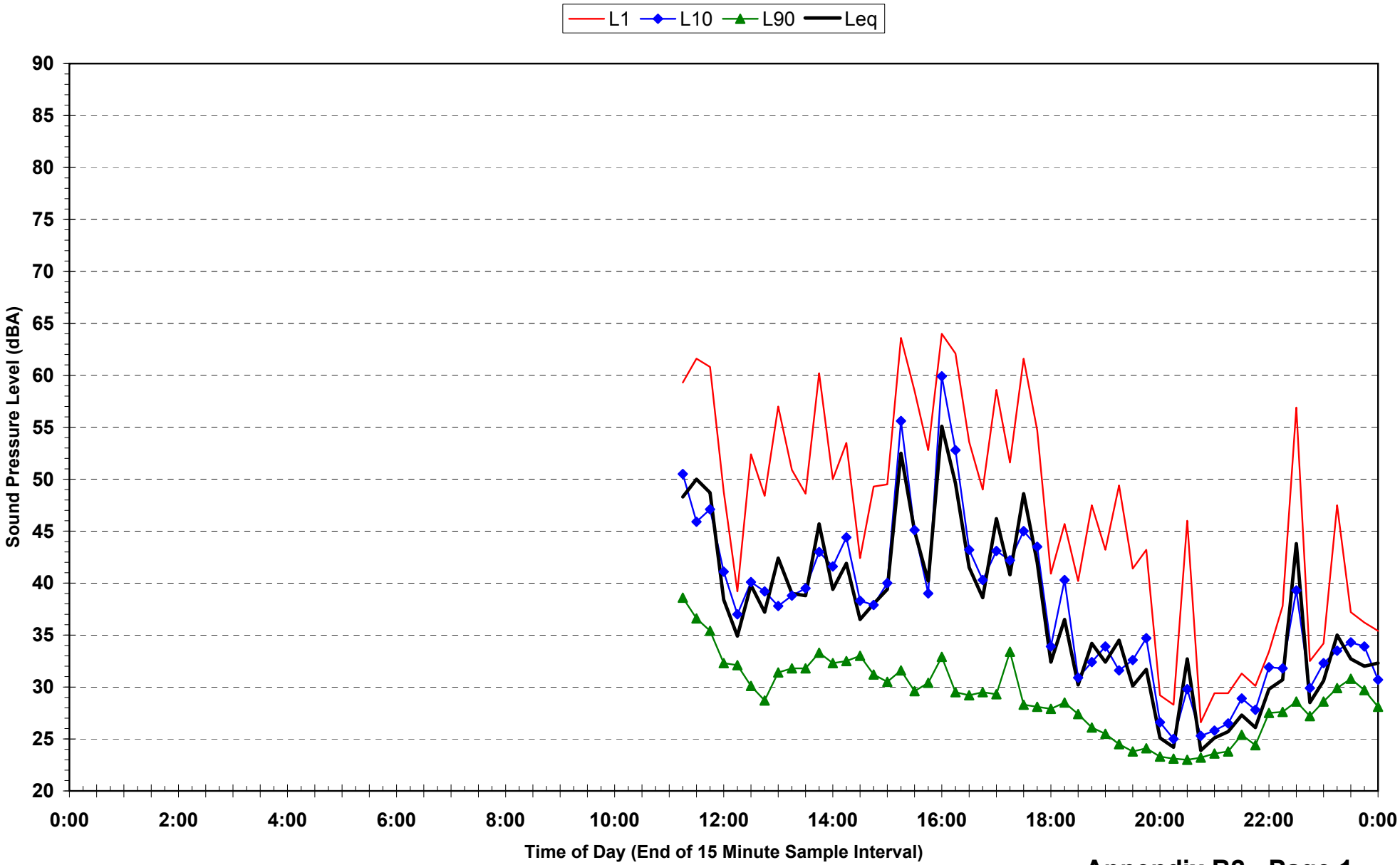
Statistical Ambient Noise Levels
30-2464 Woodlawn Farm - Wednesday 4 May 2005

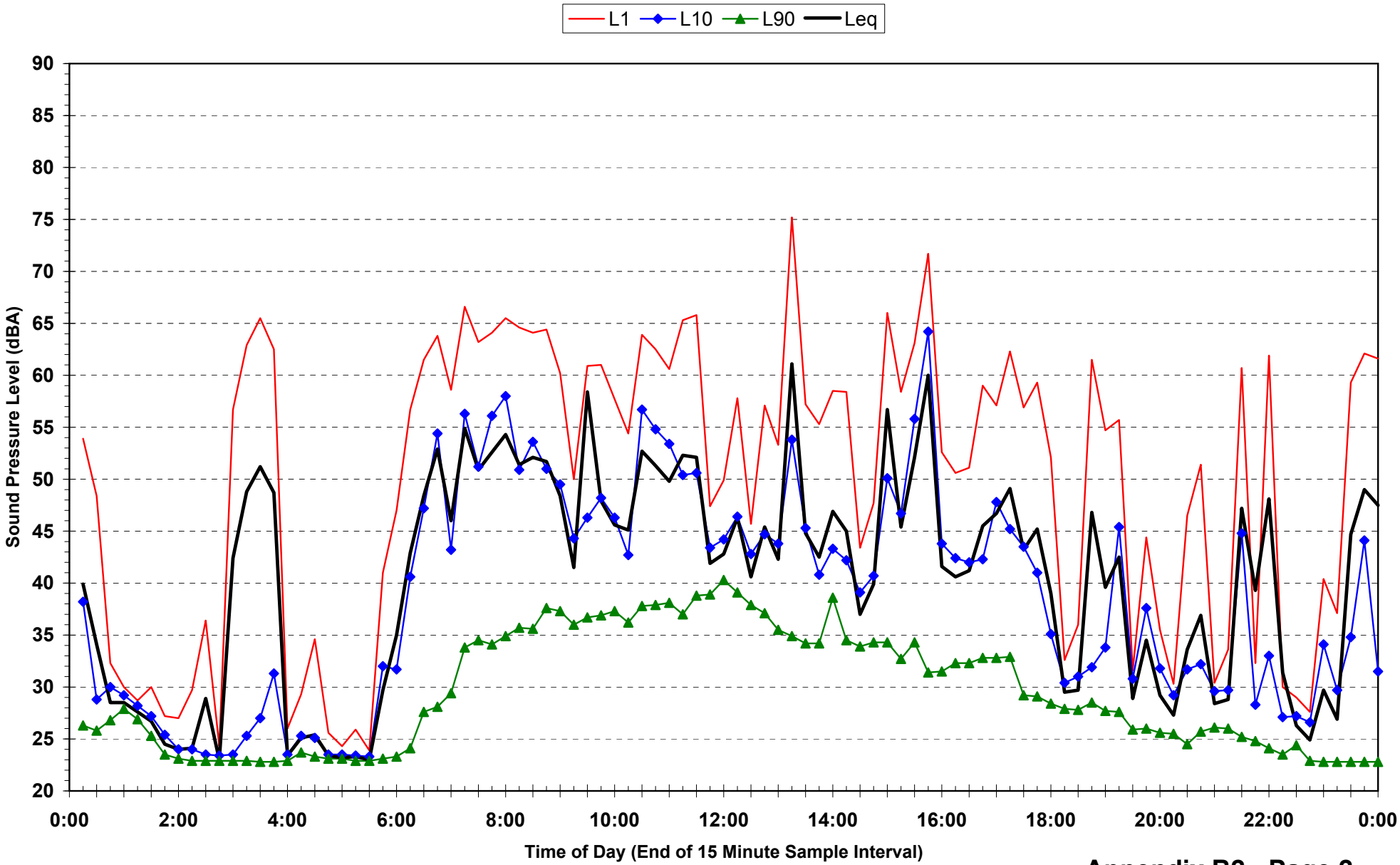


Appendix B2 - Page 1

Statistical Noise Levels

Heggies Report 30-2464

Statistical Ambient Noise Levels
30-2464 Woodlawn Farm - Thursday 5 May 2005



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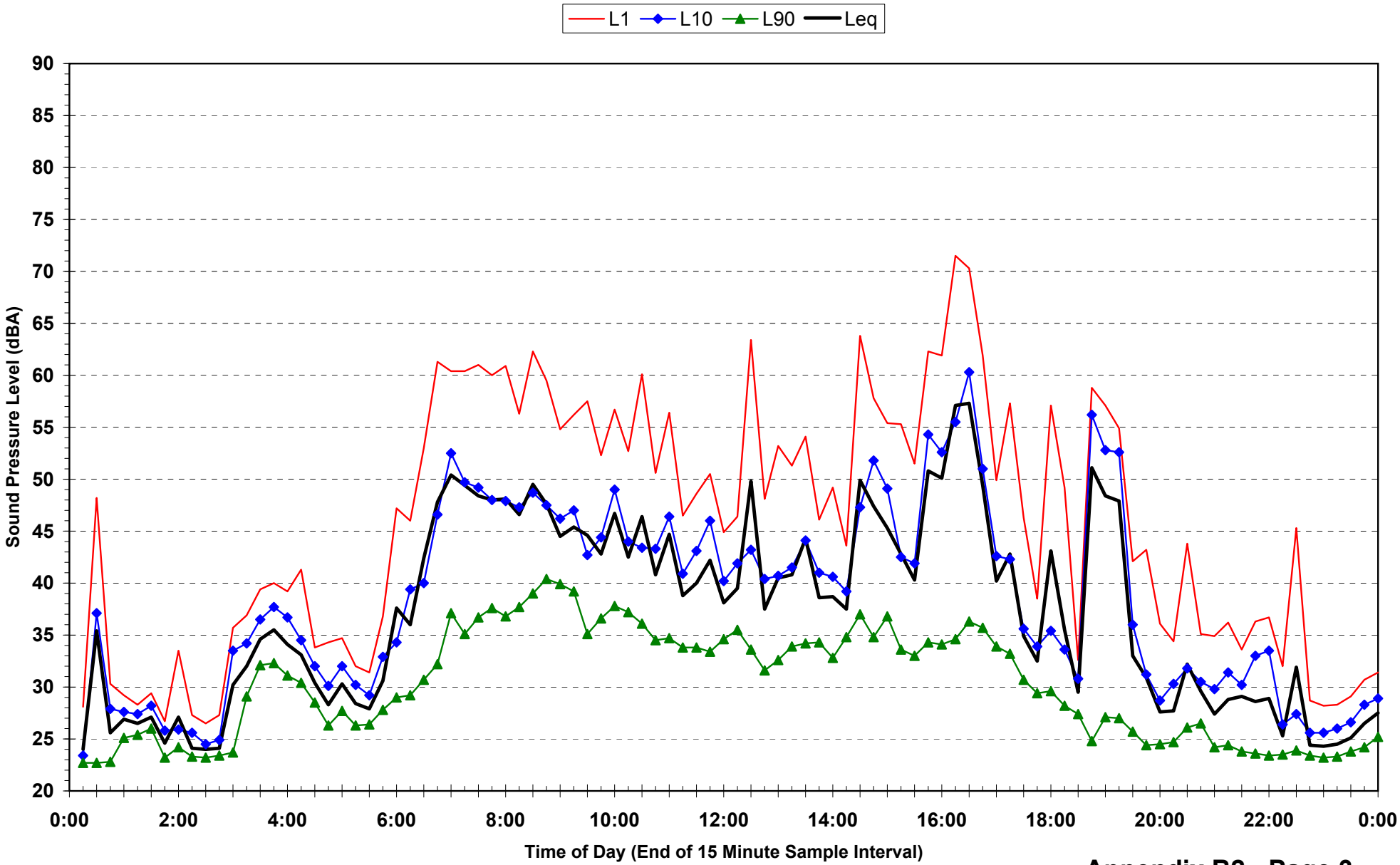
Statistical Ambient Noise Levels
30-2464 Woodlawn Farm - Friday 6 May 2005



