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Appendix E

Air, Noise & Groundwater Monitoring Results

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Appendix E Contents

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2023 Q3

Air, Noise & Groundwater Monitoring Results

Environmental Efficiency

Bray (Co. Wicklow) 01 276 1428
Lisburn (Co. Antrim) 028 9262 6733
Birmingham (U.K.) 0121 673 1804

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Groundwater Monitoring Report Q3 2023

for

Kilchreest Quarry

Document Number: 2589-22 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- Occupational Dust & Noise

Affiliations & Accreditations

- ISO9001:2008 Registration No. 2015/2170
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- EMPI Membership

Document Lead Sheet

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Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	Isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Groundwater Monitoring Report
	Document number	2589-22
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	26/09/2023
	Document author	RS	Date written	17/10/2023
	Approved by	RTS	Date approved	31/10/2023
	Report version nr	1.00		
	Issued by	RS	Date report issued	03/11/2023
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	No
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q4 2023

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Report History

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Contents

RECEIVED: 25/03/2025

1. Introduction

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Environmental Efficiency Consultants (Ire) Limited was commissioned by Kilchreest Quarry to conduct groundwater sampling and analysis on a quarterly basis. The sampling was conducted from two boreholes BH1 and BH3 as indicated in the map below. Borehole BH2 has been decommissioned and no longer exists on site.

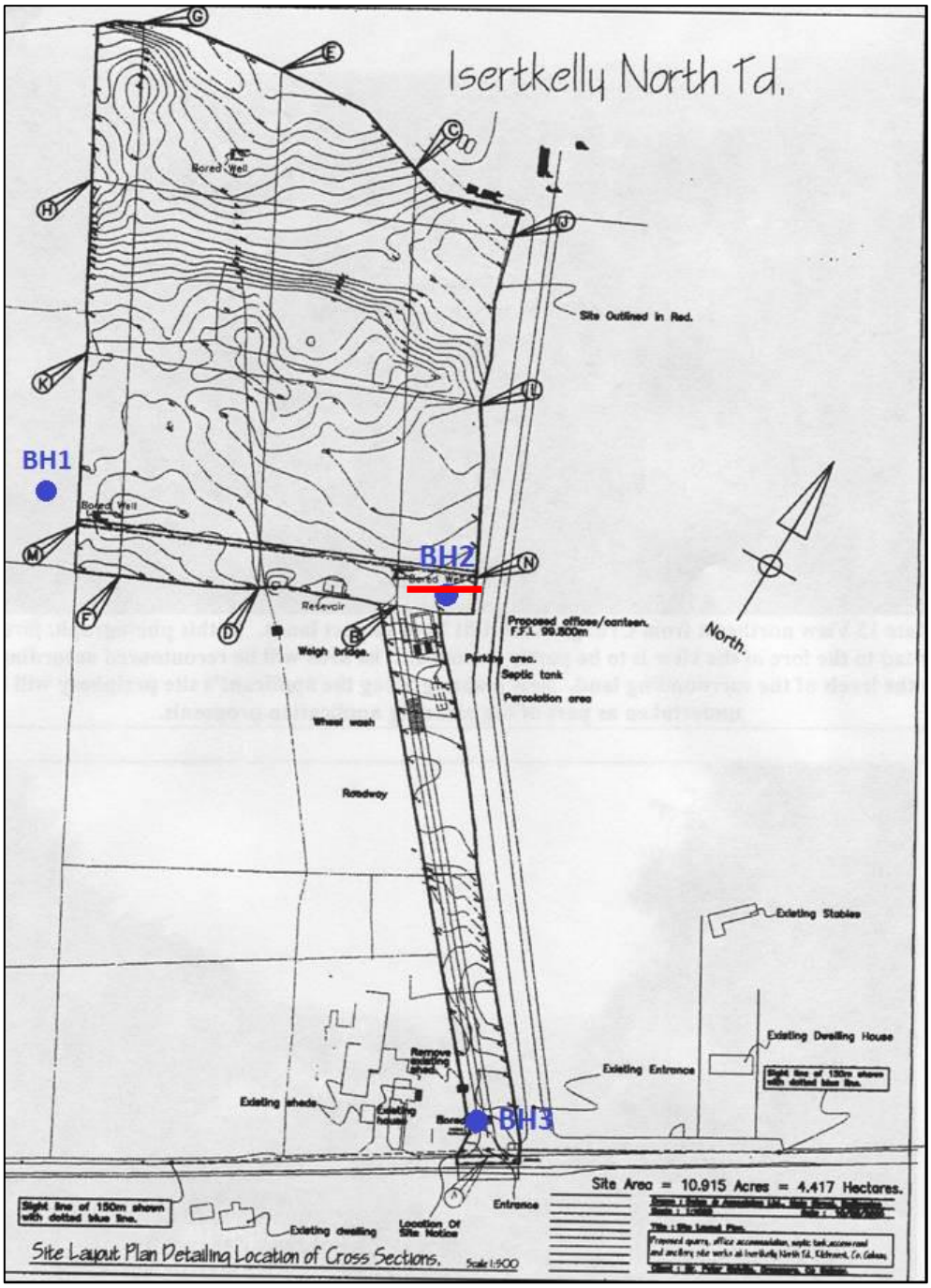

Figure 1-1 Borehole Monitoring Locations

2. Executive Summary

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The majority of the results for BH3 fall within the relevant guideline values for the monitoring period Q3 2023. However, both the faecal coliform bacteria and Escherichia Coli bacteria were both above the recommended limit with values. The levels of phosphate detected were also above the recommended limits.

The results for Certificate of analysis can be seen in Appendix 1.

Please note sampling could not be conducted at BH1 as the borehole was blocked.

3. Results

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Groundwater and surface water quality was assessed by comparing analytical results to the most relevant of the following water quality guidelines – Generic Assessment Criteria (GAC):

- European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016. S.I. No. 366 of 2016.
- Environmental Protection Agency, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, (Interim Guideline Values (IGVs)), 2003.

The results for the groundwater analysis can be seen in the table below.

*Please note sampling could not be conducted at BH1 as the borehole was blocked.

Table 2 - 1 BH3 Monitoring Results Q2 2023

Parameter	Result	Units	Generic Assessment Criteria	Source
COD	< 10	mg O2/l	No Value	-
Ammonia	< 0.050	mg/l	175 µg/l	GTV
Nitrate	2.4	mg/l	37.5 mg/l	GTV
Nitrite	< 0.020	mg/l	375 µg/l	GTV
Phosphate	0.60	mg/l	0.035 mg/l	GTV
Chloride	8.7	mg/l	187.5 mg/l	GTV
TPH (C6 – C10)	< 0.10	µg/l	0.10 µg/l	GTV
TPH (C10 – C21)	< 0.10	µg/l	0.10 µg/l	GTV
TPH (C21 – C40)	< 0.10	µg/l	0.10 µg/l	GTV
Total TPH (C6 – C40)	< 10	µg/l	7.5 µg/l	GTV
Total Organic Carbon	< 2.0	mg/l	No Value	-
Electrical Conductivity	570	µS/cm	1875 µS/cm	GTV
Faecal Coliform Bacteria	55	cfu/100ml	0	IGV
Escherichia Coli Bacteria	55	cfu/100ml	0	IGV
Ground water Level	17.2	Meters	N/A	-

GTV = Groundwater Threshold Value. Outlined in Groundwater Regulations (S.I. No. 9 of 2010 / S.I. No. 366 of 2016).

IGV = Interim Guideline Values (IGVs) presented by EPA in 2003.

4. Discussion

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Faecal coliform bacteria and Escherichia Coli bacteria were above the recommended limit for the monitoring period Q3 2023. During and after precipitation, bacteria, and other harmful microorganisms from any of these sources may be washed into rivers, lakes, or groundwater. Poor well construction or poor maintenance can increase the risk of groundwater contamination. Total coliform bacteria are not likely to cause illness, but their presence indicates that your water supply may be vulnerable to contamination by more harmful microorganisms. The presence of E.coli in water indicates recent faecal contamination and may indicate the possible presence of disease-causing pathogens, such as bacteria, viruses, and parasites. Although most strains of E.coli bacteria are harmless, certain strains, such as E.coli 0157:H7, may cause illness. The level of phosphate was also higher than the groundwater threshold value of 0.035 mg/l. All other results for the groundwater monitoring of BH3 fall within the recommended water quality guidelines for the monitoring period Q3 2023.

The generic assessment criteria values come from the following documents:

- European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016. S.I. No. 366 of 2016.
- Environmental Protection Agency, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, (Interim Guideline Values (IGVs)), 2003.

Appendix 1 Certificate of Analysis GW Monitoring

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UKAS TESTING 2183

eurofins | Chemtest

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	23-32702-1		
Initial Date of Issue:	05-Oct-2023		
Re-Issue Details:			
Client	Environmental and Efficiency Consultants		
Client Address:	Parnell House 19 Quinsboro Road Bray Co Wicklow IRELAND		
Contact(s):	Luke Ryan Rebecca Stokes Ronan Sutcliffe Valerie Browne		
Project	2589-GW3-Q3-23-Sep 23		
Quotation No.:		**Date Received:**	29-Sep-2023
Order No.:	2589-GW3-Q3-23	**Date Instructed:**	29-Sep-2023
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	05-Oct-2023
Date Approved:	05-Oct-2023		
Approved By:			
Details:	Stuart Henderson, Technical Manager		

Project: 2589-GW3-Q3-23-Sep 23

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Client: Environmental and Efficiency Consultants			**Chemtest Job No.:**		23-32702
Quotation No.:			**Chemtest Sample ID.:**		1709807
			Client Sample ID.:		2589-GW3-Q3-23
			Sample Type:		WATER
			Date Sampled:		26-Sep-2023
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Electrical Conductivity at 25C	U	1020	µS/cm	1.0	570
Chemical Oxygen Demand	U	1100	mg O2/l	10	< 10
Chloride	U	1220	mg/l	1.0	8.7
Ammonia (Free)	N	1220	mg/l	0.050	< 0.050
Nitrite as NO2	U	1220	mg/l	0.020	< 0.020
Nitrate as NO3	U	1220	mg/l	0.50	2.4
Phosphate	U	1220	mg/l	0.200	0.60
Total Organic Carbon	U	1610	mg/l	2.0	< 2.0
TPH >C6-C10	N	1670	µg/l	0.10	< 0.10
TPH >C10-C21	N	1670	µg/l	0.10	< 0.10
TPH >C21-C40	N	1670	µg/l	0.10	< 0.10
Total TPH >C6-C40	U	1670	µg/l	10	< 10

Environmental Efficiency

Bray (Co. Wicklow) 01 276 1428
Lisburn (Co. Antrim) 028 9262 6733
Birmingham (U.K.) 0121 673 1804

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Dust Deposition Report Q3 2023

for

Kilchreest Quarry

Document Number: 2589-23 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- IPC/IED/Waste Licence Compliance
- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations

- ISO9001:2008 Registration No. 2015/2170
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- EMPI Membership

Document Lead Sheet

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Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	Isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Dust Monitoring Report
	Document number	2589-23
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	26/09/2023
	Document author	RS	Date written	18/09/2023
	Approved by	RTS	Date approved	31/10/2023
	Report version nr	1.00		
	Issued by	RS	Date report issued	03/11/2023
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q4 2023

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Report History

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Contents

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1. Introduction

Environmental Efficiency Consultants (Ire) Limited was commissioned by Kilchreest Quarry to conduct dust deposition monitoring and analysis on a quarterly basis. The sampling was conducted from three dust monitoring points D1, D2 and D3 as indicated in the map below.

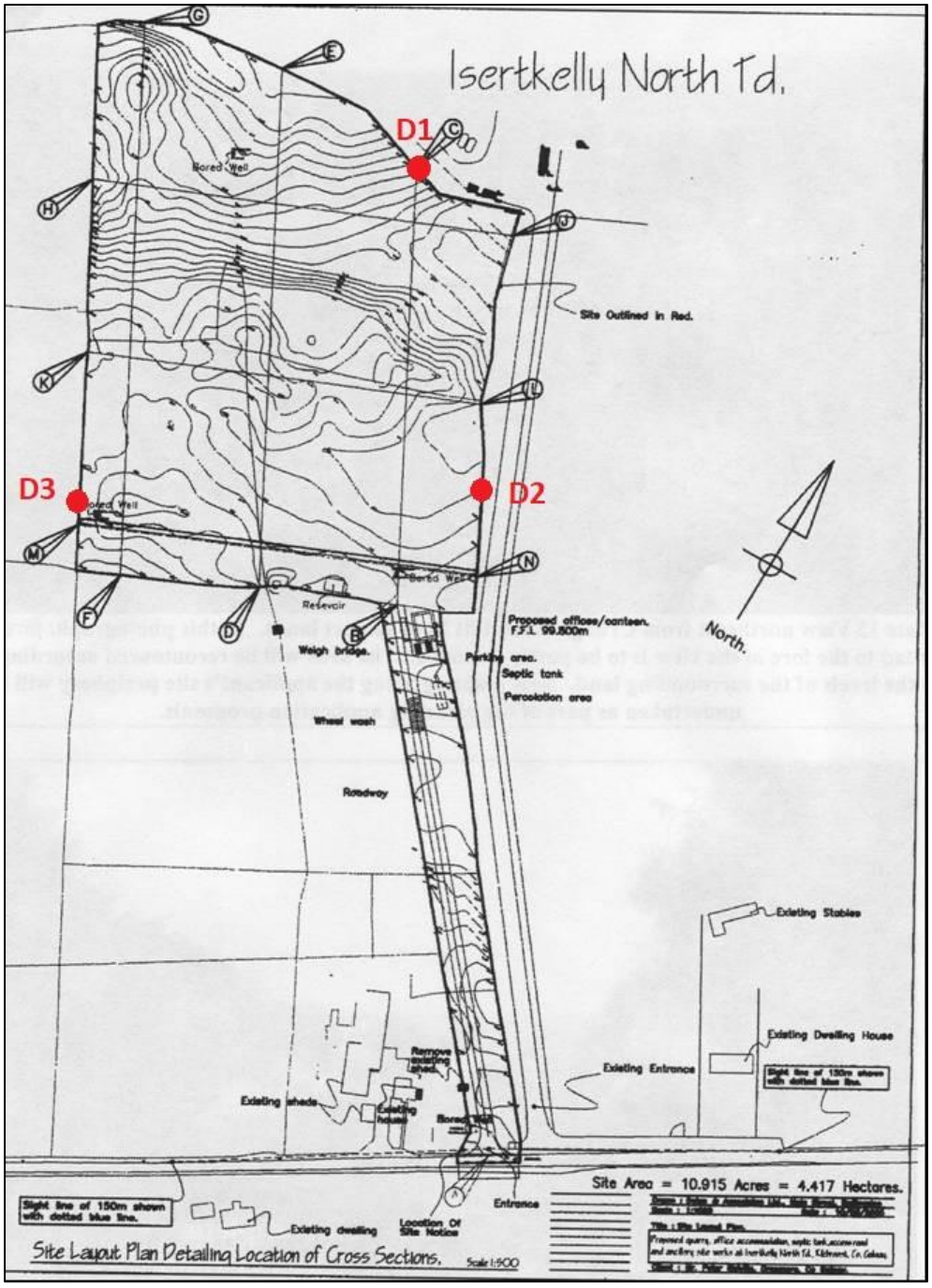

Figure 1-1 Dust Monitoring Locations

2. Executive Summary

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Environmental Efficiency conducted environmental dust monitoring at three locations in Kilchreest Quarry for Q3 2023.

All results for the Bergerhoff monitoring points were below the TA Luft Dustfall limit.

3. Methodology

Environmental Efficiency Consultants Ltd conduct environmental dust deposition monitoring on a quarterly basis at Kilchreest Quarry. Environmental Efficiency collects Bergerhoff bottles on-site following each monitoring period and, upon return to the laboratory, conducts testing in accordance with the company's internal SOP's; SOP 03.04 Determination of Suspended Solids/SOP 99.12 Total Dust Deposition, to determine Total Dust Deposition at each monitoring location in mg/m2/day. Results are subsequently compared to a dust limit value of 350 mg/m2/day, as prescribed by German TA Luft Guidelines, to determine whether dust levels constitute levels which are not acceptable as per this environmental quality standard (i.e., levels at which there may be nuisance caused or hazard posed).

4. Results

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Environmental dust monitoring results for each monitoring period are presented in the tables below. Certificates of analysis are provided in Appendix 1.

Table 4 - 1 Dust Monitoring Results – Q3 2023

Location	Units of Measurement	Results	Prescribed Limit Value	Compliant
D1	mg/m^2/day	314.1	350	Yes
D2	mg/m^2/day	203.7	350	Yes
D3	mg/m^2/day	178.3	350	Yes

5. Conclusion

Environmental Efficiency conducted environmental dust monitoring at three locations in Kilchreest Quarry for Q3 2023. The dust fall limit specified for the quarry is based on the German TA Luft Environmental Guidelines which specifies a limit of 350 mg/m^2/day. All results for the three monitoring locations were below the prescribed limit value for Q3 2023.

Appendix 1 Certificate of Analysis

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Environmental Efficiency

Bray 01 276 1428
Lisburn 028 9262 6733
Birmingham 0121 673 1804

Certificate of Analysis for Total Dust Deposition

Project No: 2589
Client: Kilchreest Quarry
Site: Kilchreest Quarry
Site code: KC
Period: Q3 2023
Collected by: IM
Analysed by: IM
Sample method: Bergerhoff bottle
Sample type: Dust fall
SOP: 99.12

Results

Location	Start monitoring	End monitoring	Date analysed	Days on site	Result, mg/m2 day
D1	01-Sep-23	30-Sep-23	02-Oct-23	30	314.1
D2	01-Sep-23	30-Sep-23	02-Oct-23	30	203.7
D3	01-Sep-23	30-Sep-23	02-Oct-23	30	178.3

Signed (Lab Manager)

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- Member Environmental Services Association
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Noise Monitoring Report Q3 2023

for

Kilcreest Quarry

Document Number: 2589-24 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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Affiliations & Accreditations

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- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- EMPI Membership

Document Lead Sheet

Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	Isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

RECEIVED: 25/03/2025

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Noise Monitoring Report
	Document number	2589-24
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	26/09/2023
	Document author	RS	Date written	23/10/2023
	Approved by	RTS	Date approved	31/10/2023
	Report version nr	1.00		
	Issued by	RS	Date report issued	03/11/2023
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q4 2023

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Table of Contents

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1. Introduction

The client is required to carry out a noise survey at various specified locations in the vicinity of the site. This document reports the results of the noise survey.

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2. Executive Summary

A noise survey to EPA NG4 was undertaken on 26-Sep-23. The compliance of the locations with the specified limits is shown in the table below.

Table 2-1 Summary of compliance

Location	Noise Sensitive Location	Day	Night-time
N1	No	N/A	N/A
N4	No	N/A	N/A
NSL2	Yes	Compliant	Compliant
NSL3	Yes	Compliant	Compliant

3. Facility Description

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The following activities are carried out on the site

- Hauling of materials from the site using HGV lorries.
- The operation of machinery.

The site has the hours of operation shown in the table below.

Table 3-1 Hours of operation

Period	Operational hours	Surveyed
Day	08:00 – 17:00	Yes
Evening - No monitoring	Not operational	No
Night-time	Not operational	Yes

4. Monitoring requirements

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Noise is required to be monitored at the locations shown in the table immediately below. The noise limits applicable, the required number of sampling periods (e.g. number of separate measurements at one location during one monitoring period, e.g. daytime) and the required duration of each sampling period are shown in the second table below. Note that noise monitoring was only carried out during periods where there was activity or equipment running on the site.

Table 4-1 Locations monitored

Location	Location Description	NSL
N1	Entrance	No
N4	Boundary	No
NSL2	Beside house	Yes
NSL3	Beside house	Yes

Table 4-2 Periods monitored and limits

Monitoring Period	Monitored	NSL	Limit. dBA	Allowance, dBA	T (Sampling Period), minutes	No. of runs
Day	Yes	Yes	55	0	60	1
Night-time	Yes	Yes	45	0	15	1
Day	Yes	No	N/A	N/A	60	1
Night-time	Yes	No	N/A	N/A	15	1

5. Sampling Methodology

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5.1 Instrumentation Used

The equipment shown in the table below was used during the noise survey. All Sound Level Meters are Type I. The SLMs and calibrators are identified by a LEN (Laboratory Equipment Number) and this is shown in the table below. Calibration certificates for the equipment, where appropriate, are shown in the appendices and are referenced by the LEN.

Table 5-1 Equipment Used

Equipment used	LEN (Lab equipment Number)	Make/Model	Serial Number	Cal cert
First SLM	LEN 089	Svantek SV2	40396	Yes
Second SLM	LEN 128	Svantek SV1	128783	Yes
First Calibrator	LEN 071	Cirrus	51431	Yes
Anemometer	LEN 127	Testo 410-1	N/A	N/A

All noise measurements were 'A' weighted and the time-weighting 'Fast' was applied (to equate to human ear hearing). Each SLM is calibrated in the field before the start of the survey and again at the end of the survey. Unless stated otherwise in this report, there was no drift in calibration greater than 0.1 dB over the duration of the survey.

All SLMs used are capable of third band octave measurement. Third band octave readings were recorded at all locations where tonal noise was subjectively detected by the survey personnel. Where tonal noise was detected, the third band octave readings were analysed off site to verify the presence of tonal. The simplified methodology for the objective identification of tones specified in Annex D of ISO 1996K2:2007(E) is used for this purpose.

5.2 Noise Survey Personnel

The noise survey was undertaken by Environmental Efficiency staff as follows:

Author (Name & Quals)	Ivan Mahon, Site Technician
Author (Initials)	IM

5.3 Meteorological Conditions

Weather conditions on the day of monitoring were considered appropriate for surveying purposes and therefore did not affect the readings i.e. conditions were dry and wind speed was less than 5 m/s (the normal upper limit for taking measurements). The Sound Level Meter was also fitted with a windshield to minimise interference from

potential meteorological conditions, in keeping with good practice. The meteorological conditions during the survey periods are shown below.

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Table 5-2: Meteorological Conditions

Survey	Date	Time	Av. wind speed, m/s	Temp, C	Prevailing wind direction	Weather
Start	26-Sep-23	12:54:00	1.0	20.1	SW	No precipitation
Completion	26-Sep-23	19:06:00	3.5	16.6	W	No precipitation

5.4 Measurement Locations

The locations of noise monitoring locations are described in the table below and shown in Figure 5-1. Photographs of the SLM at each location are shown following the map.

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Table 5-3: Description of monitoring locations

Location	Height above ground, m	Distance from reflective surface, m	Location Description	Noise sensitive location
N1	1.2	>3.5	Site entrance	No
N4	1.2	>3.5	Boundary	No
NSL2	1.2	>3.5	Beside house	Yes
NSL3	1.2	>3.5	Beside house	Yes

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Figure 5 - 1 Site Map

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Figure 5 - 2 Photograph SLM at N1

Figure 5 - 3 Photograph SLM at N4

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Figure 5 - 4 Photograph SLM at NSL2

Figure 5 - 5 Photograph SLM at NSL3

5.5 Ground attenuation

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If the intervening ground between a noise source and a measurement location is acoustically absorptive, this can result in a reduction in noise level at the receptor due to absorption of sound energy by the ground itself. On the contrary, if the intervening ground is acoustically reflective ground, its products the opposite effect

The details of the intervening ground between sources and measurement positions are described in the following table:

Table 5-4: Ground attenuation

Location	% Soft Ground	% Hard Ground	Comments
N1	85	15	No comment
N4	0	100	No comment
NSL2	0	100	No comment
NSL3	60	40	No comment

6. Noise Survey

RECEIVED: 25/03/2025

The measurement parameters LAeq,T, LAF90 and LAF10 plus the derived parameter LAr,T are tabulated below in the tables for each monitoring location. Associated particulars such as a description of the on-site noise and off-site noise noticed at each location are also provided where relevant. A graphical representation of the parameters LAeq,T, LAF90 and LAr,T over each monitoring period is provided in the graphs above each table.

The derived noise parameter LAr,T, termed the Rated Noise Level, includes a penalty of 5 dBA for tonal or impulsive noise where such noise is present. This penalty is normally added to LAeq,T. Where traffic or other off site noise sources are significant, the parameter LAF90 may be a better descriptor of site noise and where this is the case the Rated Noise Level is equal to LAF90 plus the penalty. In the tables below, where LAF90 is considered a better descriptor of site noise, an asterisk is appended to the measurement.

The penalty for on-site tonal noise and/or on-site impulsive noise is only applied during the daytime and evening periods. No tonal or impulsive noise is permitted during night-time; if such noise is present then this is a breach regardless of the LAeq,T or LAF90 noise level.

Where on site tonal is subjectively heard this is noted in the tables below in the column 'On site tonal?'. In all cases where on-site tonal is heard the simplified methodology for the objective identification of tones specified in Annex D of ISO 1996K2:2007(E) is used to confirm the presence of tonal. Where on site tonal is confirmed, this is shown in the tables below in the column 'Tonal confirmed'. The third octave graphs used to confirm on site tonal are shown in the discussion section.

The parameter LAFmax has no bearing on compliance and is not shown in the tables below; however, as it is may be required to be reported separately (e.g. in an Annual Environmental Report) it is included in the appendices.

The column headed 'On site impulsive' states whether impulsive noise was heard by the monitoring personnel.

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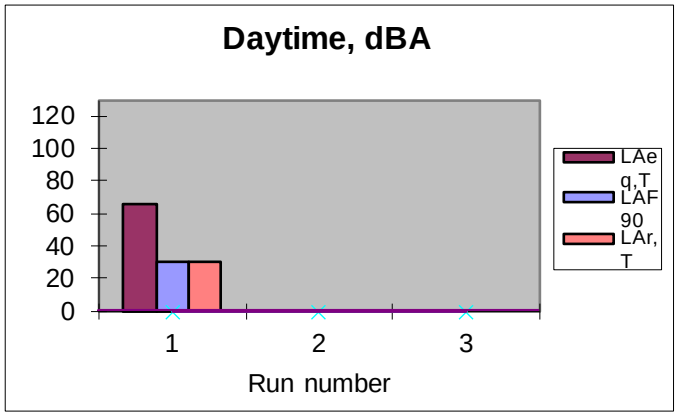
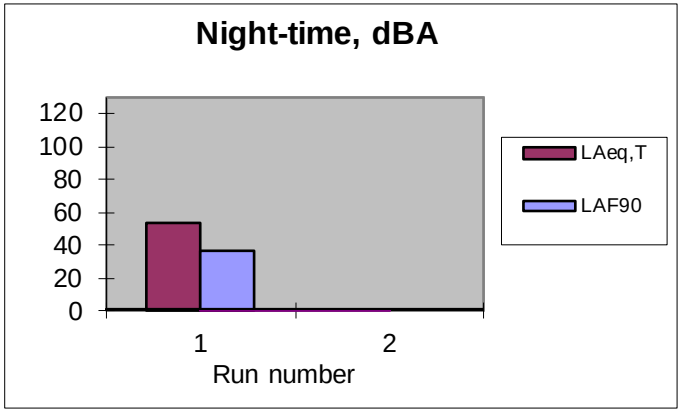
Location N1





Period	Run	LEN	Date/Time	$LAeq_{,T}$	[1]LAF90	LAF10	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $LAr_{,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 089	26/09/2023 12:54	66	30	57	No	N/A	No	30	Road traffic	Kango demolition noise, HGVs	N/A
Night-time	1	LEN 089	26/09/2023 18:15	54	36	50	No	N/A	No	36	Road traffic	None	N/A

[1] LA90 was chosen due to the significant volume of traffic

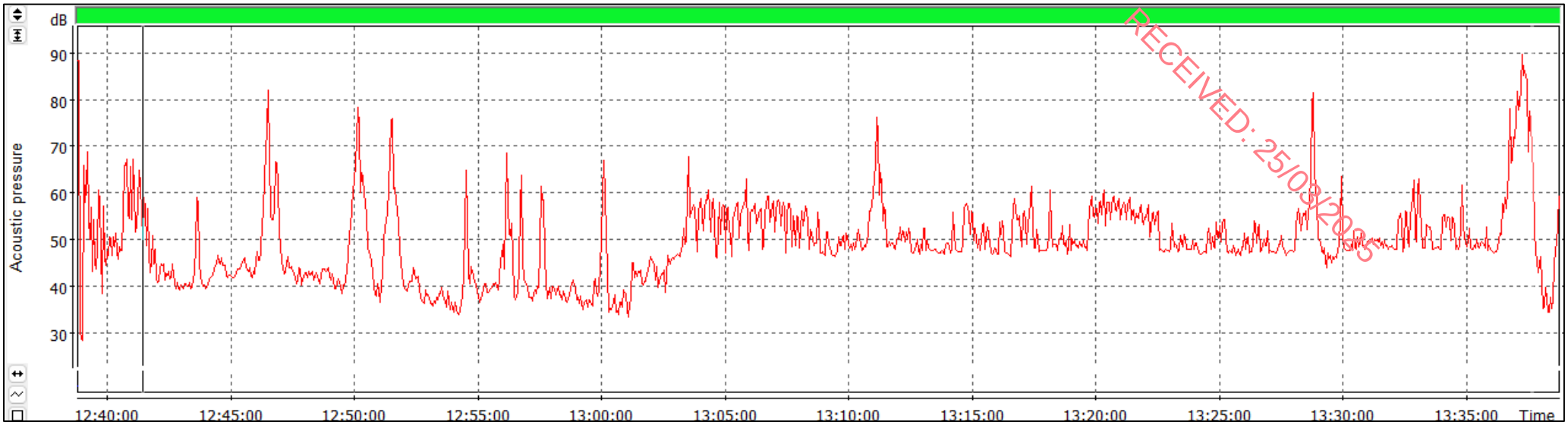


Figure 6 - 1 N1 Day Run 1 of 1

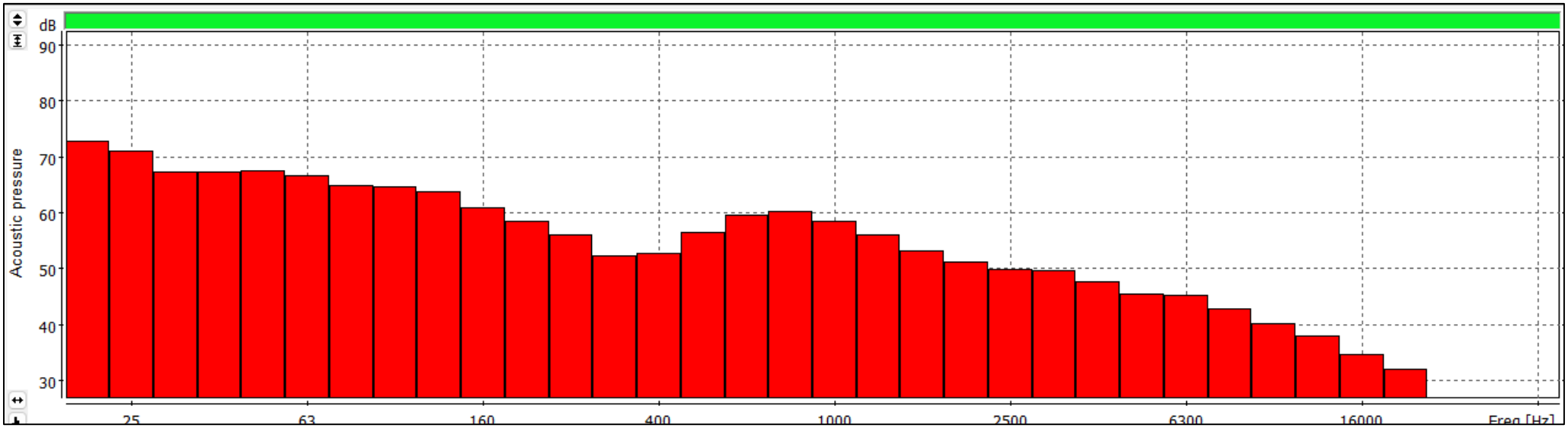


Figure 6 - 2 N1 Day Run 1 of 1 Third Band Octave

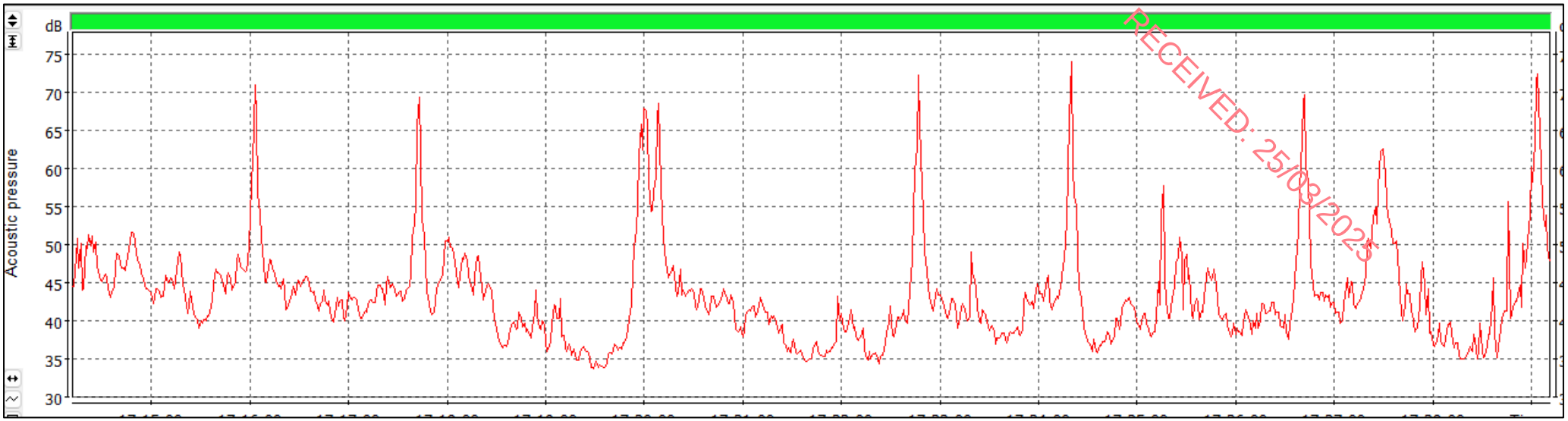


Figure 6 - 3 N1 Night Run 1 of 1

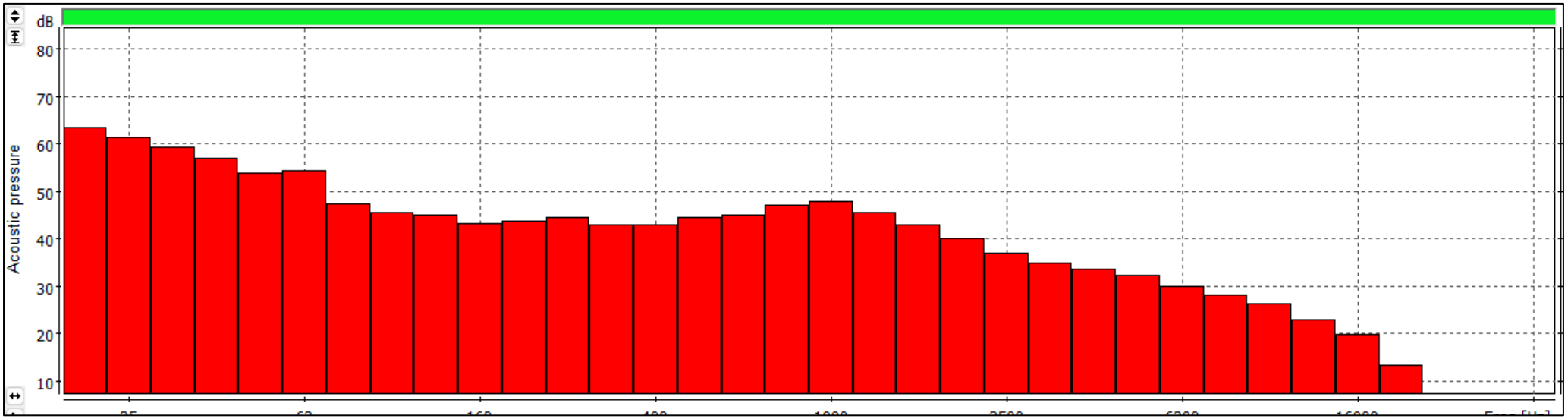
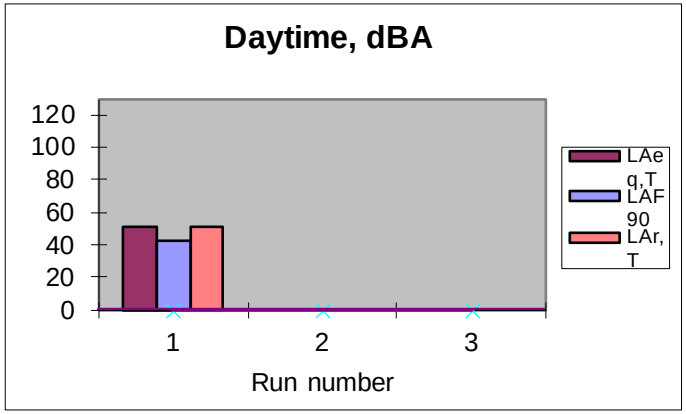
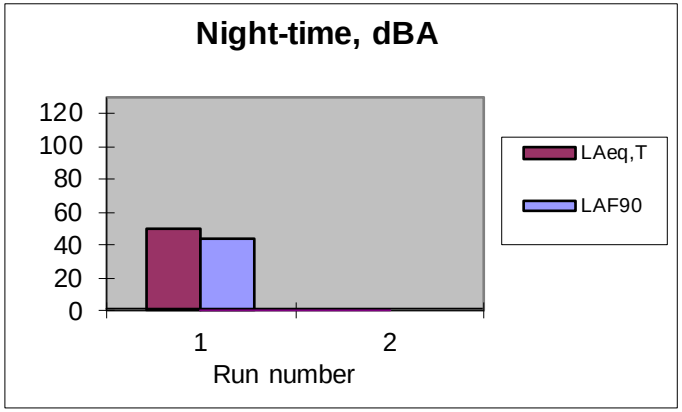


Figure 6 - 4 N1 Night Run 1 of 1 Third Band Octave

Location N4

RECEIVED: 25/03/2025





Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 089	26/09/2023 14:04	52	42	54	No	N/A	No	52	Road traffic	HGVs, Site operations	N/A
Night-time	1	LEN 089	26/09/2023 18:49	50	44	53	No	N/A	No	50	None	None	N/A

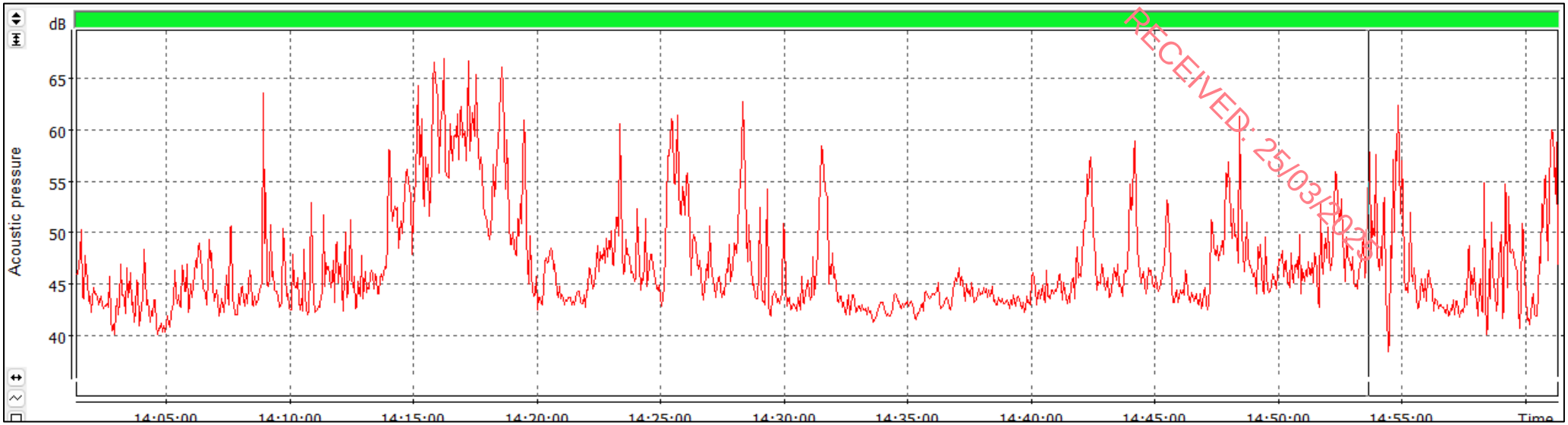


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Figure 6 - 5 N4 Day Run 1 of 1