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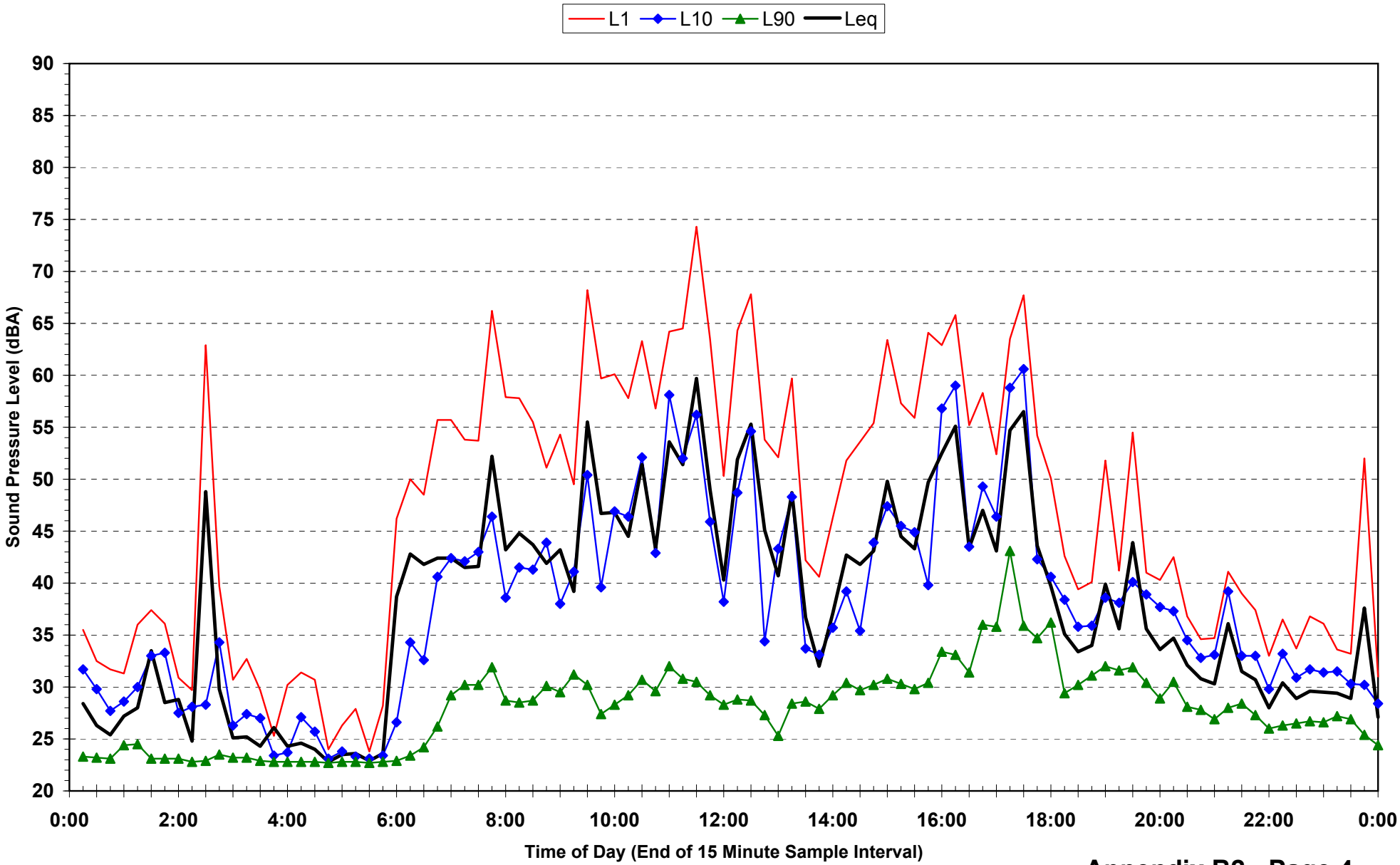
Statistical Ambient Noise Levels
30-2464 Woodlawn Farm - Saturday 7 May 2005



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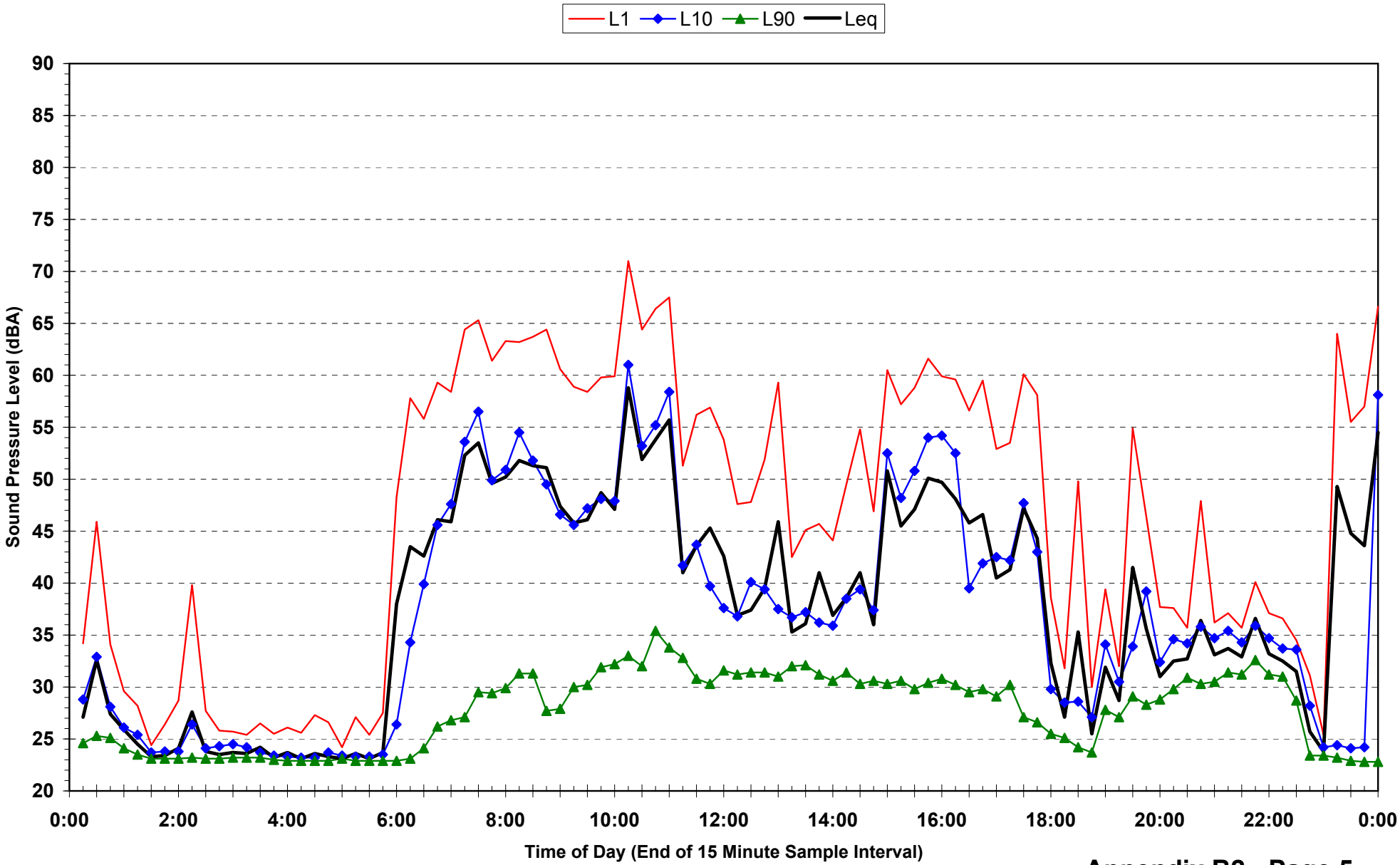
Statistical Ambient Noise Levels
30-2464 Woodlawn Farm - Sunday 8 May 2005



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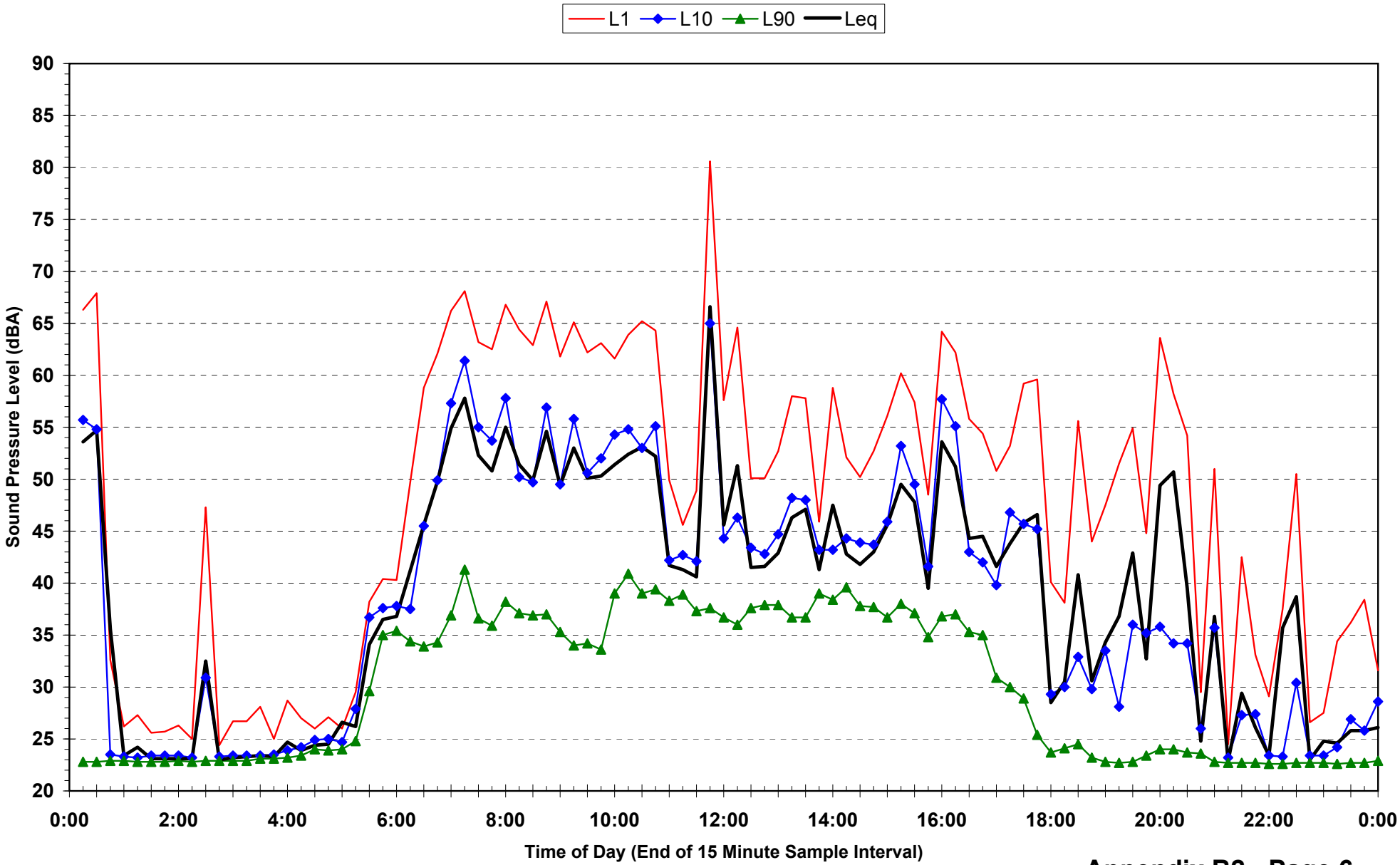
Statistical Ambient Noise Levels
30-2464 Woodlawn Farm - Monday 9 May 2005