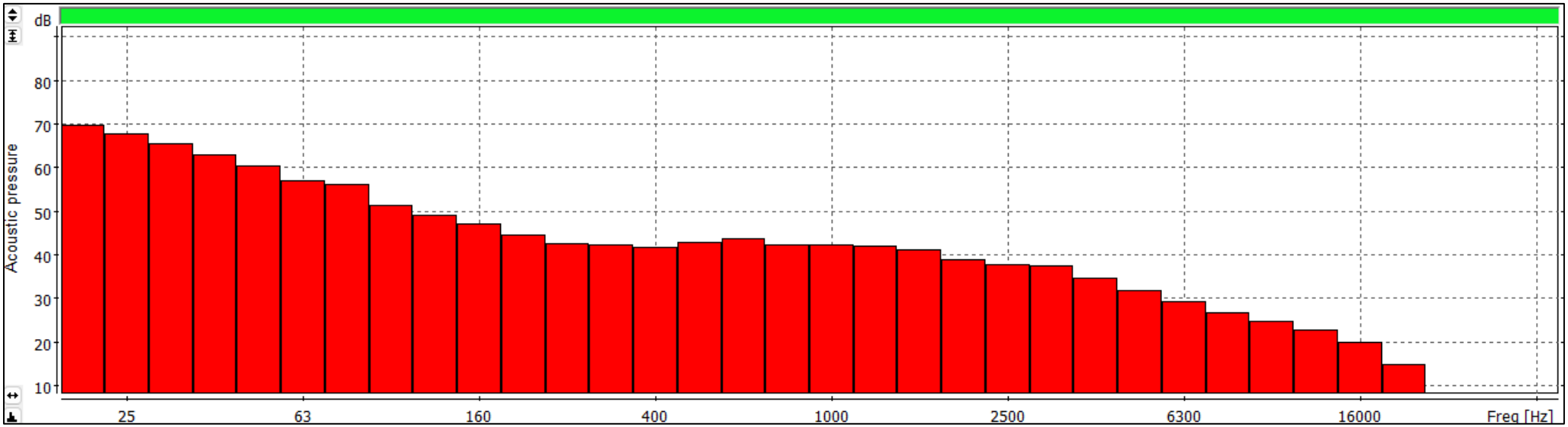

Figure 6 - 6 N4 day Run 1 of 1 Third Band Octave

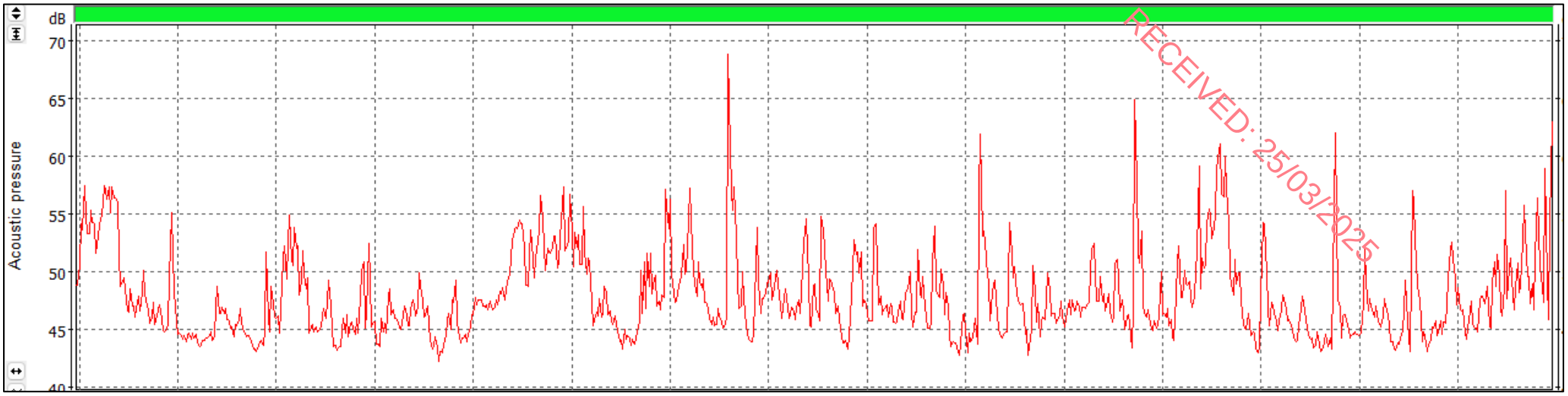

Figure 6 - 7 N4 Night Run 1 of 1

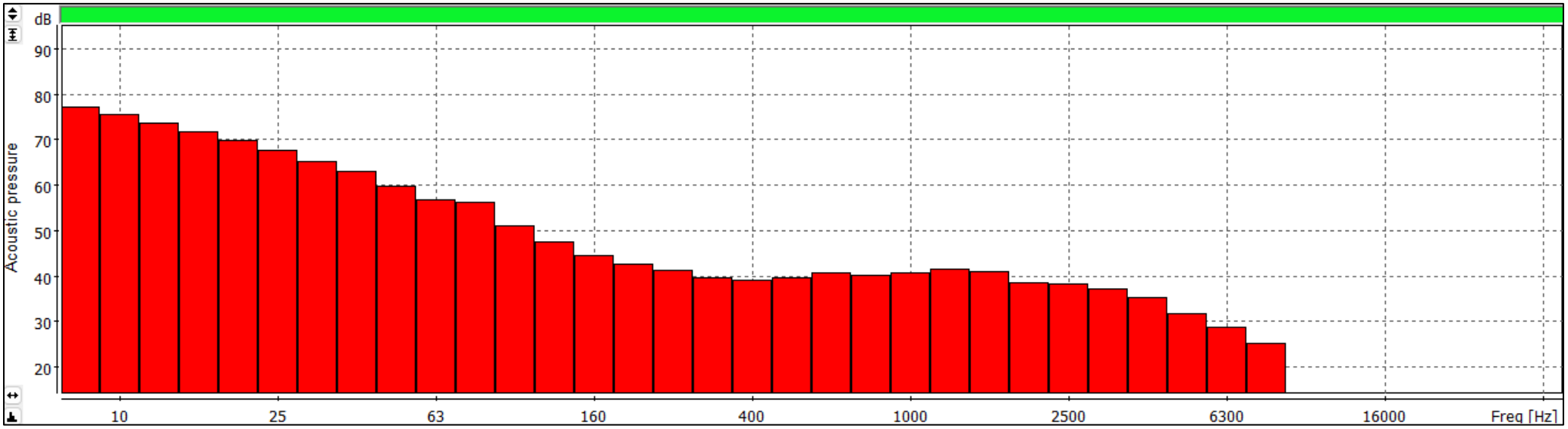

Figure 6 - 8 N4 Night Run 1 of 1 Third Band Octave

Location NSL2

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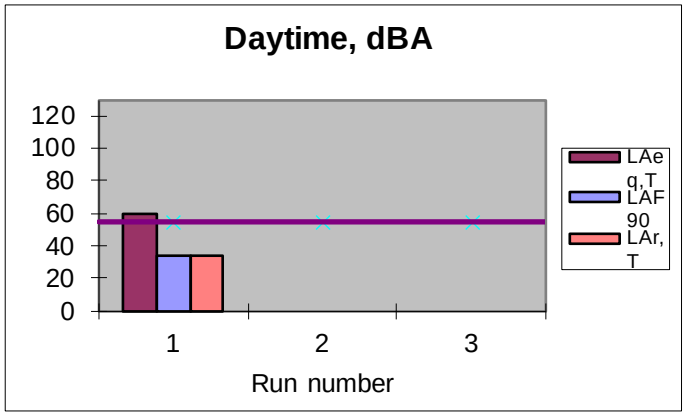

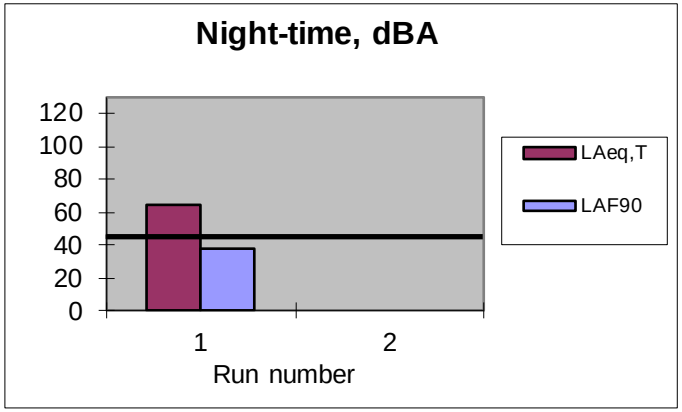

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	$^{1}L_{AF90}$	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 128	26/09/2023 14:06	60	34	52	No	N/A	No	34	Road traffic	None	Yes
Night-time	1	LEN 128	26/09/2023 18:39	64	38	53	No	N/A	No	38	Road traffic	None	Yes

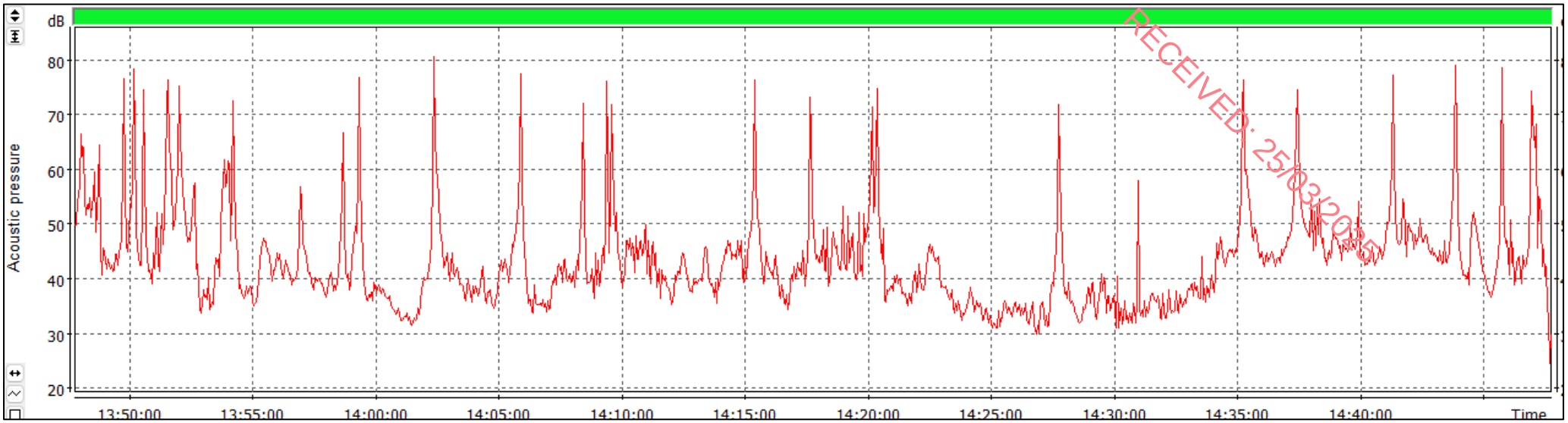

Figure 6 - 9 NSL2 Day Run 1 of 1

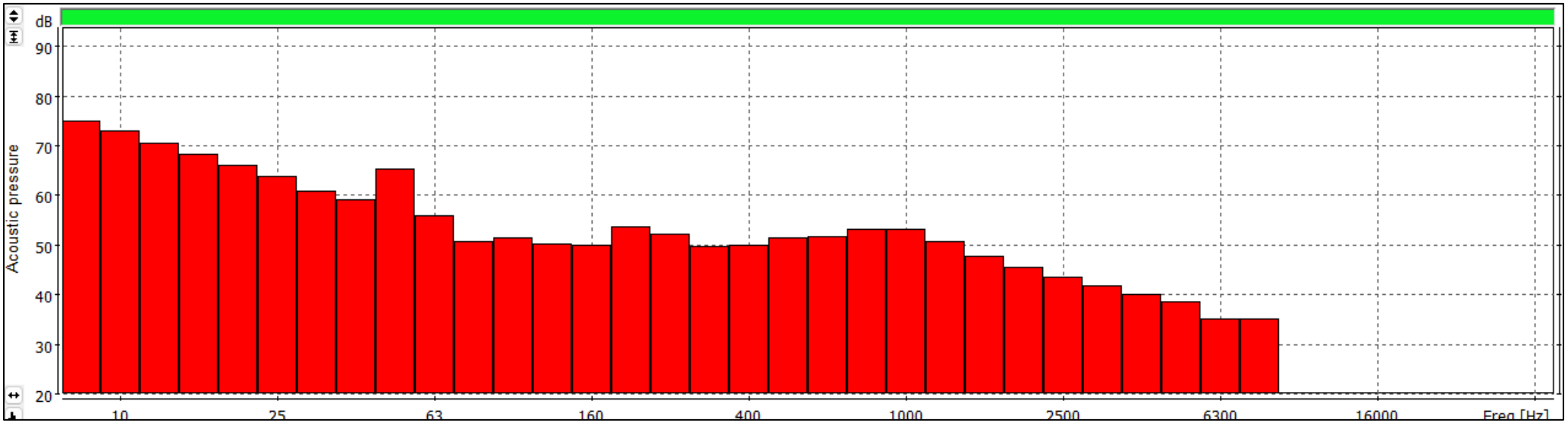

Figure 6 - 10 NSL2 Day Run 1 of 1 Third Band Octave

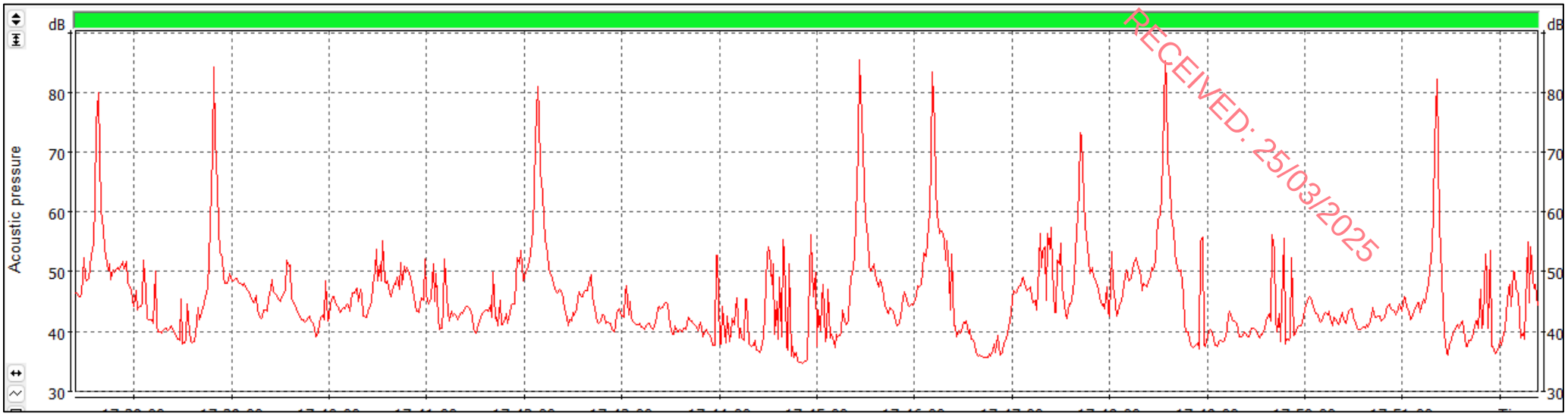

Figure 6 - 11 NSL2 Night Run 1 of 1

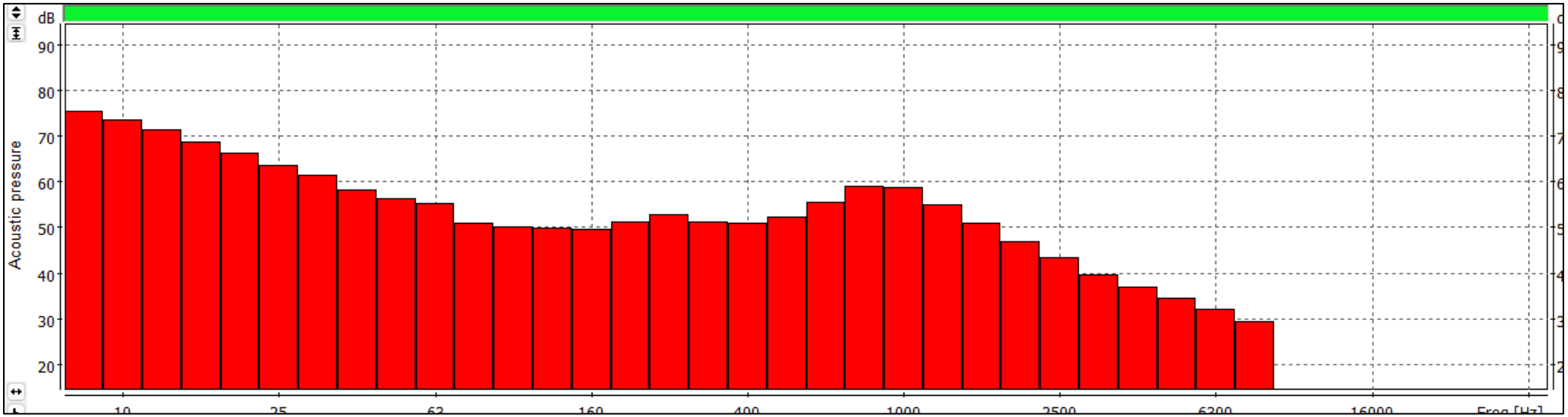

Figure 6 - 12 NSL2 Night Run 1 of 1 Third Band Octave

Location NSL3

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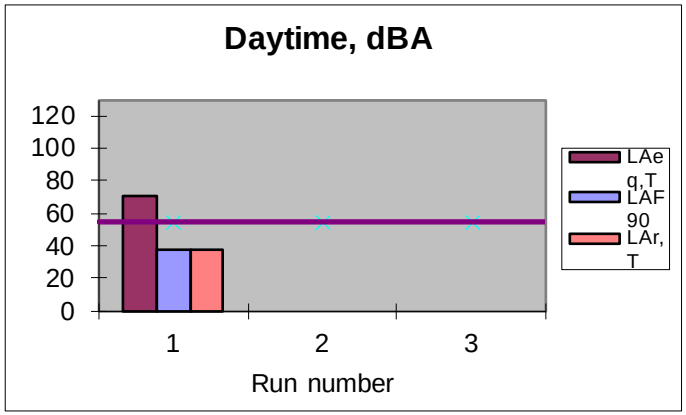

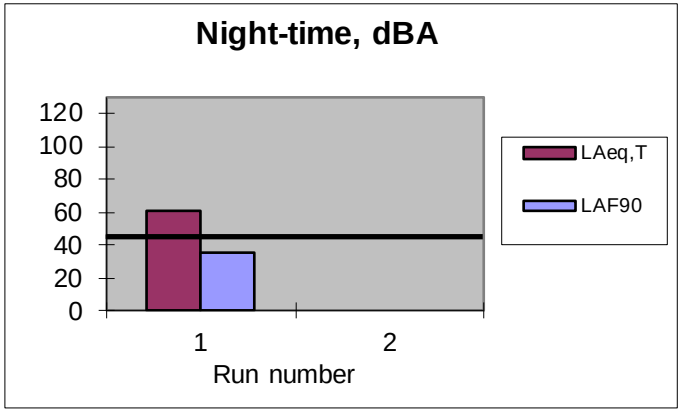

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	$^{1}L_{AF90}$	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 128	26/09/2023 12:49	71	38	52	No	N/A	No	38	Road traffic	HGVs	Yes
Night-time	1	LEN 128	26/09/2023 18:06	61	36	57	No	N/A	No	36	Road traffic	None	Yes

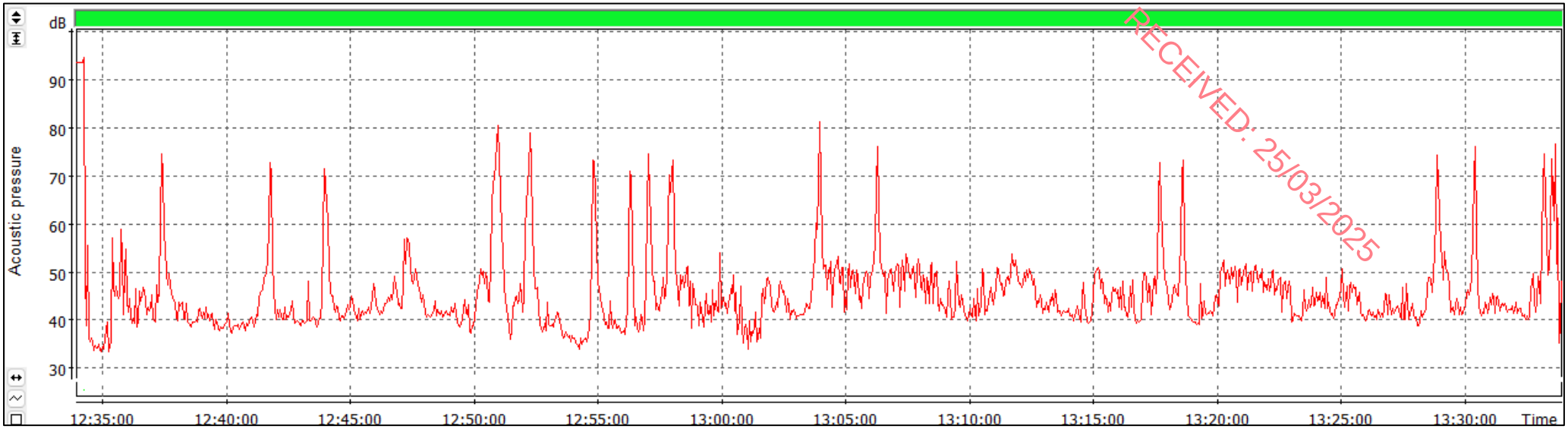

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Figure 6 - 13 NSL3 Day Run 1 of 1

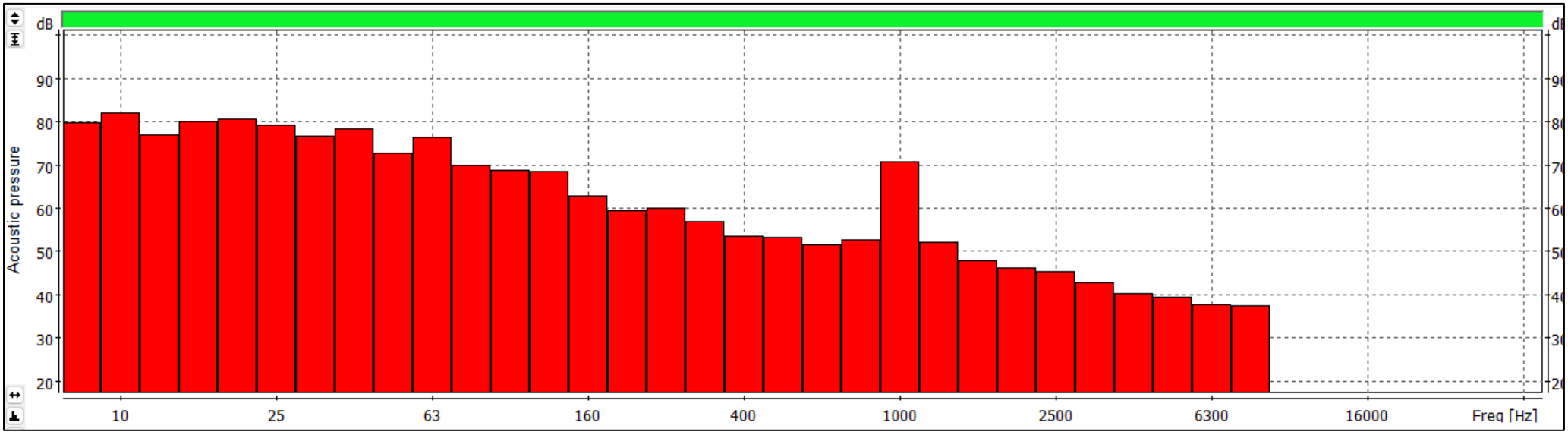

Figure 6 - 14 NSL3 Day Run 1 of 1 Third Band Octave

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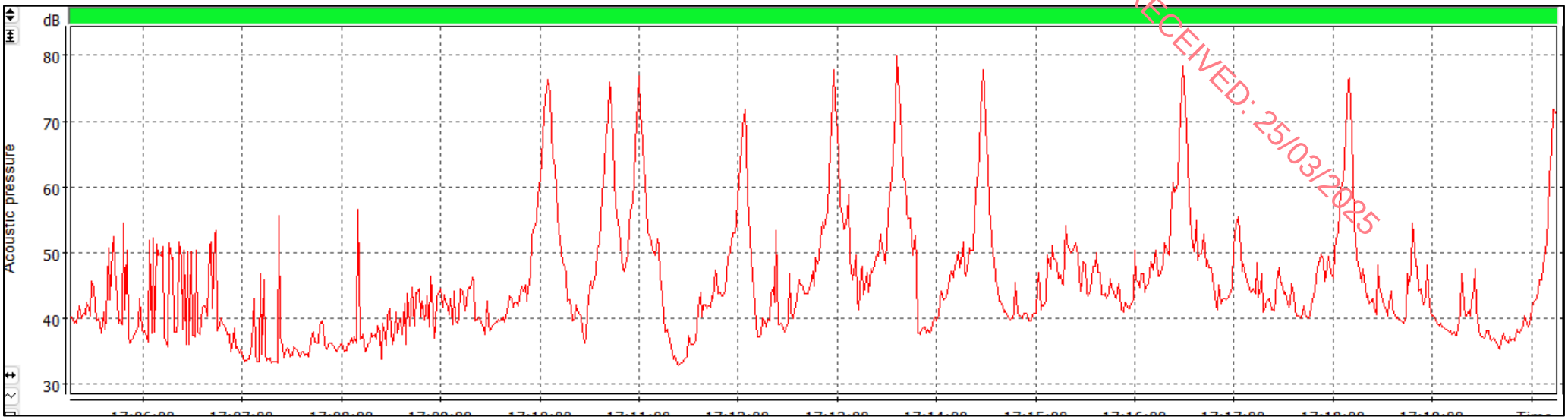

Figure 6 - 15 NSL3 Night Run 1 of 1

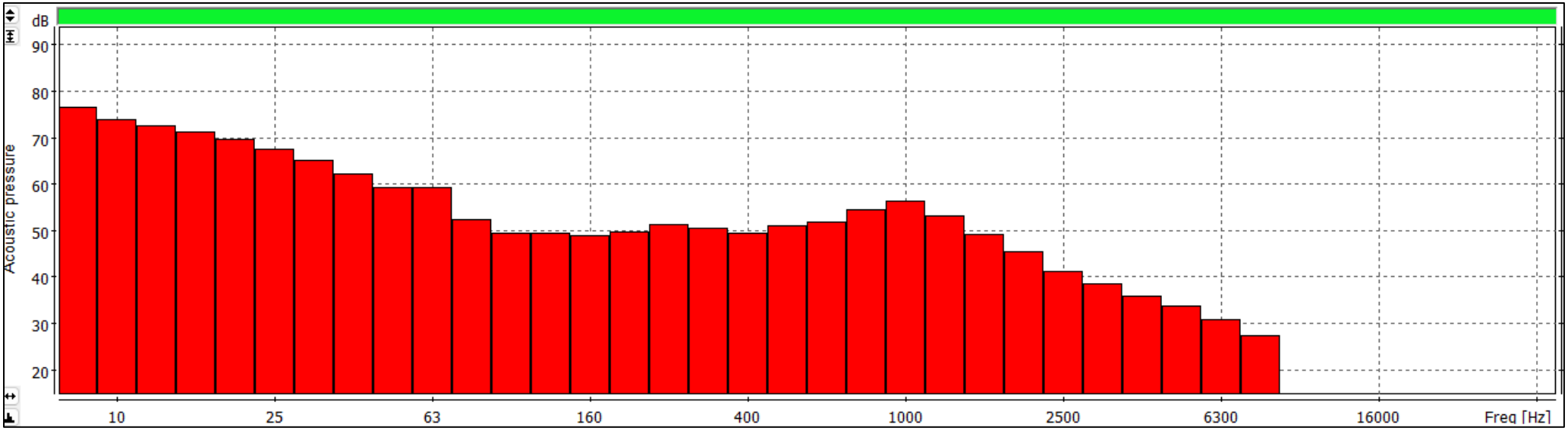

Figure 6 - 16 NSL3 Night Run 1 of 1 Third Band Octave

7. Conclusion

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LAeq represents the ambient sound levels in the area from sources near and far. The statistical noise levels of L10 and L90 are the noise levels exceeded for 10% and 90% respectively of the measurement period. A small difference in LAeq, L10 and L90 indicates a constant noise emission (or a lack of intermittent noise). The greater the difference between the LAeq, L10 and L90 indicates intermittent noise sources such as local traffic. Where external noise sources such as local road traffic have had a considerable impact on monitoring results due to the close proximity of some monitoring points to the adjacent public road, the L90 is chosen as the best descriptor of site noise.

According to Condition 6 of the grant of planning permission:

"During the operational phase of development, the noise level at existing sensitive locations shall not exceed a Laeq (1 hour) of 55dB (A) between 0800 and 1800 and an Laeq (15 minutes) of 45 dB (A) between 1800 and 0800. Noise monitoring shall be carried out at the noise monitoring locations N1 to N4 as indicated in the EIS documentation on a quarterly basis in accordance with the EPA "Environmental Noise Survey – Guidance Document", 2003".

Monitoring locations NSL2 and NSL3 are considered to be "noise sensitive locations" as defined by the EPA while N1 and N4 are defined as "boundary noise locations" where the specified limit values do not apply. During both daytime and night-time monitoring periods, noise emission values at both NSL2 and NSL3 were within the prescribed limits as stated in the planning conditions.

Appendix 1 Report Terminology

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Noise Monitoring Parameters	
Survey	The measurement of noise over one or more days and is made up of a number of monitoring runs with one or more noise meters.
Run or monitoring run	A single measurement at one location to determine noise level. A number of monitoring runs will be typically be made at each location. The duration of a monitoring run is typically 15 or 30 minutes and is stipulated in the licence.
dB(A)	This is the unit used to quantify noise measurements. "dB" stands for decibel and the "A" indicates that the noise reading is A-weighted and therefore is a measurement of noise audible to the human ear. The scale is logarithmic.
$L_{Aeq,T}$	This parameter is measured on-site using a noise meter for a specified time period (T minutes). It represents the average noise level that occurred over that period.
Rated Noise Level or $L_{Ar,T}$	The Rated Noise Level is equal to $L_{Aeq,T}$ plus any penalty for confirmed tonal and/or subjective impulsive. The penalty is only added for daytime and evening monitoring.
L_{AF10} and L_{AF90}	The L_{AF10} and L_{AF900} are both statistical noise levels. L_{AF10} indicates that for 10% of the monitoring period, the sound levels were greater than the quoted value. L_{AF90} indicates that for 90% of the monitoring period, the sound levels were greater than the quoted value. The L_{AF90} indicates the background noise levels if short-term, intermittent noise sources were ignored e.g. a passing car. The L_{AF10} can be used to determine the effect to which these short-term noise sources effect the overall average reading i.e. if the L_{AF10} is very different to the L_{AF90}, then intermittent noise is a significant source of noise
L_{AFmax}	The maximum RMS A-weighted sound pressure level occurring within a specified time period. Measured using the "Fast" time weighting.
Continuous	Noise produced without interruption.
Impulsive Noise	A noise of short duration (typically less than one second), the sound pressure of which is significantly higher than the background; brief and abrupt.
Intermittent Noise	Noise produced on discontinuous basis e.g. equipment operating in cycles or events such as single passing vehicle or aircraft.
Tonal Noise	Noise, which contains a clearly audible, tone i.e. a distinguishable, discrete or continuous note (whine, hum, drone, screech, etc.).

Appendix 2 Confirmation of tonal noise

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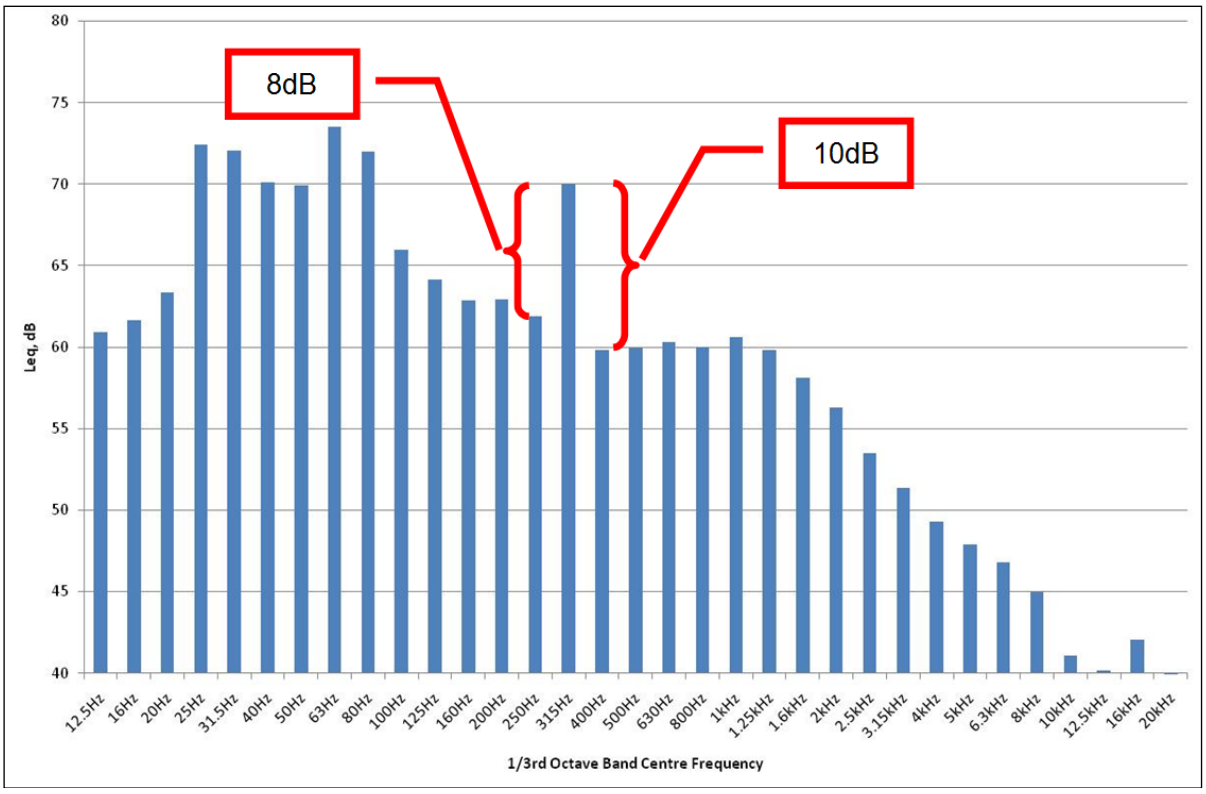
The subjective identification of tonal noise is based on the interpretation of the third octave band results. Where the sound level for a third octave band is greater than or equal to both the adjacent third octave bands by some constant level difference, then tonal noise is confirmed. The level differences vary by frequency and are shown in the table below.

Frequency range	Level Difference
25 Hz to 125 Hz	15 dB
160 Hz to 400 Hz	8 dB
500 Hz to 10,000 Hz	5 db

In the example below, tonal noise was subjectively assessed. The third band monitoring results were therefore reviewed and are shown below. A peak can be seen at 315 Hz. This peak is 8 dB above the lower adjacent third octave and 10 dB higher than the higher adjacent third octave band. From a review of the table above, the Level Difference for 315 Hz is 8 dB.

For the example below, tonal noise is confirmed as there is a difference greater than or equal to 8 dB either side of 315 Hz.

Knowing the frequency of the confirmed tonal noise can help in identifying the source of the noise and its reduction.



Appendix 3 LAFmax data

Some authorities require that LAFmax be reported, however, there are no limits set for this parameter. In order to keep the body of the report uncluttered, the data regarding this parameter is reproduced below.

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Location	NSL	Period	LAFmax
N1	No	Day	94
N1	No	Night-time	72.3
N4	No	Day	67
N4	No	Night-time	71
NSL2	Yes	Day	87.9
NSL2	Yes	Night-time	88.4
NSL3	Yes	Day	103.5
NSL3	Yes	Night-time	81.5

Appendix 4 Certificates of Calibration

Figure 1 – LEN 128 Certificate of Calibration

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AcSoft
Noise, Vibration & Air Quality

CALIBRATION CERTIFICATE

Date of issue: 12-09-2023 **Certificate No:** 1506455-1 **Page:** 1/8

INSTRUMENT DETAILS	Manufacturer:	**SVANTEK**	
	Model:	**SVAN 971A**	
	Serial No.:	128783	
	Description:	Sound Level Meter	
SENSOR DETAILS	Manufacturer:	**ACO**	**SVANTEK**
	Model:	**7152**	**SV18A**
	Serial No.:	87907	139306
	Description:	Microphone	Preamplifier
CUSTOMER	Environmental Efficiency		
ENVIRONMENTAL CONDITIONS	Temperature:	20.3 – 21.5	°C
	Humidity:	70 – 76	%
	Pressure:	101.0 – 101.1	kPa
DATE OF CALIBRATION	12-09-2023		
APPROVED BY	A. Pullinger		

AcSoft
Noise, Vibration & Air Quality

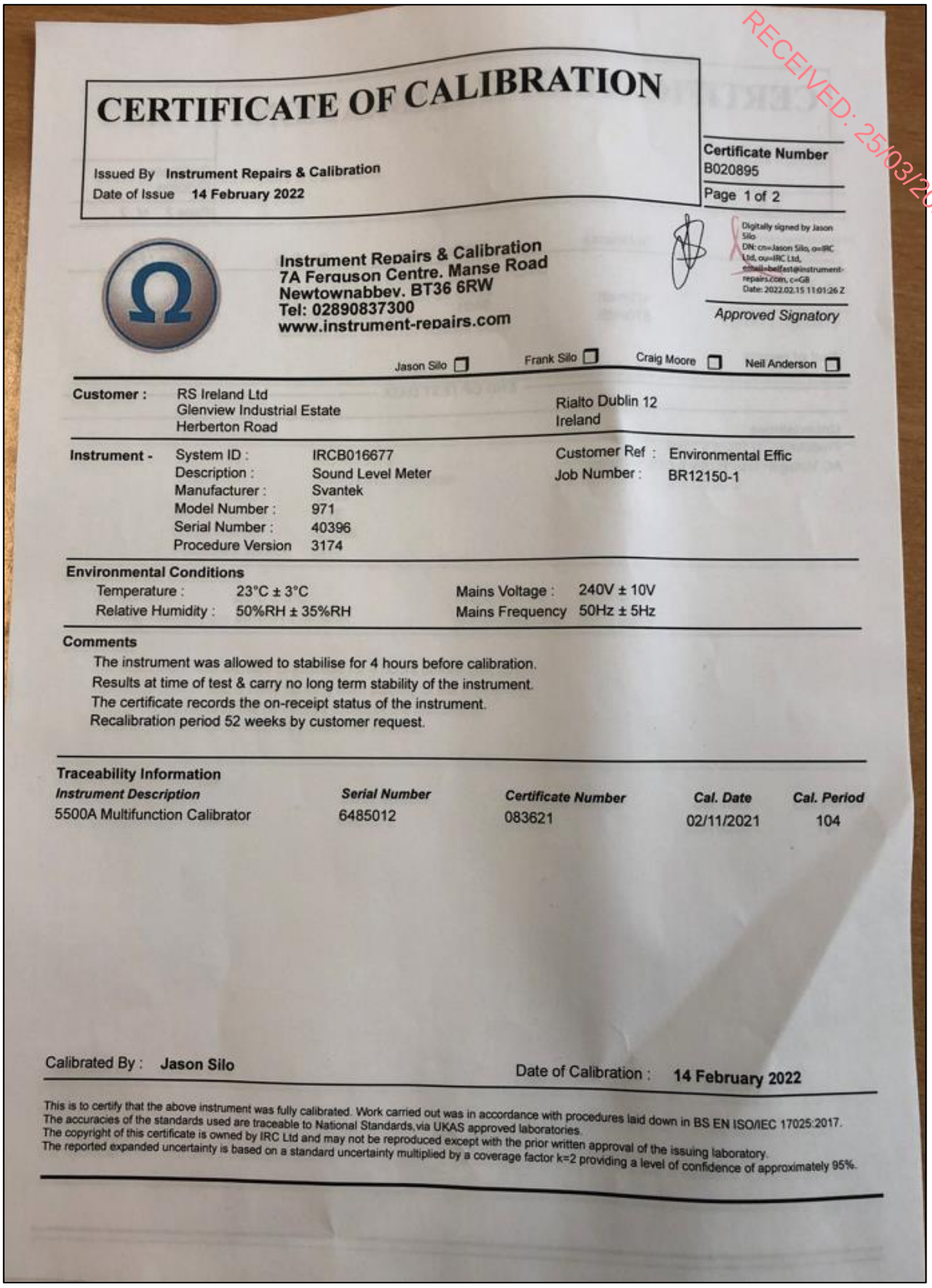
AcSoft Calibration | 11 Abbey Court
Fraser Road | Priory Business Park
MK44 3WH | Bedford

+44 (0) 1234 639550

www.acsoft.co.uk

This calibration was performed by AcSoft Calibration.
AcSoft Calibration is a trading name of AcSoft Ltd, 11 Abbey Court, Fraser Road, Priory Business Park, Bedford, MK44 3WH

Figure 2 – LEN 089 Certificate of Calibration



CERTIFICATE OF CALIBRATION

Issued By **Instrument Repairs & Calibration**
Date of Issue **14 February 2022**

Certificate Number
B020895
Page 1 of 2

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Digitally signed by Jason Silo
DN: cn=Jason Silo, o=IRC Ltd, ou=IRC Ltd, email=belfast@instrument-repairs.com, c=GB
Date: 2022.02.15 11:01:26 Z

Approved Signatory

Instrument Repairs & Calibration
7A Ferguson Centre. Manse Road
Newtownabbey. BT36 6RW
Tel: 02890837300
www.instrument-repairs.com

Jason Silo ☐ Frank Silo ☐ Craig Moore ☐ Neil Anderson ☐

Customer : RS Ireland Ltd
Glenview Industrial Estate
Herberton Road
Rialto Dublin 12
Ireland

Instrument -

System ID :	IRCB016677	Customer Ref :	Environmental Effic
Description :	Sound Level Meter	Job Number :	BR12150-1
Manufacturer :	Svantek		
Model Number :	971		
Serial Number :	40396		
Procedure Version	3174		

Environmental Conditions

Temperature :	23°C ± 3°C	Mains Voltage :	240V ± 10V
Relative Humidity :	50%RH ± 35%RH	Mains Frequency	50Hz ± 5Hz

Comments

The instrument was allowed to stabilise for 4 hours before calibration.
Results at time of test & carry no long term stability of the instrument.
The certificate records the on-receipt status of the instrument.
Recalibration period 52 weeks by customer request.