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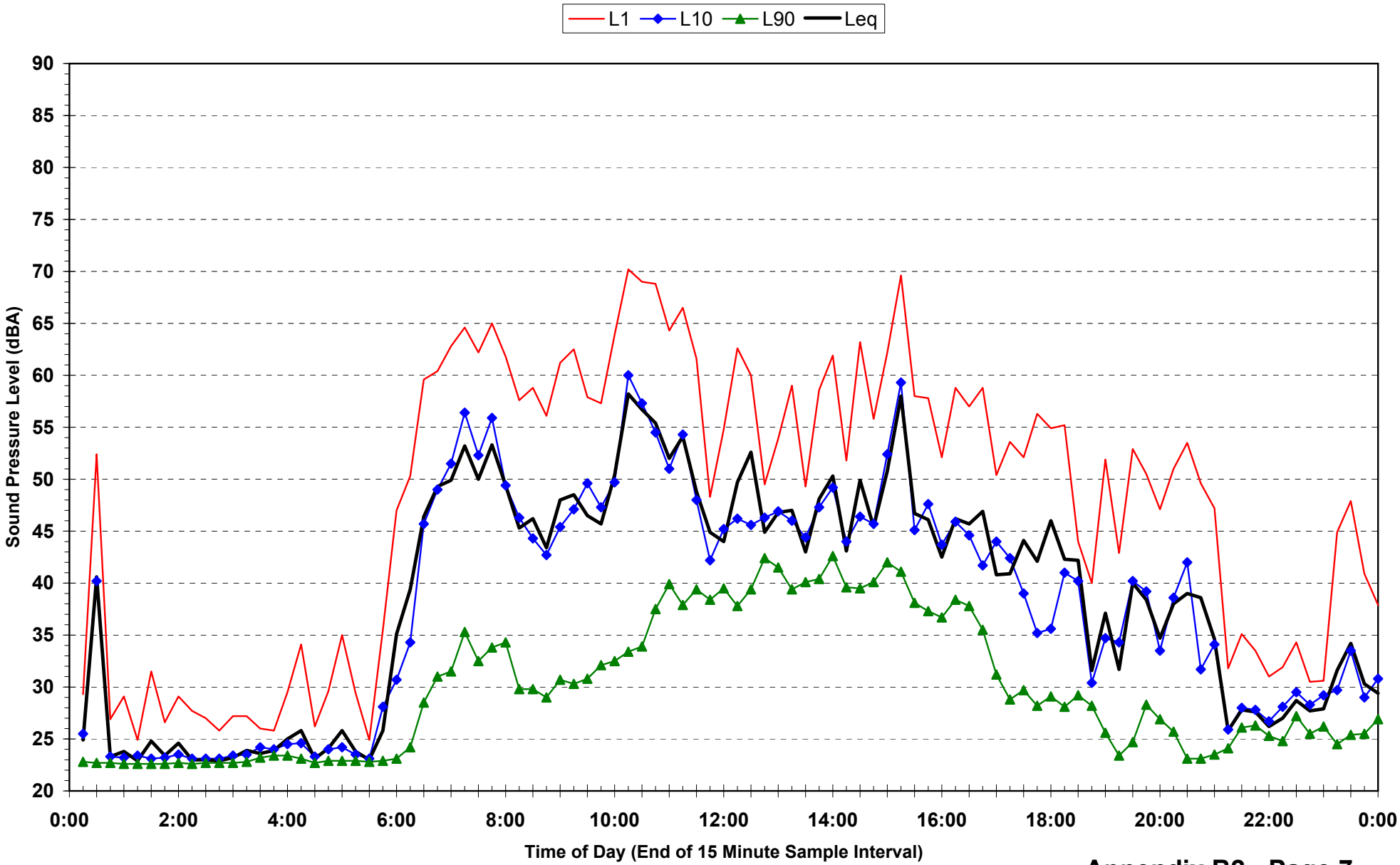
Statistical Ambient Noise Levels
30-2464 Woodlawn Farm - Tuesday 10 May 2005



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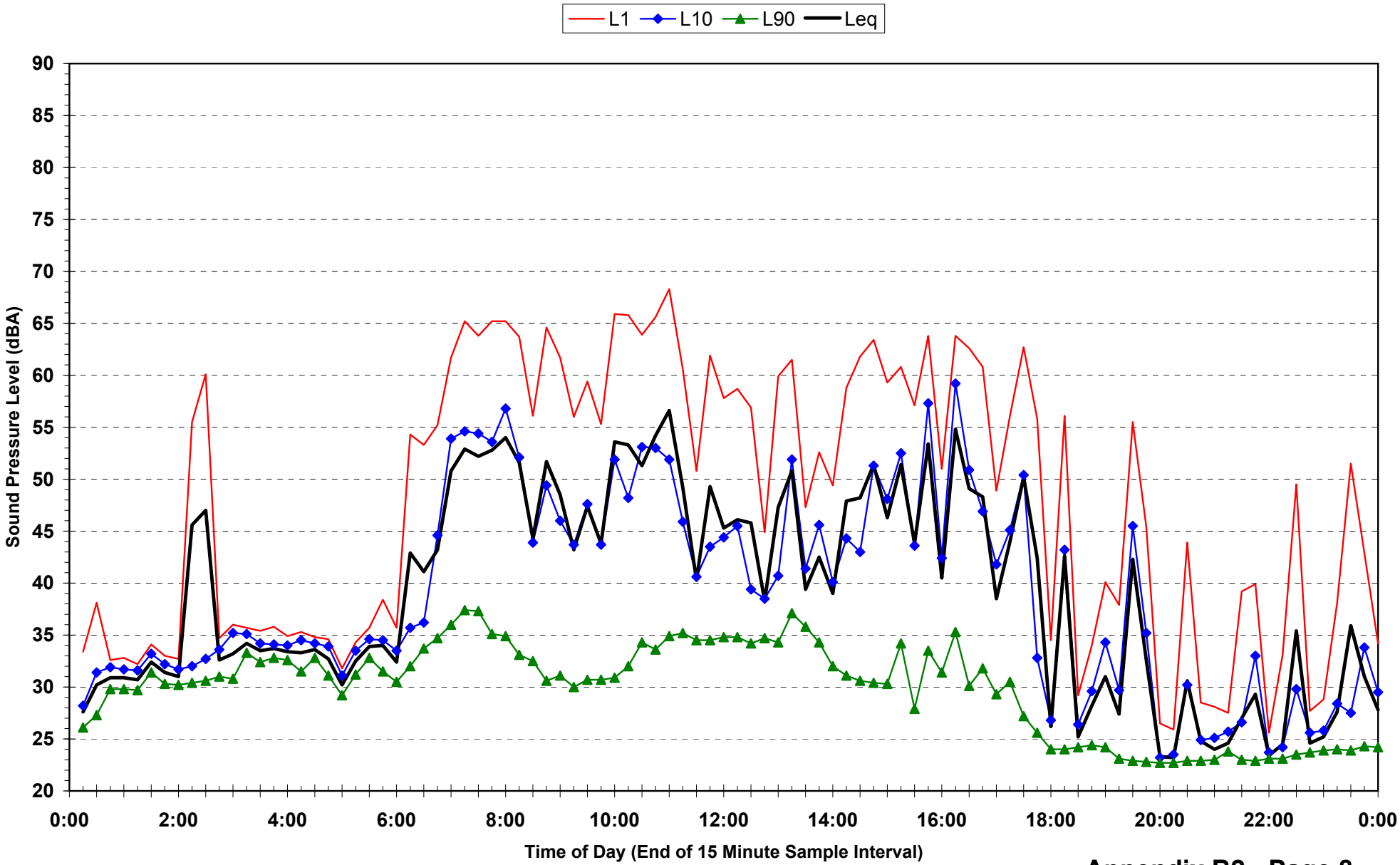
Statistical Ambient Noise Levels
30-2464 Woodlawn Farm - Wednesday 11 May 2005



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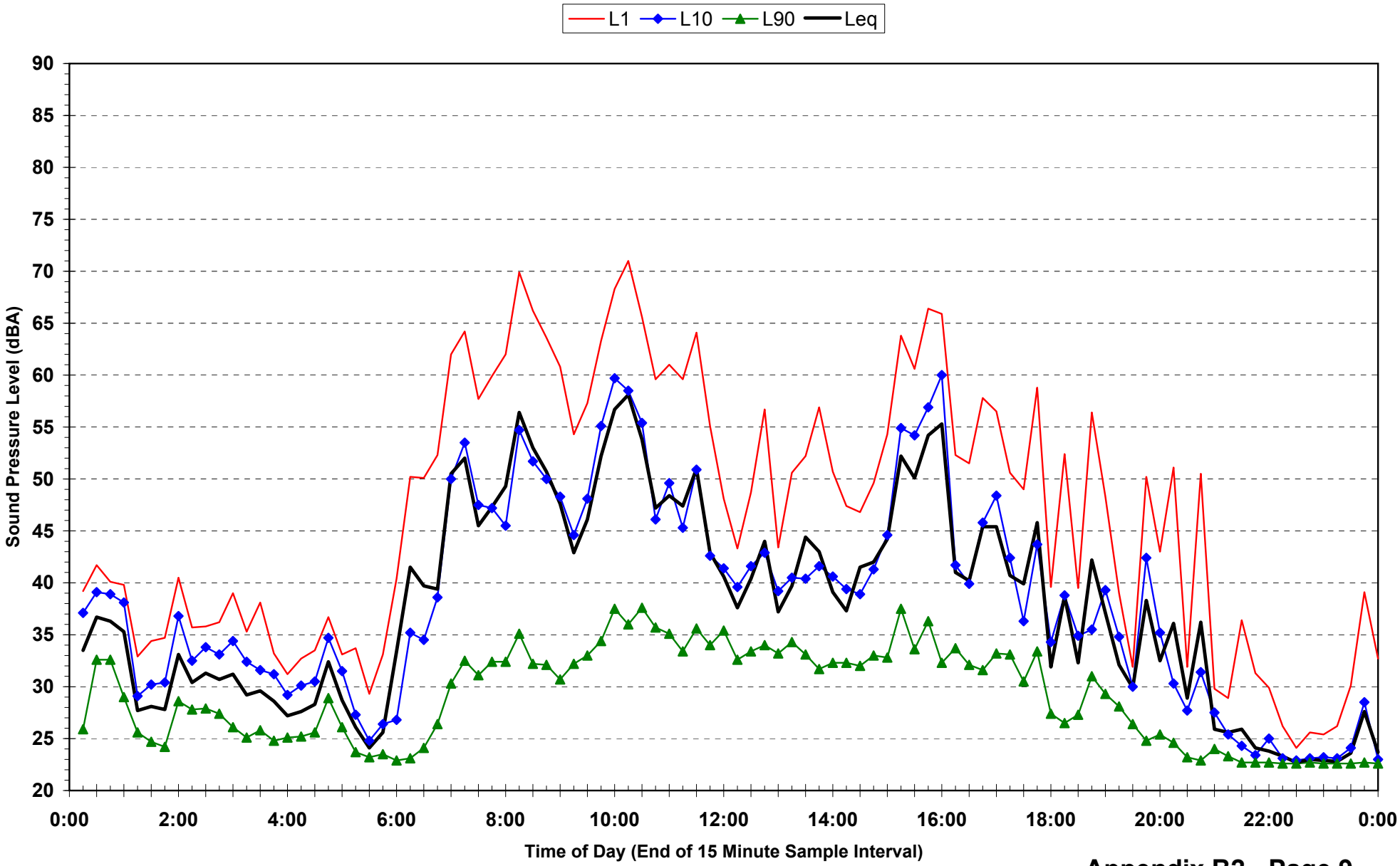
Statistical Ambient Noise Levels
30-2464 Woodlawn Farm - Thursday 12 May 2005