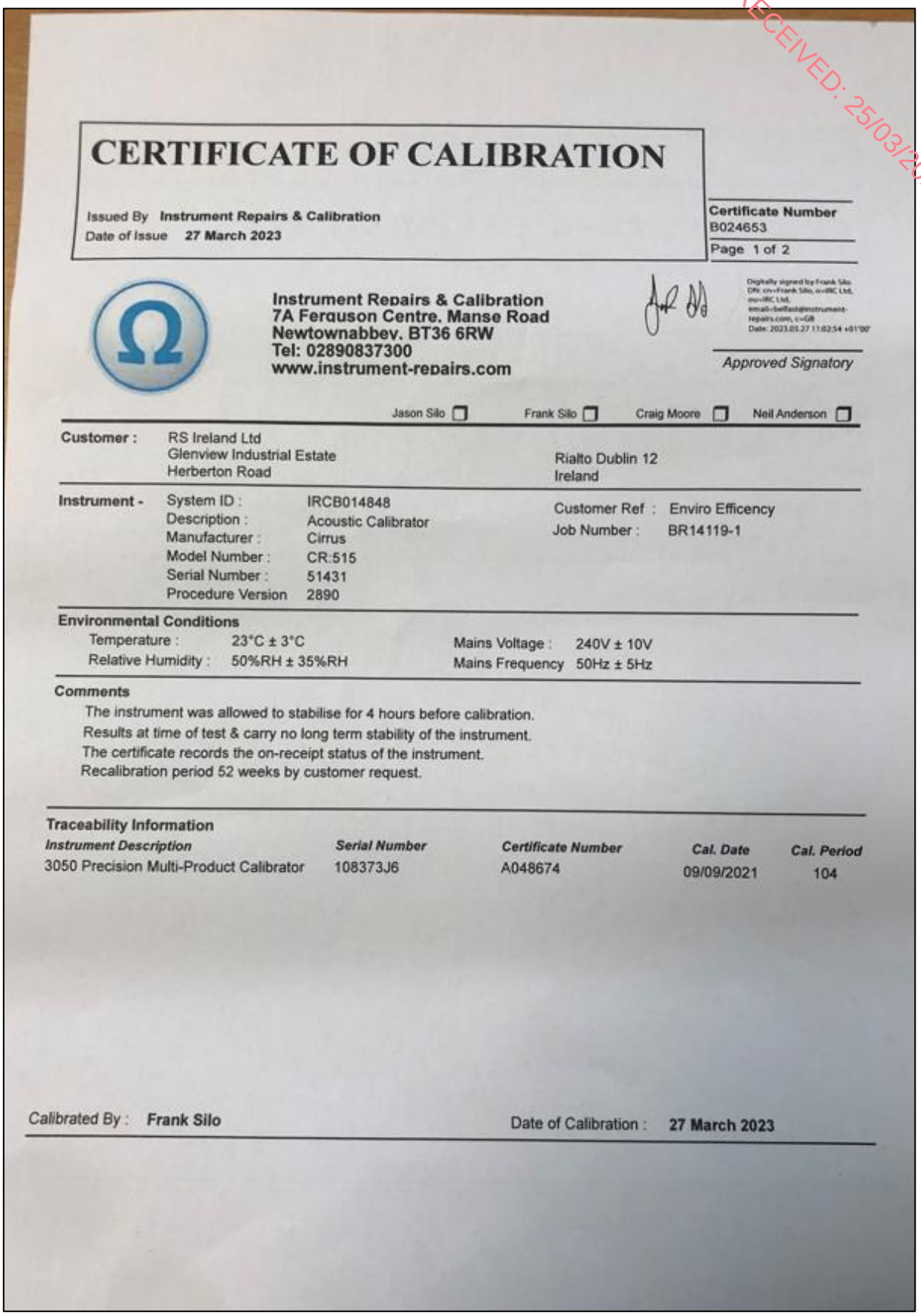
Traceability Information

Instrument Description	*Serial Number*	*Certificate Number*	*Cal. Date*	*Cal. Period*
5500A Multifunction Calibrator	6485012	083621	02/11/2021	104

Calibrated By : **Jason Silo**
Date of Calibration : **14 February 2022**

This is to certify that the above instrument was fully calibrated. Work carried out was in accordance with procedures laid down in BS EN ISO/IEC 17025:2017.
The accuracies of the standards used are traceable to National Standards,via UKAS approved laboratories.
The copyright of this certificate is owned by IRC Ltd and may not be reproduced except with the prior written approval of the issuing laboratory.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%.

Figure 3 – LEN 071 Certificate of Calibration



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CERTIFICATE OF CALIBRATION

Issued By **Instrument Repairs & Calibration**
Date of Issue **27 March 2023**

Certificate Number
B024653
Page 1 of 2

Instrument Repairs & Calibration
7A Ferguson Centre, Manse Road
Newtownabbey, BT36 6RW
Tel: 02890837300
www.instrument-repairs.com

Digitally signed by Frank Silo
DN: cn=Frank Silo, o=IRC Ltd, ou=IRC Ltd, email=belfast@instrument-repairs.com, c=GB
Date: 2023.03.27 11:02:54 +01'00'

Approved Signatory

Jason Silo ☐ Frank Silo ☐ Craig Moore ☐ Neil Anderson ☐

Customer : RS Ireland Ltd
Glenview Industrial Estate
Herberton Road
Rialto Dublin 12
Ireland

Instrument -

System ID :	IRCB014848
Description :	Acoustic Calibrator
Manufacturer :	Cirrus
Model Number :	CR:515
Serial Number :	51431
Procedure Version	2890

Customer Ref : Enviro Efficency
Job Number : BR14119-1

Environmental Conditions

Temperature :	23°C ± 3°C	Mains Voltage :	240V ± 10V
Relative Humidity :	50%RH ± 35%RH	Mains Frequency	50Hz ± 5Hz

Comments

The instrument was allowed to stabilise for 4 hours before calibration.
Results at time of test & carry no long term stability of the instrument.
The certificate records the on-receipt status of the instrument.
Recalibration period 52 weeks by customer request.

Traceability Information

Instrument Description	*Serial Number*	*Certificate Number*	*Cal. Date*	*Cal. Period*
3050 Precision Multi-Product Calibrator	108373J6	A048674	09/09/2021	104

Calibrated By : **Frank Silo** Date of Calibration : **27 March 2023**

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2023 Q4

Air, Noise & Groundwater Monitoring Results

Environmental Efficiency

Bray (Co. Wicklow) 01 276 1428
Lisburn (Co. Antrim) 028 9262 6733
Birmingham (U.K.) 0121 673 1804

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Groundwater Monitoring Report Q4 2023

for

Kilchreest Quarry

Document Number: 2589-27 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

Environmental Services for Industry Including –

- Air, Noise & Water Monitoring
- Bund Testing
- Environmental Management Systems to ISO 14001
- Air & Noise Modelling
- Energy & Water use reduction
- IPC/IED/Waste Licence Compliance
- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations

- ISO9001:2008 Registration No. 2015/2170
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- EMPI Membership

Document Lead Sheet

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Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	LǎŜŃúʅŜfẽ [
	Permit/Lic No. (if applic)	05-2870

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Groundwater Monitoring Report
	Document number	2589-27
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	12/12/2023
	Document author	RS	Date written	08/01/2023
	Approved by	RTS	Date approved	17/01/2024
	Report version nr	1.00		
	Issued by	RS	Date report issued	17/01/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	No
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q1 2024

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Report History

1.00 Issued

Contents

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1. Introduction

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Environmental Efficiency Consultants (Ire) Limited was commissioned by Kilchreest Quarry to conduct groundwater sampling and analysis on a quarterly basis. The sampling was conducted from two boreholes BH1 and BH3 as indicated in the map below. Borehole BH2 has been decommissioned and no longer exists on site.

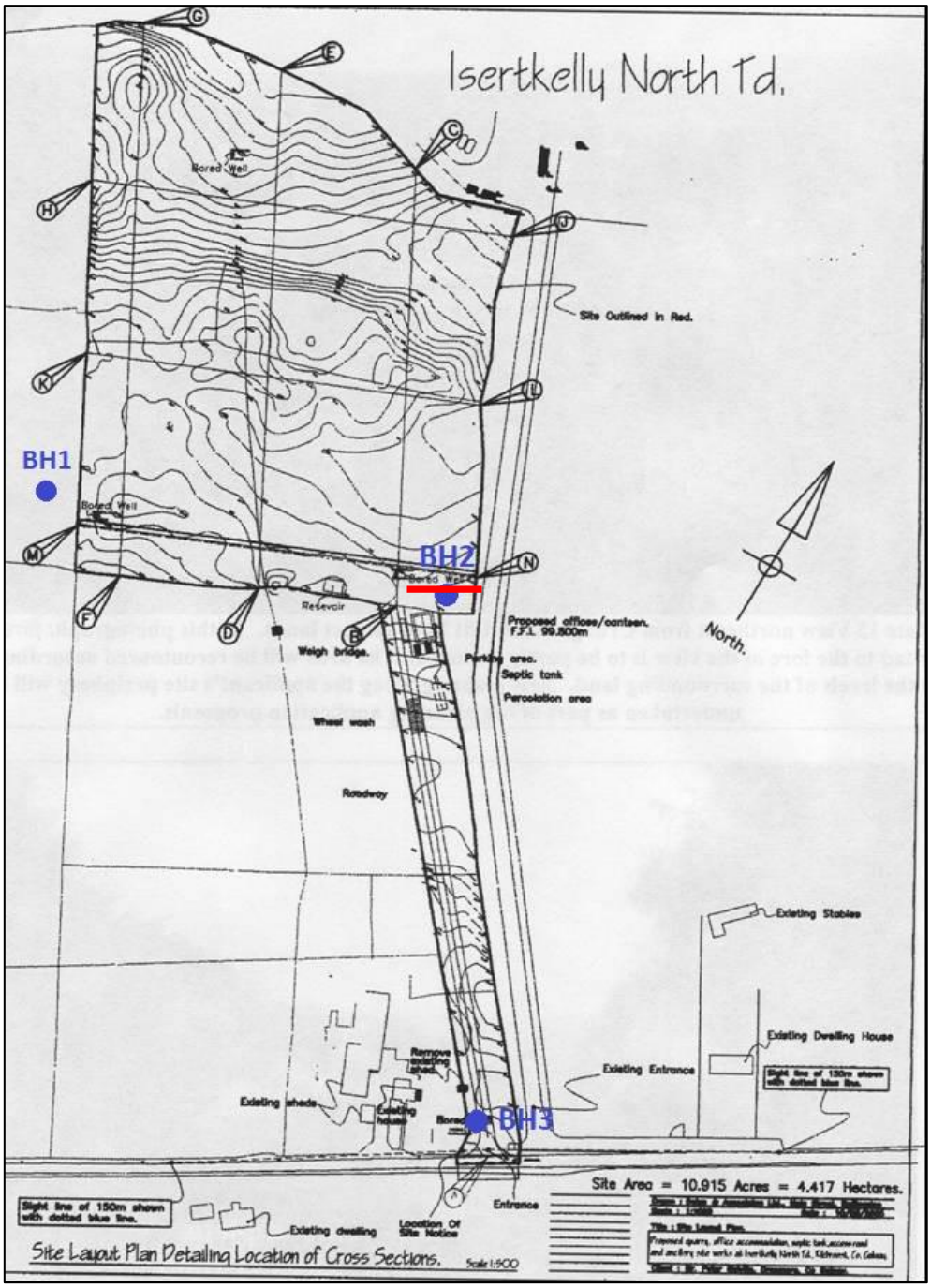

Figure 1-1 Borehole Monitoring Locations

2. Executive Summary

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The majority of the results for BH3 fall within the relevant guideline values for the monitoring period Q4 2023. However, the levels of phosphate detected was above the recommended limits.

The results for Certificate of analysis can be seen in Appendix 1.

Please note sampling could not be conducted at BH1 as the borehole was blocked.

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3. Results

Groundwater and surface water quality was assessed by comparing analytical results to the most relevant of the following water quality guidelines – Generic Assessment Criteria (GAC):

- European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016. S.I. No. 366 of 2016.
- Environmental Protection Agency, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, (Interim Guideline Values (IGVs)), 2003.

The results for the groundwater analysis can be seen in the table below.

*Please note sampling could not be conducted at BH1 as the borehole was blocked.

Table 2 - 1 BH3 Monitoring Results Q4 2023

Parameter	Result	Units	Generic Assessment Criteria	Source
COD	< 10	mg O2/l	No Value	-
Ammonia	< 0.050	mg/l	175 µg/l	GTV
Nitrate	11	mg/l	37.5 mg/l	GTV
Nitrite	0.042	mg/l	375 µg/l	GTV
Phosphate	0.72	mg/l	0.035 mg/l	GTV
Chloride	19	mg/l	187.5 mg/l	GTV
TPH (C6 – C10)	< 0.10	µg/l	0.10 µg/l	GTV
TPH (C10 – C21)	< 0.10	µg/l	0.10 µg/l	GTV
TPH (C21 – C40)	< 0.10	µg/l	0.10 µg/l	GTV
Total TPH (C6 – C40)	< 10	µg/l	7.5 µg/l	GTV
Total Organic Carbon	52	mg/l	No Value	-
Electrical Conductivity	650	µS/cm	1875 µS/cm	GTV
Faecal Coliform Bacteria	0	cfu/100ml	0	IGV
Escherichia Coli Bacteria	0	cfu/100ml	0	IGV
Ground water Level	16.6	Meters	N/A	-

GTV = Groundwater Threshold Value. Outlined in Groundwater Regulations (S.I. No. 9 of 2010 / S.I. No. 366 of 2016).

IGV = Interim Guideline Values (IGVs) presented by EPA in 2003.

4. Discussion

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Faecal coliform bacteria and Escherichia Coli bacteria were below the recommended limit for the monitoring period Q4 2023 after a number of instances of being above the limit. During and after precipitation, bacteria, and other harmful microorganisms from any of these sources may be washed into rivers, lakes, or groundwater. Poor well construction or poor maintenance can increase the risk of groundwater contamination. Total coliform bacteria are not likely to cause illness, but their presence indicates that your water supply may be vulnerable to contamination by more harmful microorganisms. The presence of E.coli in water indicates recent faecal contamination and may indicate the possible presence of disease-causing pathogens, such as bacteria, viruses, and parasites. Although most strains of E.coli bacteria are harmless, certain strains, such as E.coli 0157:H7, may cause illness.

The level of phosphate was higher than the groundwater threshold value of 0.035 mg/l. All other results for the groundwater monitoring of BH3 fall within the recommended water quality guidelines for the monitoring period Q4 2023.

The generic assessment criteria values come from the following documents:

- European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016. S.I. No. 366 of 2016.
- Environmental Protection Agency, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, (Interim Guideline Values (IGVs)), 2003.

Appendix 1 Certificate of Analysis GW Monitoring

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Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	23-41939-1
Initial Date of Issue:	05-Jan-2024
Re-Issue Details:	
Client	Environmental and Efficiency Consultants
Client Address:	Parnell House 19 Quinsboro Road Bray Co Wicklow IRELAND
Contact(s):	Luke Ryan Rebecca Stokes Ronan Sutcliffe Valerie Browne
Project	2589-GW3-Q4-23
Quotation No.:	
Order No.:	
No. of Samples:	1
Turnaround (Wkdays):	5
Date Approved:	05-Jan-2024
Approved By:	
Details:	Stuart Henderson, Technical Manager

Date Received:	19-Dec-2023
Date Instructed:	19-Dec-2023
Results Due:	02-Jan-2024

Project: 2589-GW3-Q4-23

RECEIVED 25/01/2024

Client: Environmental and Efficiency Consultants		Chemtest Job No.:				23-41939
Quotation No.:		Chemtest Sample ID.:				1747589
		Client Sample ID.:				2589-GW3-Q4-23
		Sample Type:				WATER
		Date Sampled:				12-Dec-2023
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
Electrical Conductivity at 25C		U	1020	µS/cm	1.0	650
Chemical Oxygen Demand		U	1100	mg O2/l	10	[B] < 10
Chloride		U	1220	mg/l	1.0	19
Ammonia (Free)		N	1220	mg/l	0.050	< 0.050
Nitrite as NO2		U	1220	mg/l	0.020	0.042
Nitrate as NO3		U	1220	mg/l	0.50	11
Phosphate		U	1220	mg/l	0.200	0.72
Total Organic Carbon		U	1610	mg/l	2.0	52
TPH >C6-C10	EH_1D_Total	N	1670	µg/l	0.10	< 0.10
TPH >C10-C21	EH_1D_Total	N	1670	µg/l	0.10	< 0.10
TPH >C21-C40	EH_1D_Total	N	1670	µg/l	0.10	< 0.10
Total TPH >C6-C40		U	1670	µg/l	10	< 10

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MICROBIOLOGY TEST CERTIFICATE

Report Status: **Final Report**
Date of Issue: **15-Dec-2023**
Report Number: **1717082**
Project: **1-231214-08355**
Page 1 of 2

Client: **Environmnental Efficiency**
Primary Contact: **Ronan Sutcliffe**
Address: **Parnell House,19 Quinnsboro Rd,Bray,Co Wicklow**

Order Number: 2589 gw3 q4 23

Sample Number: **ALT ID** 4090308 **Date Received:** 14/12/2023 **Date Tested:** 14/12/2023
INAB P9 Classification: Water - Bacteriological condition of potable waters
Sample Description: 2589 gw3 q4 23

Test	Result	Unit(s)	Method	Standard Reference
Presumptive Coliforms	0	cfu/100mL	MTM025	MDW (2016)- Part 4
Presumptive Escherichia coli	0	cfu/100mL	MTM025	MDW (2016)- Part 4

Environmental Efficiency

Bray (Co. Wicklow) 01 276 1428
Lisburn (Co. Antrim) 028 9262 6733
Birmingham (U.K.) 0121 673 1804

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Dust Deposition Report Q4 2023

for

Kilchreest Quarry

Document Number: 2589-26 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- Environmental Management Systems to ISO 14001
- Air & Noise Modelling
- Energy & Water use reduction
- IPC/IED/Waste Licence Compliance
- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations

- ISO9001:2008 Registration No. 2015/2170
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- EMPI Membership

Document Lead Sheet

RECEIVED: 25/03/2025

Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	Isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Dust Monitoring Report
	Document number	2589-26
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	13/12/2023
	Document author	RS	Date written	19/12/2023
	Approved by	RTS	Date approved	18/01/2024
	Report version nr	1.00		
	Issued by	RS	Date report issued	18/01/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q4 2023

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Report History

1.00 Issued

Contents

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1. Introduction

Environmental Efficiency Consultants (Ire) Limited was commissioned by Kilchreest Quarry to conduct dust deposition monitoring and analysis on a quarterly basis. The sampling was conducted from three dust monitoring points D1, D2 and D3 as indicated in the map below.

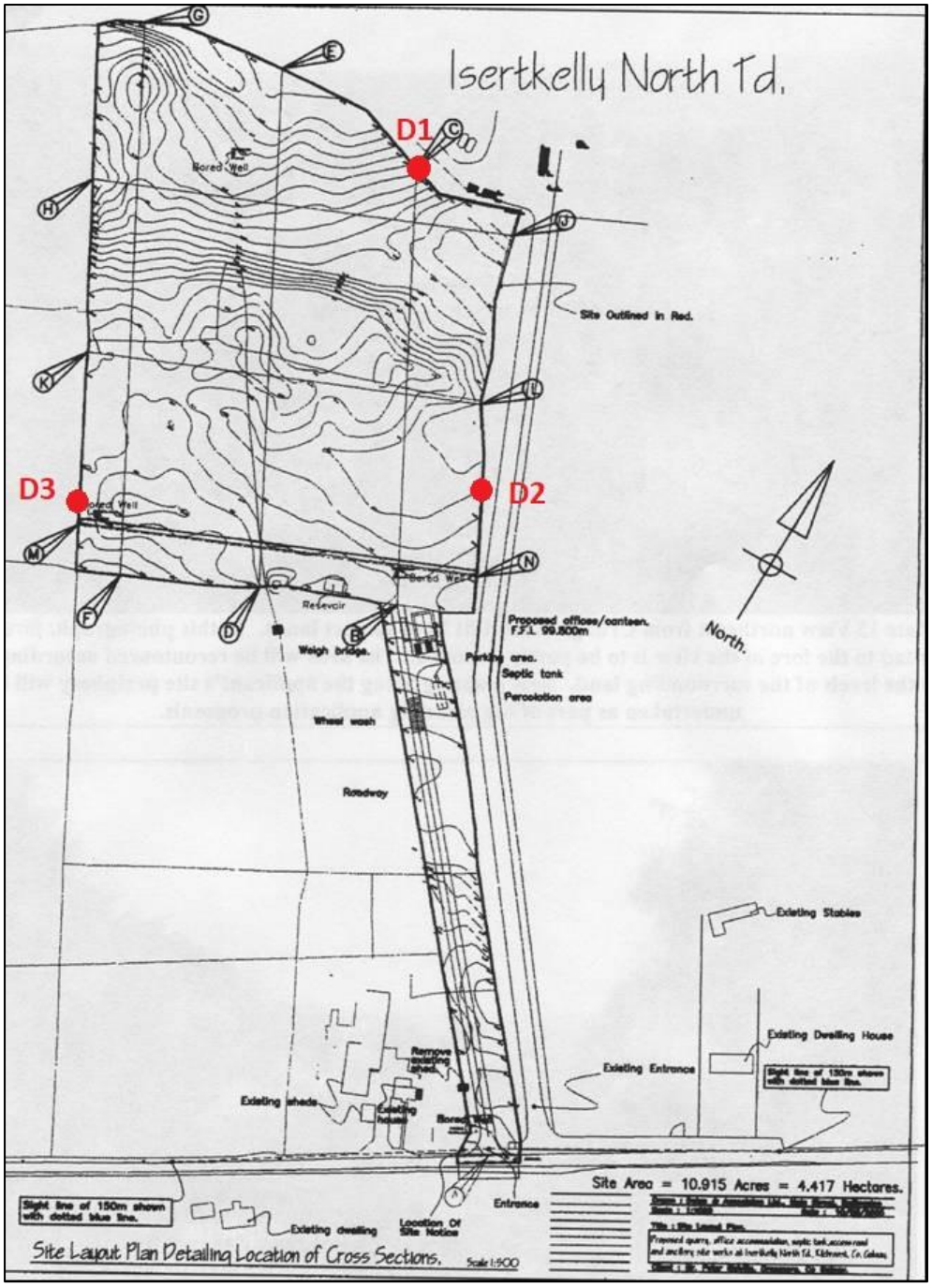

Figure 1-1 Dust Monitoring Locations

2. Executive Summary

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Environmental Efficiency conducted environmental dust monitoring at three locations in Kilchreest Quarry for Q4 2023.

All results for the Bergerhoff monitoring points were below the TA Luft Dustfall limit.

3. Methodology

Environmental Efficiency Consultants Ltd conduct environmental dust deposition monitoring on a quarterly basis at Kilchreest Quarry. Environmental Efficiency collects Bergerhoff bottles on-site following each monitoring period and, upon return to the laboratory, conducts testing in accordance with the company's internal SOP's; SOP 03.04 Determination of Suspended Solids/SOP 99.12 Total Dust Deposition, to determine Total Dust Deposition at each monitoring location in mg/m2/day. Results are subsequently compared to a dust limit value of 350 mg/m2/day, as prescribed by German TA Luft Guidelines, to determine whether dust levels constitute levels which are not acceptable as per this environmental quality standard (i.e., levels at which there may be nuisance caused or hazard posed).

4. Results

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Environmental dust monitoring results for each monitoring period are presented in the tables below. Certificates of analysis are provided in Appendix 1.

Table 4 - 1 Dust Monitoring Results – Q4 2023

Location	Units of Measurement	Results	Prescribed Limit Value	Compliant
D1	mg/m^2/day	8.5	350	Yes
D2	mg/m^2/day	25.4	350	Yes
D3	mg/m^2/day	12.1	350	Yes

5. Conclusion

Environmental Efficiency conducted environmental dust monitoring at three locations in Kilchreest Quarry for Q4 2023. The dust fall limit specified for the quarry is based on the German TA Luft Environmental Guidelines which specifies a limit of 350 mg/m^2/day. All results for the three monitoring locations were below the prescribed limit value for Q4 2023.

Appendix 1 Certificate of Analysis

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Environmental Efficiency

Bray 01 276 1428
Lisburn 028 9262 6733
Birmingham 0121 673 1804

Certificate of Analysis for Total Dust Deposition

Project No: 2589
Client: Kilchreest Quarry
Site: Kilchreest Quarry
Site code: KC
Period: Q4 2023
Collected by: IM
Analysed by: IM
Sample method: Bergerhoff bottle
Sample type: Dust fall
SOP: 99.12

Results

Location	Start monitoring	End monitoring	Date analysed	Days on site	Result, mg/m2 day
D1	01-Nov-23	30-Nov-23	18-Dec-23	30	8.5
D2	01-Nov-23	30-Nov-23	18-Dec-23	30	25.4
D3	01-Nov-23	30-Nov-23	18-Dec-23	30	12.1

Signed (Lab Manager)

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- Member Environmental Services Association
- EMPI Membership

ISO 14001
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Environmental Efficiency

Bray (Co. Wicklow) 01 276 1428
Lisburn (Co. Antrim) 028 9262 6733
Birmingham (U.K.) 0121 673 1804

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Noise Monitoring Report Q4 2023

for

Kilcreest Quarry

Document Number: 2589-25 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- EMPI Membership

Document Lead Sheet

Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

RECEIVED: 25/03/2025

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Noise Monitoring Report
	Document number	2589-25
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	13/12/2023
	Document author	RS	Date written	18/12/2023
	Approved by	RTS	Date approved	18/01/2024
	Report version nr	1.00		
	Issued by	RS	Date report issued	18/01/2023
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q1 2024

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Table of Contents

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1. Introduction

The client is required to carry out a noise survey at various specified locations in the vicinity of the site. This document reports the results of the noise survey.

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2. Executive Summary

A noise survey to EPA NG4 was undertaken on 13-Dec-23. The compliance of the locations with the specified limits is shown in the table below.

Table 2-1 Summary of compliance

Location	Noise Sensitive Location	Day	Night-time
N1	No	N/A	N/A
N4	No	N/A	N/A
NSL2	Yes	Compliant	Compliant
NSL3	Yes	Compliant	Compliant

3. Facility Description

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The following activities are carried out on the site

- Hauling of materials from the site using HGV lorries.
- The operation of machinery.

The site has the hours of operation shown in the table below.

Table 3-1 Hours of operation

Period	Operational hours	Surveyed
Day	08:00 – 17:00	Yes
Evening - No monitoring	Not operational	No
Night-time	Not operational	Yes

4. Monitoring requirements

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Noise is required to be monitored at the locations shown in the table immediately below. The noise limits applicable, the required number of sampling periods (e.g. number of separate measurements at one location during one monitoring period, e.g. daytime) and the required duration of each sampling period are shown in the second table below. Note that noise monitoring was only carried out during periods where there was activity or equipment running on the site.

Table 4-1 Locations monitored

Location	Location Description	NSL
N1	Entrance	No
N4	Boundary	No
NSL2	Beside house	Yes
NSL3	Beside house	Yes

Table 4-2 Periods monitored and limits

Monitoring Period	Monitored	NSL	Limit. dBA	Allowance, dBA	T (Sampling Period), minutes	No. of runs
Day	Yes	Yes	55	0	60	1
Night-time	Yes	Yes	45	0	15	1
Day	Yes	No	N/A	N/A	60	1
Night-time	Yes	No	N/A	N/A	15	1

5. Sampling Methodology

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5.1 Instrumentation Used

The equipment shown in the table below was used during the noise survey. All Sound Level Meters are Type I. The SLMs and calibrators are identified by a LEN (Laboratory Equipment Number) and this is shown in the table below. Calibration certificates for the equipment, where appropriate, are shown in the appendices and are referenced by the LEN.

Table 5-1 Equipment Used

Equipment used	LEN (Lab equipment Number)	Make/Model	Serial Number	Cal cert
First SLM	LEN 088	Svantek SV1	40395	Yes
Second SLM	LEN 089	Svantek SV2	40396	Yes
First Calibrator	LEN 003	Cirrus	51431	Yes
Anemometer	N/A	Testo	N/A	N/A

All noise measurements were 'A' weighted and the time-weighting 'Fast' was applied (to equate to human ear hearing). Each SLM is calibrated in the field before the start of the survey and again at the end of the survey. Unless stated otherwise in this report, there was no drift in calibration greater than 0.1 dB over the duration of the survey.

All SLMs used are capable of third band octave measurement. Third band octave readings were recorded at all locations where tonal noise was subjectively detected by the survey personnel. Where tonal noise was detected, the third band octave readings were analysed off site to verify the presence of tonal. The simplified methodology for the objective identification of tones specified in Annex D of ISO 1996K2:2007(E) is used for this purpose.

5.2 Noise Survey Personnel

The noise survey was undertaken by Environmental Efficiency staff as follows:

Author (Name & Quals)	Ivan Mahon, Site Technician
Author (Initials)	IM

5.3 Meteorological Conditions

Weather conditions on the day of monitoring were considered appropriate for surveying purposes and therefore did not affect the readings i.e. conditions were dry and wind speed was less than 5 m/s (the normal upper limit for taking measurements). The Sound Level Meter was also fitted with a windshield to minimise interference from

potential meteorological conditions, in keeping with good practice. The meteorological conditions during the survey periods are shown below.

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Table 5-2: Meteorological Conditions

Survey	Date	Time	Av. wind speed, m/s	Temp, C	Prevailing wind direction	Weather
Start	13-Dec-23	15:51:00	1.2	7.0	W	No precipitation
Completion	13-Dec-23	17:57:00	1.2	6.0	W	No precipitation

5.4 Measurement Locations

The locations of noise monitoring locations are described in the table below and shown in Figure 5-1. Photographs of the SLM at each location are shown following the map.

Table 5-3: Description of monitoring locations

Location	Height above ground, m	Distance from reflective surface, m	Location Description	Noise sensitive location
N1	1.2	>3.5	Site entrance	No
N4	1.2	>3.5	Boundary	No
NSL2	1.2	>3.5	Beside house	Yes
NSL3	1.2	>3.5	Beside house	Yes

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Figure 5-1 Site map

Figure 5-2 SLM at NL1

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Figure 5-3 SLM at NSL2

Figure 5-4 SLM at NSL3

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Figure 5-5 SLM at N4

5.5 Ground attenuation

If the intervening ground between a noise source and a measurement location is acoustically absorptive, this can result in a reduction in noise level at the receptor due to absorption of sound energy by the ground itself. On the contrary, if the intervening ground is acoustically reflective ground, its products the opposite effect

The details of the intervening ground between sources and measurement positions are described in the following table:

Table 5-4: Ground attenuation

Location	% Soft Ground	% Hard Ground	Comments
N1	85	15	No comment
N4	0	100	No comment
NSL2	0	100	No comment
NSL3	60	40	No comment

6. Noise Survey

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The measurement parameters LAeq,T, LAF90 and LAF10 plus the derived parameter LAr,T are tabulated below in the tables for each monitoring location. Associated particulars such as a description of the on-site noise and off-site noise noticed at each location are also provided where relevant. A graphical representation of the parameters LAeq,T, LAF90 and LAr,T over each monitoring period is provided in the graphs above each table.

The derived noise parameter LAr,T, termed the Rated Noise Level, includes a penalty of 5 dBA for tonal or impulsive noise where such noise is present. This penalty is normally added to LAeq,T. Where traffic or other off site noise sources are significant, the parameter LAF90 may be a better descriptor of site noise and where this is the case the Rated Noise Level is equal to LAF90 plus the penalty. In the tables below, where LAF90 is considered a better descriptor of site noise, an asterisk is appended to the measurement.

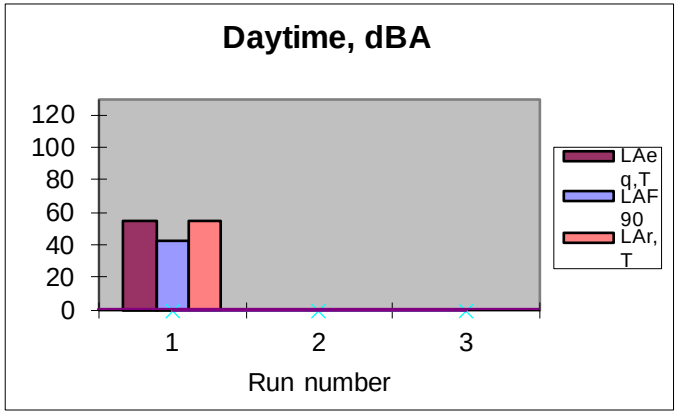
The penalty for on-site tonal noise and/or on-site impulsive noise is only applied during the daytime and evening periods. No tonal or impulsive noise is permitted during night-time; if such noise is present then this is a breach regardless of the LAeq,T or LAF90 noise level.

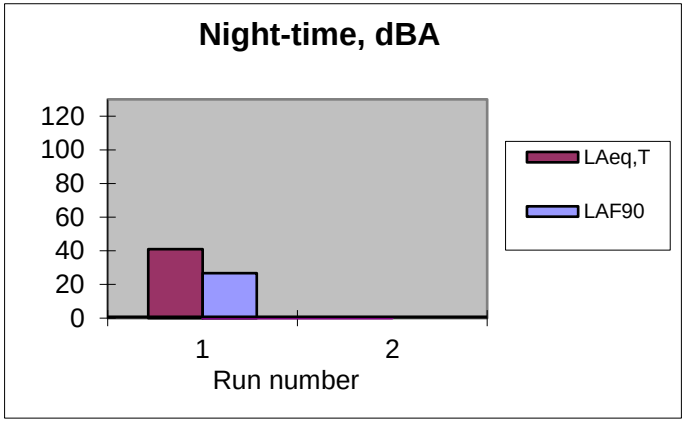
Where on site tonal is subjectively heard this is noted in the tables below in the column 'On site tonal?'. In all cases where on-site tonal is heard the simplified methodology for the objective identification of tones specified in Annex D of ISO 1996K2:2007(E) is used to confirm the presence of tonal. Where on site tonal is confirmed, this is shown in the tables below in the column 'Tonal confirmed'. The third octave graphs used to confirm on site tonal are shown in the discussion section.

The parameter LAFmax has no bearing on compliance and is not shown in the tables below; however, as it is may be required to be reported separately (e.g. in an Annual Environmental Report) it is included in the appendices.

The column headed 'On site impulsive' states whether impulsive noise was heard by the monitoring personnel.

Location N4





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Period	Run	LEN	Date/Time	$LAeq_{,T}$	LAF90	LAF10	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $LAr_{,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 088	13/12/2023 15:51	55	43	55	No	N/A	No	55	Distant Road traffic	Bulldozer working near SLM at 16.40	N/A
Night-time	1	LEN 088	13/12/2023 18:25	41	27	41	No	N/A	No	41	Distant Road traffic	None	N/A

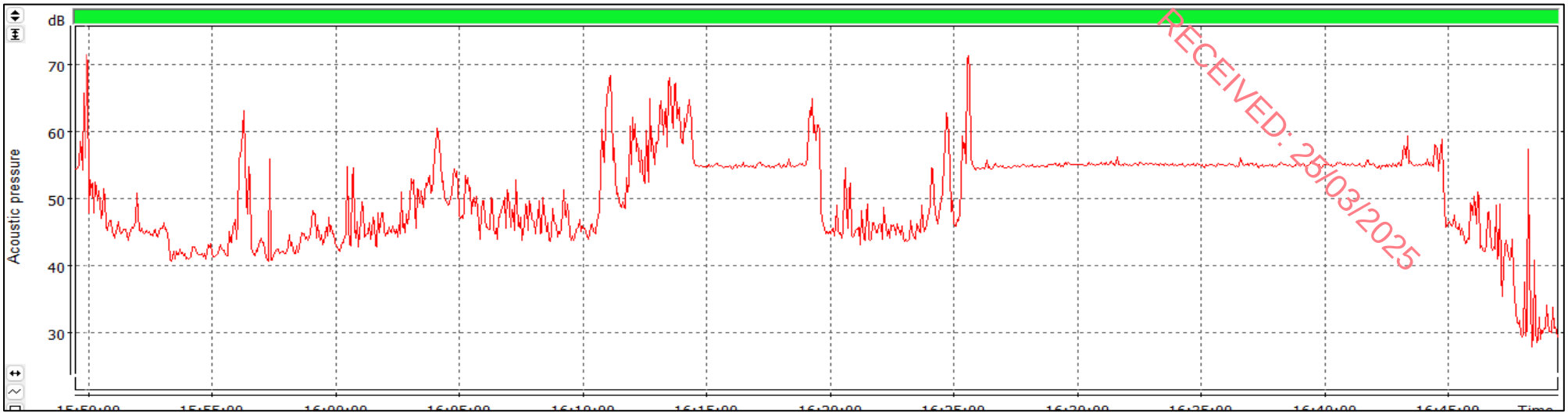

Figure 6-1 N4 Day Run 1 of 1

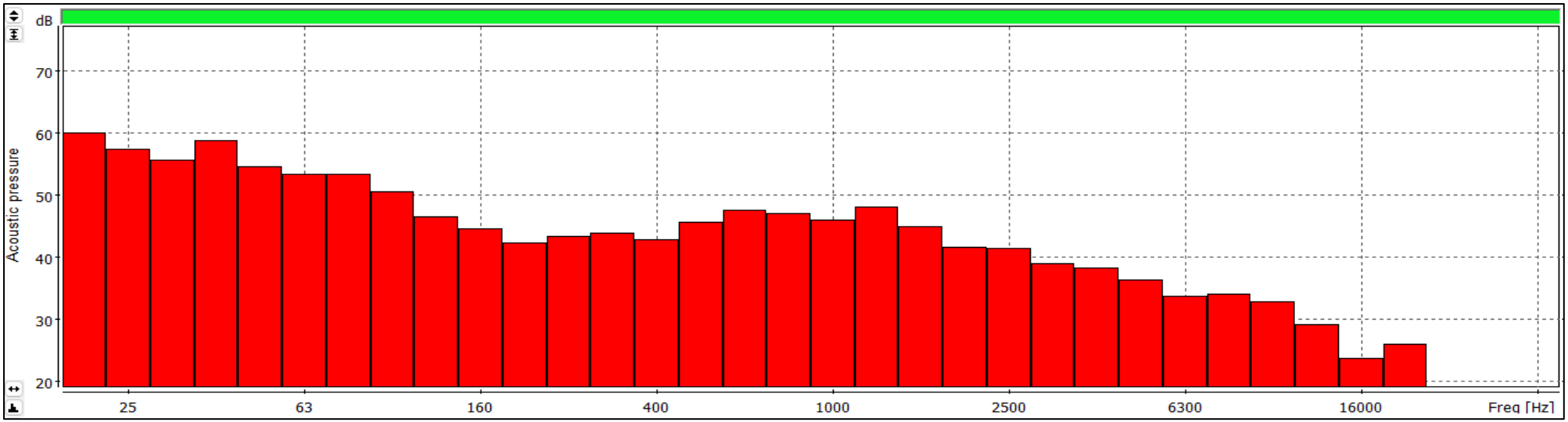

Figure 6-2 N4 Day Run 1 of 1 Third Band Octave

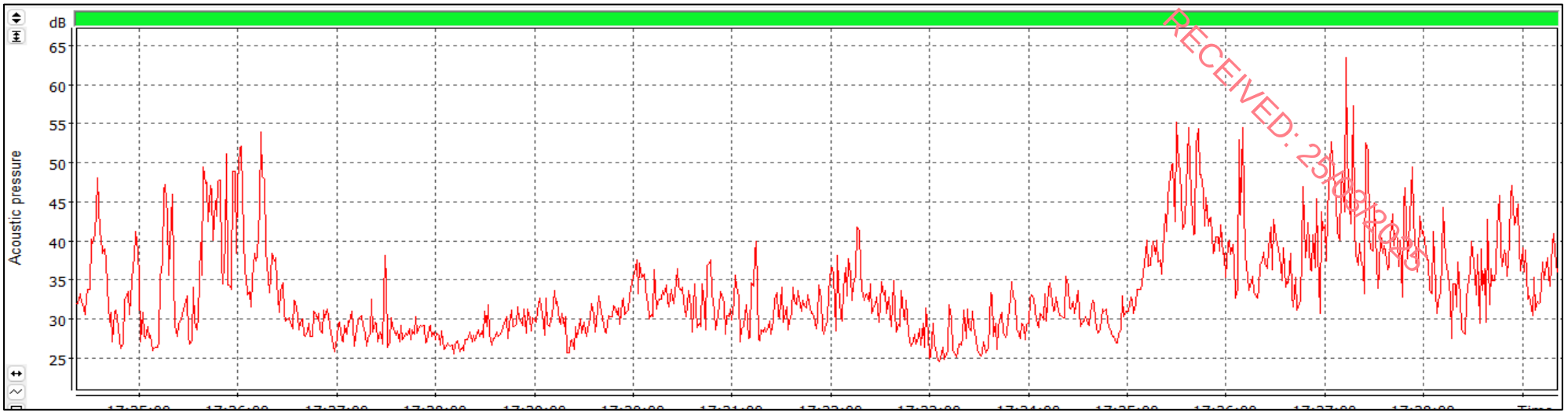

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Figure 6-3 N4 Night Run 1 of 1

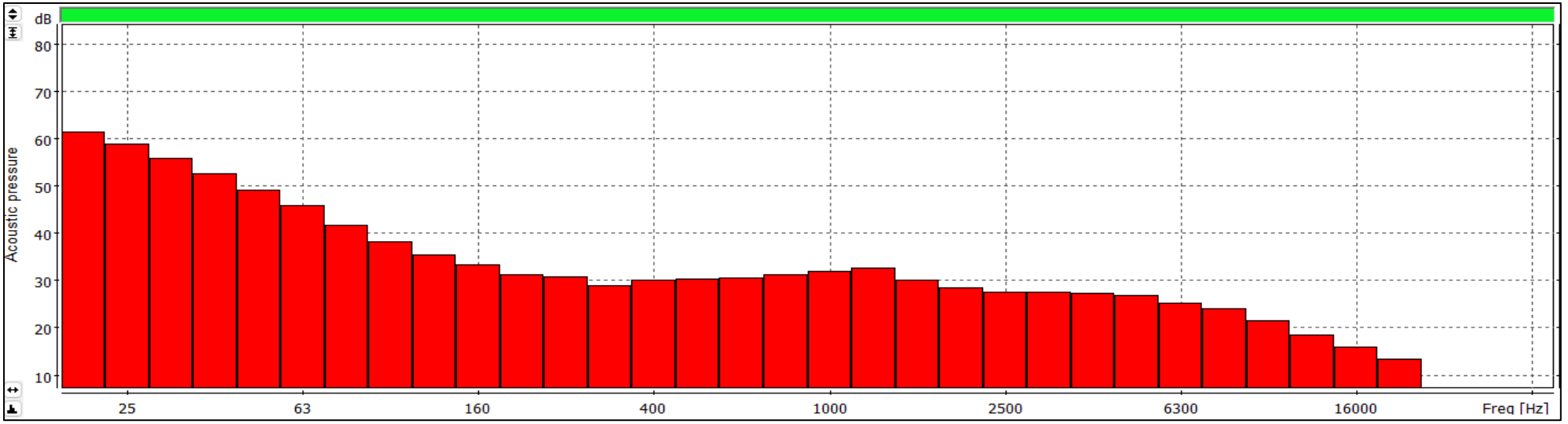
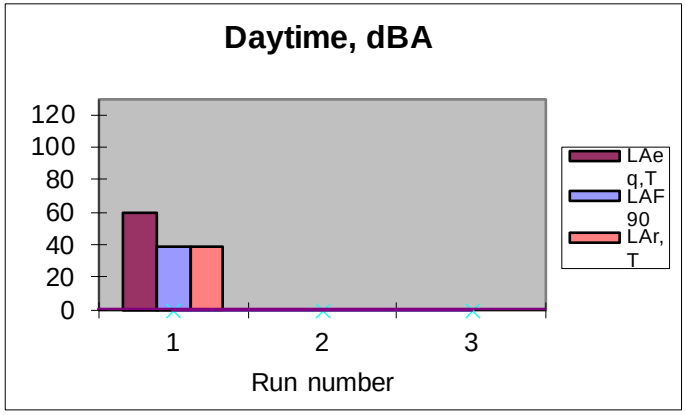
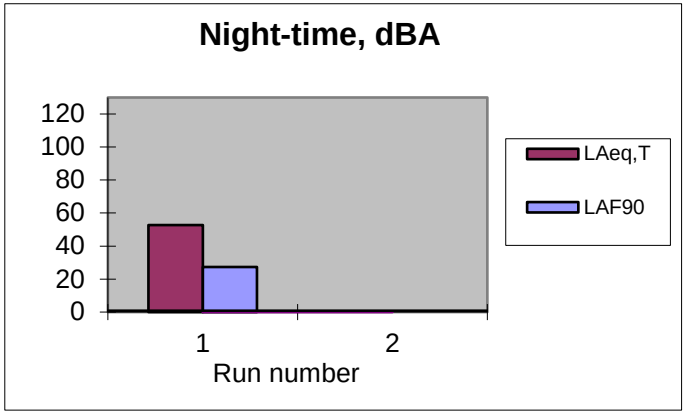


Figure 6-4 N4 Night Run 1 of 1 Third Band Octave

Location N1





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Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 088	13/12/2023 14:42	60	40	58	No	N/A	No	40	Grass cutting, Road Traffic	HGV's	N/A
Night-time	1	LEN 088	13/12/2023 18:54	53	27	50	No	N/A	No	27	Road Traffic	None	N/A

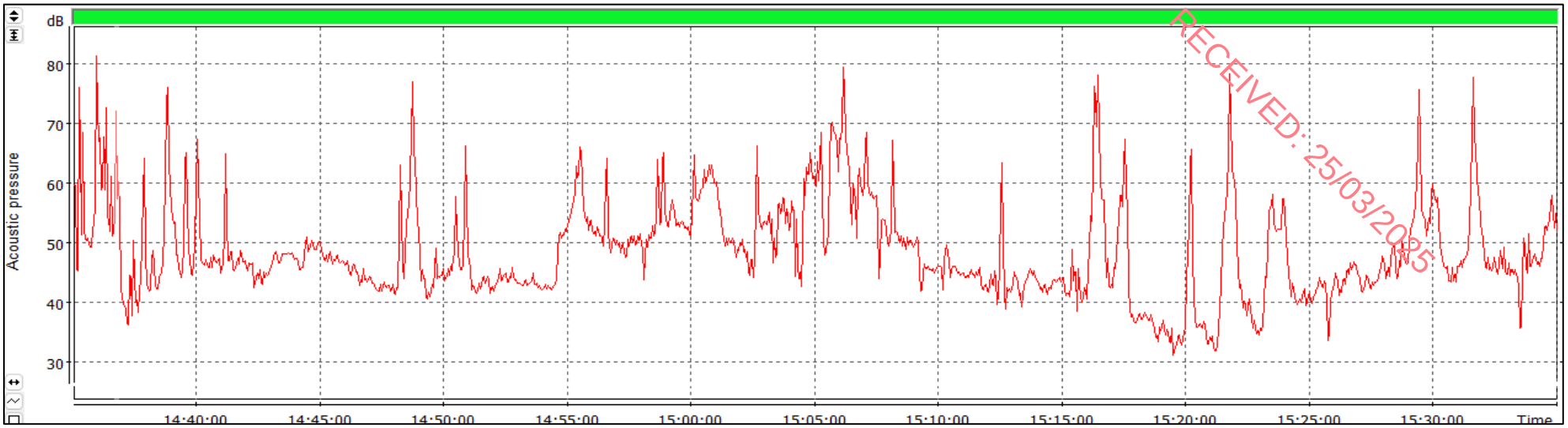


Figure 6-5 N1 Day Run 1 of 1

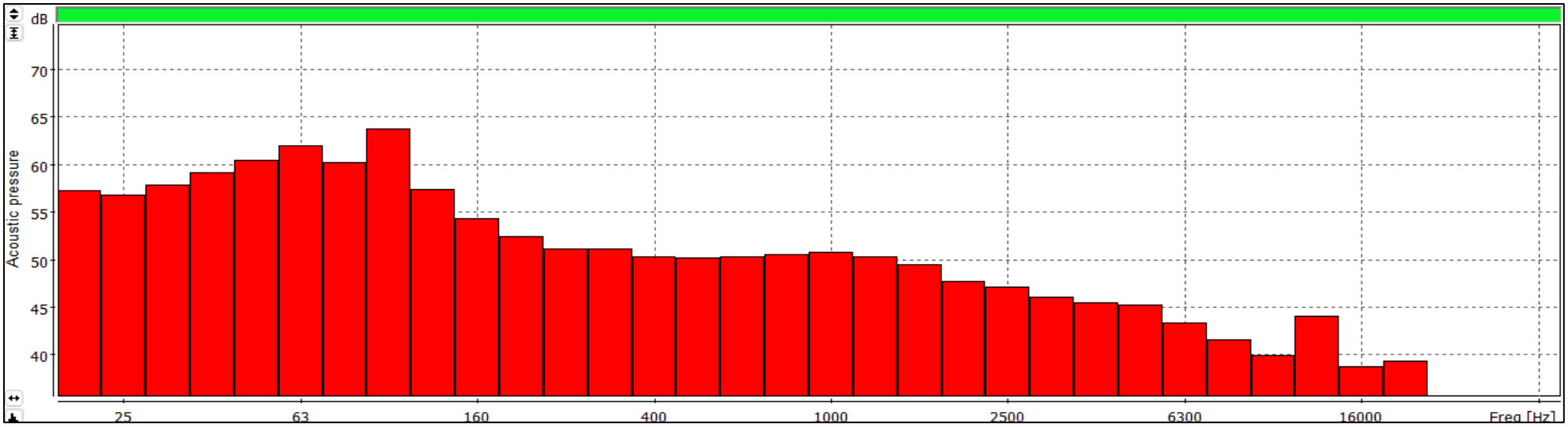


Figure 6-6 N1 Day Run 1 of 1 Third Band Octave

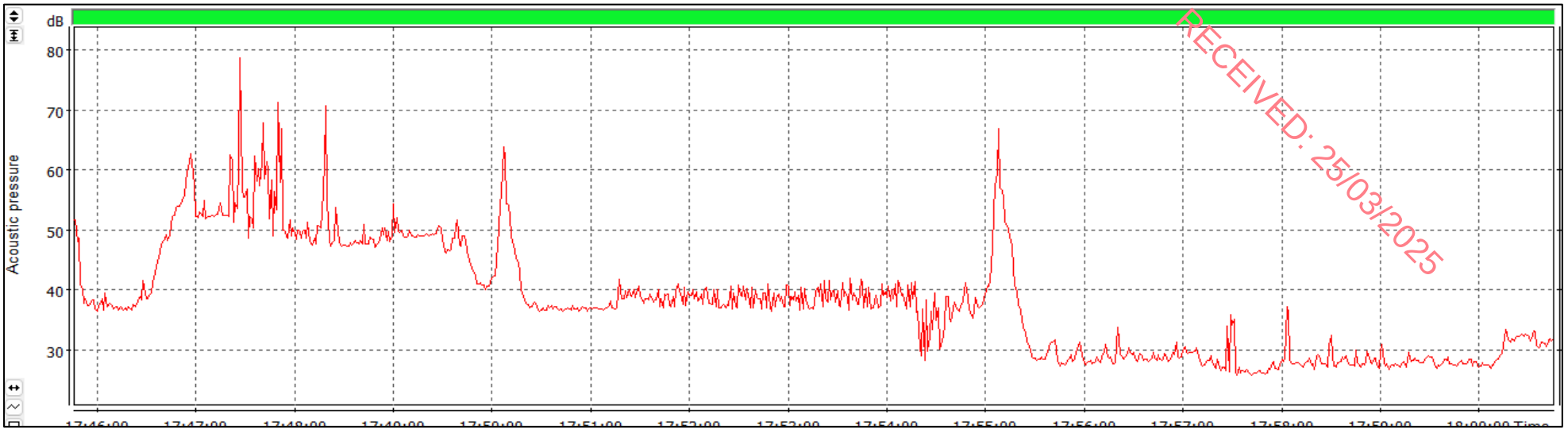


Figure 6-7 N1 Night Run 1 of 1

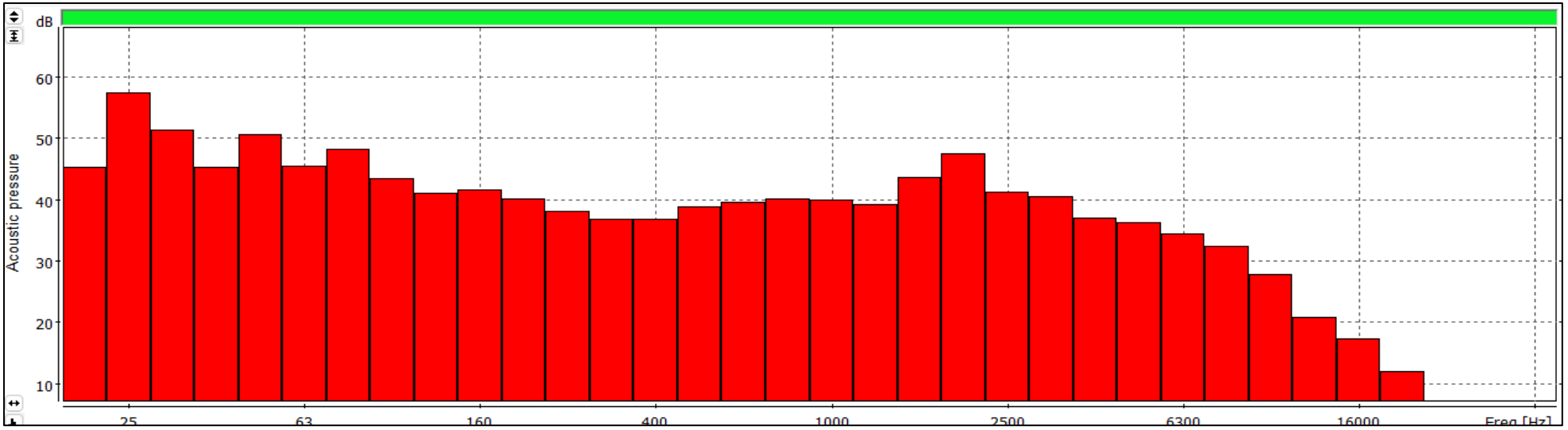
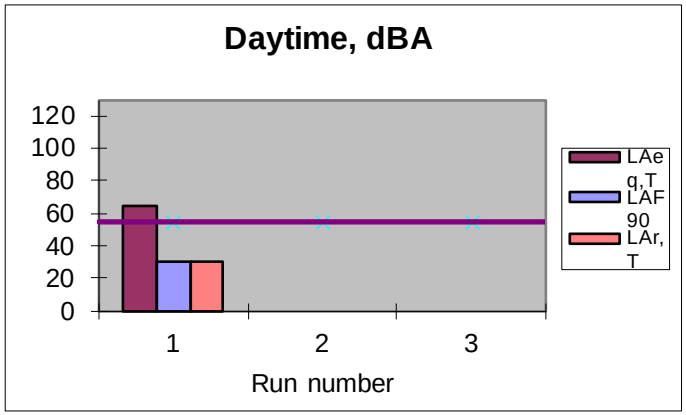
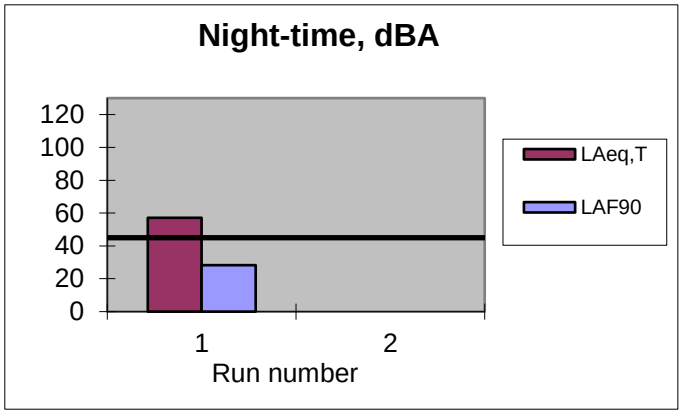


Figure 6-8 N1 Night Run 1 of 1 Third Band Octave

Location NSL2

RECEIVED: 25/03/2025





Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 089	13/12/2023 16:29	64	31	57	No	N/A	No	31	Road Traffic	HGVs	Yes
Night-time	1	LEN 088	13/12/2023 18:14	57	28	49	No	N/A	No	28	Road Traffic	None	Yes

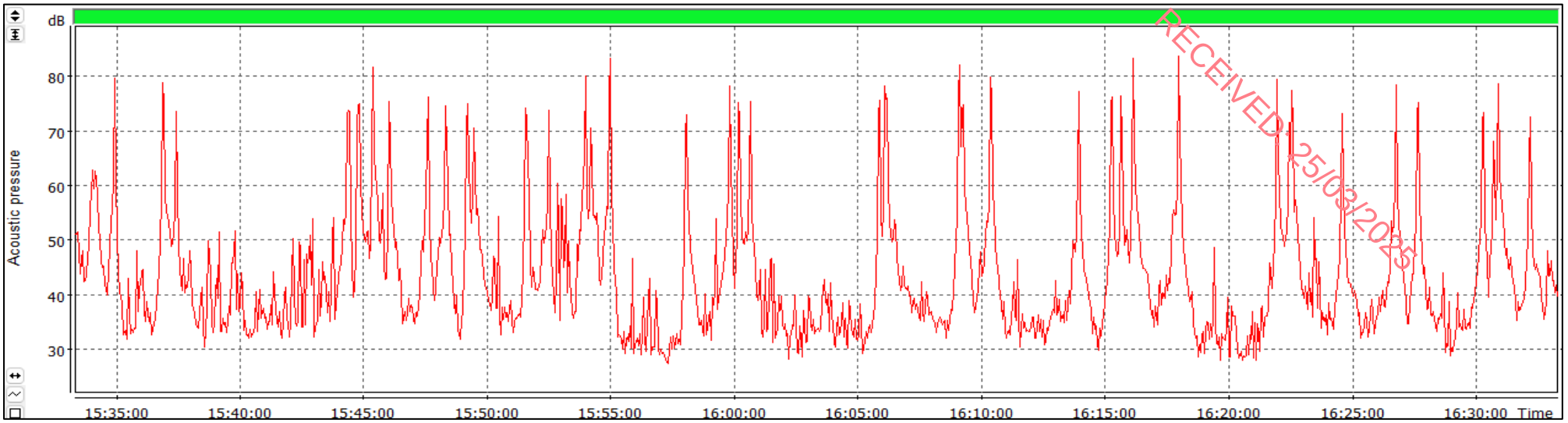


Figure 6-9 NSL2 Day Run 1 of 1

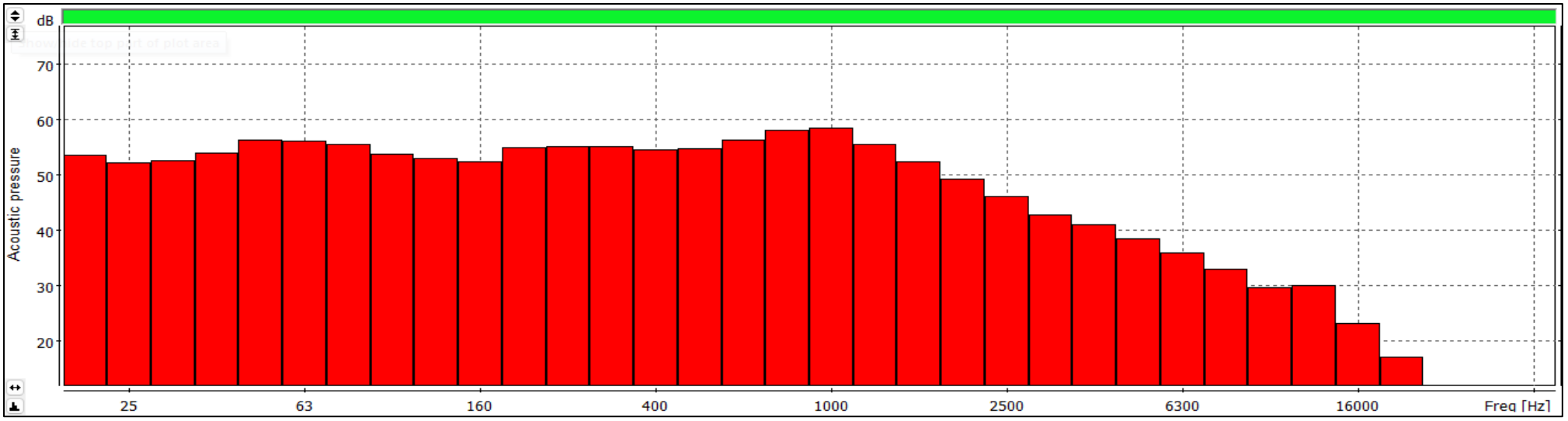


Figure 6-10 NSL2 Day Run 1 of 1 Third Band Octave

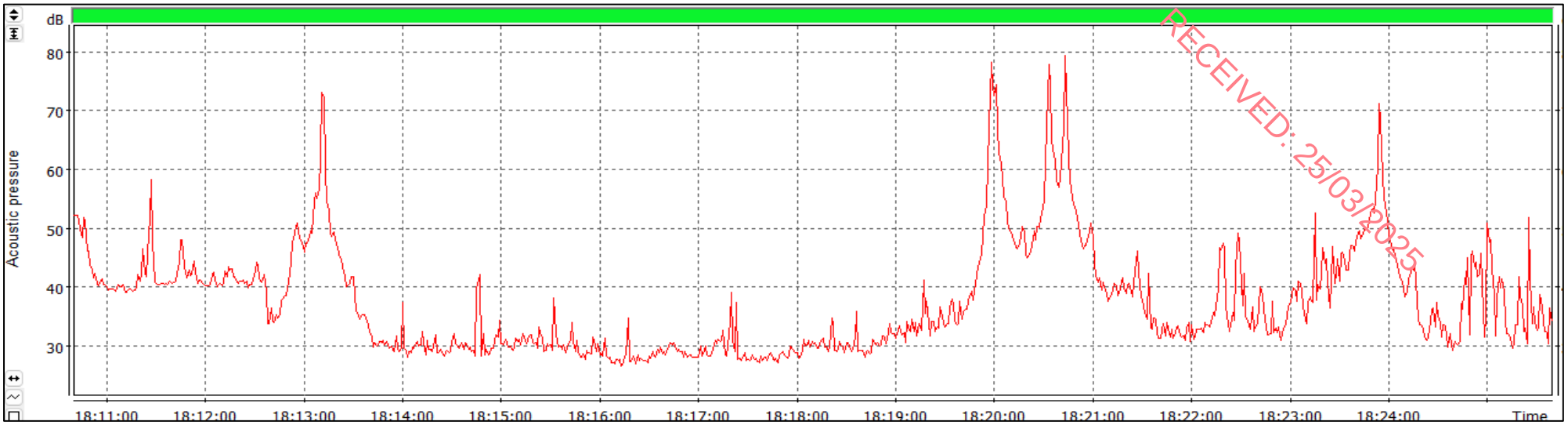


Figure 6-11 NSL2 Night Run 1 of 1

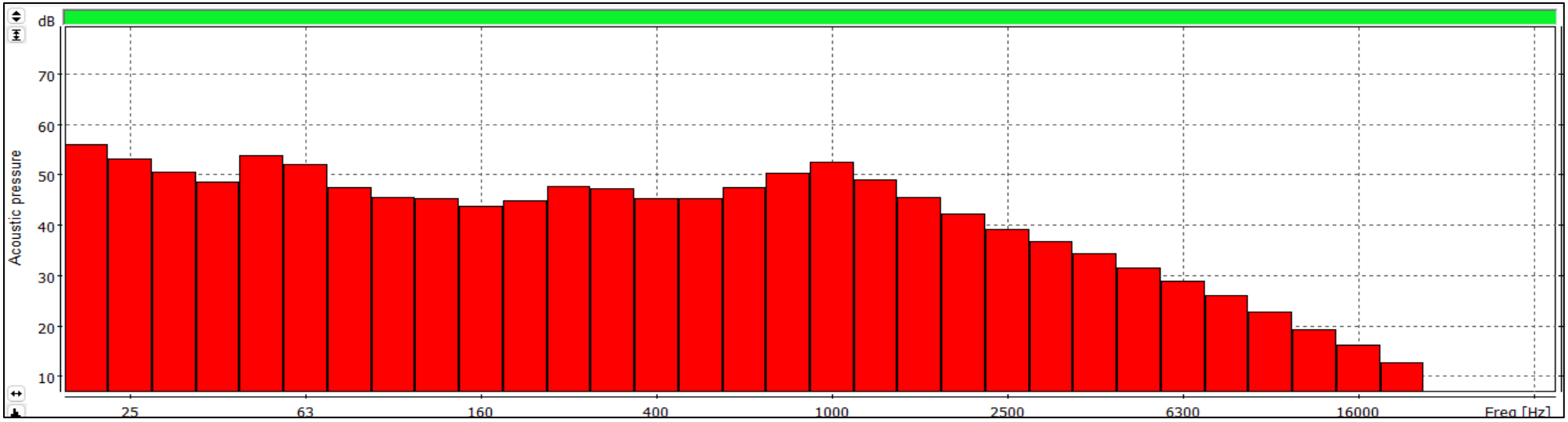


Figure 6-12 NSL2 Night Run 1 of 1 Third Band Octave

Location NSL3

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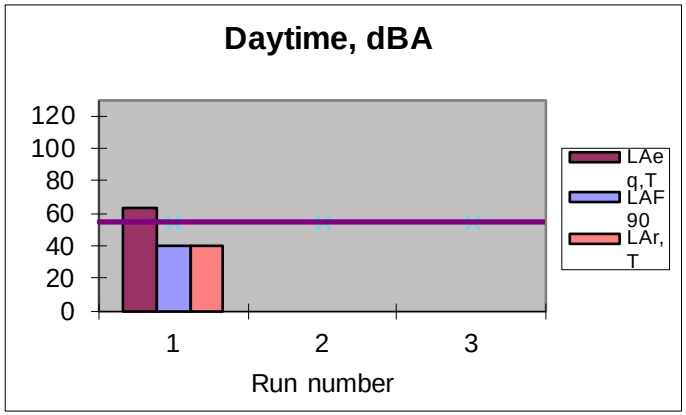

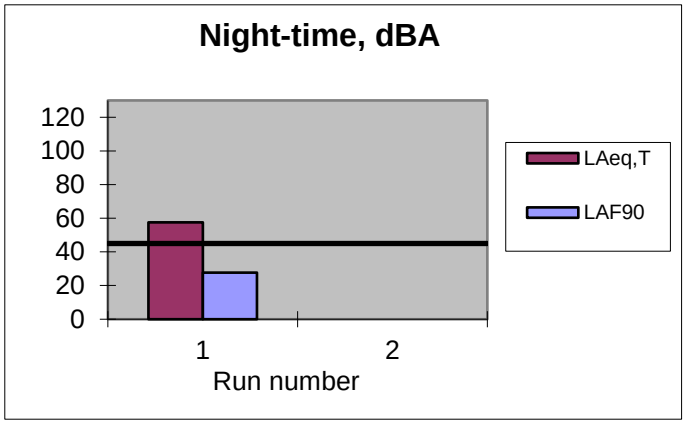

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 089	13/12/2023 14:38	63	41	60	No	N/A	No	41	Dog barking and grass cutting	HGV's	Yes
Night-time	1	LEN 089	13/12/2023 18:57	58	28	50	No	N/A	No	28	Dog barking	None	Yes

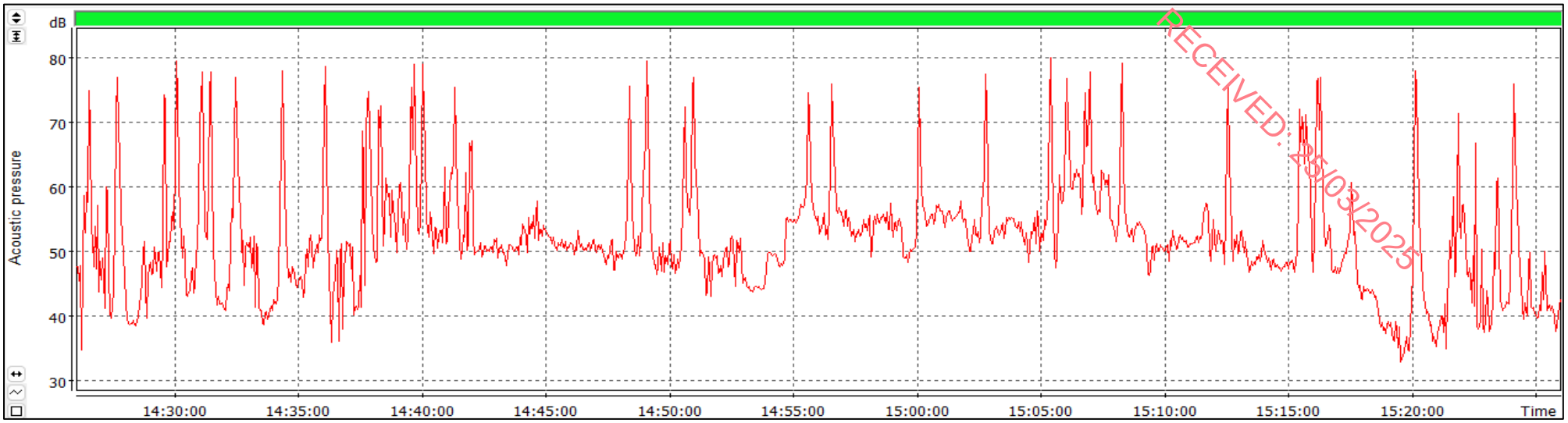

Figure 6-13 NSL3 Day Run 1 of 1

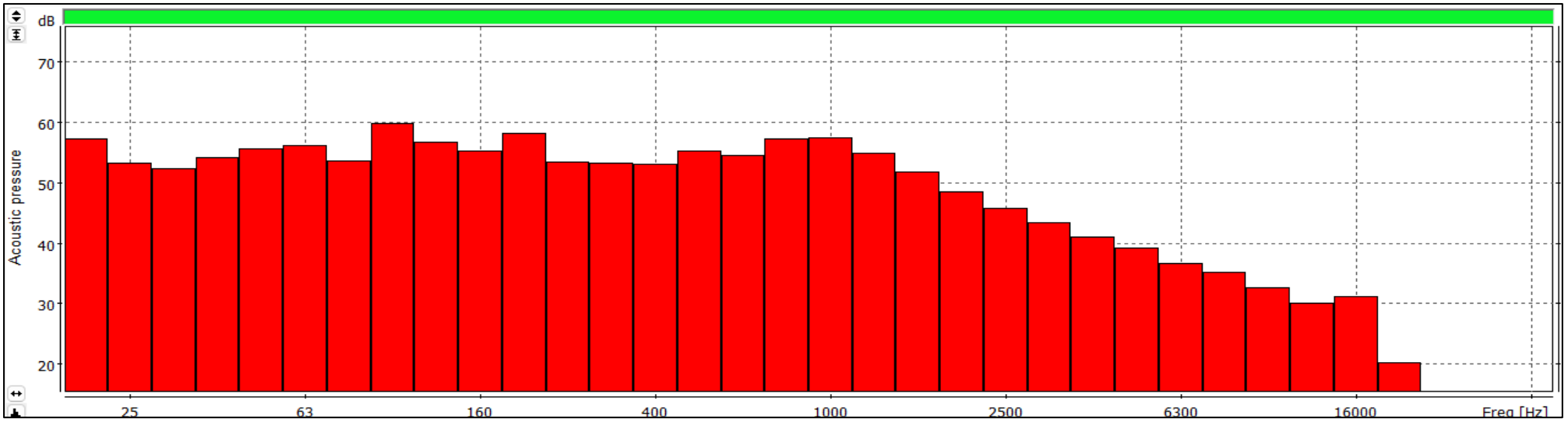

Figure 6-14 NSL3 Day Run 1 of 1 Third Band Octave

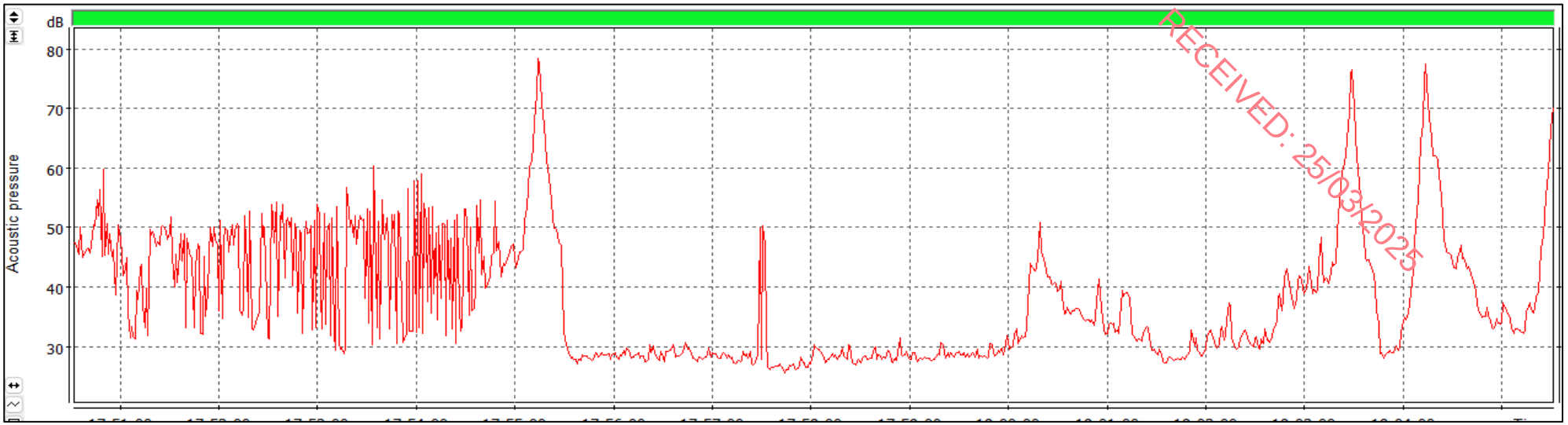

Figure 6-15 NSL3 Night Run 1 of 1

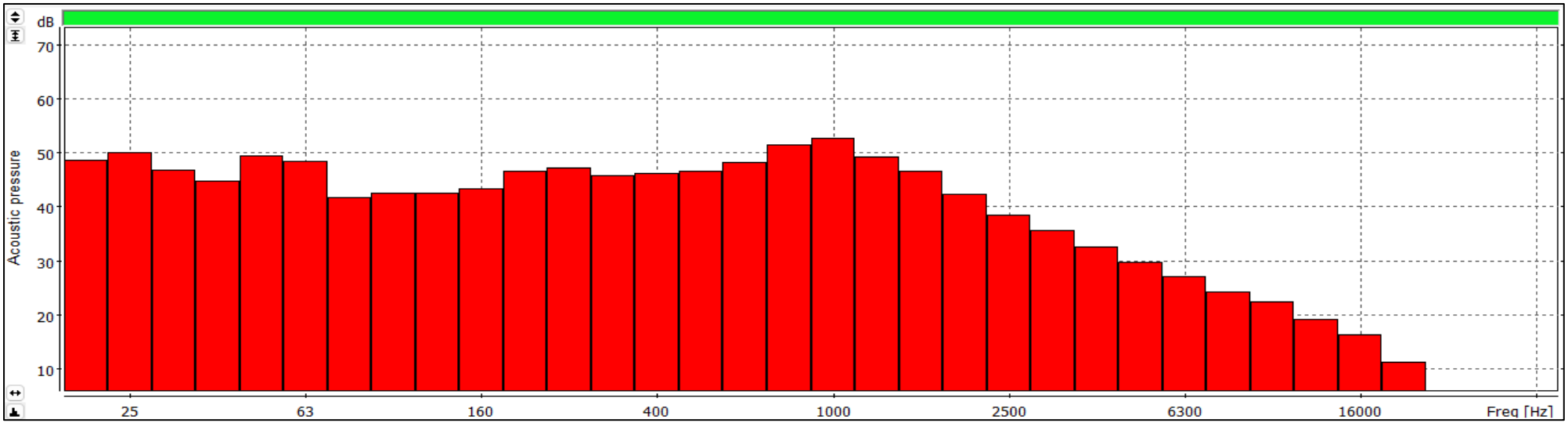

Figure 6-16 NSL3 Night Run 1 of 1 Third Band Octave

7. Conclusion

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LAeq represents the ambient sound levels in the area from sources near and far. The statistical noise levels of L10 and L90 are the noise levels exceeded for 10% and 90% respectively of the measurement period. A small difference in LAeq, L10 and L90 indicates a constant noise emission (or a lack of intermittent noise). The greater the difference between the LAeq, L10 and L90 indicates intermittent noise sources such as local traffic. Where external noise sources such as local road traffic have had a considerable impact on monitoring results due to the close proximity of some monitoring points to the adjacent public road, the L90 is chosen as the best descriptor of site noise.

According to Condition 6 of the grant of planning permission:

"During the operational phase of development, the noise level at existing sensitive locations shall not exceed a Laeq (1 hour) of 55dB (A) between 0800 and 1800 and an Laeq (15 minutes) of 45 dB (A) between 1800 and 0800. Noise monitoring shall be carried out at the noise monitoring locations N1 to N4 as indicated in the EIS documentation on a quarterly basis in accordance with the EPA "Environmental Noise Survey – Guidance Document", 2003".

Monitoring locations NSL2 and NSL3 are considered to be "noise sensitive locations" as defined by the EPA while N1 and N4 are defined as "boundary noise locations" where the specified limit values do not apply. During both daytime and night-time monitoring periods, noise emission values at both NSL2 and NSL3 were within the prescribed limits as stated in the planning conditions.

Appendix 1 Report Terminology

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Noise Monitoring Parameters	
Survey	The measurement of noise over one or more days and is made up of a number of monitoring runs with one or more noise meters.
Run or monitoring run	A single measurement at one location to determine noise level. A number of monitoring runs will be typically be made at each location. The duration of a monitoring run is typically 15 or 30 minutes and is stipulated in the licence.
dB(A)	This is the unit used to quantify noise measurements. "dB" stands for decibel and the "A" indicates that the noise reading is A-weighted and therefore is a measurement of noise audible to the human ear. The scale is logarithmic.
$L_{Aeq,T}$	This parameter is measured on-site using a noise meter for a specified time period (T minutes). It represents the average noise level that occurred over that period.
Rated Noise Level or $L_{Ar,T}$	The Rated Noise Level is equal to $L_{Aeq,T}$ plus any penalty for confirmed tonal and/or subjective impulsive. The penalty is only added for daytime and evening monitoring.
L_{AF10} and L_{AF90}	The L_{AF10} and L_{AF900} are both statistical noise levels. L_{AF10} indicates that for 10% of the monitoring period, the sound levels were greater than the quoted value. L_{AF90} indicates that for 90% of the monitoring period, the sound levels were greater than the quoted value. The L_{AF90} indicates the background noise levels if short-term, intermittent noise sources were ignored e.g. a passing car. The L_{AF10} can be used to determine the effect to which these short-term noise sources effect the overall average reading i.e. if the L_{AF10} is very different to the L_{AF90}, then intermittent noise is a significant source of noise
L_{AFmax}	The maximum RMS A-weighted sound pressure level occurring within a specified time period. Measured using the "Fast" time weighting.
Continuous	Noise produced without interruption.
Impulsive Noise	A noise of short duration (typically less than one second), the sound pressure of which is significantly higher than the background; brief and abrupt.
Intermittent Noise	Noise produced on discontinuous basis e.g. equipment operating in cycles or events such as single passing vehicle or aircraft.
Tonal Noise	Noise, which contains a clearly audible, tone i.e. a distinguishable, discrete or continuous note (whine, hum, drone, screech, etc.).

Appendix 2 Confirmation of tonal noise

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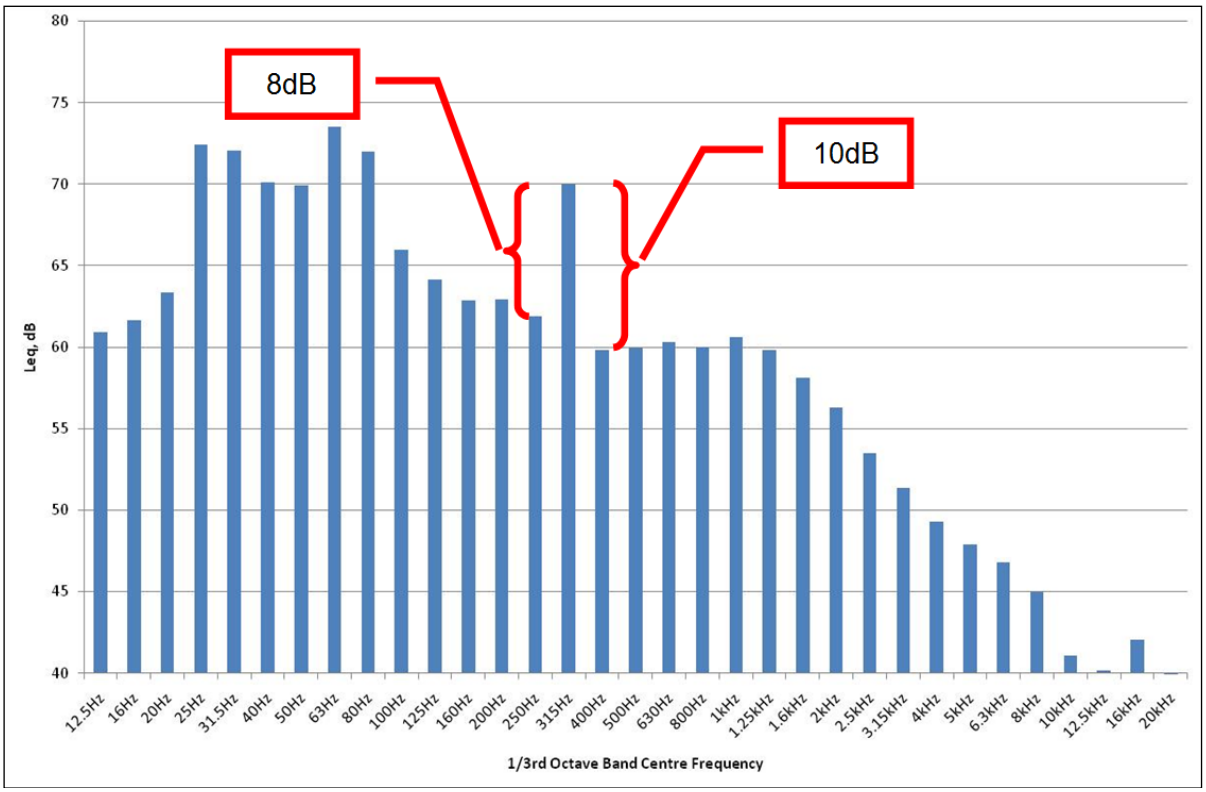
The subjective identification of tonal noise is based on the interpretation of the third octave band results. Where the sound level for a third octave band is greater than or equal to both the adjacent third octave bands by some constant level difference, then tonal noise is confirmed. The level differences vary by frequency and are shown in the table below.