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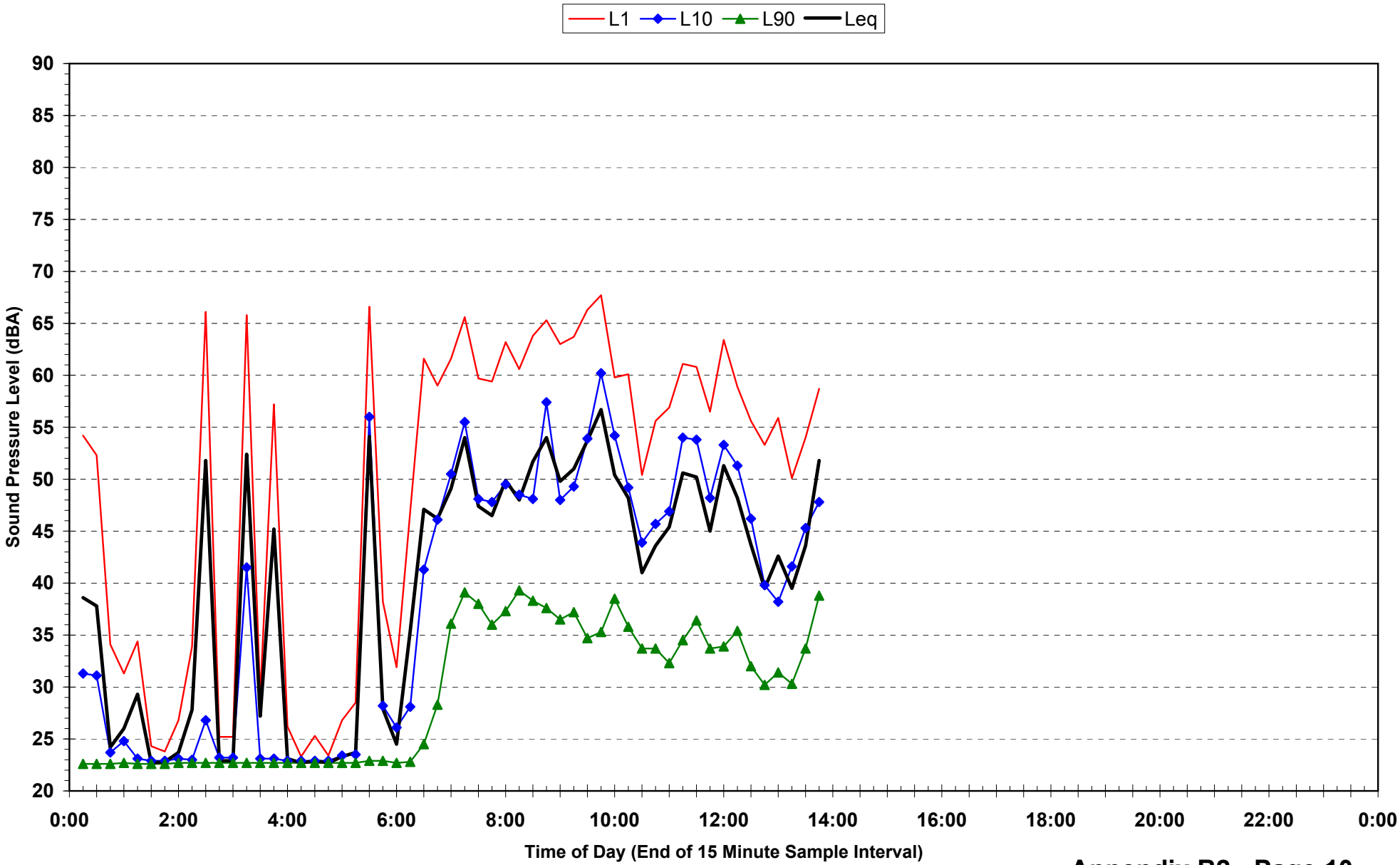
Statistical Ambient Noise Levels
30-2464 Woodlawn Farm - Friday 13 May 2005



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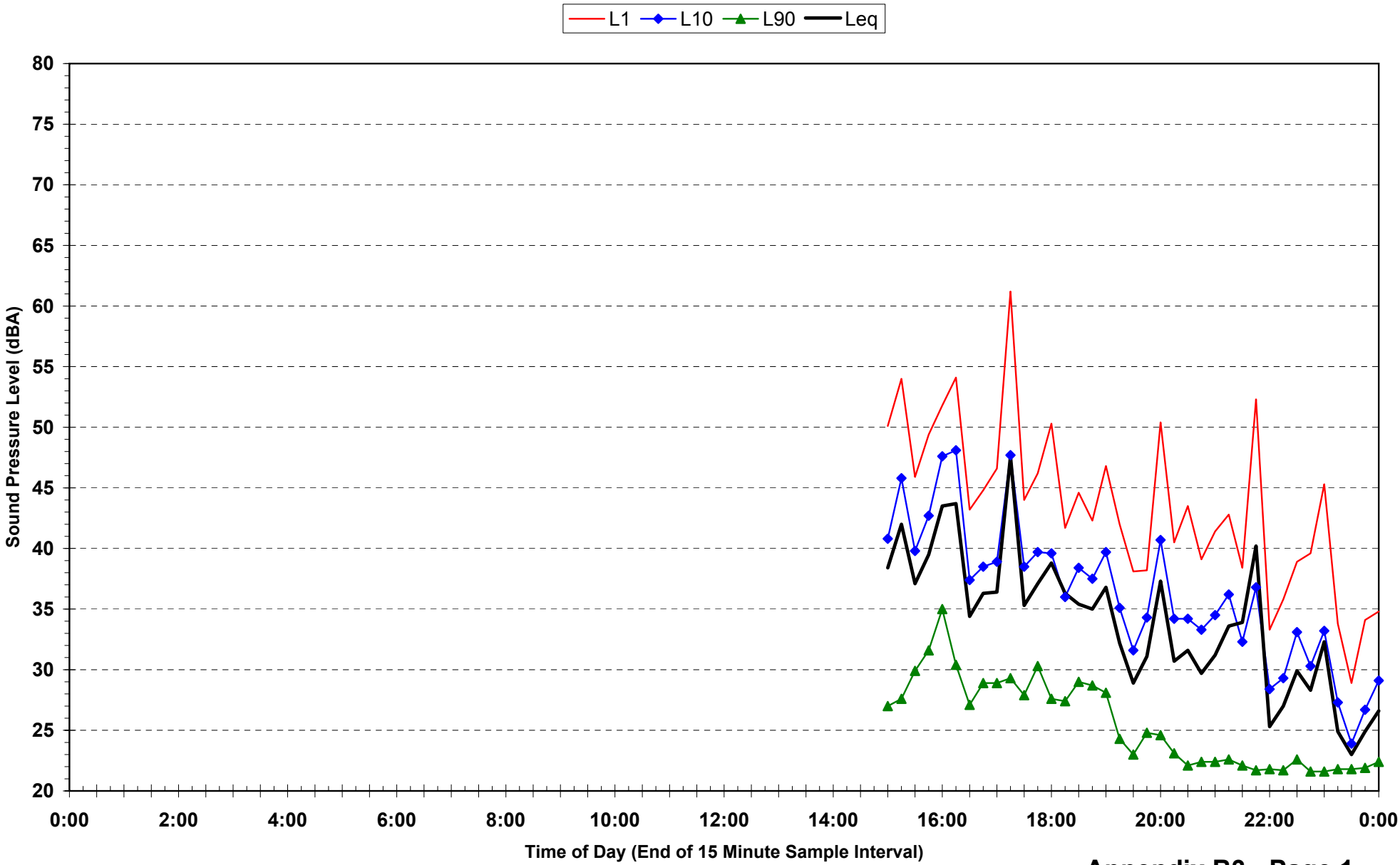
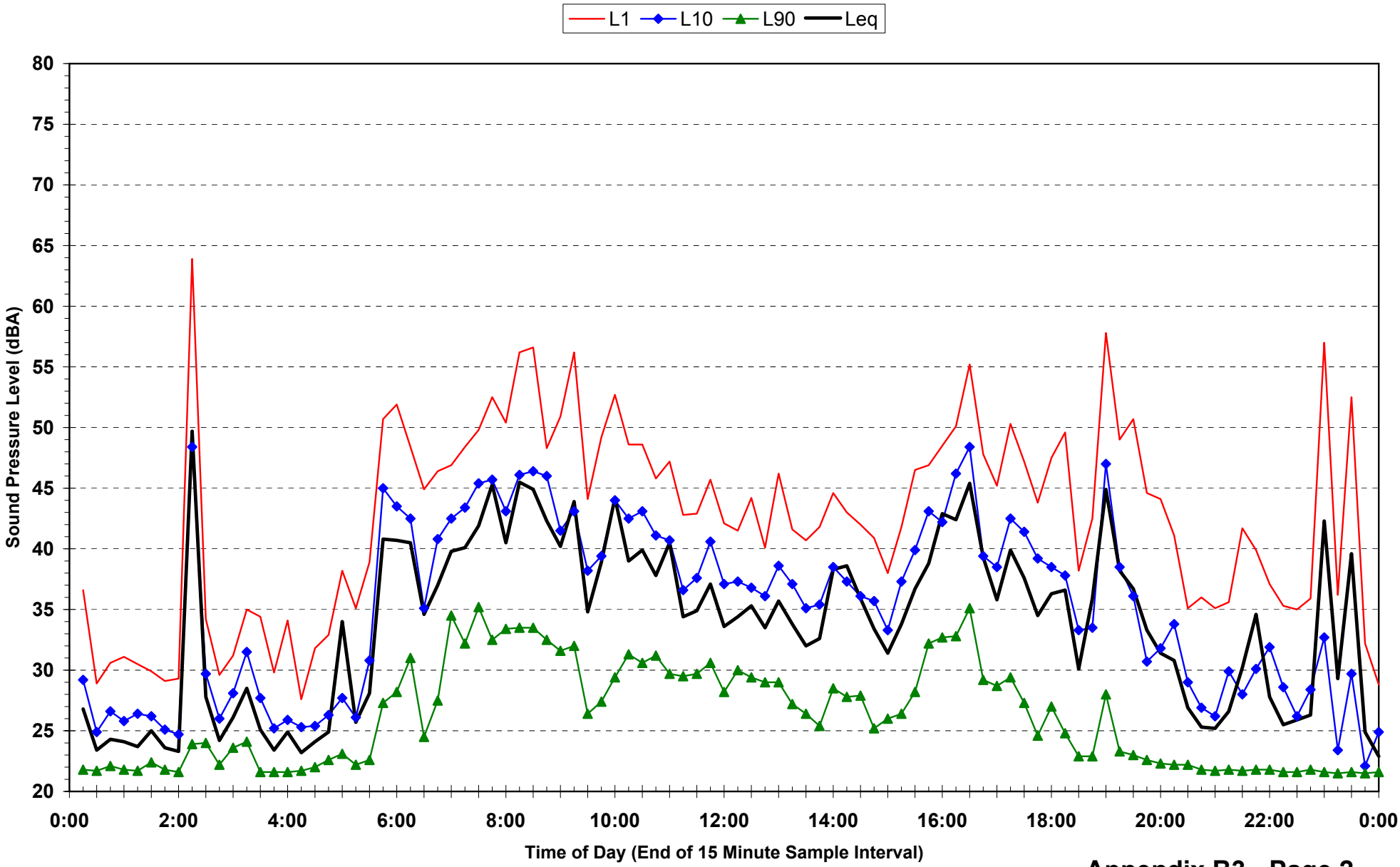
Statistical Ambient Noise Levels
30-2464 Chinnery - Friday 13 May 2005