Frequency range	Level Difference
25 Hz to 125 Hz	15 dB
160 Hz to 400 Hz	8 dB
500 Hz to 10,000 Hz	5 db

In the example below, tonal noise was subjectively assessed. The third band monitoring results were therefore reviewed and are shown below. A peak can be seen at 315 Hz. This peak is 8 dB above the lower adjacent third octave and 10 dB higher than the higher adjacent third octave band. From a review of the table above, the Level Difference for 315 Hz is 8 dB.

For the example below, tonal noise is confirmed as there is a difference greater than or equal to 8 dB either side of 315 Hz.

Knowing the frequency of the confirmed tonal noise can help in identifying the source of the noise and its reduction.



Appendix 3 LAFmax data

Some authorities require that LAFmax be reported, however, there are no limits set for this parameter. In order to keep the body of the report uncluttered, the data regarding this parameter is reproduced below.

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Location	NSL	Period	LAFmax
N4	No	Day	83.8
N4	No	Evening	72.3
N1	No	Evening	83.1
N1	No	Day	87.7
NSL2	Yes	Day	91.1
NSL2	Yes	Evening	82.7
NSL3	Yes	Day	85.5
NSL3	Yes	Evening	79.5

Appendix 4 Certificates of Calibration

Figure 1 – Len 088 Certificate of Calibration

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AcSoft
Noise, Vibration & Air Quality

CALIBRATION CERTIFICATE

Date of issue: 16-10-2023 **Certificate No:** 1506084-1 **Page:** 1/8

INSTRUMENT DETAILS	Manufacturer:	**SVANTEK**	
	Model:	**SVAN 971**	
	Serial No.:	40395	
	Description:	Sound Level Meter	
SENSOR DETAILS	Manufacturer:	**ACO**	**SVANTEK**
	Model:	**7052E**	**SV18**
	Serial No.:	87404	42615
	Description:	Microphone	Preamplifier
CUSTOMER	Environmental Efficiency		
ENVIRONMENTAL CONDITIONS	Temperature:	21.7 – 22.8	°C
	Humidity:	51 – 52	%
	Pressure:	101.9 – 102.0	kPa
DATE OF CALIBRATION	16-10-2023		
APPROVED BY	A. Pullinger		

AcSoft
Noise, Vibration & Air Quality

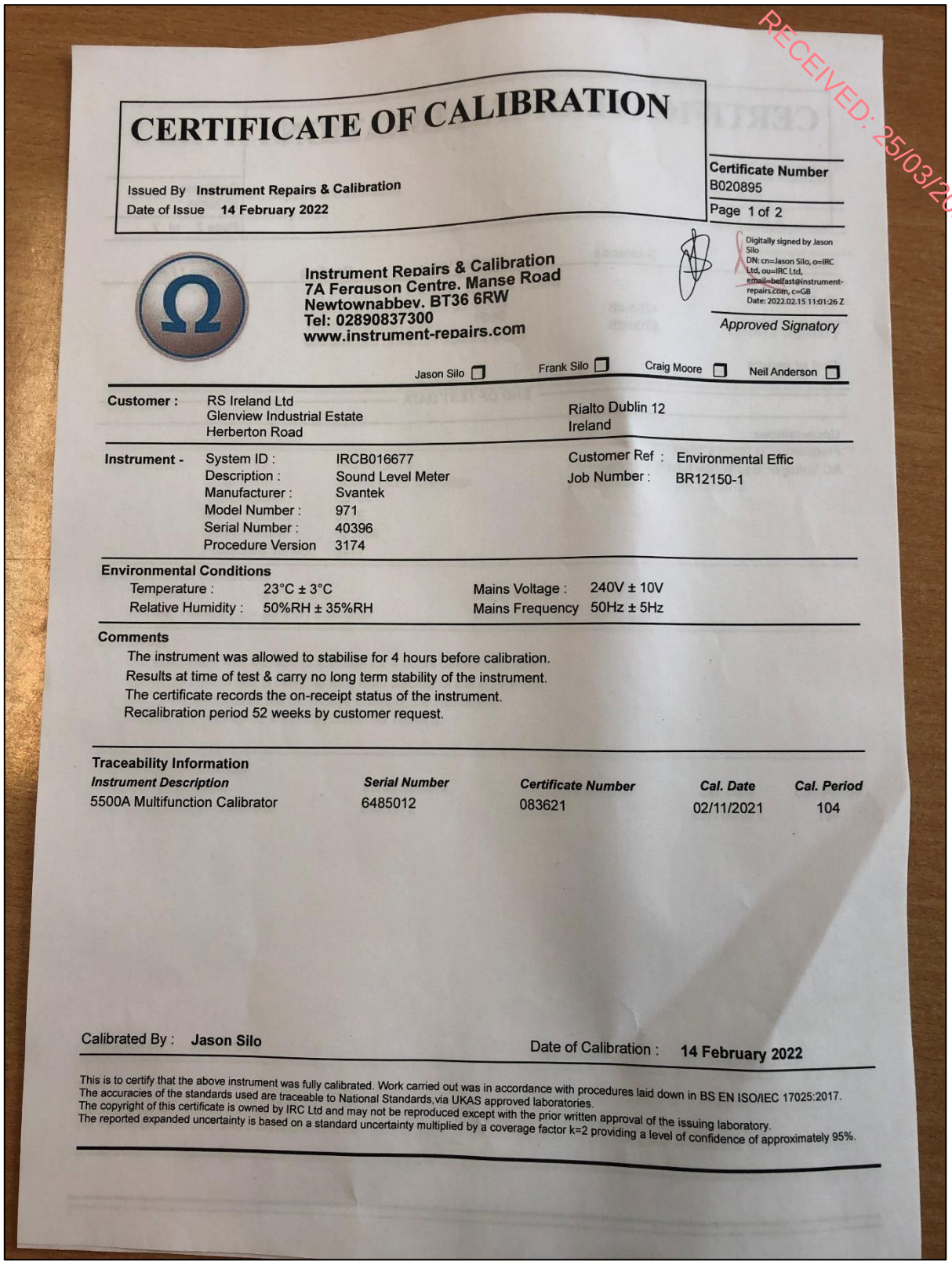
AcSoft Calibration | 11 Abbey Court
Fraser Road | Priory Business Park
MK44 3WH | Bedford

+44 (0) 1234 639550

www.acsoft.co.uk

This calibration was performed by AcSoft Calibration.
AcSoft Calibration is a trading name of AcSoft Ltd, 11 Abbey Court, Fraser Road, Priory Business Park, Bedford, MK44 3WH

Figure 2 – LEN 089 Certificate of Calibration



RECEIVED: 25/03/2025

CERTIFICATE OF CALIBRATION

Issued By **Instrument Repairs & Calibration**
Date of Issue **14 February 2022**

Certificate Number
B020895
Page 1 of 2

Digitally signed by Jason Silo
DN: cn=Jason Silo, o=IRC Ltd, ou=IRC Ltd, email=belfast@instrument-repairs.com, c=GB
Date: 2022.02.15 11:01:26 Z

Approved Signatory

Instrument Repairs & Calibration
7A Ferguson Centre. Manse Road
Newtownabbey. BT36 6RW
Tel: 02890837300
www.instrument-repairs.com

Jason Silo ☐ Frank Silo ☐ Craig Moore ☐ Neil Anderson ☐

Customer : RS Ireland Ltd
Glenview Industrial Estate
Herberton Road
Rialto Dublin 12
Ireland

Instrument -

System ID :	IRCB016677	Customer Ref :	Environmental Effic
Description :	Sound Level Meter	Job Number :	BR12150-1
Manufacturer :	Svantek		
Model Number :	971		
Serial Number :	40396		
Procedure Version	3174		

Environmental Conditions

Temperature :	23°C ± 3°C	Mains Voltage :	240V ± 10V
Relative Humidity :	50%RH ± 35%RH	Mains Frequency	50Hz ± 5Hz

Comments

The instrument was allowed to stabilise for 4 hours before calibration.
Results at time of test & carry no long term stability of the instrument.
The certificate records the on-receipt status of the instrument.
Recalibration period 52 weeks by customer request.

Traceability Information

Instrument Description	*Serial Number*	*Certificate Number*	*Cal. Date*	*Cal. Period*
5500A Multifunction Calibrator	6485012	083621	02/11/2021	104

Calibrated By : **Jason Silo**
Date of Calibration : **14 February 2022**

This is to certify that the above instrument was fully calibrated. Work carried out was in accordance with procedures laid down in BS EN ISO/IEC 17025:2017.
The accuracies of the standards used are traceable to National Standards,via UKAS approved laboratories.
The copyright of this certificate is owned by IRC Ltd and may not be reproduced except with the prior written approval of the issuing laboratory.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%.

Figure 3 – LEN 003 Certificate of Calibration

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CERTIFICATE OF CALIBRATION

Issued By **Instrument Repairs & Calibration**
Date of Issue **20 March 2023**

Certificate Number
B024621
Page 1 of 2

Instrument Repairs & Calibration
7A Ferguson Centre, Manse Road
Newtownabbey, BT36 6RW
Tel: 02890837300
www.instrument-repairs.com

Digitally signed by Frank Silo
DN: cn=Frank Silo, o=IRC Ltd, ou=IRC td, email=frank.silo@instrument-repairs.com, c=GB
Date: 2023.03.20 12:59:55 Z

Approved Signatory

Jason Silo ☐ Frank Silo ☐ Craig Moore ☐ Neil Anderson ☐

Customer : RS Ireland Ltd
Glenview Industrial Estate
Herberton Road
Rialto Dublin 12
Ireland

Instrument -
System ID : IRCB016678
Description : Sound Level Calibrator
Manufacturer : Cirrus
Model Number : 511E
Serial Number : 035066
Procedure Version 3517

Customer Ref : Environmental Effic
Job Number : BR14110-1

Environmental Conditions
Temperature : 23°C ± 3°C
Relative Humidity : 50%RH ± 35%RH
Mains Voltage : 240V ± 10V
Mains Frequency 50Hz ± 5Hz

Comments
The instrument was allowed to stabilise for 4 hours before calibration.
Results at time of test & carry no long term stability of the instrument.
The certificate records the on-receipt status of the instrument.

Recalibration period 52 weeks by customer request.

Traceability Information

Instrument Description	*Serial Number*	*Certificate Number*	*Cal. Date*	*Cal. Period*
5500A Multifunction Calibrator	6485012	083621	02/11/2021	104

Calibrated By : **Frank Silo**
Date of Calibration : **20 March 2023**

This is to certify that the above instrument was fully calibrated. Work carried out was in accordance with procedures laid down in BS EN ISO/IEC 17025:2017.
The accuracies of the standards used are traceable to National Standards,via UKAS approved laboratories.
The copyright of this certificate is owned by IRC Ltd and may not be reproduced except with the prior written approval of the issuing laboratory.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%.

Appendix 5 Certificate of Competence

Institute of Acoustics

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Certificate of Competence in Environmental Noise Measurement

This is to certify that

Rebecca Stokes

has completed a course of instruction approved by the Institute of Acoustics and designed to enable the candidate to undertake environmental noise measurements in a competent manner and has achieved a satisfactory performance in the written and practical examinations

Jonty Stewart
Education Committee Chairman

Allan Chesney
Chief Executive Officer

Examination Date: 19 May 2023
Centre: Shorcontrol Safety Ltd
Candidate Number: ENM260

For the purposes of Credit Transfer or Professional Development this Certificate may be considered to be equivalent to 25 points or hours

The Institute of Acoustics Limited, Silbury Court, 406 Silbury Boulevard, Milton Keynes MK9 1AF
T: +44 (0)300 999 9675 E: ioa@ioa.org.uk W: ioa.org.uk
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2024 Q1

Air, Noise & Groundwater Monitoring Results

Environmental Efficiency

Bray (Co. Wicklow) 01 276 1428
Lisburn (Co. Antrim) 028 9262 6733
Birmingham (U.K.) 0121 673 1804

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Groundwater Monitoring Report Q1 2024

for

Kilchreest Quarry

Document Number: 2589-29 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

Environmental Services for Industry Including –

- Air, Noise & Water Monitoring
- Bund Testing
- Environmental Management Systems to ISO 14001
- Air & Noise Modelling
- Energy & Water use reduction
- IPC/IED/Waste Licence Compliance
- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations

- ISO9001:2008 Registration No. 2015/2170
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- EMPI Membership

Document Lead Sheet

RECEIVED: 25/03/2025

Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	Isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Groundwater Monitoring Report
	Document number	2589-29
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	18/01/2024
	Document author	IM	Date written	30/01/2024
	Approved by	RTS	Date approved	01/02/2024
	Report version nr	1.00		
	Issued by	RS	Date report issued	01/03/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	Choose an item.
	If satisfactory, when is next test/assessment due?	Q1 2024

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Report History

1.00 Issued

Contents

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1. Introduction

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Environmental Efficiency Consultants (Ire) Limited was commissioned by Kilchreest Quarry to conduct groundwater sampling and analysis on a quarterly basis. The sampling was conducted from two boreholes BH1 and BH3 as indicated in the map below. Borehole BH2 has been decommissioned and no longer exists on site.

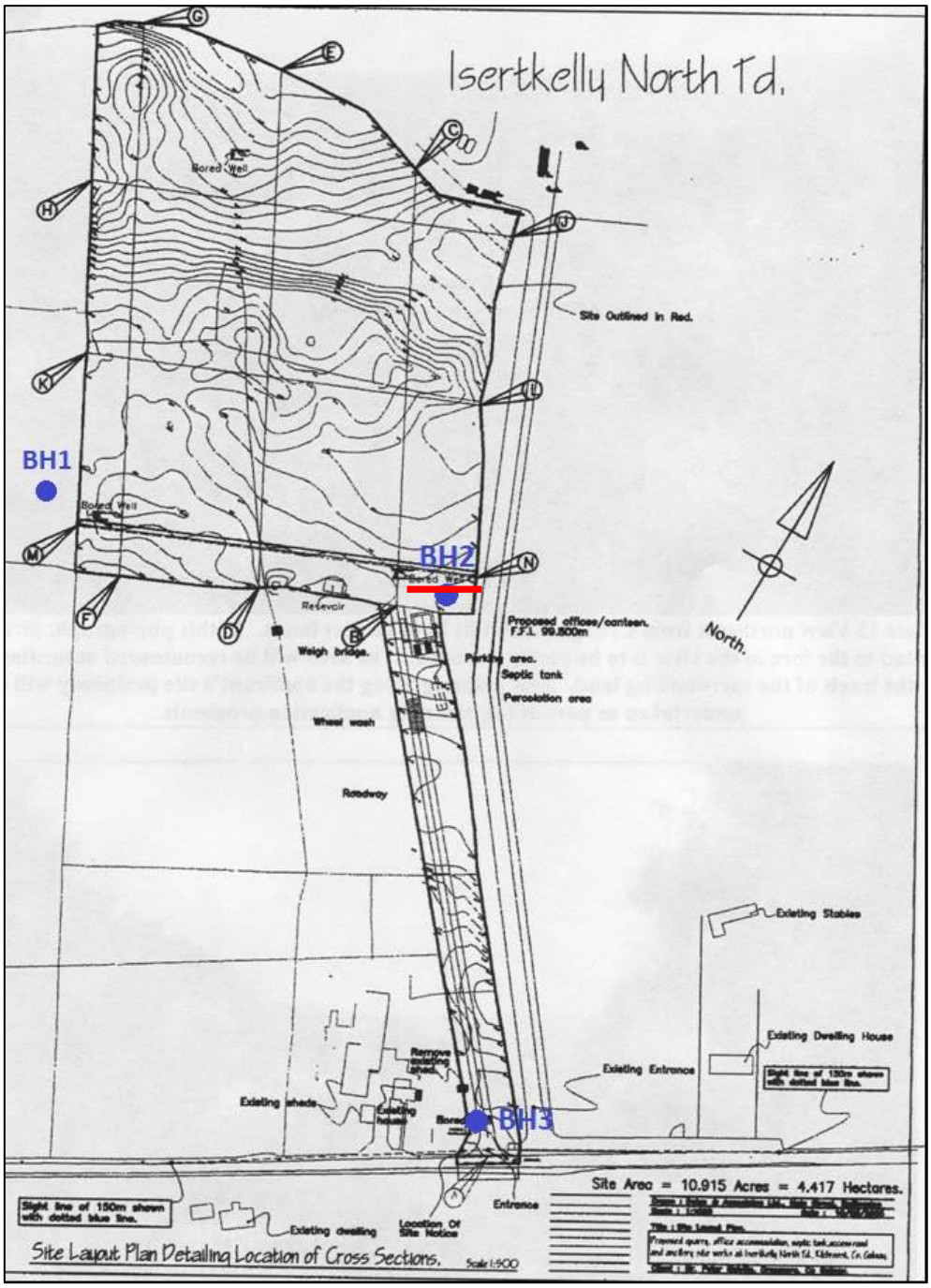

Figure 1-1 Borehole Monitoring Locations

2. Executive Summary

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The majority of the results for BH3 fall within the relevant guideline values for the monitoring period Q1 2024. However, both the faecal coliform bacteria and Escherichia Coli bacteria were both above the recommended limit with values. The levels of phosphate detected were also above the recommended limits.

The results for Certificate of analysis can be seen in Appendix 1.

Please note sampling could not be conducted at BH1 as the borehole was blocked.

3. Results

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Groundwater and surface water quality was assessed by comparing analytical results to the most relevant of the following water quality guidelines – Generic Assessment Criteria (GAC):

- European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016. S.I. No. 366 of 2016.
- Environmental Protection Agency, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, (Interim Guideline Values (IGVs)), 2003.

The results for the groundwater analysis can be seen in the table below.

*Please note sampling could not be conducted at BH1 as the borehole was blocked.

Table 2 - 1 BH3 Monitoring Results Q1 2024

Parameter	Result	Units	Generic Assessment Criteria	Source
COD	< 10	mg O2/l	No Value	-
Ammonia	< 0.050	mg/l	175 µg/l	GTV
Nitrate	13	mg/l	37.5 mg/l	GTV
Nitrite	< 0.020	mg/l	375 µg/l	GTV
Phosphate	0.50	mg/l	0.035 mg/l	GTV
Chloride	24	mg/l	187.5 mg/l	GTV
TPH (C6 – C10)	< 0.10	µg/l	0.10 µg/l	GTV
TPH (C10 – C21)	< 0.10	µg/l	0.10 µg/l	GTV
TPH (C21 – C40)	< 0.10	µg/l	0.10 µg/l	GTV
Total TPH (C6 – C40)	< 10	µg/l	7.5 µg/l	GTV
Total Organic Carbon	< 2.0	mg/l	No Value	-
Electrical Conductivity	460	µS/cm	1875 µS/cm	GTV
Faecal Coliform Bacteria	34	cfu/100ml	0	IGV
Escherichia Coli Bacteria	0	cfu/100ml	0	IGV
Ground water Level	30.1	Meters	N/A	-

GTV = Groundwater Threshold Value. Outlined in Groundwater Regulations (S.I. No. 9 of 2010 / S.I. No. 366 of 2016).

IGV = Interim Guideline Values (IGVs) presented by EPA in 2003.

4. Discussion

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Faecal coliform bacteria was above the recommended limit for the monitoring period Q1 2024. During and after precipitation, bacteria, and other harmful microorganisms from any of these sources may be washed into rivers, lakes, or groundwater. Poor well construction or poor maintenance can increase the risk of groundwater contamination. Total coliform bacteria are not likely to cause illness, but their presence indicates that your water supply may be vulnerable to contamination by more harmful microorganisms. The presence of E.coli in water indicates recent faecal contamination and may indicate the possible presence of disease-causing pathogens, such as bacteria, viruses, and parasites. Although most strains of E.coli bacteria are harmless, certain strains, such as E.coli 0157:H7, may cause illness. The level of phosphate was also higher than the groundwater threshold value of 0.035 mg/l. All other results for the groundwater monitoring of BH3 fall within the recommended water quality guidelines for the monitoring period Q1 2024.

The generic assessment criteria values come from the following documents:

- European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016. S.I. No. 366 of 2016.
- Environmental Protection Agency, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, (Interim Guideline Values (IGVs)), 2003.

Appendix 1 Certificate of Analysis GW Monitoring

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Certificate of Analysis 2589-GW3-Q1-2024

Emission point data

Client:	Kilchreest Quarry
Site:	Kilchreest
Site code:	KT
Emission point	GW3
Licence type	County Council
Licence No.	05-2870
Project Manager	RS
Analysed by:	Chemtest
Sample type:	Water

Sampling data

Results for Quarterly Monitoring Period	Q1 2024
Date sample collected	18/01/2024
Time sample collected	15:30
Sample collection	SOP 01.01
Sample type	Groundwater

Results

Parameter	Result	ELV	Units	Accred.	Technique
COD	< 10	n/s	mg O2/l	UKAS	Colorimetric Analysis
Ammonia	<0.050	n/s	mg/l	UKAS	Colorimetric Analysis
Nitrate	13	n/s	mg/l	UKAS	Colorimetric Analysis
Nitrite	< 0.020	n/s	mg/l	UKAS	Colorimetric Analysis
Phosphate	0.5	n/s	mg/l	None	Colorimetric Analysis
Chloride	24	n/s	mg/l	UKAS	Colorimetric Analysis
TPH (C6 - C10)	< 0.10	n/s	ug/l	None	GC FID Detection
TPH (C10 - C21)	< 0.10	n/s	ug/l	None	GC FID Detection
TPH (C21 - C40)	< 0.10	n/s	ug/l	None	GC FID Detection
Total TPH (C6 - C40)	< 10	n/s	ug/l	UKAS	GC FID Detection
Total Organic Carbon	< 2.0	n/s	mg/l	UKAS	Catalytic Oxidation
Electrical Conductivity	460	n/s	µS/cm	UKAS	Conductivity Meter
Faecal Coliform Bacteria	34	n/s	cfu/100ml	INAB	MTM025
Escherichia Coli Bacteria	0	n/s	cfu/100ml	INAB	MTM025
Ground Water Level	26.9	n/s	Meters	N/A	Dip Meter

Signed (Lab Manager)

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- IPPC/Waste Licence Compliance
- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- Member Environmental Services Association
- EMPI Membership

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Environmental Efficiency

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Birmingham (U.K.) 0121 673 1804

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Dust Deposition Report Q1 2024

for

Kilchreest Quarry

Document Number: 2589-28 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- Occupational Dust & Noise

Affiliations & Accreditations

- ISO9001:2008 Registration No. 2015/2170
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- EMPI Membership

Document Lead Sheet

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Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	Isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Dust Monitoring Report
	Document number	2589-28
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	30/01/2024
	Document author	IM	Date written	31/01/2024
	Approved by	RS	Date approved	31/01/2024
	Report version nr	1.00		
	Issued by	RS	Date report issued	01/03/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q2 2024

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Report History

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Contents

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1. Introduction

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Environmental Efficiency Consultants (Ire) Limited was commissioned by Kilchreest Quarry to conduct dust deposition monitoring and analysis on a quarterly basis. The sampling was conducted from three dust monitoring points D1, D2 and D3 as indicated in the map below.

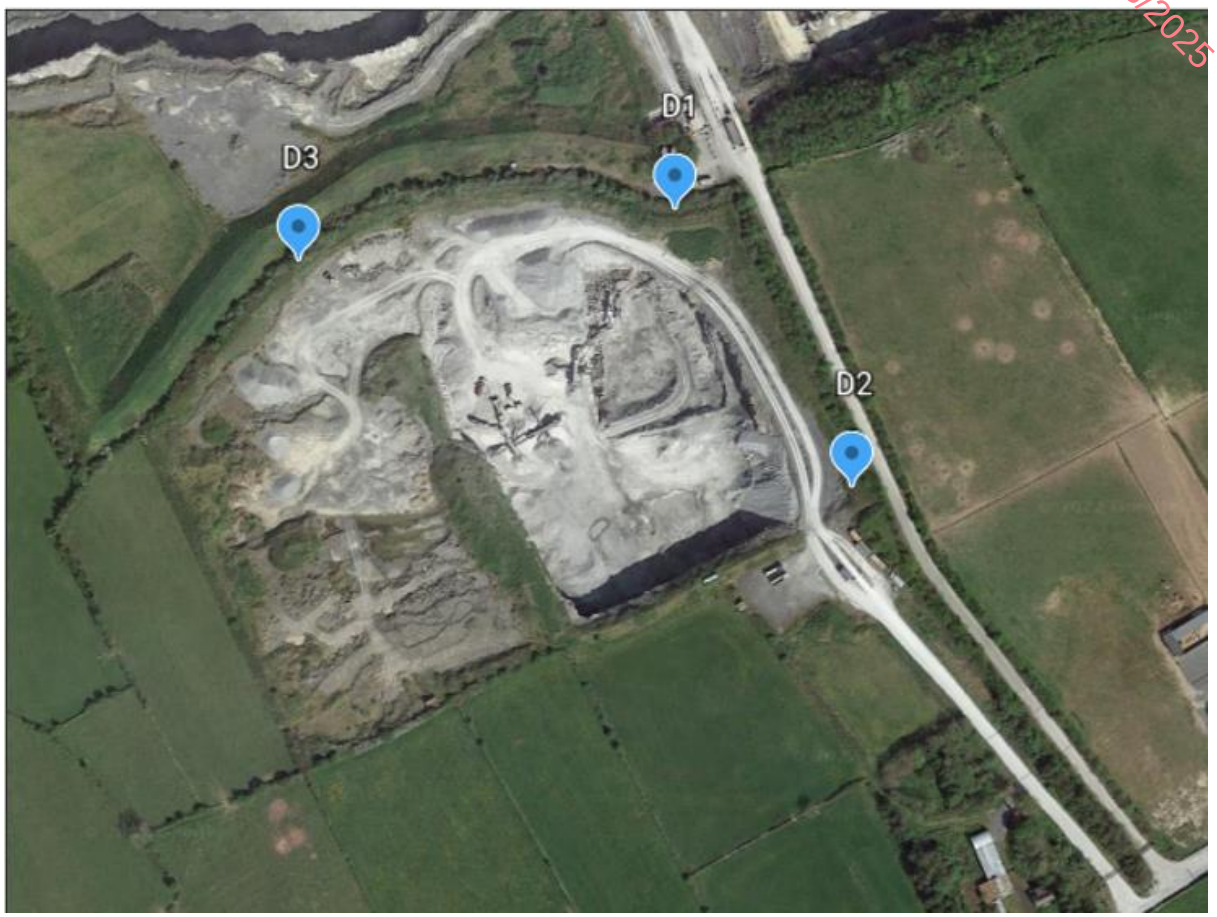

Figure 1-1 Dust Monitoring Locations

2. Executive Summary

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Environmental Efficiency conducted environmental dust monitoring at three locations in Kilchreest Quarry for Q1 2024.

All results for the Bergerhoff monitoring points were below the TA Luft Dustfall limit.

3. Methodology

Environmental Efficiency Consultants Ltd conduct environmental dust deposition monitoring on a quarterly basis at Kilchreest Quarry. Environmental Efficiency collects Bergerhoff bottles on-site following each monitoring period and, upon return to the laboratory, conducts testing in accordance with the company's internal SOP's; SOP 03.04 Determination of Suspended Solids/SOP 99.12 Total Dust Deposition, to determine Total Dust Deposition at each monitoring location in mg/m2/day. Results are subsequently compared to a dust limit value of 350 mg/m2/day, as prescribed by German TA Luft Guidelines, to determine whether dust levels constitute levels which are not acceptable as per this environmental quality standard (i.e., levels at which there may be nuisance caused or hazard posed).

4. Results

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Environmental dust monitoring results for each monitoring period are presented in the tables below. Certificates of analysis are provided in Appendix 1.

Table 4 - 1 Dust Monitoring Results – Q1 2024

Location	Units of Measurement	Results	Prescribed Limit Value	Compliant
D1	mg/m^2/day	13.3	350	Yes
D2	mg/m^2/day	54.4	350	Yes
D3	mg/m^2/day	19.5	350	Yes

5. Conclusion

Environmental Efficiency conducted environmental dust monitoring at three locations in Kilchreest Quarry for Q1 2024. The dust fall limit specified for the quarry is based on the German TA Luft Environmental Guidelines which specifies a limit of 350 mg/m^2/day. All results for the three monitoring locations were below the prescribed limit value for Q1 2024.

Appendix 1 Certificate of Analysis

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Certificate of Analysis for Total Dust Deposition

Project No: 2589
Client: Kilcreest Quarry
Site: Kilcreest
Site code: KC
Period: Q1 2024
Collected by: IM
Analysed by: IM
Sample method: Bergerhoff bottle
Sample type: Dust fall
SOP: 99.12

Results

Location	Start monitoring	End monitoring	Date analysed	Days on site	Result, mg/m2 day
D1	01-Jan-24	30-Jan-24	30-Jan-24	30	13.3
D2	01-Jan-24	30-Jan-24	30-Jan-24	30	54.4
D3	01-Jan-24	30-Jan-24	30-Jan-24	30	19.5

Signature

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Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- Occupational Dust & Noise

Affiliations & Accreditations
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
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- CMPI Membership

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Environmental Efficiency

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Noise Monitoring Report Q1 2024

for

Kilchreest Quarry

Document Number: 2589-30 v1.00

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Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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Affiliations & Accreditations

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- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
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- EMPI Membership

Document Lead Sheet

Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	Isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

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Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Noise Monitoring Report
	Document number	2589-30
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	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	18/01/2024
	Document author	RS	Date written	06/02/2024
	Approved by	RTS	Date approved	01/03/2024
	Report version nr	1.00		
	Issued by	RS	Date report issued	01/03/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q2 2024

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Table of Contents

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1. Introduction

The client is required to carry out a noise survey at various specified locations in the vicinity of the site. This document reports the results of the noise survey.

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2. Executive Summary

A noise survey to EPA NG4 was undertaken on 18-Jan-24. The compliance of the locations with the specified limits is shown in the table below.

Table 2-1 Summary of compliance

Location	Noise Sensitive Location	Day	Night-time
N1	No	N/A	N/A
N4	No	N/A	N/A
NSL2	Yes	Compliant	Compliant
NSL3	Yes	Compliant	Compliant

3. Facility Description

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The following activities are carried out on the site

- Hauling of materials from the site using HGV lorries.
- The operation of machinery.

The site has the hours of operation shown in the table below.

Table 3-1 Hours of operation

Period	Operational hours	Surveyed
Day	08:00 – 17:00	Yes
Evening - No monitoring	Not operational	No
Night-time	Not operational	Yes

4. Monitoring requirements

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Noise is required to be monitored at the locations shown in the table immediately below. The noise limits applicable, the required number of sampling periods (e.g. number of separate measurements at one location during one monitoring period, e.g. daytime) and the required duration of each sampling period are shown in the second table below. Note that noise monitoring was only carried out during periods where there was activity or equipment running on the site.

Table 4-1 Locations monitored

Location	Location Description	NSL
N1	Entrance	No
N4	Boundary	No
NSL2	Beside house	Yes
NSL3	Beside house	Yes

Table 4-2 Periods monitored and limits

Monitoring Period	Monitored	NSL	Limit. dBA	Allowance, dBA	T (Sampling Period), minutes	No. of runs
Day	Yes	Yes	55	0	60	1
Night-time	Yes	Yes	45	0	15	1
Day	Yes	No	N/A	N/A	60	1
Night-time	Yes	No	N/A	N/A	15	1

5. Sampling Methodology

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5.1 Instrumentation Used

The equipment shown in the table below was used during the noise survey. All Sound Level Meters are Type I. The SLMs and calibrators are identified by a LEN (Laboratory Equipment Number) and this is shown in the table below. Calibration certificates for the equipment, where appropriate, are shown in the appendices and are referenced by the LEN.

Table 5-1 Equipment Used

Equipment used	LEN (Lab equipment Number)	Make/Model	Serial Number	Cal cert
First SLM	LEN 089	Svantek SV2	40396	Yes
Second SLM	LEN 088	Svantek SV1	40395	Yes
First Calibrator	LEN 003	Cirrus	51431	Yes
Anemometer	N/A	Testo	N/A	N/A

All noise measurements were 'A' weighted and the time-weighting 'Fast' was applied (to equate to human ear hearing). Each SLM is calibrated in the field before the start of the survey and again at the end of the survey. Unless stated otherwise in this report, there was no drift in calibration greater than 0.1 dB over the duration of the survey.

All SLMs used are capable of third band octave measurement. Third band octave readings were recorded at all locations where tonal noise was subjectively detected by the survey personnel. Where tonal noise was detected, the third band octave readings were analysed off site to verify the presence of tonal. The simplified methodology for the objective identification of tones specified in Annex D of ISO 1996K2:2007(E) is used for this purpose.

5.2 Noise Survey Personnel

The noise survey was undertaken by Environmental Efficiency staff as follows:

Author (Name & Quals)	Ivan Mahon, Site Technician
Author (Initials)	IM

5.3 Meteorological Conditions

Weather conditions on the day of monitoring were considered appropriate for surveying purposes and therefore did not affect the readings i.e. conditions were dry and wind speed was less than 5 m/s (the normal upper limit for taking measurements). The Sound Level Meter was also fitted with a windshield to minimise interference from

potential meteorological conditions, in keeping with good practice. The meteorological conditions during the survey periods are shown below.

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Table 5-2: Meteorological Conditions

Survey	Date	Time	Av. wind speed, m/s	Temp, C	Prevailing wind direction	Weather
Start	18-Jan-24	18:35:00	0.0	0.0	W	No precipitation
Completion	18-Jan-24	18:11:00	0.0	-1.0	W	No precipitation

5.4 Measurement Locations

The locations of noise monitoring locations are described in the table below and shown in Figure 5-1. Photographs of the SLM at each location are shown following the map.

Table 5-3: Description of monitoring locations

Location	Height above ground, m	Distance from reflective surface, m	Location Description	Noise sensitive location
N1	1.2	>3.5	Site entrance	No
N4	1.2	>3.5	Boundary	No
NSL2	1.2	>3.5	Beside house	Yes
NSL3	1.2	>3.5	Beside house	Yes

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Figure 5-1 Site map

Figure 5-2 SLM at N1

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Figure 5-3 SLM at NSL2

Figure 5-4 SLM at NSL3

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Figure 5-5 SLM at N4

5.5 Ground attenuation

If the intervening ground between a noise source and a measurement location is acoustically absorptive, this can result in a reduction in noise level at the receptor due to absorption of sound energy by the ground itself. On the contrary, if the intervening ground is acoustically reflective ground, its products the opposite effect.

The details of the intervening ground between sources and measurement positions are described in the following table:

Table 5-4: Ground attenuation

Location	% Soft Ground	% Hard Ground	Comments
N1	85	15	No comment
N4	0	100	No comment
NSL2	0	100	No comment
NSL3	60	40	No comment

6. Noise Survey

The measurement parameters LAeq,T, LAF90 and LAF10 plus the derived parameter LAr,T are tabulated below in the tables for each monitoring location. Associated particulars such as a description of the on-site noise and off-site noise noticed at each location are also provided where relevant. A graphical representation of the parameters LAeq,T, LAF90 and LAr,T over each monitoring period is provided in the graphs above each table.

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The derived noise parameter LAr,T, termed the Rated Noise Level, includes a penalty of 5 dBA for tonal or impulsive noise where such noise is present. This penalty is normally added to LAeq,T. Where traffic or other off site noise sources are significant, the parameter LAF90 may be a better descriptor of site noise and where this is the case the Rated Noise Level is equal to LAF90 plus the penalty. In the tables below, where LAF90 is considered a better descriptor of site noise, an asterisk is appended to the measurement.

The penalty for on-site tonal noise and/or on-site impulsive noise is only applied during the daytime and evening periods. No tonal or impulsive noise is permitted during night-time; if such noise is present then this is a breach regardless of the LAeq,T or LAF90 noise level.

Where on site tonal is subjectively heard this is noted in the tables below in the column 'On site tonal?'. In all cases where on-site tonal is heard the simplified methodology for the objective identification of tones specified in Annex D of ISO 1996K2:2007(E) is used to confirm the presence of tonal. Where on site tonal is confirmed, this is shown in the tables below in the column 'Tonal confirmed'. The third octave graphs used to confirm on site tonal are shown in the discussion section.

The parameter LAFmax has no bearing on compliance and is not shown in the tables below; however, as it is may be required to be reported separately (e.g. in an Annual Environmental Report) it is included in the appendices.

The column headed 'On site impulsive' states whether impulsive noise was heard by the monitoring personnel.