Appendix B3 - Page 1
Statistical Noise Levels
Heggies Report 30-2464

Statistical Ambient Noise Levels
30-2464 Chinnery - Saturday 14 May 2005



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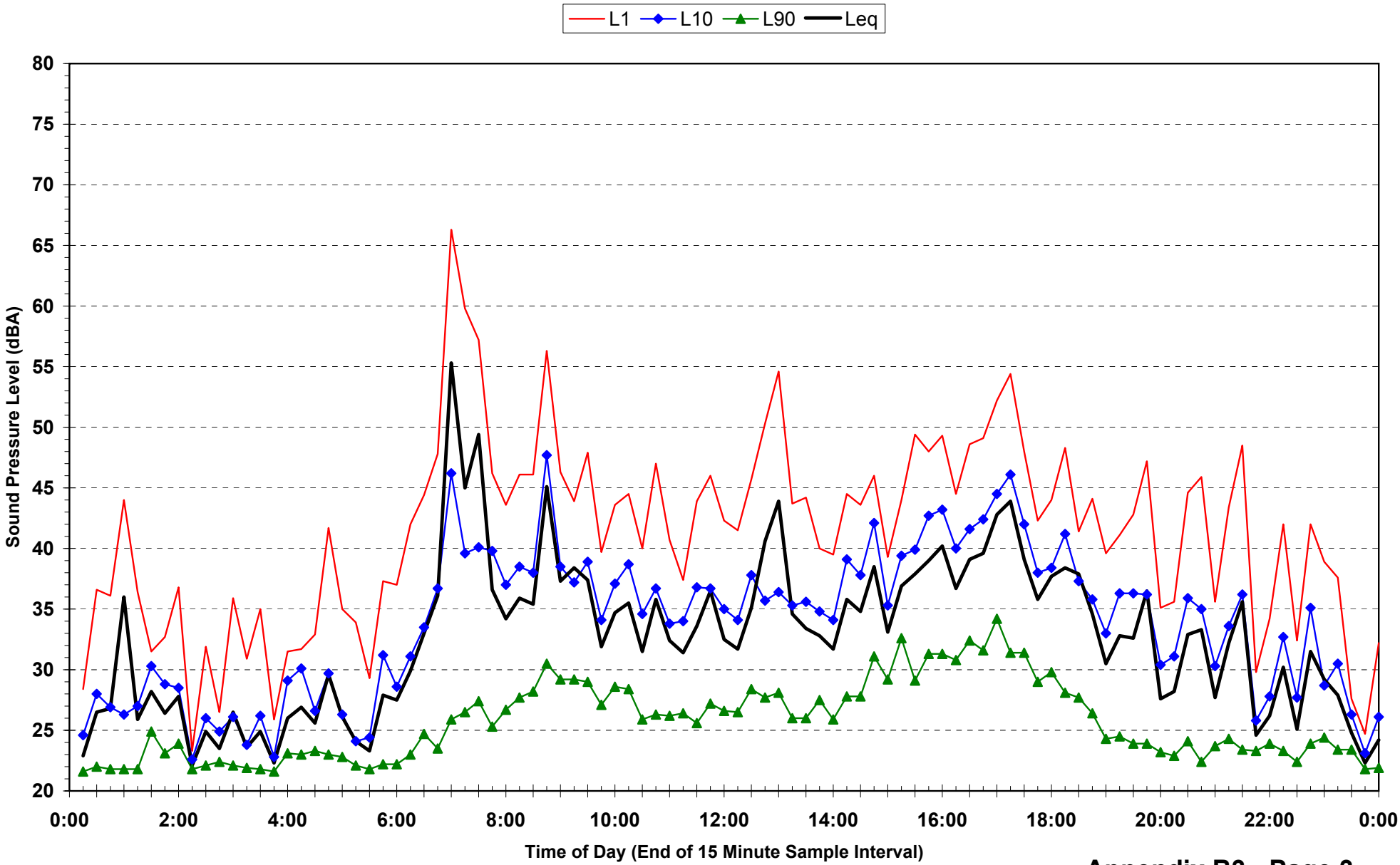
30-2464 Chinnery - Sunday 15 May 2005



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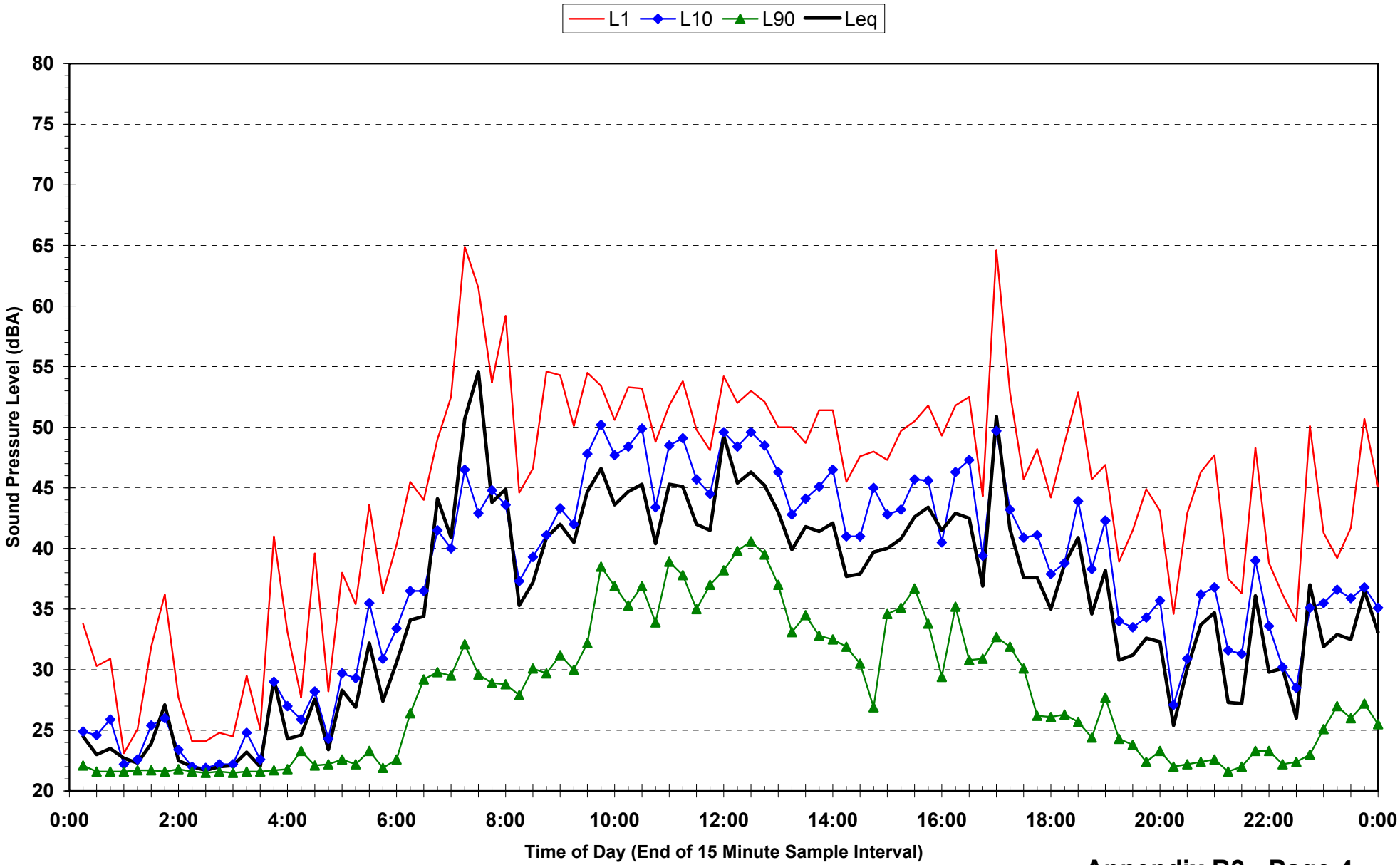
30-2464 Chinnery - Monday 16 May 2005



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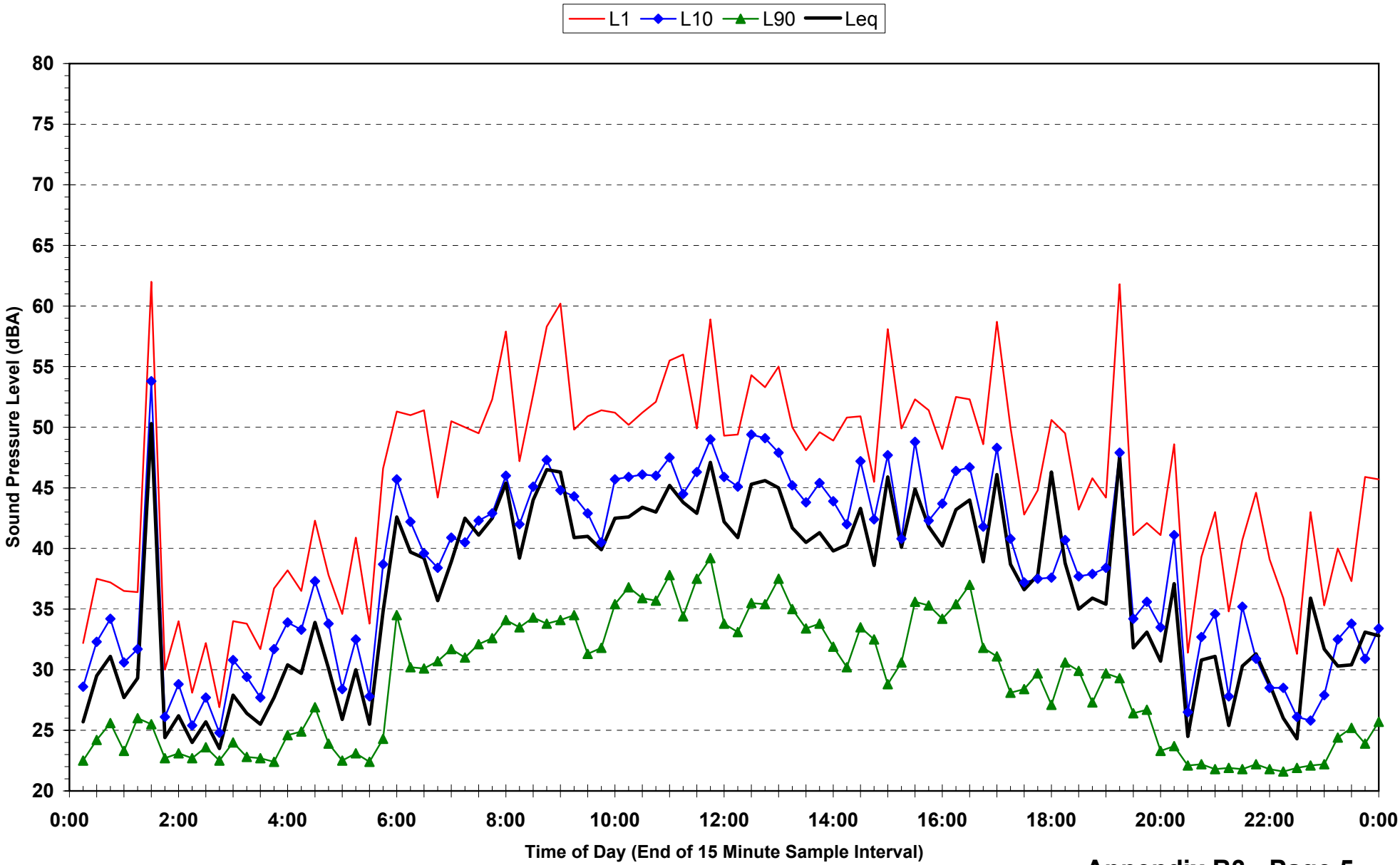
30-2464 Chinnery - Tuesday 17 May 2005



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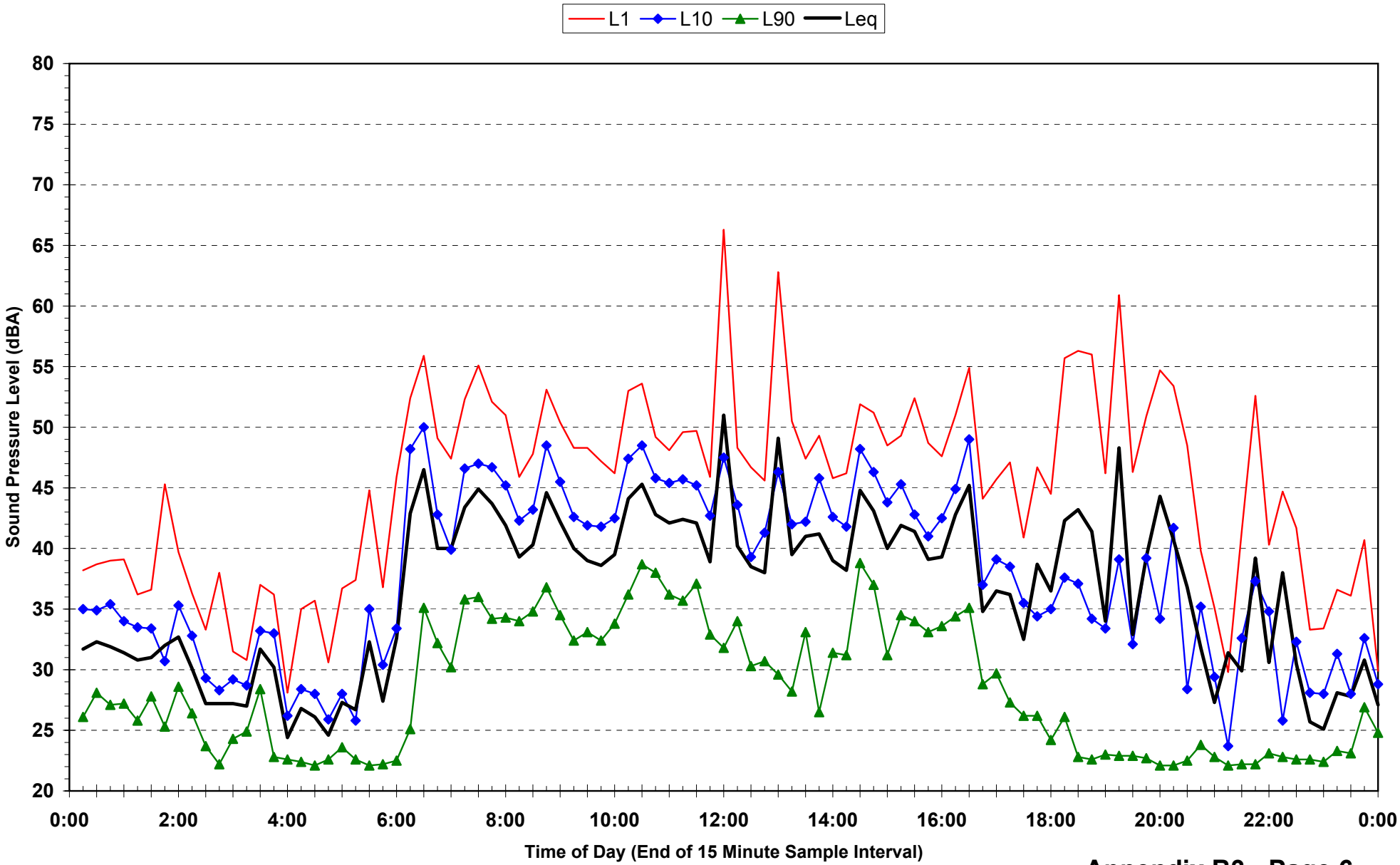

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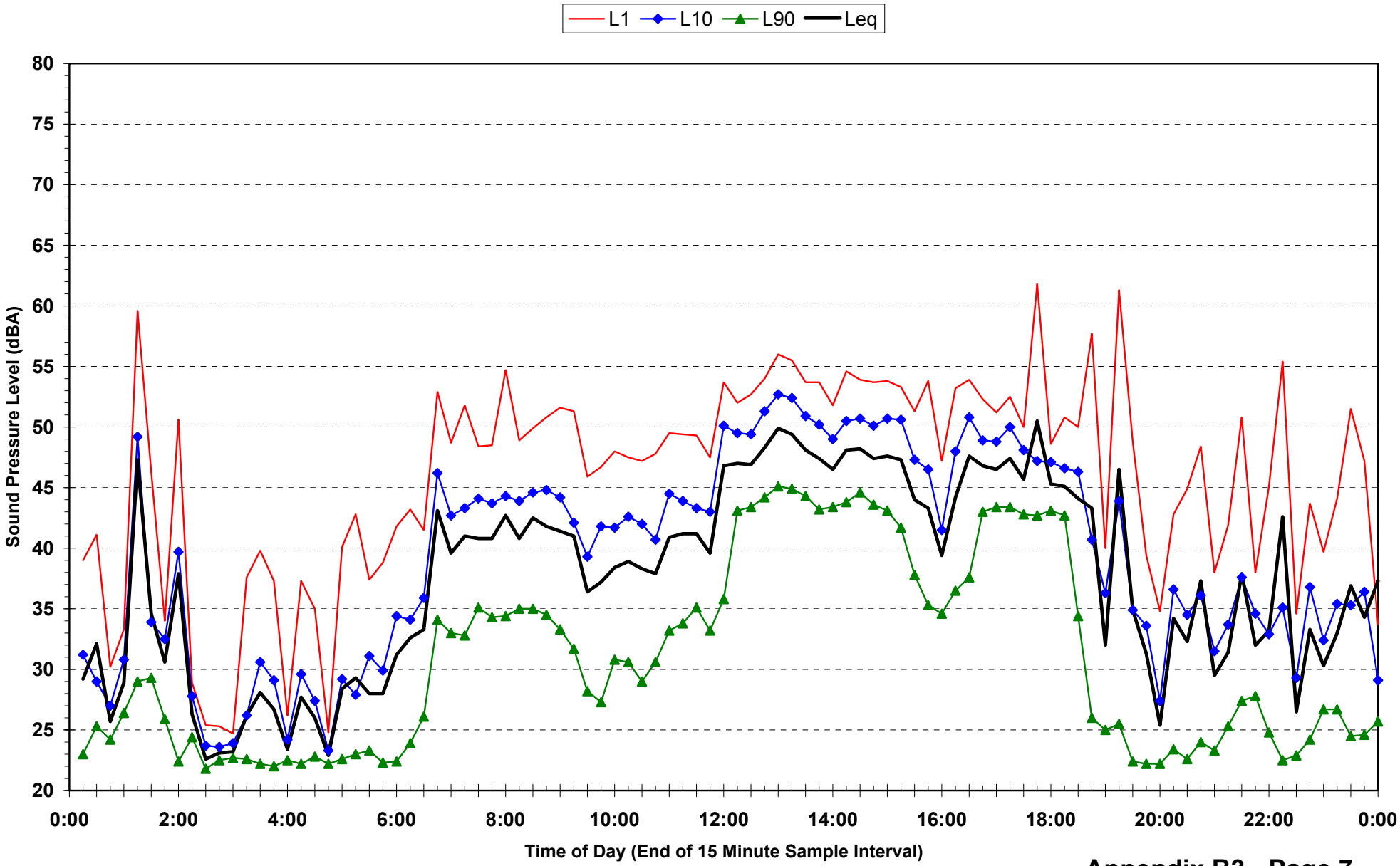
30-2464 Chinnery - Thursday 19 May 2005