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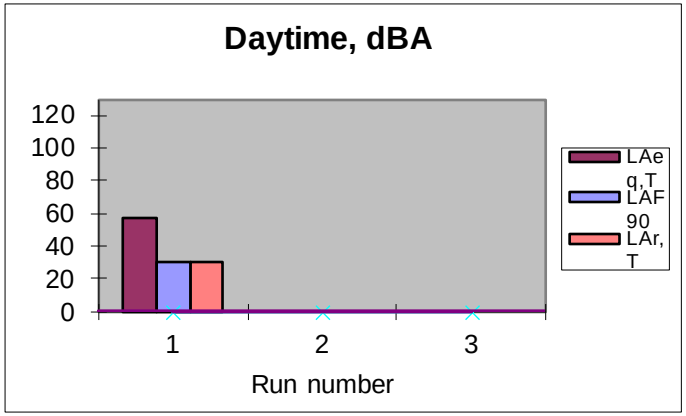
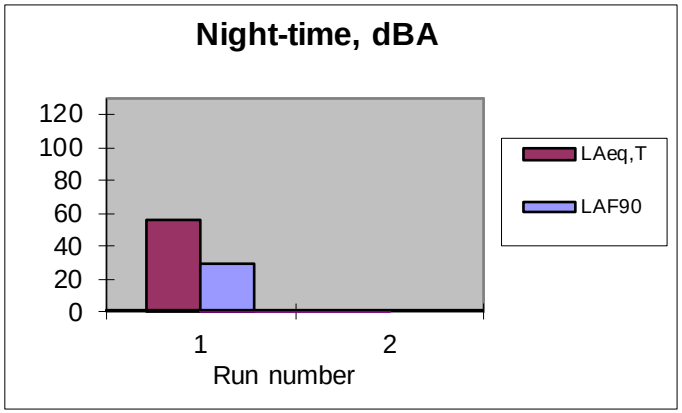
Location N1





Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}[1]	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 089	18/01/2024 14:06	57	30	53	No	N/A	No	30	Road Traffic	HGV's	N/A
Night-time	1	LEN 088	18/01/2024 18:56	56	29	50	No	N/A	No	29	Road Traffic	None	N/A

[1] LA90 was chosen due to significant noise from road traffic

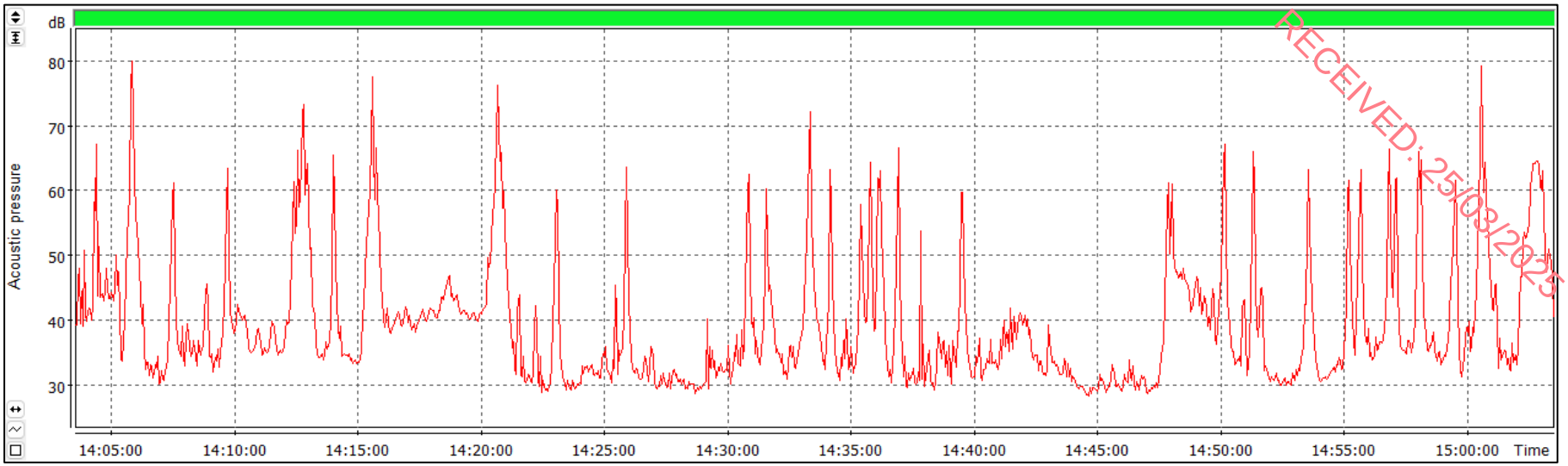


Figure 6-1 N1 Day Run 1 of 1

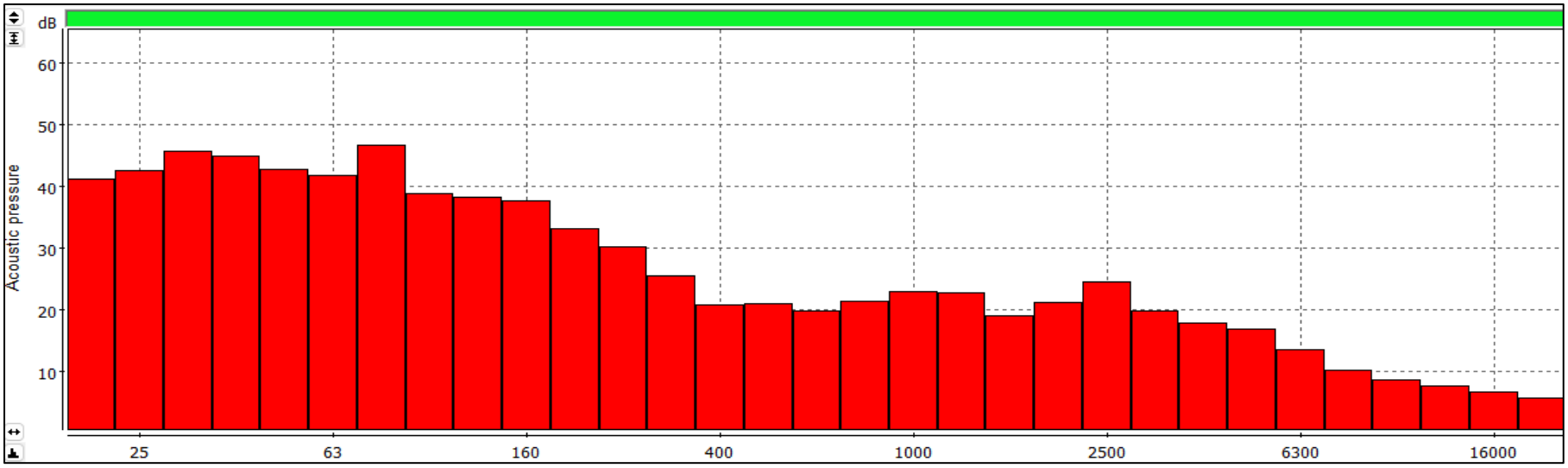


Figure 6-2 N1 Day Run 1 of 1 Third Band Octave

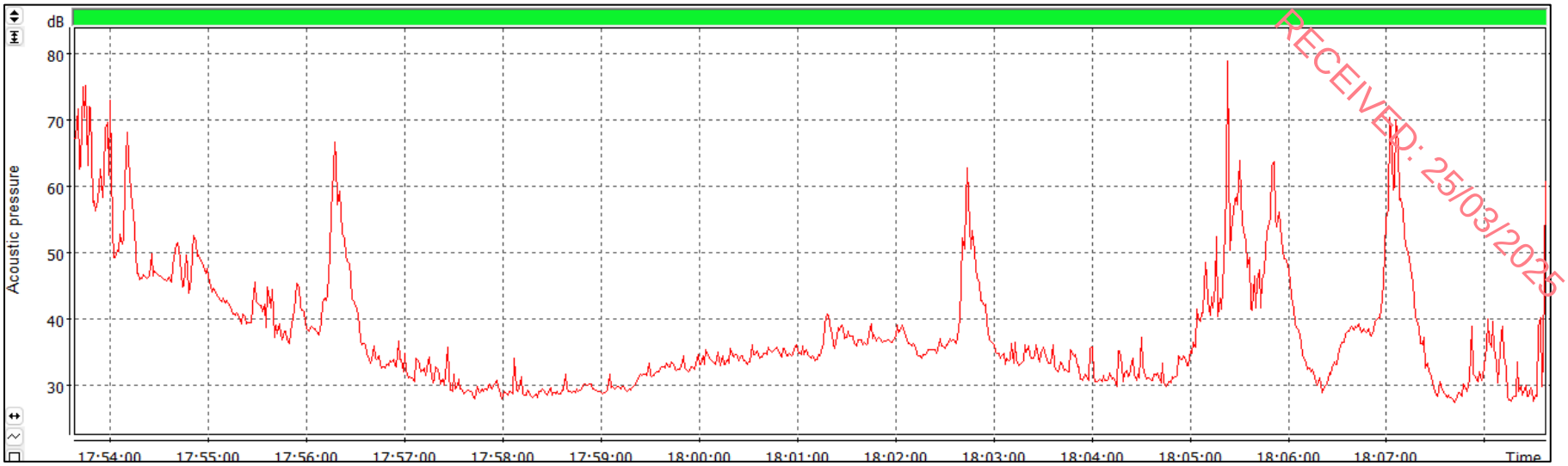


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Figure 6-3 N1 Night Run 1 of 1

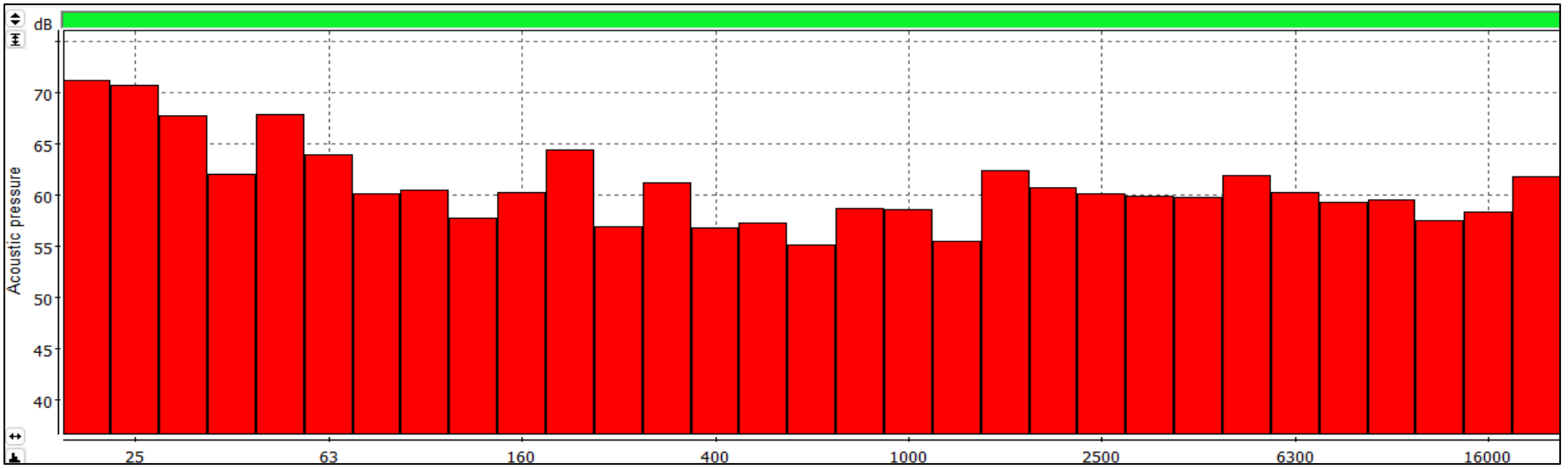

Figure 6-4 N1 Night Run 1 of 1 Third Band Octave

Location NSL2

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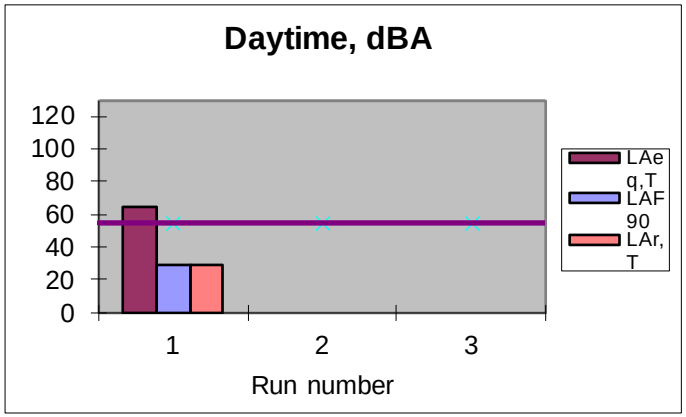

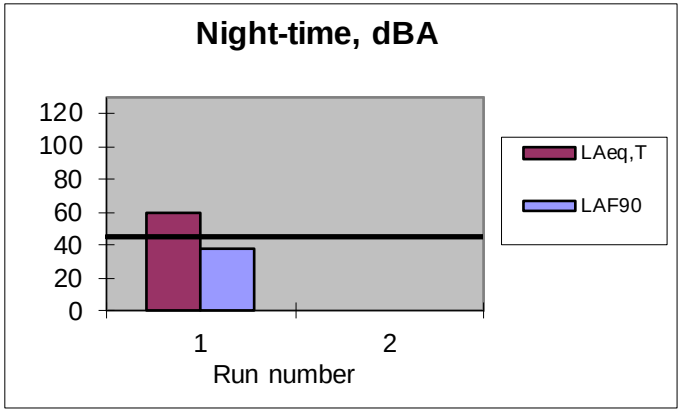

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}[1]	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 088	18/01/2024 14:57	64	29	54	No	N/A	No	29	Road Traffic	HGV's	Yes
Night-time	1	LEN 088	18/01/2024 18:30	60	38	53	No	N/A	No	38	Road Traffic	None	Yes

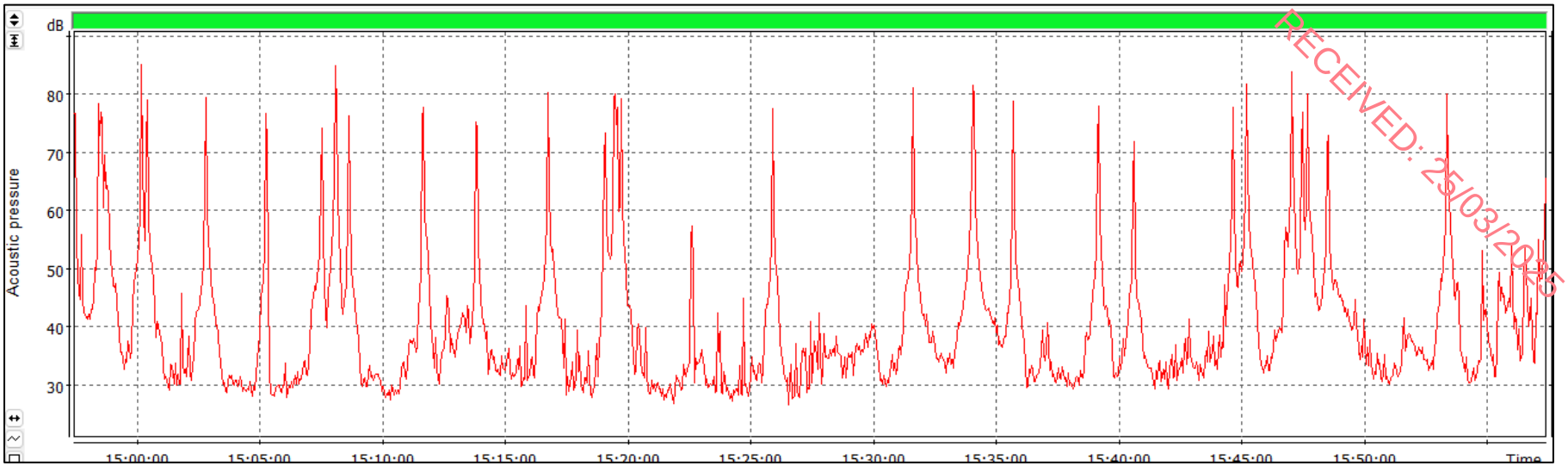

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Figure 6-5 NSL2 Day Run 1 of 1

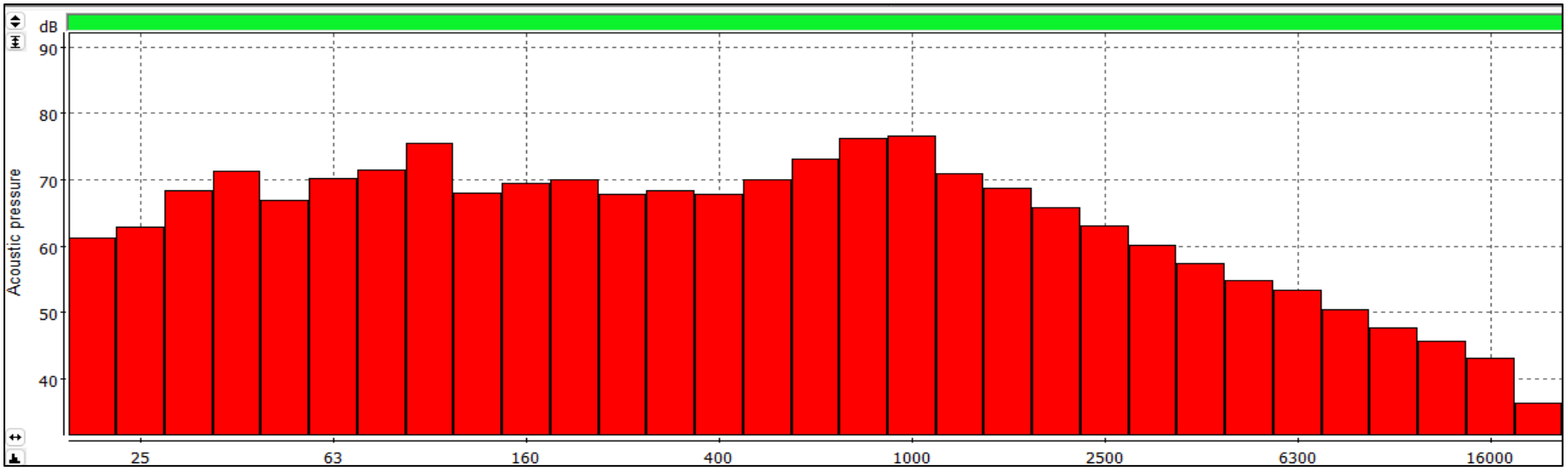

Figure 6-6 NSL2 Day Run 1 of 1 Third Band Octave

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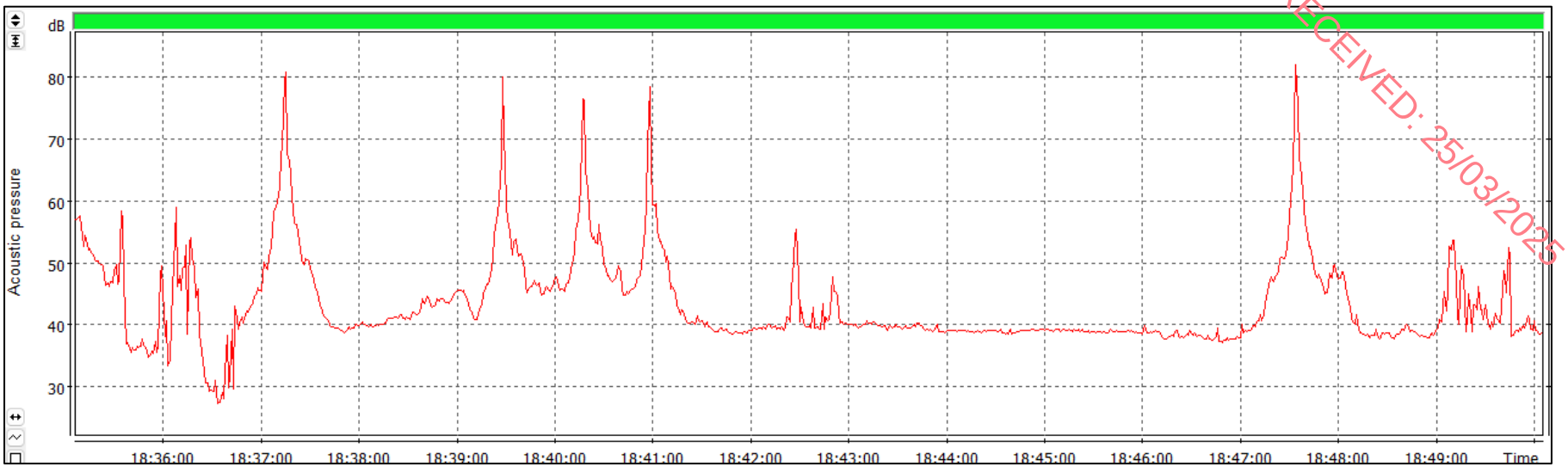

Figure 6-7 NSL2 Night Run 1 of 1

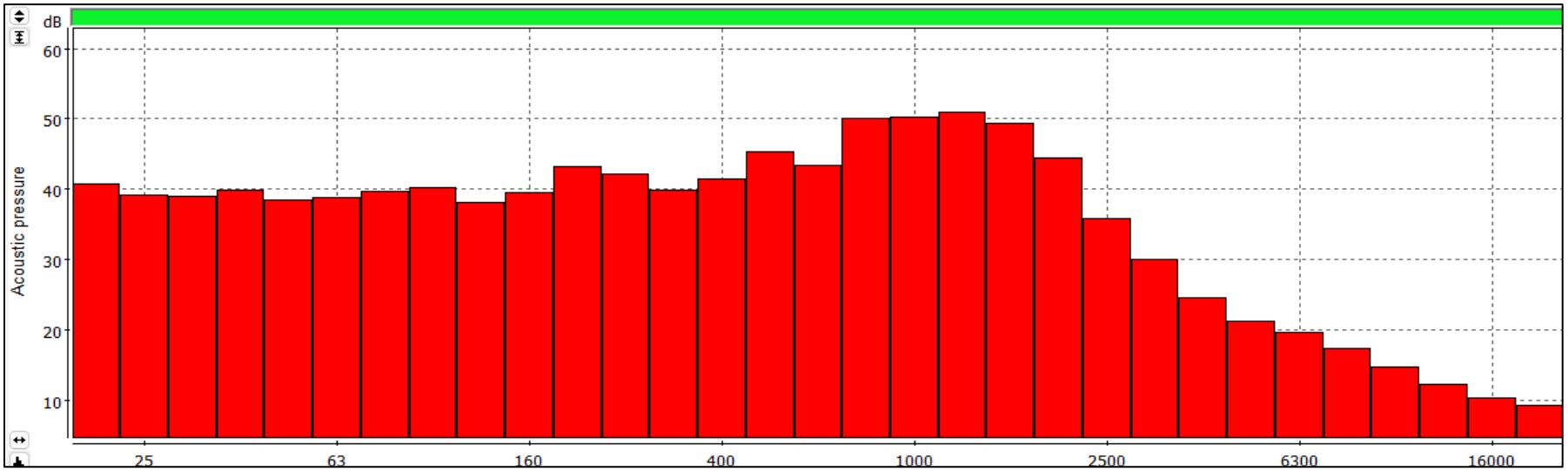

Figure 6-8 NSL2 Night Run 1 of 1 Third Band Octave

Location NSL3

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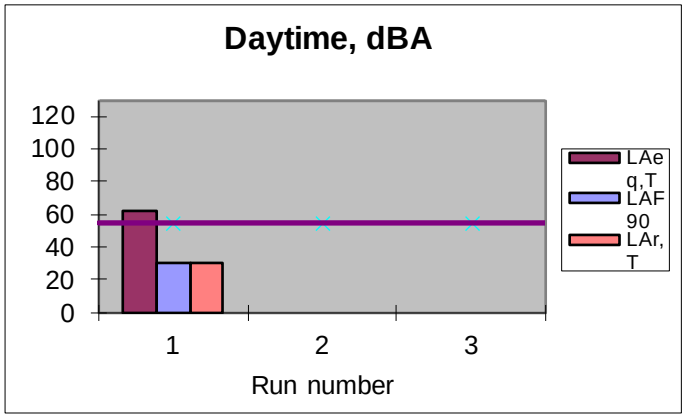

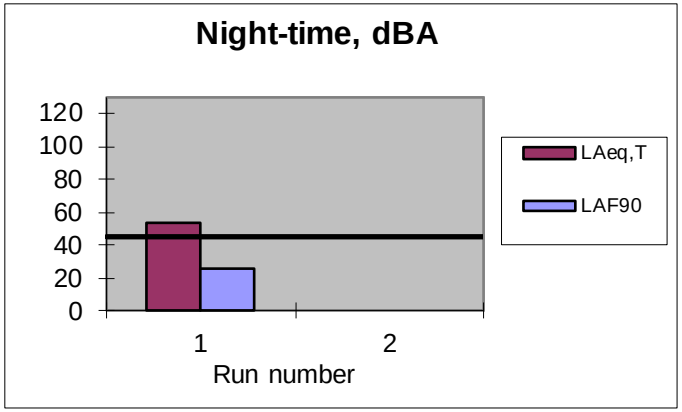

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}[1]	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 088	18/01/2024 13:46	62	30	57	No	N/A	No	30	Road Traffic	HGV'S	Yes
Night-time	1	LEN 089	18/01/2024 18:11	54	26	47	No	N/A	No	26	Road Traffic	None	Yes

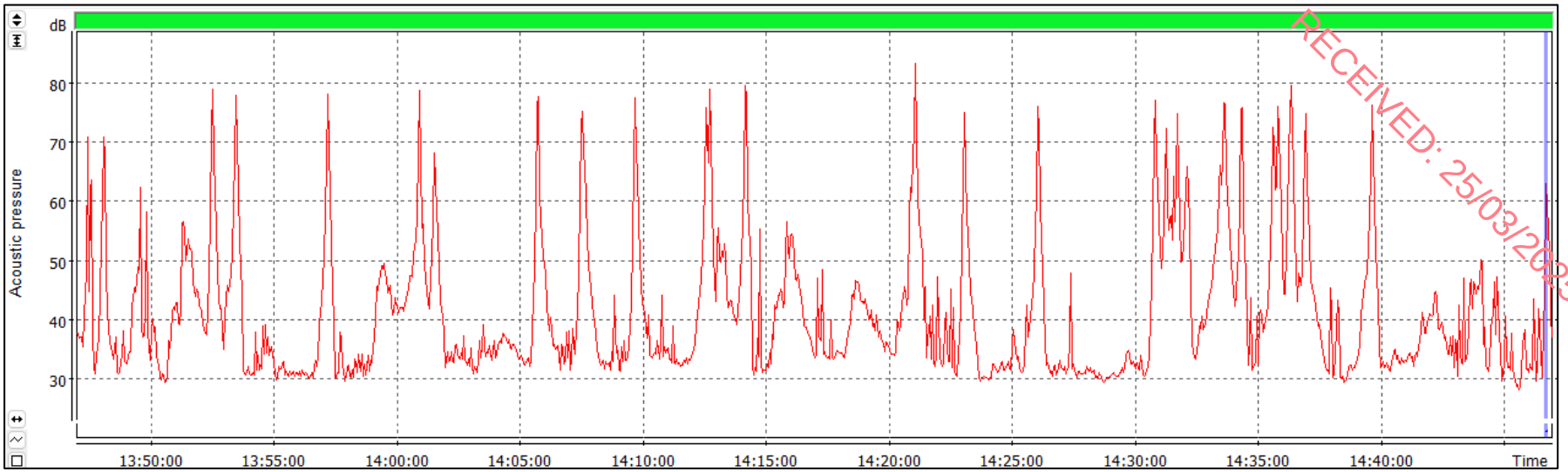

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Figure 6-9 NSL3 Day Run 1 of 1

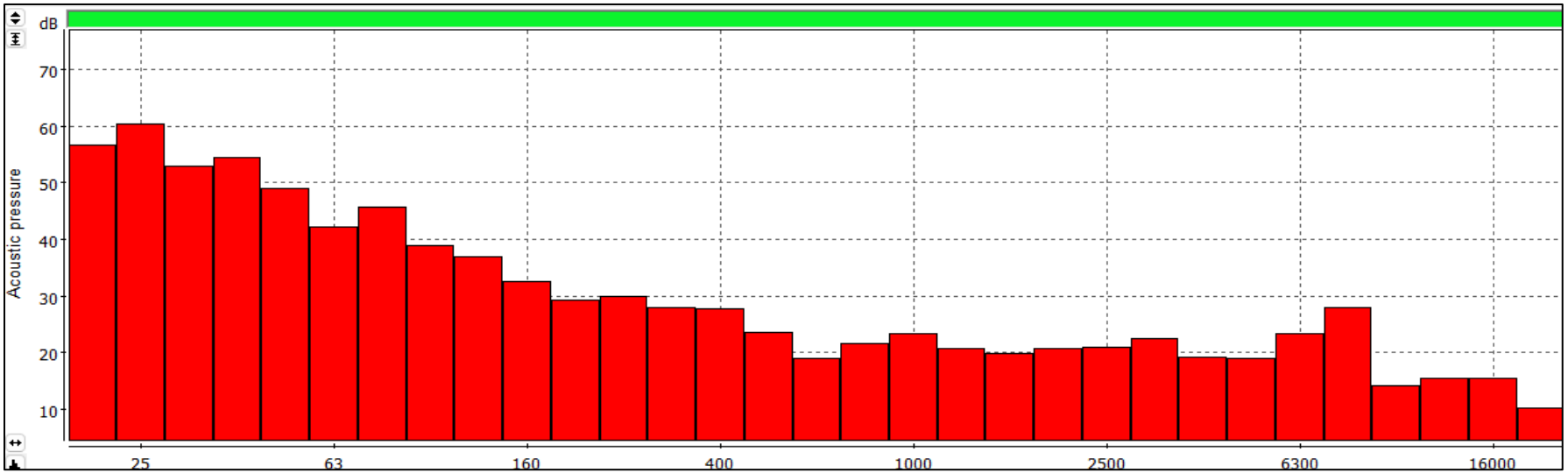

Figure 6-10 NSL3 Day Run 1 of 1 Third Band Octave

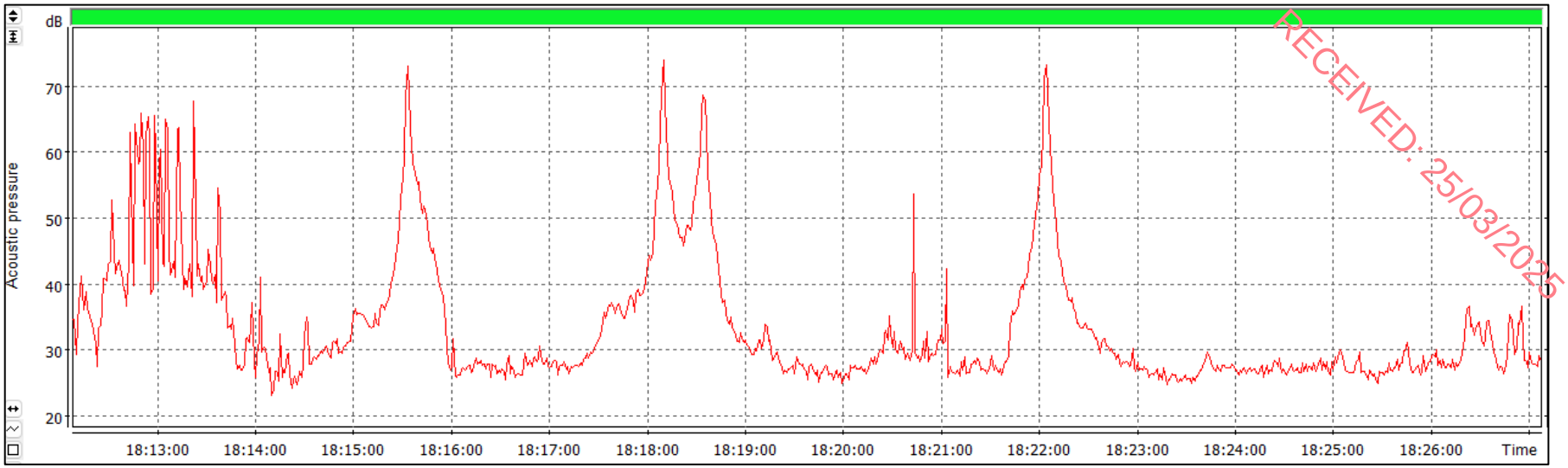

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Figure 6-11 NSL3 Night Run 1 of 1

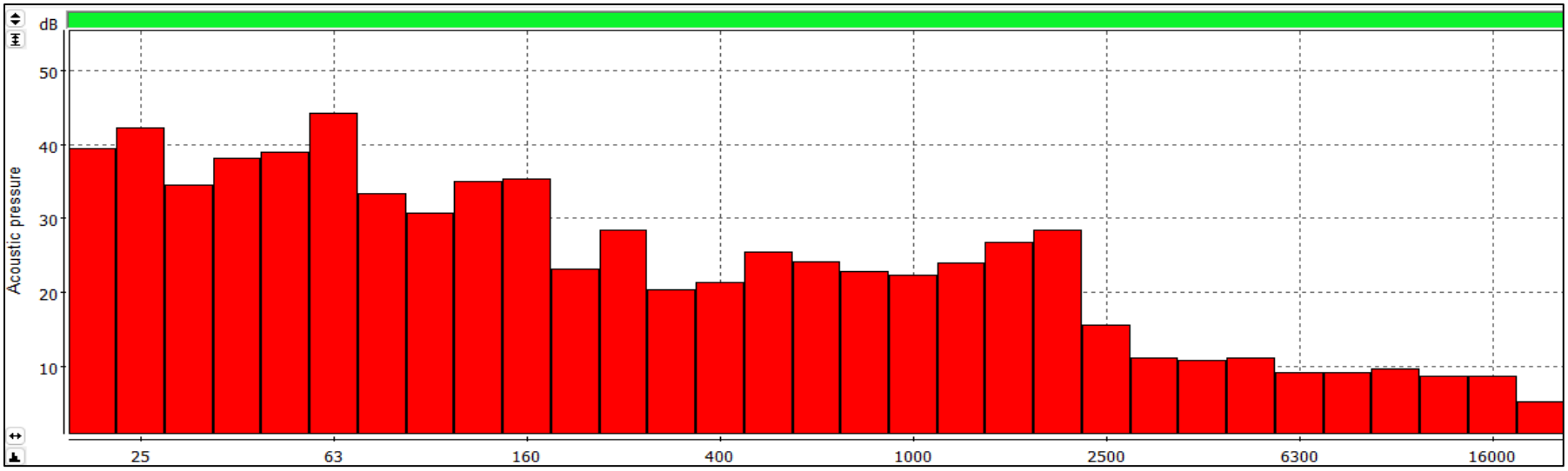
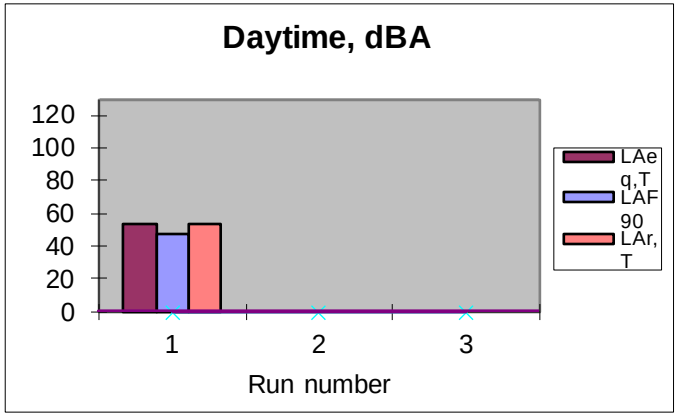
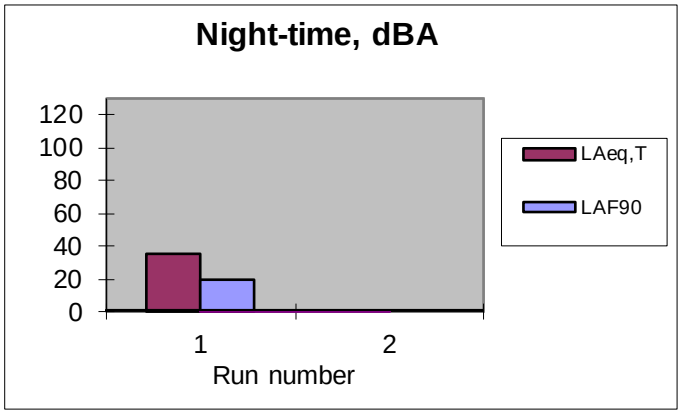


Figure 6-12 NSL3 Night Run 1 of 1 Third Band Octave

Location N4





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Period	Run	LEN	Date/Time	$LAeq_{,T}$	$LAF90^{1}$	LAF10	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $LAr_{,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 089	18/01/2024 15:11	54	47	56	No	N/A	No	54	Road Traffic	HGV's	N/A
Night-time	1	LEN 089	18/01/2024 18:35	36	20	35	No	N/A	No	36	Road Traffic	None	N/A

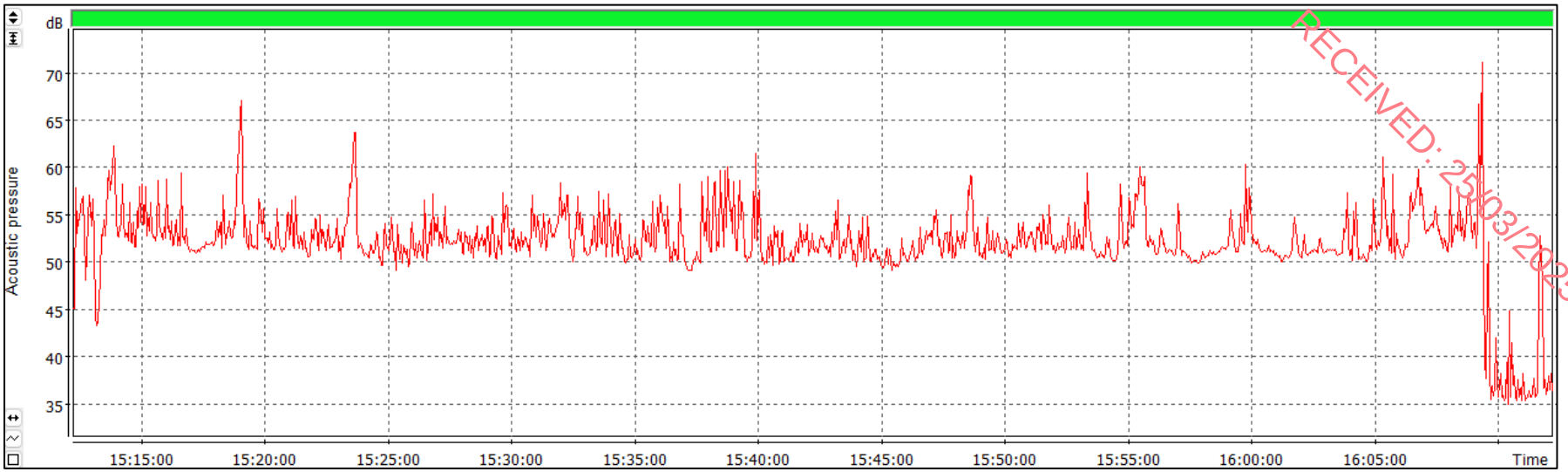

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Figure 6-13 N4 Day Run 1 of 1

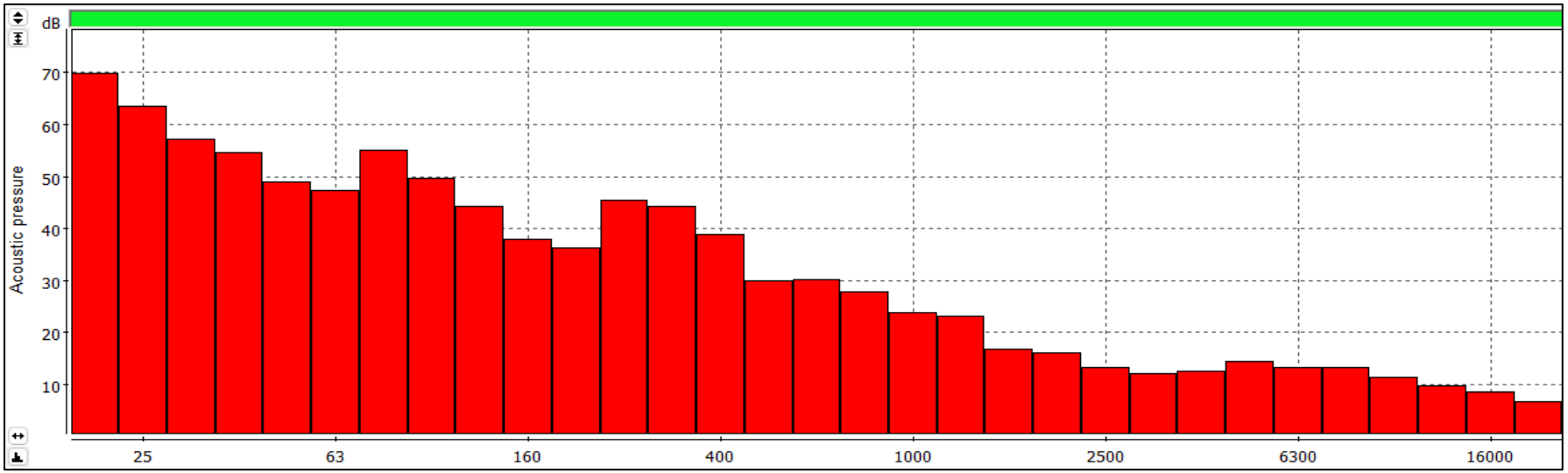
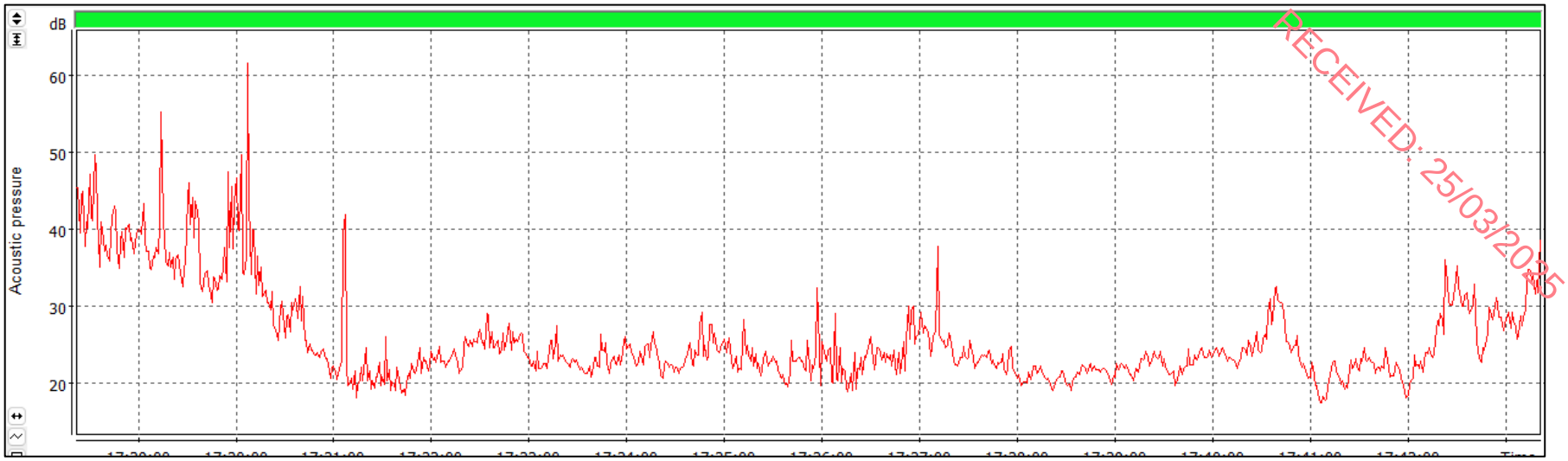


Figure 6-14 N4 Day Run 1 of 1 Third Band Octave



RECEIVED: 25/03/2025

Figure 6-15 N4 Night Run 1 of 1

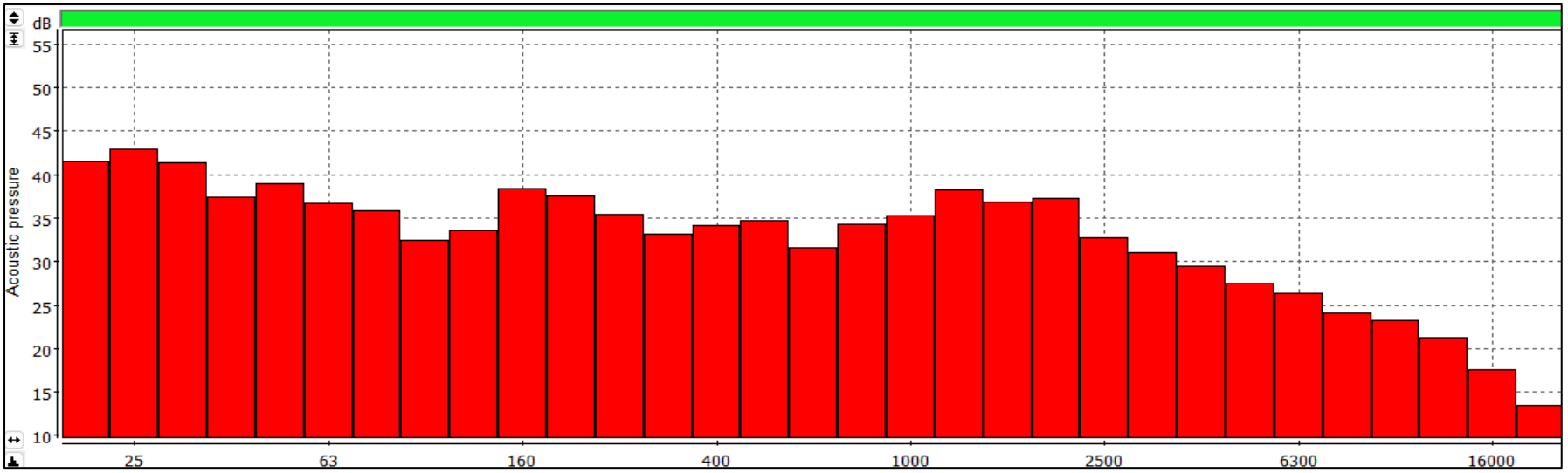


Figure 6-16 N4 Night Run 1 of 1 Third Band Octave

7. Conclusion

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LAeq represents the ambient sound levels in the area from sources near and far. The statistical noise levels of L10 and L90 are the noise levels exceeded for 10% and 90% respectively of the measurement period. A small difference in LAeq, L10 and L90 indicates a constant noise emission (or a lack of intermittent noise). The greater the difference between the LAeq, L10 and L90 indicates intermittent noise sources such as local traffic. Where external noise sources such as local road traffic have had a considerable impact on monitoring results due to the close proximity of some monitoring points to the adjacent public road, the L90 is chosen as the best descriptor of site noise.