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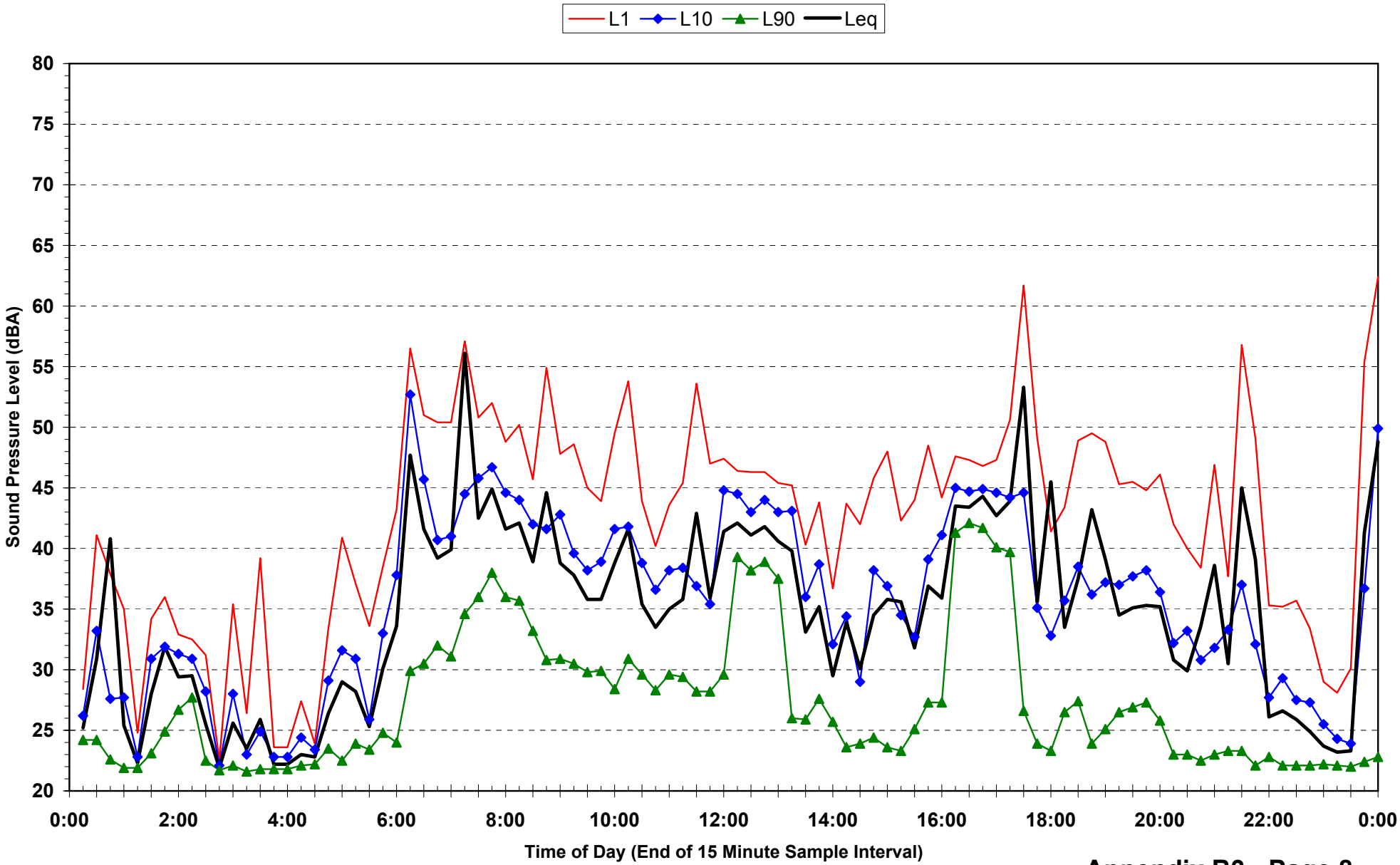
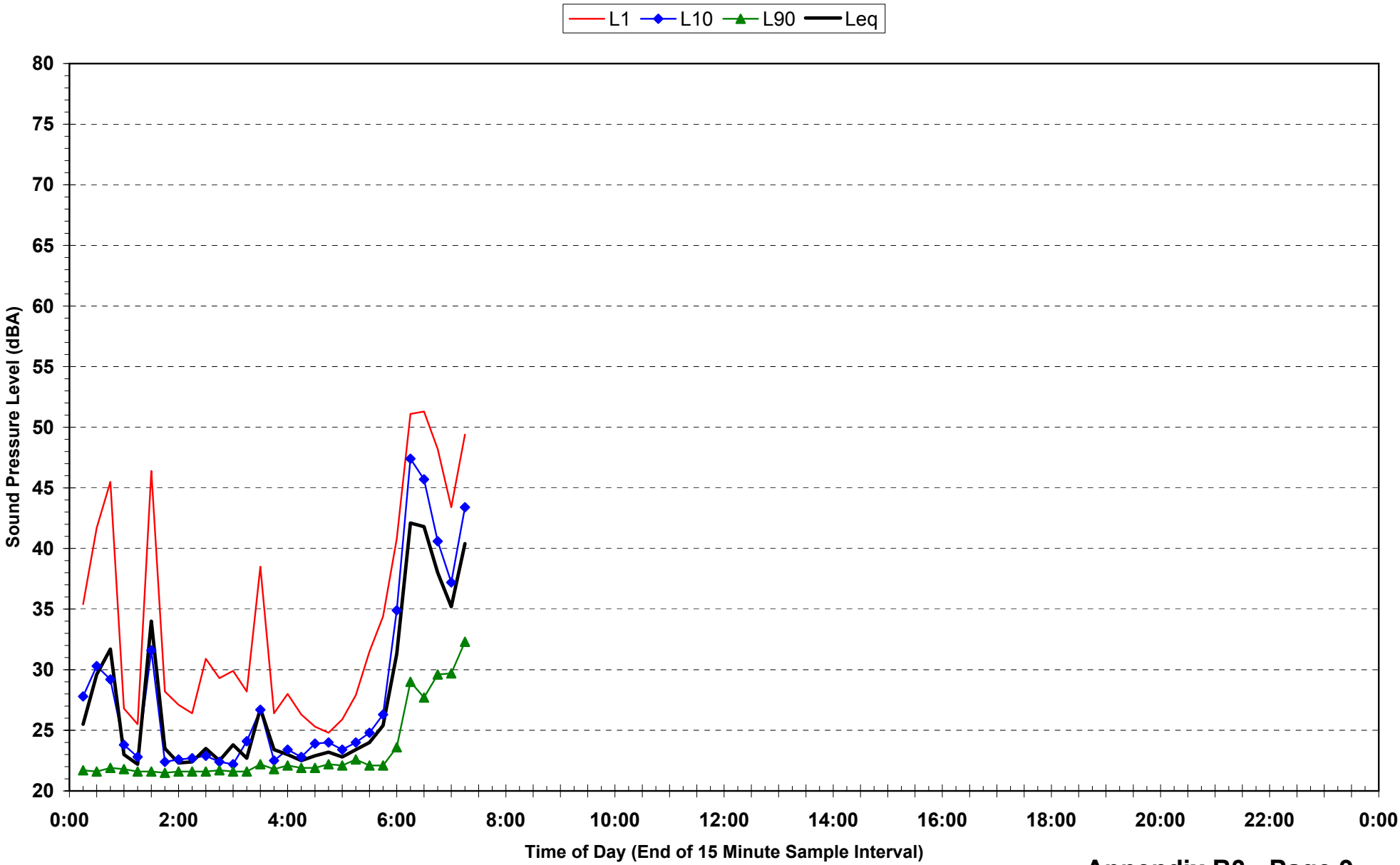


Statistical Ambient Noise Levels
30-2464 Chinnery - Saturday 21 May 2005



APPENDIX G: Woodlawn Eco-Precinct Site Plan - Main Operations Area

VEOLIA ENVIRONMENTAL SERVICES

SCALE 1:4000

0 80 160 240 320 400

Metres

ISSUE	AMENDMENT	DRAWN	DATE
A	16800-521 ISSUE B WITH AERIAL PHOTO ADDED	MK	14/06/2018
B	SRF SITE RELOCATED & ED1 COFFER REMOVED	MK	18/06/2018
C	WEIGHBRIDGE & WASHDOWN FACILITY ADDED	MK	27/09/2018

LandTeam Australia Pty Ltd
ABN 35 300 283 592
Goulburn Office
36 Montague Street
Postal: PO Box 1040
GOULBURN NSW 2580
p: (02) 4821 1033
e: goulburn@landteam.com.au
www.landteam.com.au

Integrated Management System

LandTeam

A1 SHEET

VEOLIA ENVIRONMENTAL SERVICES

WOODLAWN BIOREACTOR
COLLECTOR ROAD, TARAGO

PLAN SHOWING
WOODLAWN ECO PRECINCT INFRASTRUCTURE
PRIMARY OPERATIONS AREA
COLLECTOR ROAD, TARAGO

SURVEYED: N/A
DRAWN: MK
CHECKED: JK

ISSUE C

DRAWING No. 16800-522

DATUM N/A | CONTOUR INTERVAL N/A | DATE 27/09/2018

File Name: J:\Surveyors\Jobs\Veolia\16800 Engineering\CAD\16800-522 Woodlawn Eco-Precinct Site Plan - Main Operations Area with Aerial Issue C.dwg

APPENDIX H: Photos of waste material before and after processing

Typical waste residual before processing

Typical SRF Material

APPENDIX I: The Odour Unit response

VEOLIA

Brar, Amandeep <amandeep.brar@veolia.com>

Woodlawn SRF Facility - Odour Control Commentary

2 messages

Michael Assal <massal@odourunit.com.au> 26 September 2018 at 16:24
To: "Brar, Amandeep" <amandeep.brar@veolia.com>

Amandeep,

As indicated in our odour assessment report relating to the proposed solid recovered fuel facility (**SRF Facility**) at the Woodlawn Eco-Precinct dated 14 March 2018, there will be a need to undertake an odour validation assessment to determine the actual odour emission general levels. Once available, this site-specific odour emissions data can be used as a basis to justify the requirement for additional controls (noting that the SRF Facility has made provisions for a double-pass cyclone for the dryer emissions prior to discharge via a dedicated stack). Should the odour validation assessment determine the requirement for additional controls, there is a range of options, including but not limited to:

- The increase in stack height and exit velocity; or
- The creation of a stack bypass that will enable the emissions to flow to a dedicated odour control system. Pending actual stack performance data from the odour validation assessment, the adoption of a biofilter-based odour control system installed nearby of the SRF Facility building should be possible. In such an instance, the stack would remain as an emergency relief vent. Other odour control systems can include a wet scrubber system or a thermal oxidiser, if temperature becomes a limiting factor that precludes biofiltration.

The selection of the most suitable odour control option can be assessed as part of a technical review study, if required.

Hope this helps.

Regards,

Michael Assal MEngSc, B. Eng (Hon)/B.Sc, AMIChemE, MIEAust, CAQP
Senior Engineer & Consultant

THE ODOUR UNIT

The Odour Unit Pty Ltd
Bay 4 Suite 3011,
2 Locomotive Street

Australian Technology Park

EVELEIGH NSW 2015

T: +61 2 9209 4420 **T(D):** +61 2 9209 4394

F: +61 2 9209 4421 **M:** +61 430 097 202

W: http://www.odourunit.com.au

APPENDIX J: Additional SRF related Statement of Commitments

Additional SRF related Statement of Commitments

Environmental Issue	Modification EA-proposed Environmental and Operational Controls
Air Quality	Detailed design • Location of Ventilation point/exhaust stacks will be determined during the detailed design phase of the SRF processing area Operations • Validation assessment of the odour quality of the SRF dryer exhaust airstream
Construction - General	• Before the commencement of the construction, Site Contaminated Management Plan will be updated to incorporate any required additional mitigation measures • Details for the earth works will be included in the Construction Environment Management Plan
Erosion and sediment control	Construction • Installation of appropriate silt fences at the downstream perimeter of areas of disturbance • Use of sandbags for temporary runoff control • Use of turf filter strips laid and maintained downstream of disturbance areas • Top soil stripping and stockpiling (where appropriate) • Soil stabilisation of disturbed areas as soon as possible after completion of each stage of works • Watering of exposed surfaces, including stockpiles, during periods of high wind • Limiting dust generation activities during adverse wind conditions • Stockpiles will be constructed away from areas of drainage flows, as and when required • Stockpiles will be minimised through effective management of excavated or incoming fill material
Traffic and Transport	Detailed design • Swept paths analysis will be undertaken during the detailed design phase of the SRF processing area to ensure that the final design is suitable for all relevant truck Construction • No trucks more than 26 m trucks (B-doubles) will be used during construction Operations • SRF containers will be loaded on to trucks and trains using the IMF loading and unloading containers procedure
Fire and Incident Management	Detailed design • All required engineering inputs from the fire safety engineering review will be incorporated into the final design of the SRF area and relevant management plans will be updated to include the details of the SRF processing area

APPENDIX K: Response to FRNSW for Recommendation for LTP

Melbourne
Sydney
Brisbane
Canberra
Perth
www.philipchun.com.au

PHILIP CHUN
Building Compliance

25 September 2018

Ref: 18-210365_NSWFR reponse

Commissioner Fire & Rescue NSW
Amarina Avenue
Greenacre NSW

Attention: Fire Safety Assessment Unit – Cameron Wheatley and Mark Castelli (FRNSW ref: BFS17/2857

Re: Leachate Treatment Plant within Existing Woodlawn Waste Disposal Facility
619 Collector Road, Tarago NSW 2580
DA31-02-99 MOD 3 and MP 10_0012 dated 22/12/17 issued by Department of Planning

I refer to the above project and to FRNSW correspondence dated 30 November 2017 addressed to the Department of Planning dated 30/11/117 (copy attached).