According to Condition 6 of the grant of planning permission:

"During the operational phase of development, the noise level at existing sensitive locations shall not exceed a Laeq (1 hour) of 55dB (A) between 0800 and 1800 and an Laeq (15 minutes) of 45 dB (A) between 1800 and 0800. Noise monitoring shall be carried out at the noise monitoring locations N1 to N4 as indicated in the EIS documentation on a quarterly basis in accordance with the EPA "Environmental Noise Survey – Guidance Document", 2003".

Monitoring locations NSL2 and NSL3 are considered to be "noise sensitive locations" as defined by the EPA while N1 and N4 are defined as "boundary noise locations" where the specified limit values do not apply. During both daytime and night-time monitoring periods, noise emission values at both NSL2 and NSL3 were within the prescribed limits as stated in the planning conditions.

Appendix 1 Report Terminology

RECEIVED: 25/03/2025

Noise Monitoring Parameters	
Survey	The measurement of noise over one or more days and is made up of a number of monitoring runs with one or more noise meters.
Run or monitoring run	A single measurement at one location to determine noise level. A number of monitoring runs will be typically be made at each location. The duration of a monitoring run is typically 15 or 30 minutes and is stipulated in the licence.
dB(A)	This is the unit used to quantify noise measurements. "dB" stands for decibel and the "A" indicates that the noise reading is A-weighted and therefore is a measurement of noise audible to the human ear. The scale is logarithmic.
$L_{Aeq,T}$	This parameter is measured on-site using a noise meter for a specified time period (T minutes). It represents the average noise level that occurred over that period.
Rated Noise Level or $L_{Ar,T}$	The Rated Noise Level is equal to $L_{Aeq,T}$ plus any penalty for confirmed tonal and/or subjective impulsive. The penalty is only added for daytime and evening monitoring.
L_{AF10} and L_{AF90}	The L_{AF10} and L_{AF900} are both statistical noise levels. L_{AF10} indicates that for 10% of the monitoring period, the sound levels were greater than the quoted value. L_{AF90} indicates that for 90% of the monitoring period, the sound levels were greater than the quoted value. The L_{AF90} indicates the background noise levels if short-term, intermittent noise sources were ignored e.g. a passing car. The L_{AF10} can be used to determine the effect to which these short-term noise sources effect the overall average reading i.e. if the L_{AF10} is very different to the L_{AF90}, then intermittent noise is a significant source of noise
L_{AFmax}	The maximum RMS A-weighted sound pressure level occurring within a specified time period. Measured using the "Fast" time weighting.
Continuous	Noise produced without interruption.
Impulsive Noise	A noise of short duration (typically less than one second), the sound pressure of which is significantly higher than the background; brief and abrupt.
Intermittent Noise	Noise produced on discontinuous basis e.g. equipment operating in cycles or events such as single passing vehicle or aircraft.
Tonal Noise	Noise, which contains a clearly audible, tone i.e. a distinguishable, discrete or continuous note (whine, hum, drone, screech, etc.).

Appendix 2 Confirmation of tonal noise

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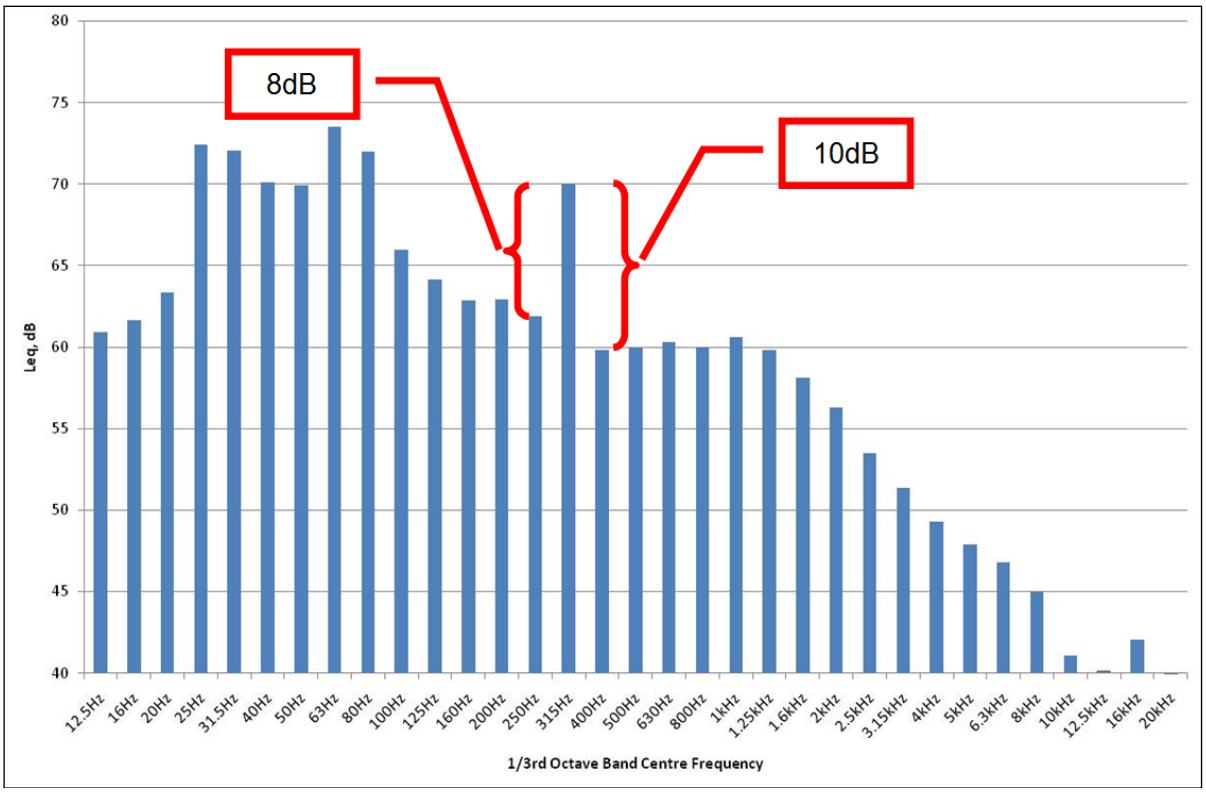
The subjective identification of tonal noise is based on the interpretation of the third octave band results. Where the sound level for a third octave band is greater than or equal to both the adjacent third octave bands by some constant level difference, then tonal noise is confirmed. The level differences vary by frequency and are shown in the table below.

Frequency range	Level Difference
25 Hz to 125 Hz	15 dB
160 Hz to 400 Hz	8 dB
500 Hz to 10,000 Hz	5 db

In the example below, tonal noise was subjectively assessed. The third band monitoring results were therefore reviewed and are shown below. A peak can be seen at 315 Hz. This peak is 8 dB above the lower adjacent third octave and 10 dB higher than the higher adjacent third octave band. From a review of the table above, the Level Difference for 315 Hz is 8 dB.

For the example below, tonal noise is confirmed as there is a difference greater than or equal to 8 dB either side of 315 Hz.

Knowing the frequency of the confirmed tonal noise can help in identifying the source of the noise and its reduction.



Appendix 3 LAFmax data

Some authorities require that LAFmax be reported, however, there are no limits set for this parameter. In order to keep the body of the report uncluttered, the data regarding this parameter is reproduced below.

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Location	NSL	Period	LAFmax
N4	No	Night-time	69.9
N4	No	Day	81.7
NL1	No	Day	83.9
NL1	No	Night-time	87.6
NSL2	Yes	Day	91.6
NSL2	Yes	Night-time	84.4
NSL3	Yes	Day	87.2
NSL3	Yes	Night-time	76.3

Appendix 4 Certificates of Calibration

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AcSoft
Noise, Vibration & Air Quality

CALIBRATION CERTIFICATE

Date of issue: 16-10-2023 **Certificate No:** 1506084-1 **Page:** 1/8

INSTRUMENT DETAILS	Manufacturer:	**SVANTEK**	
	Model:	**SVAN 971**	
	Serial No.:	40395	
	Description:	Sound Level Meter	
SENSOR DETAILS	Manufacturer:	**ACO**	**SVANTEK**
	Model:	**7052E**	**SV18**
	Serial No.:	87404	42615
	Description:	Microphone	Preamplifier
CUSTOMER	Environmental Efficiency		
ENVIRONMENTAL CONDITIONS	Temperature:	21.7 – 22.8	°C
	Humidity:	51 – 52	%
	Pressure:	101.9 – 102.0	kPa
DATE OF CALIBRATION	16-10-2023		
APPROVED BY	A. Pullinger		

AcSoft
Noise, Vibration & Air Quality

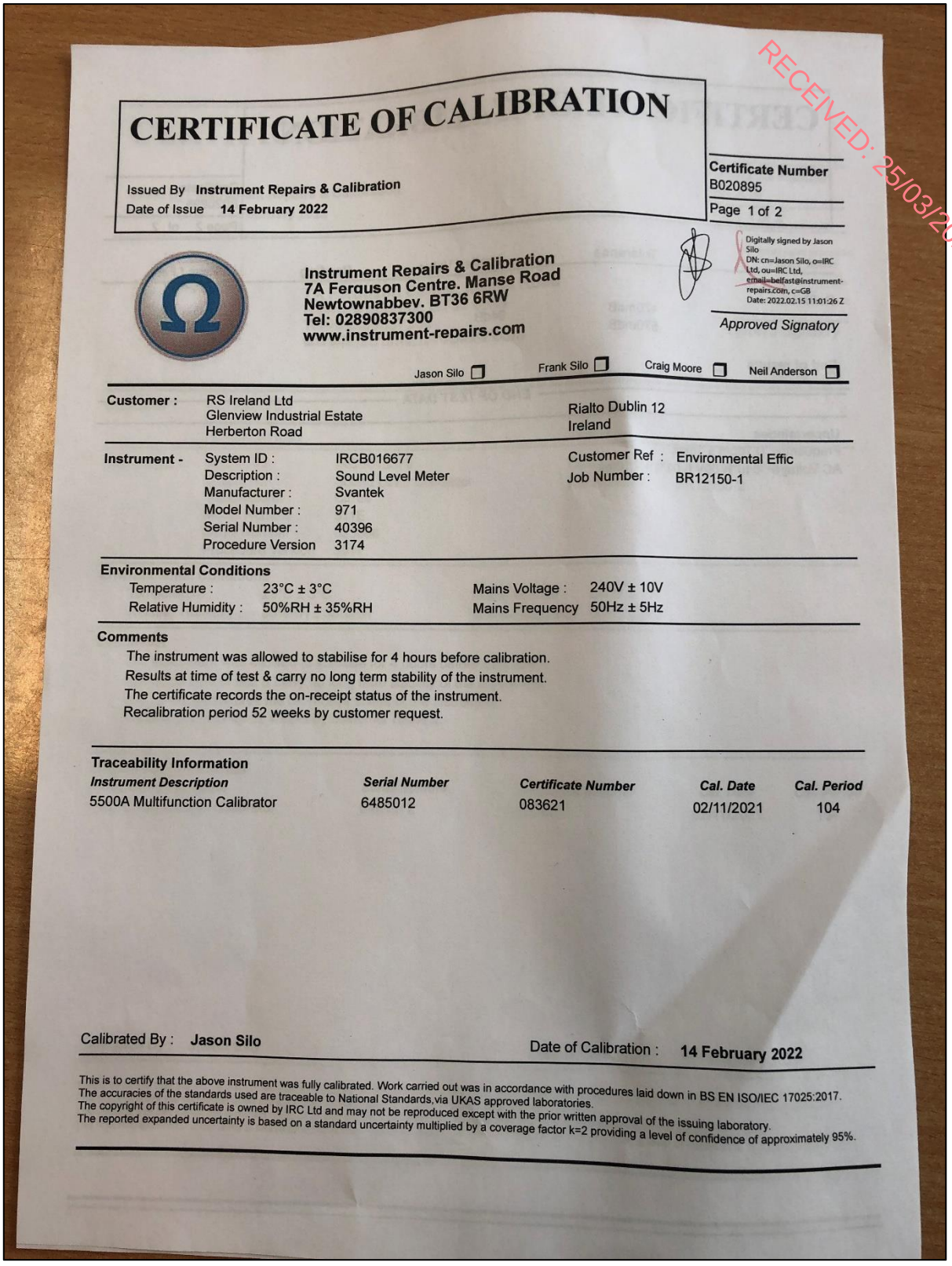
AcSoft Calibration | 11 Abbey Court
Fraser Road | Priory Business Park
MK44 3WH | Bedford

+44 (0) 1234 639550

www.acsoft.co.uk

This calibration was performed by AcSoft Calibration.
AcSoft Calibration is a trading name of AcSoft Ltd, 11 Abbey Court, Fraser Road, Priory Business Park, Bedford, MK44 3WH

Figure 7-1 Len 088 Certificate of Calibration



CERTIFICATE OF CALIBRATION

Issued By **Instrument Repairs & Calibration**
Date of Issue **14 February 2022**

Certificate Number
B020895
Page 1 of 2

RECEIVED: 25/03/2025

Digitally signed by Jason Silo
DN: cn=Jason Silo, o=IRC Ltd, ou=IRC Ltd, email=belfast@instrument-repairs.com, c=GB
Date: 2022.02.15 11:01:26 Z

Approved Signatory

Instrument Repairs & Calibration
7A Ferguson Centre. Manse Road
Newtownabbey. BT36 6RW
Tel: 02890837300
www.instrument-repairs.com

Jason Silo ☐ Frank Silo ☐ Craig Moore ☐ Neil Anderson ☐

Customer : RS Ireland Ltd
Glenview Industrial Estate
Herberton Road
Rialto Dublin 12
Ireland

Instrument -

System ID :	IRCB016677	Customer Ref :	Environmental Effic
Description :	Sound Level Meter	Job Number :	BR12150-1
Manufacturer :	Svantek		
Model Number :	971		
Serial Number :	40396		
Procedure Version	3174		

Environmental Conditions

Temperature :	23°C ± 3°C	Mains Voltage :	240V ± 10V
Relative Humidity :	50%RH ± 35%RH	Mains Frequency	50Hz ± 5Hz

Comments

The instrument was allowed to stabilise for 4 hours before calibration.
Results at time of test & carry no long term stability of the instrument.
The certificate records the on-receipt status of the instrument.
Recalibration period 52 weeks by customer request.

Traceability Information

Instrument Description	*Serial Number*	*Certificate Number*	*Cal. Date*	*Cal. Period*
5500A Multifunction Calibrator	6485012	083621	02/11/2021	104

Calibrated By : **Jason Silo**
Date of Calibration : **14 February 2022**

This is to certify that the above instrument was fully calibrated. Work carried out was in accordance with procedures laid down in BS EN ISO/IEC 17025:2017.
The accuracies of the standards used are traceable to National Standards,via UKAS approved laboratories.
The copyright of this certificate is owned by IRC Ltd and may not be reproduced except with the prior written approval of the issuing laboratory.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%.

Figure 7-2 LEN 089 Certificate of Calibration

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CERTIFICATE OF CALIBRATION

Issued By **Instrument Repairs & Calibration**
Date of Issue **20 March 2023**

Certificate Number
B024621
Page 1 of 2

Instrument Repairs & Calibration
7A Ferguson Centre, Manse Road
Newtownabbey, BT36 6RW
Tel: 02890837300
www.instrument-repairs.com

Digitally signed by Frank Silo
DN: cn=Frank Silo, o=IRC Ltd, ou=IRC td, email=frank.silo@instrument-repairs.com, c=GB
Date: 2023.03.20 12:59:55 Z

Approved Signatory

Jason Silo ☐ Frank Silo ☐ Craig Moore ☐ Neil Anderson ☐

Customer : RS Ireland Ltd
Glenview Industrial Estate
Herberton Road
Rialto Dublin 12
Ireland

Instrument -
System ID : IRCB016678
Description : Sound Level Calibrator
Manufacturer : Cirrus
Model Number : 511E
Serial Number : 035066
Procedure Version 3517

Customer Ref : Environmental Effic
Job Number : BR14110-1

Environmental Conditions
Temperature : 23°C ± 3°C
Relative Humidity : 50%RH ± 35%RH
Mains Voltage : 240V ± 10V
Mains Frequency 50Hz ± 5Hz

Comments
The instrument was allowed to stabilise for 4 hours before calibration.
Results at time of test & carry no long term stability of the instrument.
The certificate records the on-receipt status of the instrument.

Recalibration period 52 weeks by customer request.

Traceability Information

Instrument Description	*Serial Number*	*Certificate Number*	*Cal. Date*	*Cal. Period*
5500A Multifunction Calibrator	6485012	083621	02/11/2021	104

Calibrated By : **Frank Silo**
Date of Calibration : **20 March 2023**

This is to certify that the above instrument was fully calibrated. Work carried out was in accordance with procedures laid down in BS EN ISO/IEC 17025:2017.
The accuracies of the standards used are traceable to National Standards,via UKAS approved laboratories.
The copyright of this certificate is owned by IRC Ltd and may not be reproduced except with the prior written approval of the issuing laboratory.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%.

Figure 7-3 LEN 003 Certificate of Calibration

Appendix 5 Certificate of Competence

Institute of Acoustics

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Certificate of Competence in Environmental Noise Measurement

This is to certify that

Rebecca Stokes

has completed a course of instruction approved by the Institute of Acoustics and designed to enable the candidate to undertake environmental noise measurements in a competent manner and has achieved a satisfactory performance in the written and practical examinations

Jonty Stewart
Education Committee Chairman

Allan Chesney
Chief Executive Officer

Examination Date: 19 May 2023
Centre: Shorcontrol Safety Ltd
Candidate Number: ENM260

For the purposes of Credit Transfer or Professional Development this Certificate may be considered to be equivalent to 25 points or hours

The Institute of Acoustics Limited, Silbury Court, 406 Silbury Boulevard, Milton Keynes MK9 1AF
T: +44 (0)300 999 9675 E: ioa@ioa.org.uk W: ioa.org.uk
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2024 Q2

Air, Noise & Groundwater Monitoring Results

Environmental Efficiency

Bray (Co. Wicklow) 01 276 1428
Lisburn (Co. Antrim) 028 9262 6733
Birmingham (U.K.) 0121 673 1804

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Groundwater Monitoring Report Q2 2024

for

Kilchreest Quarry

Document Number: 2589-32 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

Environmental Services for Industry Including –

- Air, Noise & Water Monitoring
- Bund Testing
- Environmental Management Systems to ISO 14001
- Air & Noise Modelling
- Energy & Water use reduction
- IPC/IED/Waste Licence Compliance
- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations

- ISO9001:2008 Registration No. 2015/2170
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- EMPI Membership

Document Lead Sheet

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Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	Isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Groundwater Monitoring Report
	Document number	2589-32
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	RS	Date last site visit	17/06/2024
	Document author	RS	Date written	05/07/2024
	Approved by	RTS	Date approved	10/07/2024
	Report version nr	1.00		
	Issued by	RS	Date report issued	10/07/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	Choose an item.
	If satisfactory, when is next test/assessment due?	Q3 2024

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Report History

1.00 Issued

Contents

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1. Introduction

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Environmental Efficiency Consultants (Ire) Limited was commissioned by Kilchreest Quarry to conduct groundwater sampling and analysis on a quarterly basis. The sampling was conducted from two boreholes BH1 and BH3 as indicated in the map below. Borehole BH2 has been decommissioned and no longer exists on site.

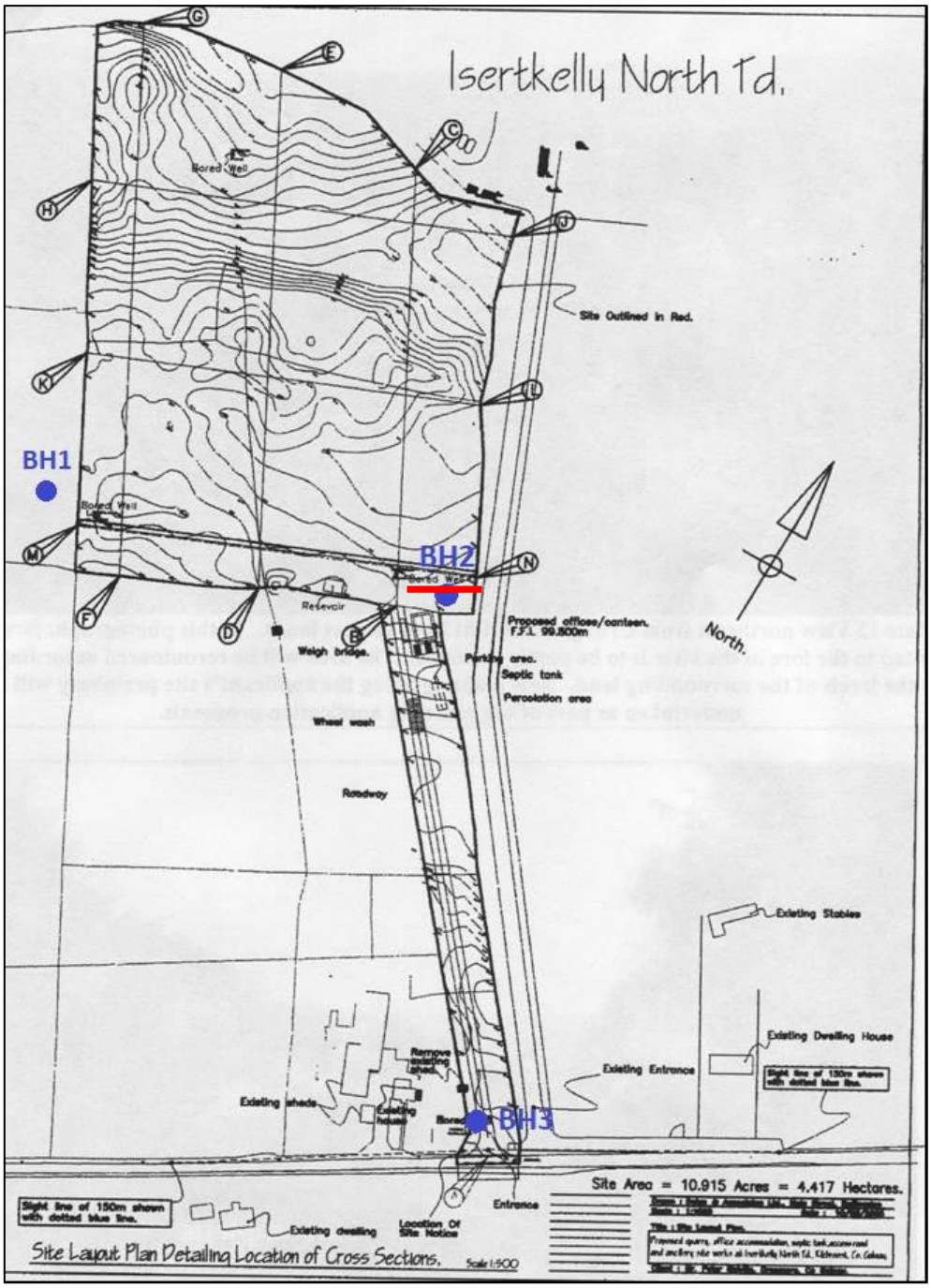

Figure 1-1 Borehole Monitoring Locations

2. Executive Summary

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The majority of the results for BH3 fall within the relevant guideline values for the monitoring period Q2 2024. However, the faecal coliform bacteria was above the recommended limit with values. The levels of phosphate detected were < 0.20. The recommended limit for groundwater is 0.035 mg/l. The limit of the detection in the laboratory does not detect levels to this degree.

The results for Certificate of analysis can be seen in Appendix 1.

Please note sampling could not be conducted at BH1 as the borehole was blocked.

3. Results

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Groundwater and surface water quality was assessed by comparing analytical results to the most relevant of the following water quality guidelines – Generic Assessment Criteria (GAC):

- European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016. S.I. No. 366 of 2016.
- Environmental Protection Agency, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, (Interim Guideline Values (IGVs)), 2003.

The results for the groundwater analysis can be seen in the table below.

*Please note sampling could not be conducted at BH1 as the borehole was blocked.

Table 2 - 1 BH3 Monitoring Results Q2 2024

Parameter	Result	Units	Generic Assessment Criteria	Source
COD	< 10	mg O2/l	No Value	-
Ammonia	< 0.050	mg/l	175 µg/l	GTV
Nitrate	9.2	mg/l	37.5 mg/l	GTV
Nitrite	< 0.020	mg/l	375 µg/l	GTV
Phosphate	< 0.20	mg/l	0.035 mg/l	GTV
Chloride	22	mg/l	187.5 mg/l	GTV
TPH (C6 – C10)	< 0.10	µg/l	0.10 µg/l	GTV
TPH (C10 – C21)	< 0.10	µg/l	0.10 µg/l	GTV
TPH (C21 – C40)	< 0.10	µg/l	0.10 µg/l	GTV
Total TPH (C6 – C40)	< 10	µg/l	7.5 µg/l	GTV
Total Organic Carbon	< 2.0	mg/l	No Value	-
Electrical Conductivity	590	µS/cm	1875 µS/cm	GTV
Faecal Coliform Bacteria	10	cfu/100ml	0	IGV
Escherichia Coli Bacteria	0	cfu/100ml	0	IGV
Ground water Level	19.1	Meters	N/A	-

GTV = Groundwater Threshold Value. Outlined in Groundwater Regulations (S.I. No. 9 of 2010 / S.I. No. 366 of 2016).

IGV = Interim Guideline Values (IGVs) presented by EPA in 2003.

4. Discussion

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Faecal coliform bacteria was above the recommended limit for the monitoring period Q2 2024. During and after precipitation, bacteria, and other harmful microorganisms from any of these sources may be washed into rivers, lakes, or groundwater. Poor well construction or poor maintenance can increase the risk of groundwater contamination. Total coliform bacteria are not likely to cause illness, but their presence indicates that your water supply may be vulnerable to contamination by more harmful microorganisms. The presence of E.coli in water indicates recent faecal contamination and may indicate the possible presence of disease-causing pathogens, such as bacteria, viruses, and parasites. Although most strains of E.coli bacteria are harmless, certain strains, such as E.coli 0157:H7, may cause illness. The level of phosphate was < 0.20 mg/l with the groundwater threshold value being 0.035 mg/l. The laboratory limit of detection cannot detect levels to this extend. All other results for the groundwater monitoring of BH3 fall within the recommended water quality guidelines for the monitoring period Q2 2024.

The generic assessment criteria values come from the following documents:

- European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016. S.I. No. 366 of 2016.
- Environmental Protection Agency, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, (Interim Guideline Values (IGVs)), 2003.

Appendix 1 Certificate of Analysis GW Monitoring

RECEIVED: 25/03/2025

Environmental Efficiency
Bray 01 276 1428
Lisburn 028 9262 6733
Birmingham 0121 673 1804

Certificate of Analysis 2589-GW3-Q2-2024

Emission point data

Client:	Kilchreest Quarry
Site:	Kilchreest
Site code:	KT
Emission point	GW3
Licence type	County Council
Licence No.	05-2870
Project Manager	RS
Analysed by:	Chemtest
Sample type:	Water

Sampling data

Results for Quarterly Monitoring Period	Q2 2024
Date sample collected	17/06/2024
Time sample collected	14:30
Sample collection	SOP 01.01
Sample type	Groundwater

Results

Parameter	Result	ELV	Units	Accred.	Technique
COD	< 10	n/s	mg O2/l	UKAS	Colorimetric Analysis
Ammonia	<0.050	n/s	mg/l	UKAS	Colorimetric Analysis
Nitrate	9.2	n/s	mg/l	UKAS	Colorimetric Analysis
Nitrite	< 0.020	n/s	mg/l	UKAS	Colorimetric Analysis
Phosphate	< 0.20	n/s	mg/l	None	Colorimetric Analysis
Chloride	22	n/s	mg/l	UKAS	Colorimetric Analysis
TPH (C6 - C10)	< 0.10	n/s	ug/l	None	GC FID Detection
TPH (C10 - C21)	< 0.10	n/s	ug/l	None	GC FID Detection
TPH (C21 - C40)	< 0.10	n/s	ug/l	None	GC FID Detection
Total TPH (C6 - C40)	< 10	n/s	ug/l	UKAS	GC FID Detection
Total Organic Carbon	< 2.0	n/s	mg/l	UKAS	Catalytic Oxidation
Electrical Conductivity	590	n/s	µS/cm	UKAS	Conductivity Meter
Faecal Coliform Bacteria	10	n/s	cfu/100ml	INAB	MTM025
Escherichia Coli Bacteria	0	n/s	cfu/100ml	INAB	MTM025
Ground Water Level	19.1	n/s	Meters	N/A	Dip Meter

Signed (Lab Manager)

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- Occupational Dust & Noise

Affiliations & Accreditations
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- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- Member Environmental Services Association
- EMPI Membership

ISO 14001
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Environmental Efficiency

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Lisburn (Co. Antrim) 028 9262 6733
Birmingham (U.K.) 0121 673 1804

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Dust Deposition Report Q2 2024

for

Kilchreest Quarry

Document Number: 2589-33 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
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- ISO9001:2008 Registration No. 2015/2170
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Document Lead Sheet

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Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Dust Monitoring Report
	Document number	2589-33
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	RS	Date last site visit	17/06/2024
	Document author	RS	Date written	08/07/2024
	Approved by	RTS	Date approved	10/07/2024
	Report version nr	1.00		
	Issued by	RS	Date report issued	10/07/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q3 2024

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Report History

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Contents

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1. Introduction

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Environmental Efficiency Consultants (Ire) Limited was commissioned by Kilchreest Quarry to conduct dust deposition monitoring and analysis on a quarterly basis. The sampling was conducted from three dust monitoring points D1, D2 and D3 as indicated in the map below.

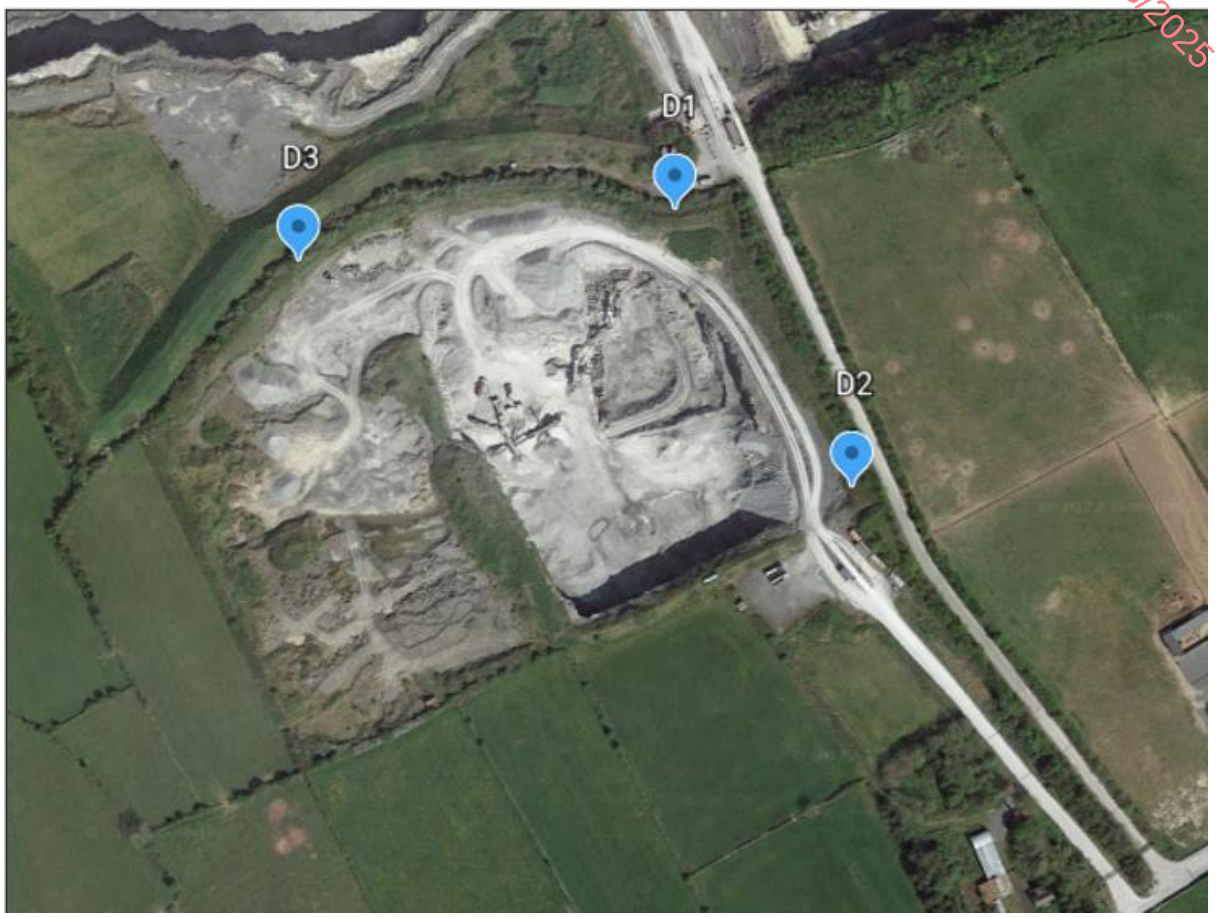

Figure 1-1 Dust Monitoring Locations

2. Executive Summary

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Environmental Efficiency conducted environmental dust monitoring at three locations in Kilchreest Quarry for Q2 2024.

All results for the Bergerhoff monitoring points were below the TA Luft Dustfall limit.

3. Methodology

Environmental Efficiency Consultants Ltd conduct environmental dust deposition monitoring on a quarterly basis at Kilchreest Quarry. Environmental Efficiency collects Bergerhoff bottles on-site following each monitoring period and, upon return to the laboratory, conducts testing in accordance with the company's internal SOP's; SOP 03.04 Determination of Suspended Solids/SOP 99.12 Total Dust Deposition, to determine Total Dust Deposition at each monitoring location in mg/m2/day. Results are subsequently compared to a dust limit value of 350 mg/m2/day, as prescribed by German TA Luft Guidelines, to determine whether dust levels constitute levels which are not acceptable as per this environmental quality standard (i.e., levels at which there may be nuisance caused or hazard posed).

4. Results

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Environmental dust monitoring results for each monitoring period are presented in the tables below. Certificates of analysis are provided in Appendix 1.

Table 4 - 1 Dust Monitoring Results – Q2 2024

Location	Units of Measurement	Results	Prescribed Limit Value	Compliant
D1	mg/m^2/day	183.8	350	Yes
D2	mg/m^2/day	187.5	350	Yes
D3	mg/m^2/day	19.3	350	Yes

5. Conclusion

Environmental Efficiency conducted environmental dust monitoring at three locations in Kilchreest Quarry for Q2 2024. The dust fall limit specified for the quarry is based on the German TA Luft Environmental Guidelines which specifies a limit of 350 mg/m^2/day. All results for the three monitoring locations were below the prescribed limit value for Q2 2024.

Appendix 1 Certificate of Analysis

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Lisburn 028 9262 6733
Birmingham 0121 673 1804

Certificate of Analysis for Total Dust Deposition

Project No: 2589
Client: Kilchreest Quarry
Site: Kilchreest
Site code: KC
Period: Q2 2024
Collected by: RS
Analysed by: RS
Sample method: Bergerhoff bottle
Sample type: Dust fall
SOP: 99.12

Results

Location	Start monitoring	End monitoring	Date analysed	Days on site	Result, mg/m2 day
D1	01-May-24	31-May-24	08-Jul-24	31	183.8
D2	01-May-24	31-May-24	08-Jul-24	31	187.5
D3	01-May-24	31-May-24	08-Jul-24	31	19.3

Signature

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Environmental Noise Monitoring Q2 2024

for

Kilchreest Quarry

Document Number: 2589-31 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
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Document Lead Sheet

Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	isertkelly ltd.
	Permit/Lic No. (if applic)	05-2870

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Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Noise Monitoring Report
	Document number	2589-31
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	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	RS	Date last site visit	17/06/2024
	Document author	RS	Date written	05/07/2024
	Approved by	RTS	Date approved	10/07/2024
	Report version nr	1.00		
	Issued by	RS	Date report issued	10/07/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q3 2024

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Table of Contents

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1. Introduction

The client is required to carry out a noise survey at various specified locations in the vicinity of the site. This document reports the results of the noise survey.

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2. Executive Summary

A noise survey to EPA NG4 was undertaken on 17-Jun-24. The compliance of the locations with the specified limits is shown in the table below.

Table 2-1 Summary of compliance

Location	Noise Sensitive Location	Day	Night-time
N1	No	N/A	N/A
N4	No	N/A	N/A
NSL2	Yes	Compliant	Compliant
NSL3	Yes	Compliant	Compliant

3. Facility Description

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The following activities are carried out on the site

- Hauling of materials from the site using HGV lorries.
- The operation of machinery.

The site has the hours of operation shown in the table below.

Table 3-1 Hours of operation

Period	Operational hours	Surveyed
Day	08:00 – 17:00	Yes
Evening - No monitoring	Not operational	No
Night-time	Not operational	Yes

4. Monitoring requirements

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Noise is required to be monitored at the locations shown in the table immediately below. The noise limits applicable, the required number of sampling periods (e.g. number of separate measurements at one location during one monitoring period, e.g. daytime) and the required duration of each sampling period are shown in the second table below. Note that noise monitoring was only carried out during periods where there was activity or equipment running on the site.

Table 4-1 Locations monitored

Location	Location Description	NSL
N1	Entrance	No
N4	Boundary	No
NSL2	Beside house	Yes
NSL3	Beside house	Yes

Table 4-2 Periods monitored and limits

Monitoring Period	Monitored	NSL	Limit. dBA	Allowance, dBA	T (Sampling Period), minutes	No. of runs
Day	Yes	Yes	55	0	60	1
Night-time	Yes	Yes	45	0	15	1
Day	Yes	No	N/A	N/A	60	1
Night-time	Yes	No	N/A	N/A	15	1

5. Sampling Methodology

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5.1 Instrumentation Used

The equipment shown in the table below was used during the noise survey. All Sound Level Meters are Type I. The SLMs and calibrators are identified by a LEN (Laboratory Equipment Number) and this is shown in the table below. Calibration certificates for the equipment, where appropriate, are shown in the appendices and are referenced by the LEN.

Table 5-1 Equipment Used

Equipment used	LEN (Lab equipment Number)	Make/Model	Serial Number	Cal cert
First SLM	LEN 128	Svantek SV2	128783	Yes
Second SLM	LEN 088	Svantek SV1	40395	Yes
First Calibrator	LEN 071	Cirrus	51431	Yes
Anemometer	N/A	Testo	N/A	N/A

All noise measurements were 'A' weighted and the time-weighting 'Fast' was applied (to equate to human ear hearing). Each SLM is calibrated in the field before the start of the survey and again at the end of the survey. Unless stated otherwise in this report, there was no drift in calibration greater than 0.1 dB over the duration of the survey.

All SLMs used are capable of third band octave measurement. Third band octave readings were recorded at all locations where tonal noise was subjectively detected by the survey personnel. Where tonal noise was detected, the third band octave readings were analysed off site to verify the presence of tonal. The simplified methodology for the objective identification of tones specified in Annex D of ISO 1996K2:2007(E) is used for this purpose.