In response to recommendations 1, 2 and 3 the following comments are made for your consideration.

Recommendation 1 – Comply with the requirements of Clause E1.3 of the BCA and AS2419.1-2005.

It is advised the proposal comprises a metal clad shed with a switchroom and process equipment – total floor area of 381m^2 in which case does not trigger the need for a hydrant system under Clause E1.3

In terms of "Open Yard" protection it is noted that Clause 1.4.13 of AS2419.1-2005 defines Open Yard as a designated area greater than 500m^2 which may be used for storage or processing of combustible material. In this situation it is advised that other than the 54KL methanol tank which occupies less than 100m^2, there are only leachate, caustic and water tanks present none of which contain flammable products.

In this regard it is considered that a Fire Hydrant system is not required for this project. FRNSW comments are requested in this instance.

Recommendation 2 – Containment capacity for contaminant to be determined and clearly shown.

Refer Veolia plans revised to show tank contents and capacities. Some recent site photos shown below:

Leachate tanks

Inside of Shed

Recommendation 3 – That the proponent and nominated consultants engage with FRNSW prior to undertaking final design to ensure its operational requirements are satisfied.

This letter intends to seek NSWFR agreement and final comments as to whether a Hydrant system is required.

Should you have any queries in regard to the above, please do not hesitate to contact the undersigned.

Yours faithfully,

Philip Smillie
PHILIP CHUN CODE CONSULTING

Cc
Veolia Environmental Services
Corner Shirley and Unwin Street
Rosehill NSW 2142
Attention: Amandeep Brar

Methanol
Flammable Liquid
Max Fill Volume:
55,000 L

NaOH (Caustic)
46% Active
Aqueous Solution
Non-combustible
Maximum Fill
Volume 18,000 L
(Total)

Processed Liquor
Non-Combustible
Max Fill Vol.: 10,000 L

Processed Liquor
Non-Combustible
Max Fill Vol.: 1.125 ML/ 1,125 kL

Processed Liquor
Non-Combustible
Max Fill Vol.: 225,000 L

Raw Leachate
Aqueous Solution Only
Non-Combustible
Max Fill Volume: 1.8 ML/ 1,800 kL

Processed Liquor
Non-Combustible
Max Fill Vol.: 225,000 L

Processed Liquor
Non-Combustible
Max Fill Vol.: 1.125 ML/ 1,125 kL

All volumes shown here are nett/ working volumes

170 mm ABOVE GROUND LEVEL
TANK FOOTING 1000 WIDE x 3400 LONG x 700 DEEP
METHANOL TANK
METHANOL DOSING PUMPS
100 mm ABOVE GROUND LEVEL
METHANOL DOSING PIPE ABOVE GROUND TO BELOW GROUND POINT
170 mm ABOVE GROUND LEVEL
LADDER PLINTH 1000 WIDE x 1000 LONG
EYE WASH SAFTY SHOWER
EYE WASH SAFTY SHOWER
DN80 PIPE WORK
LEACHATE U/G PIPE DN80 PE100 DN10
METHANOL U/G PIPE DN15 PIPE WORK DN15 SS304 SHED80
CAUSTIC U/G PIPE 2 X Ø50 CONDUIT
2xØ50 CONDUIT
BUND WALL 1.4m h
PRE TREATMENT SCREEN
LADDER SYSTEM
AERATION TANK #2
AERATION -2
RL 798.980
AERATION -1
AERATION TANK #1
ANOXIC-1
ANOXIC TANK 1
ANOXIC-2
ANOXIC TANK 2
BALANCE TANK
RL 798.780
NITRATE PUMPS
UV PUMPS
JET Pumps
BLOWERS
COOLING TOWER
HEAT EXCHANGER
ELECTRICAL SWITCHBOARD ROOM
ULTRAFILTRATION
POLYMER DOSING
FEED PUMP CENTRIFUGE
ANTIFOAM DOSING SKID 2 OFF
SAFTY SHOWER AND EYE WASH
Double Door 1840x2300
Single Door 920x2040
OVER HEAD PIPE WORK SUPPORT FRAME ±3500 mm ABOVE GROUND
BLEED WATER U/G PIPE DN25 PE100 PN10
DN25
LOW LEVEL PIPE SUPPORT CONCRETE BLOCKS
PIPE WORK SUPPORT BLOCKS
BIOLOGY FEED PUMPS PIPE WORK

DRAWING CURRENT STATUS
FOR APPROVAL

REV	REVISION	DRAWN	CHECKED	APPROVED	REVISION DATE
A_01	DETAIL ADDED	W.D.	S.M.		22.03.2018
A_00	ISSUED FOR APPROVAL	K.G.	S.M.		21.03.2018

DO NOT SCALE THIS DRAWING
IF IN DOUBT ASK
THIRD ANGLE PROJECTION

REFERENCE DRAWINGS:
Reference Drawings:
M-130.Dwg BIOLOGY PUMPS GENERAL ARRANGEMENT
M-131.Dwg BIOLOGY PUMPS PIPE WORK DETAIL
M-132.Dwg BIOLOGY PUMP

Water Treatment Australia Pty Ltd
CLARIFICATION – FILTRATION – CHEMICAL TREATMENT – WASTE WATER TREATMENT
ACN 004 804 040
17 Treforest Drive, Clayton, VIC 3168
Phone (03) 9543 1422 Fax (03) 9543 4036 Email wta@wta.net.au
7 Carlotta Street, Artarmon, NSW 2064
Phone (02) 9438 4099 Fax (02) 9436 3129 Email wtasyd@bigpond.com

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DRAWN	K.Gaczewski	DATE	24/01/2018
CHECKED	S.MADDEN	DATE	24/01/2018
APPROVED		DATE	

PROJECT: WOODLAWN LEACHATE TREATMENT PLANT
SCALE: 1:100
SHEET: 01 OF 01
SIZE: A1
TITLE: BUNDED PLANT LAYOUT GENERAL ARRANGEMENT
DRAWING No.: 2462-M-021
REVISION: A-01

Various Chemicals
Aqueous Solutions
Non-combustible

Phosphoric Acid
Aqueous Solution
Non-combustible

2 x 200 L Drum

2 x 25 L Drum

Processed Liquor
Non-combustible
Max Fill Vol.:
10,000 L

Water
Non-Combustible

All volumes shown here are
nett/ working volumes

22300

2850 | 5960 | 4190 | 4500 | 4500 | 150

2750

14300

SAFTY SHOWER AND EYE WASH

2 x 200L DRUM
DIA 580
HEIGHT 860

2 x 25L CONTAINER

TWIN IBC POLYETHYLENE BUND
2322W x 1356L x 600H - >1000L CAPACITY.

2322 | 2322 | 1356 | 2322

IBC 1 1,200 L ANTI-FOAM IBC
IBC 2 1,200 L ANTI-FOAM IBC
IBC 1 1,200 L PHOSPHORIC IBC
IBC 2 1,200 L PHOSPHORIC IBC
ANTI SCALENT
BIOCIDE
IBC 1 1,200 L LIQUID POLYMER IBC
IBC 2 1,200 L LIQUID POLYMER IBC

IBC 1 SPARE 1,200 L
PHOSPHORIC IBC 2 SPARE 1,200 L

Double Door 1840x2300

Roller Door 4000x4000

Single Door 920x2040

PHOSPHORIC ACID DOSING SKID
BIOCIDE DOSING SKID
ANTISCALANT DOSING SKID
SAFTY SHOWER AND EYE WASH
POLYMER DOSING
DOSING PUMP POLYMER

FEED PUMP CENTRIFUGE

ELECTRICAL SWITCHBOARD ROOM

ANTIFOAM DOSING SKID 2 OFF

ULTRAFILTRATION

CENTRATE TANK 300L

DISCHARGE CENTRATE PUMP

CENTRIFUGE

AIR COMPRESSOR

ROOF AWNING

Wash tank TNK434-01
Permeate tank TNK433-01
Permeate pumps PMP433-02 PMP433-03
Heat exchanger HXR423-01
Filter FLT420-04 FLT420-05

CITRIC ACID | SODIUM HYPO | CLEANER

FILTRATE OUTLET DN50 TABLE E
BACKWASH OUTLET DN40 TABLE E
RAW WATER INLET DN50 TABLE E
DRAIN / OVERFLOW DN20 BSP(F)
BRINE TANK
SOFTENING UNIT

BORE WATER BOOSTER STATION
HYDRO MPC-E 2 CRIE 10-5 U1 A-A-A-AG

POTABLE WATER BOOSTER STATION
HYDRO SOLO E CRIE 10-5 3x400V

20,000 L
FRESH WATER TANK 20KL

50,000 L
BORE WATER TANK 1 50KL

50,000 L
BORE WATER TANK 2 50KL

4500 | 4500 | 4500 | 1000 | 4800

150 | 4000 | 4500 | 22300

11670

DRAWING CURRENT STATUS

IN PROGRESS

REV	REVISION	DRAWN	CHECKED	APPROVED	REVISION DATE
A_03	CENTRIFUGE WALKWAY UPDATED	WD	SM	-	13/06/2018
A_06	SAFTEY SHOWER ADDED IN IBC AREA.	WD	SM	-	01/08/2018
A_05	POLY PUMP ADDED. BRINE TANK MOVED.	WD	SM	-	03/07/2018
A_04	ITEMS MOVED TO FIT CENTRIFUGE FEED TANK	WD	SM	-	18/06/2018

REFERENCE DRAWINGS:
REPLACES DRG: 00004-Z-00-D03-00-01

Water Treatment Australia Pty Ltd
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VEOLIA

DRAWN	WD	DATE	18/01/2018
CHECKED	SM	DATE	18/01/2018
APPROVED	-	DATE	-

PROJECT: WOODLAWN LEACHATE TREATMENT PLANT
SCALE: NTS
SHEET: 01 OF 01
SIZE: A1
TITLE: LTP SHED LAYOUT PLAN
DRAWING No.: 2462-M-025
REVISION: A_06

FILE NO. 2462-M-025 RevA LTP
PLOTTED 21/9/18 - 9:53am