5.2 Noise Survey Personnel

The noise survey was undertaken by Environmental Efficiency staff as follows:

Author (Name & Quals)	Rebecca Stokes, IOA Certified Environmental Noise Measurement
Author (Initials)	RS

5.3 Meteorological Conditions

Weather conditions on the day of monitoring were considered appropriate for surveying purposes and therefore did not affect the readings i.e. conditions were dry and wind speed was less than 5 m/s (the normal upper limit for taking measurements).

The Sound Level Meter was also fitted with a windshield to minimise interference from potential meteorological conditions, in keeping with good practice. The meteorological conditions during the survey periods are shown below.

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Table 5-2: Meteorological Conditions

Survey	Date	Time	Av. wind speed, m/s	Temp, C	Prevailing wind direction	Weather
Start	17-Jun-24	13:29:00	1.5	16.0	N	No precipitation
Completion	17-Jun-24	19:30:00	1.9	15.0	N	No precipitation

5.4 Measurement Locations

The locations of noise monitoring locations are described in the table below and shown in Figure 5-1. Photographs of the SLM at each location are shown following the map.

Table 5-3: Description of monitoring locations

Location	Height above ground, m	Distance from reflective surface, m	Location Description	Noise sensitive location
N1	1.2	>3.5	Site entrance	No
N4	1.2	>3.5	Boundary	No
NSL2	1.2	>3.5	Beside house	Yes
NSL3	1.2	>3.5	Beside house	Yes

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Figure 5-1 Site map

Figure 5-2 SLM at N1

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Figure 5-3 SLM at NSL2

Figure 5-4 SLM at NSL3

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Figure 5-5 SLM at N4

5.5 Ground attenuation

If the intervening ground between a noise source and a measurement location is acoustically absorptive, this can result in a reduction in noise level at the receptor due to absorption of sound energy by the ground itself. On the contrary, if the intervening ground is acoustically reflective ground, its products the opposite effect

The details of the intervening ground between sources and measurement positions are described in the following table:

Table 5-4: Ground attenuation

Location	% Soft Ground	% Hard Ground	Comments
N1	85	15	No comment
N4	0	100	No comment
NSL2	0	100	No comment
NSL3	60	40	No comment

6. Noise Survey

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The measurement parameters LAeq,T, LAF90 and LAF10 plus the derived parameter LAr,T are tabulated below in the tables for each monitoring location. Associated particulars such as a description of the on-site noise and off-site noise noticed at each location are also provided where relevant. A graphical representation of the parameters LAeq,T, LAF90 and LAr,T over each monitoring period is provided in the graphs above each table.

The derived noise parameter LAr,T, termed the Rated Noise Level, includes a penalty of 5 dBA for tonal or impulsive noise where such noise is present. This penalty is normally added to LAeq,T. Where traffic or other off site noise sources are significant, the parameter LAF90 may be a better descriptor of site noise and where this is the case the Rated Noise Level is equal to LAF90 plus the penalty. In the tables below, where LAF90 is considered a better descriptor of site noise, an asterisk is appended to the measurement.

The penalty for on-site tonal noise and/or on-site impulsive noise is only applied during the daytime and evening periods. No tonal or impulsive noise is permitted during night-time; if such noise is present then this is a breach regardless of the LAeq,T or LAF90 noise level.

Where on site tonal is subjectively heard this is noted in the tables below in the column 'On site tonal?'. In all cases where on-site tonal is heard the simplified methodology for the objective identification of tones specified in Annex D of ISO 1996K2:2007(E) is used to confirm the presence of tonal. Where on site tonal is confirmed, this is shown in the tables below in the column 'Tonal confirmed'. The third octave graphs used to confirm on site tonal are shown in the discussion section.

The parameter LAFmax has no bearing on compliance and is not shown in the tables below; however, as it is may be required to be reported separately (e.g. in an Annual Environmental Report) it is included in the appendices.

The column headed 'On site impulsive' states whether impulsive noise was heard by the monitoring personnel.

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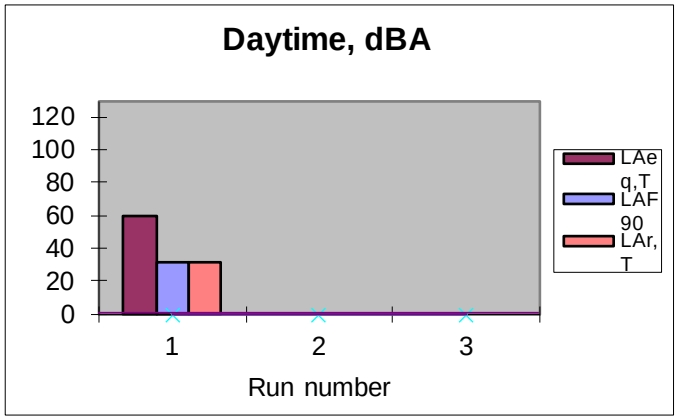
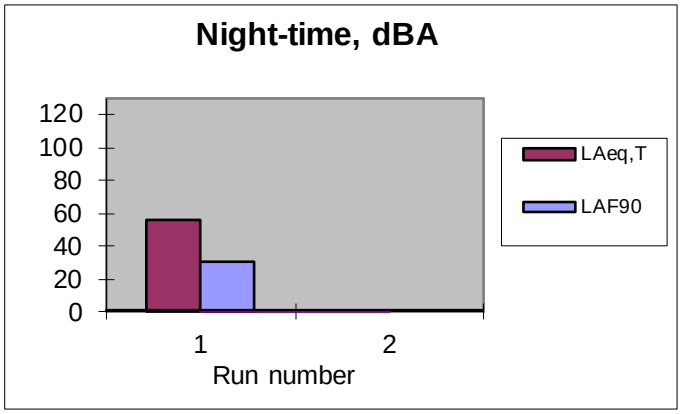
Location N1





Period	Run	LEN	Date/Time	$LAeq_{,T}$	LAF90[1]	LAF10	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $LAr_{,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 128	17/06/2024 13:29	60	31	52	No	N/A	No	31	Heaving traffic on local road	HGVs	N/A
Night-time	1	LEN 128	17/06/2024 18:47	56	30	49	No	N/A	No	30	Birds, heavy road traffic	N/A	N/A

[1] LA90 used due to significant noise from road traffic

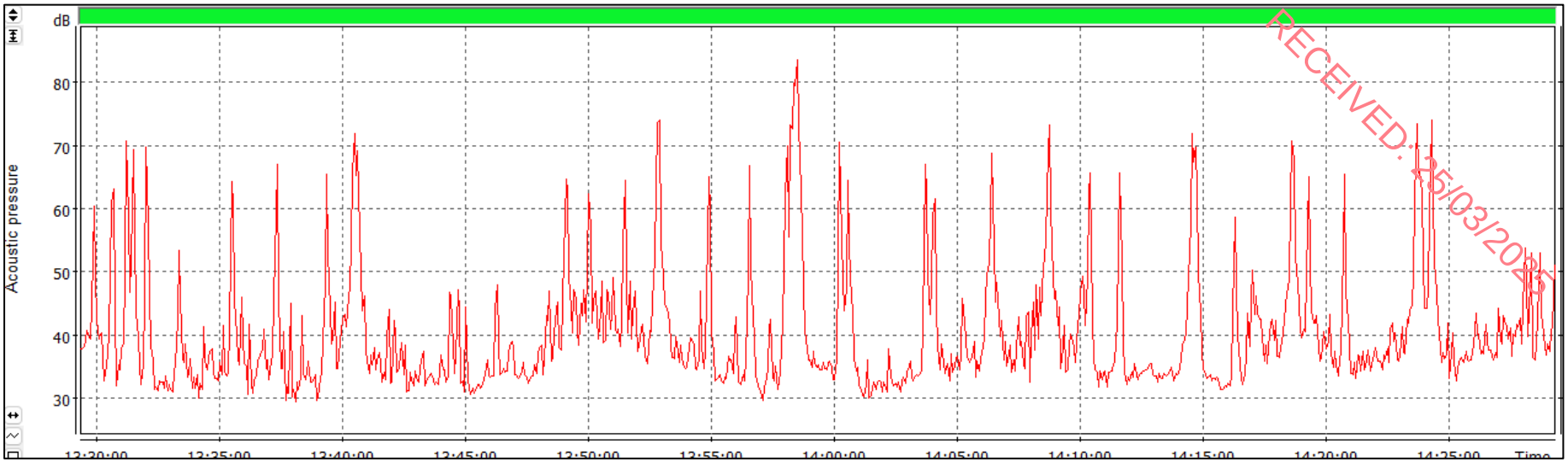


Figure 6-1 N1 Day Run 1 of 1

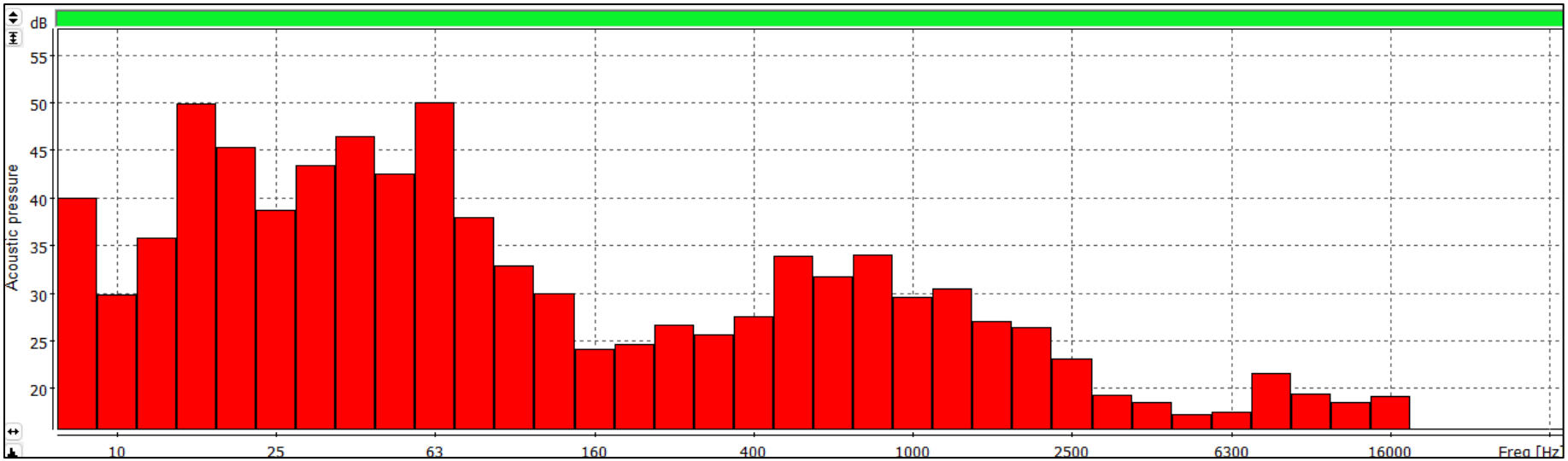


Figure 6-2 N1 Day Run 1 of 1 Third Band Octave

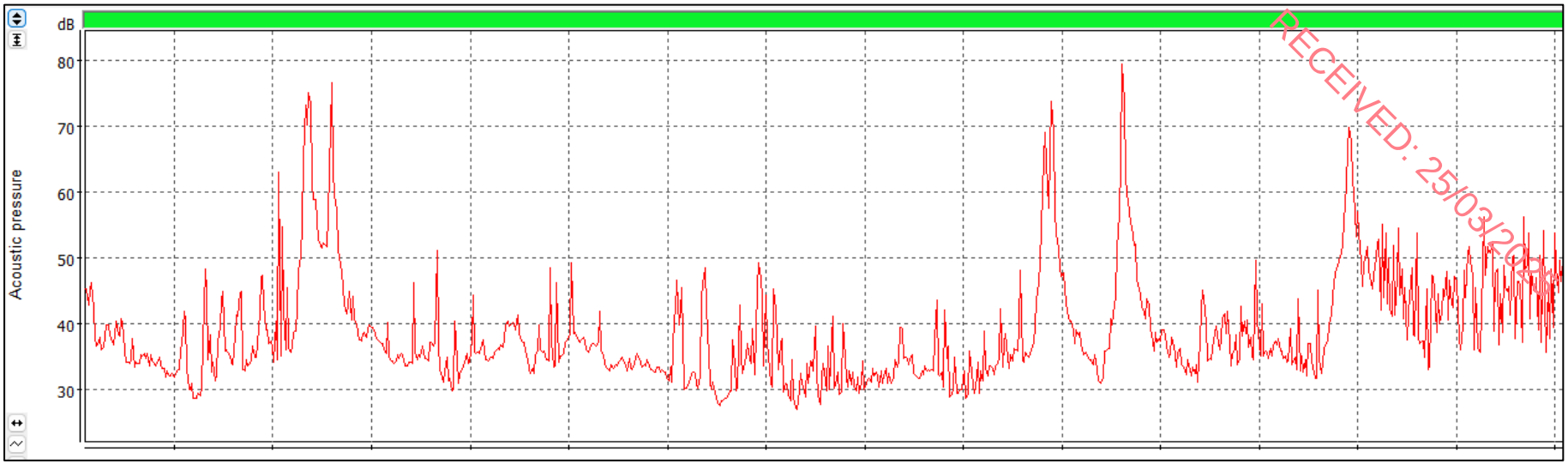


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Figure 6-3 N1 Night Run 1 of 1

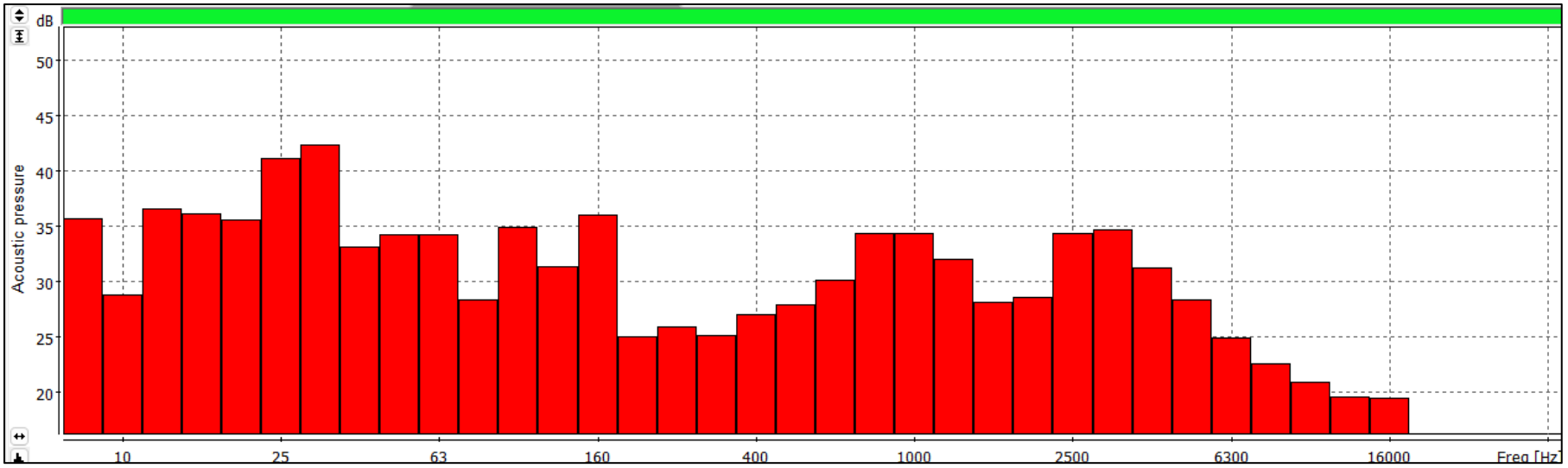

Figure 6-4 N1 Night Run 1 of 1 Third Band Octave

Location NSL2

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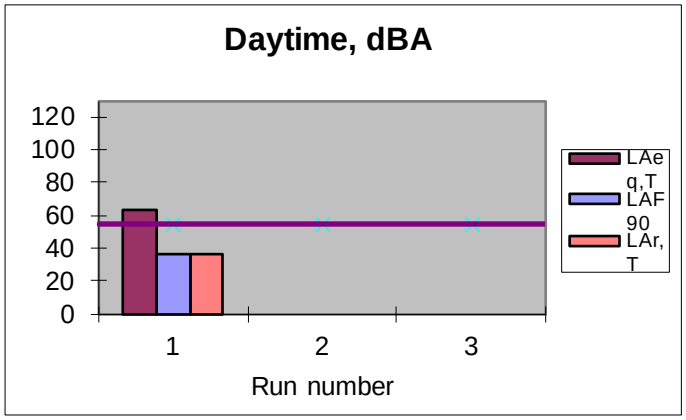

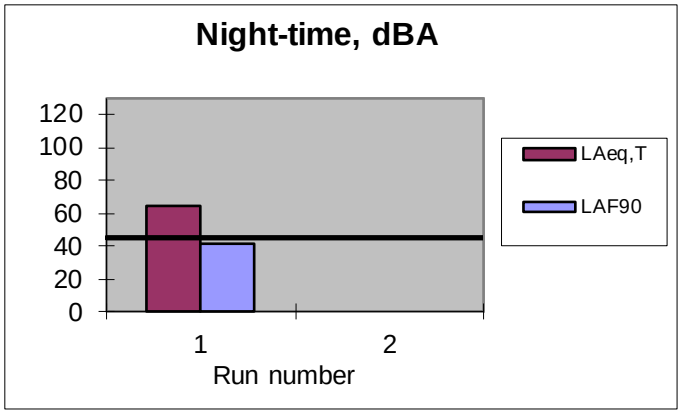

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}[1]	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 128	17/06/2024 15:58	64	37	65	No	N/A	No	37	Heavy traffic from local road	HGVs, site works	Yes
Night-time	1	LEN 088	17/06/2024 19:12	64	41	58	No	N/A	No	41	Birds, heavy road traffic	N/A	Yes

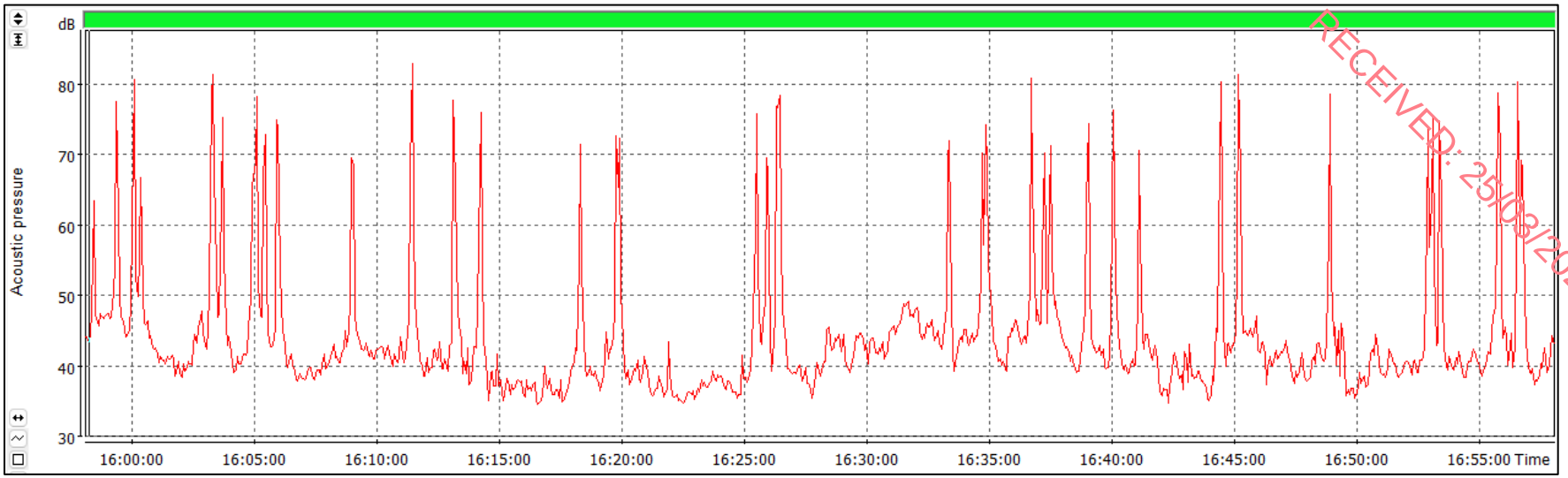

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Figure 6-5 NSL2 Day Run 1 of 1

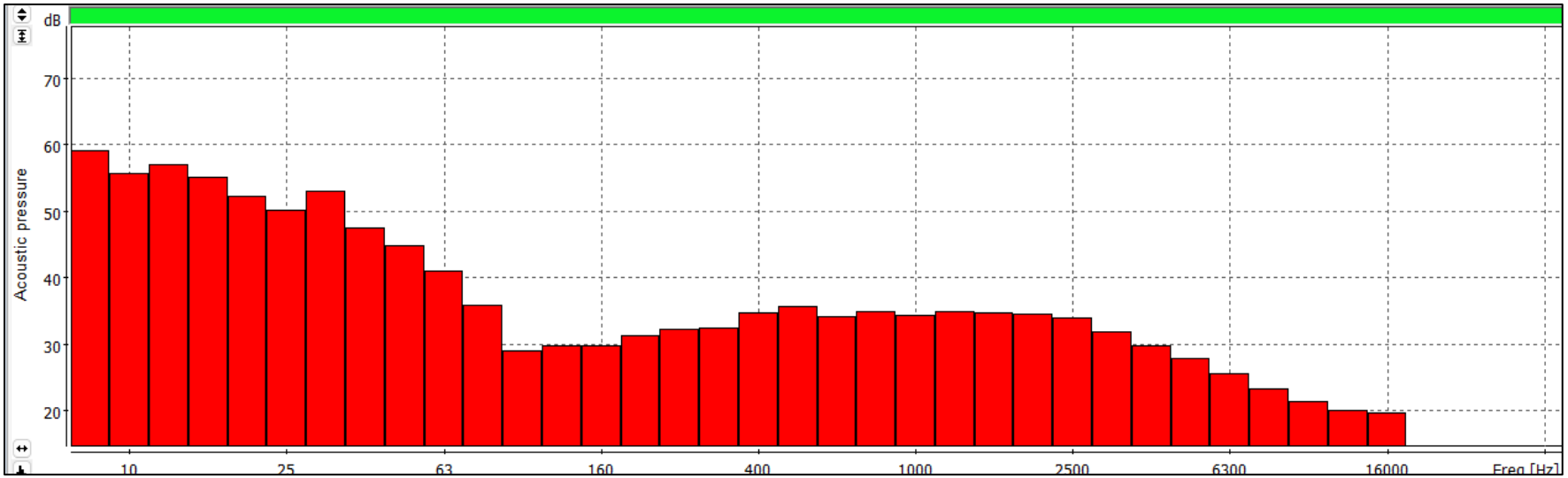

Figure 6-6 NSL2 Day Run 1 of 1 Third Band Octave

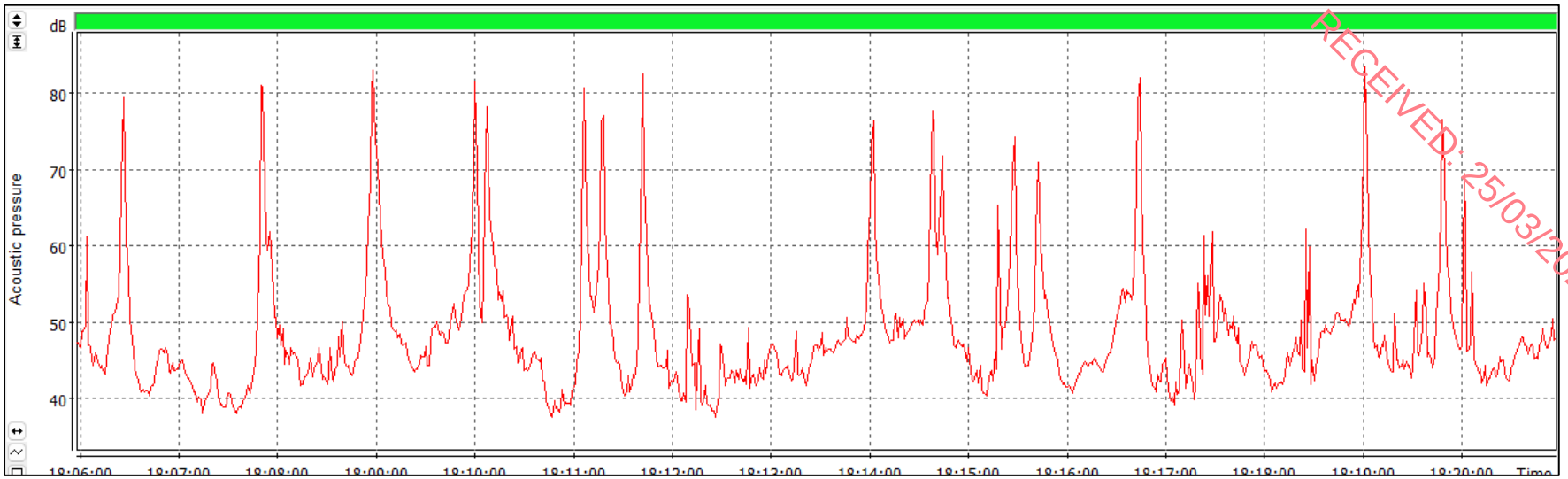

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Figure 6-7 NSL2 Night Run 1 of 1

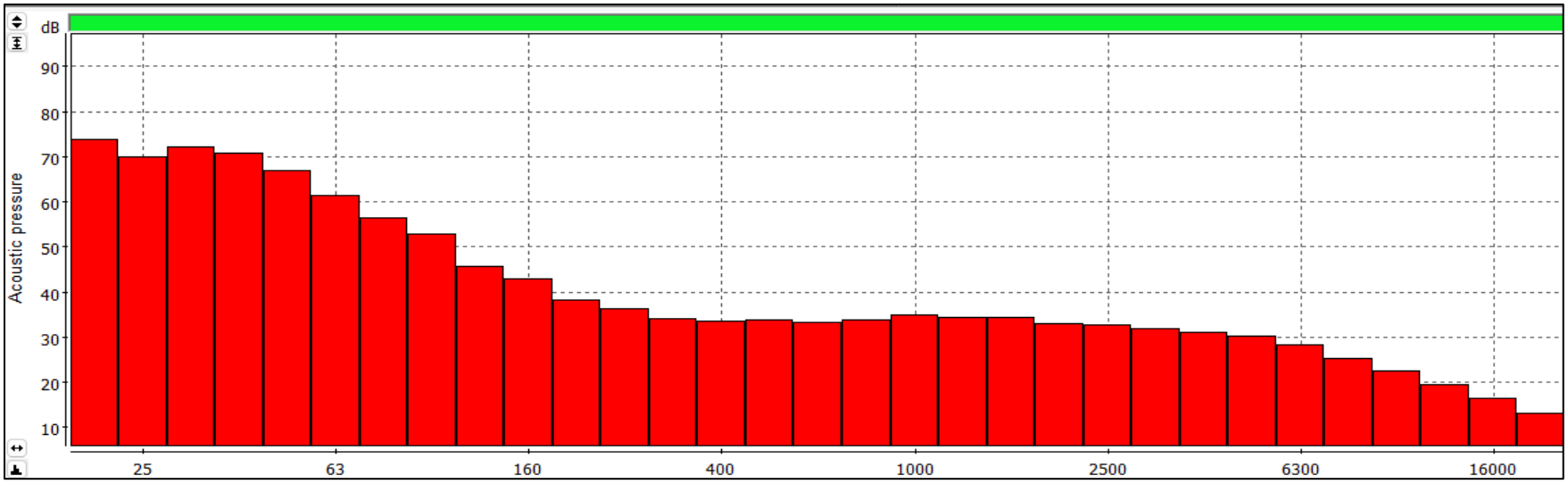

Figure 6-8 NSL2 Night Run 1 of 1 Third Band Octave

Location NSL3

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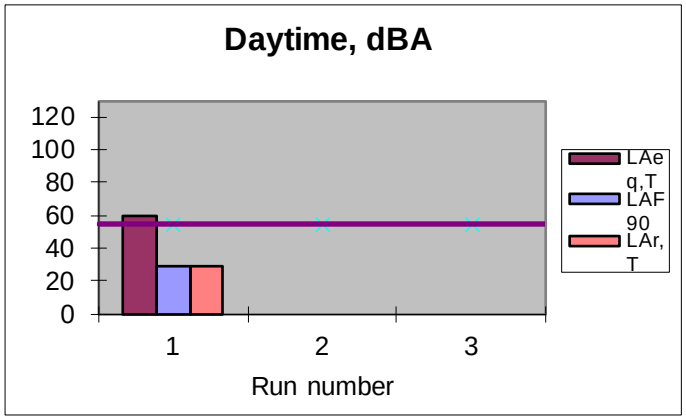

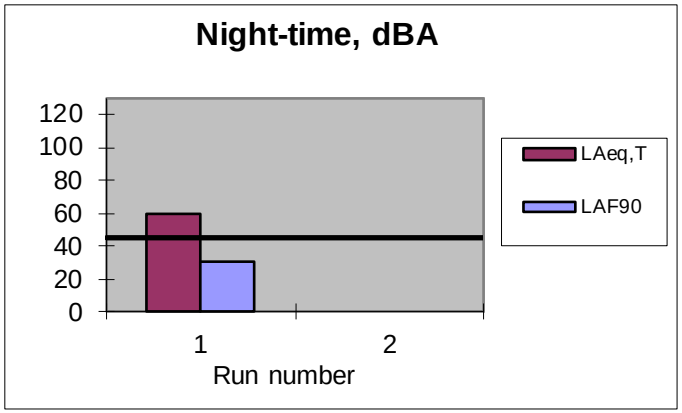

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}[1]	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 088	17/06/2024 13:21	60	29	51	No	N/A	No	29	Heavy traffic on local road	HGVs	Yes
Night-time	1	LEN 088	17/06/2024 18:36	59	30	44	No	N/A	No	30	Birds, heavy road traffic	N/A	Yes

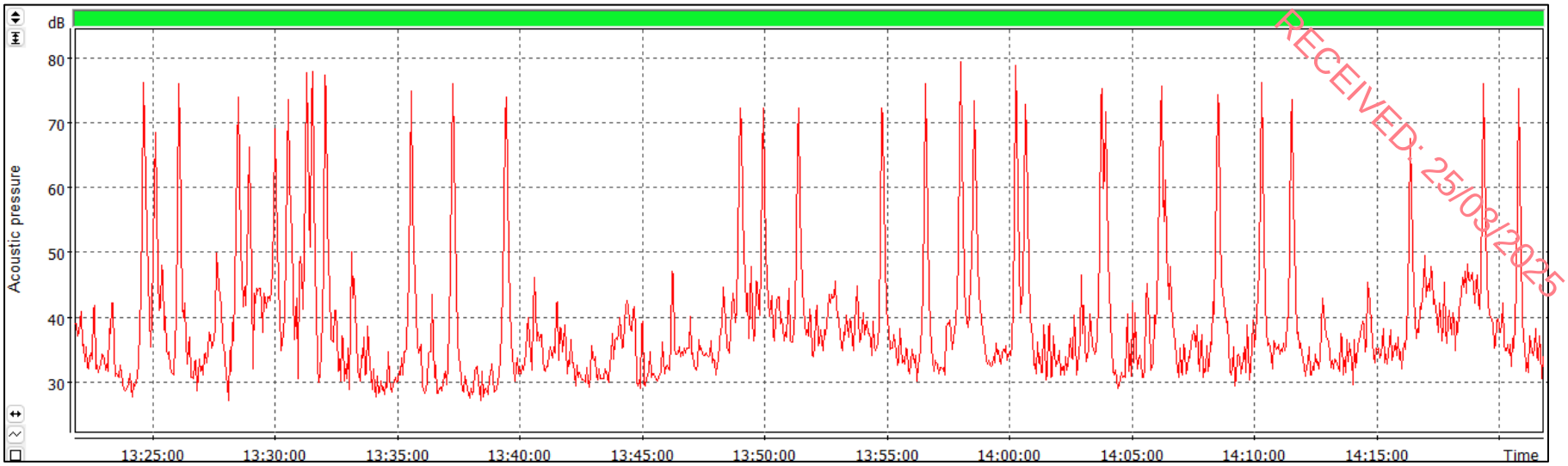

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Figure 6-9 NSL3 Day Run 1 of 1

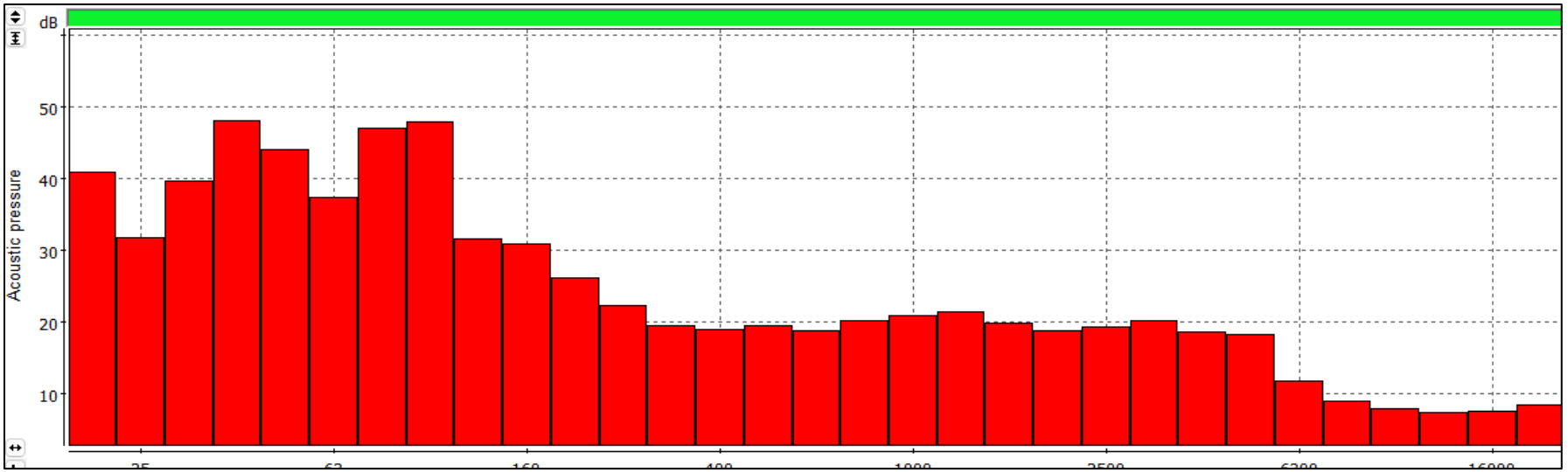

Figure 6-10 NSL3 Day Run 1 of 1 Third Band Octave

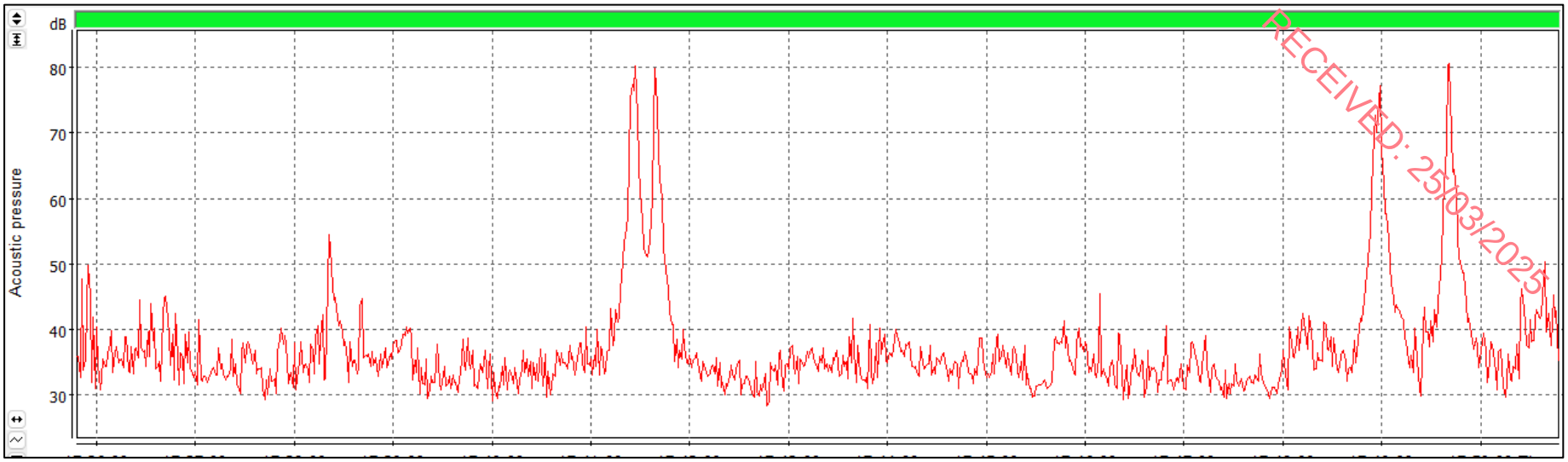

Figure 6-11 NSL3 Night Run 1 of 1

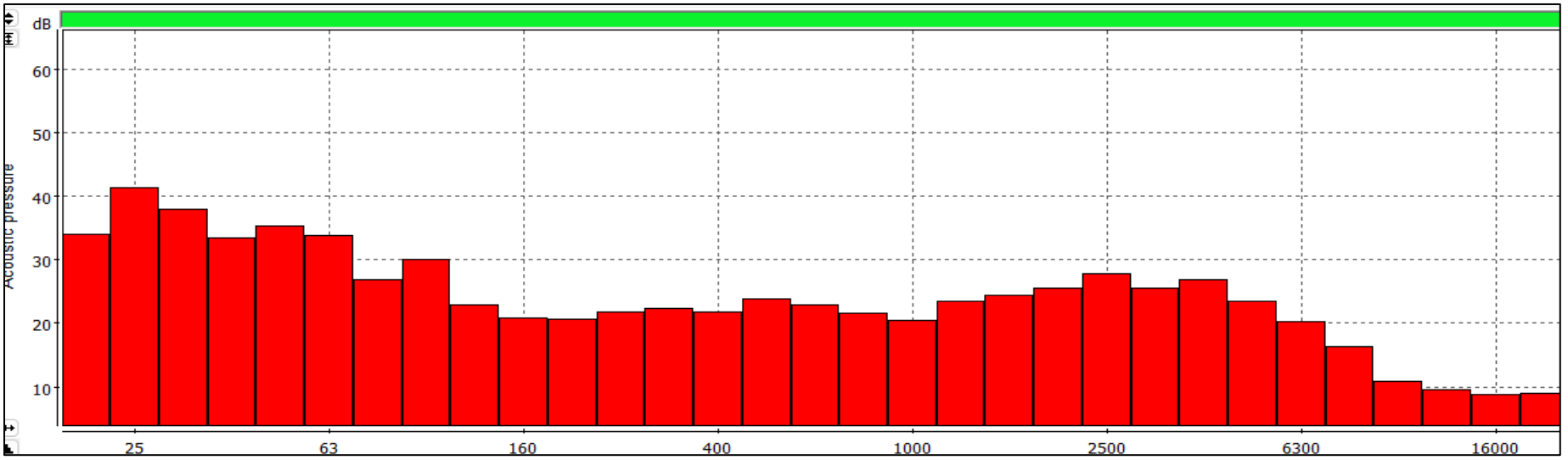

Figure 6-12 NSL2 Night Run 1 of 1 Third Band Octave

Location N4

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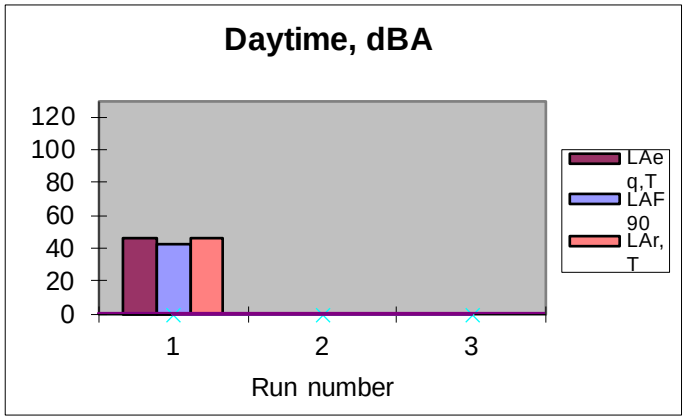

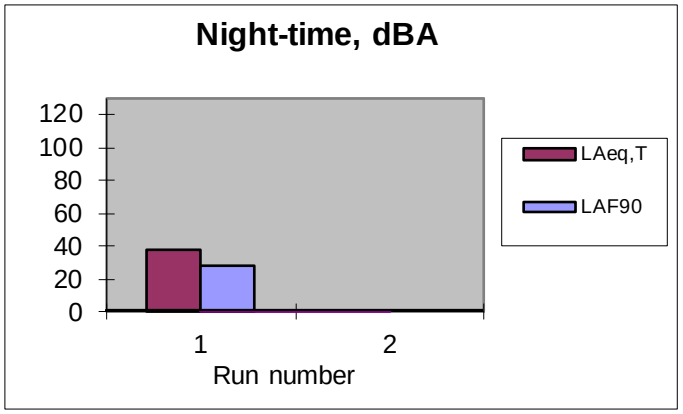

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 088	17/06/2024 14:43	47	43	49	No	N/A	No	47	Birds	HGVs, site works	N/A
Night-time	1	LEN 128	17/06/2024 18:10	38	28	40	No	N/A	No	38	Distant road traffic, birds	N/A	N/A

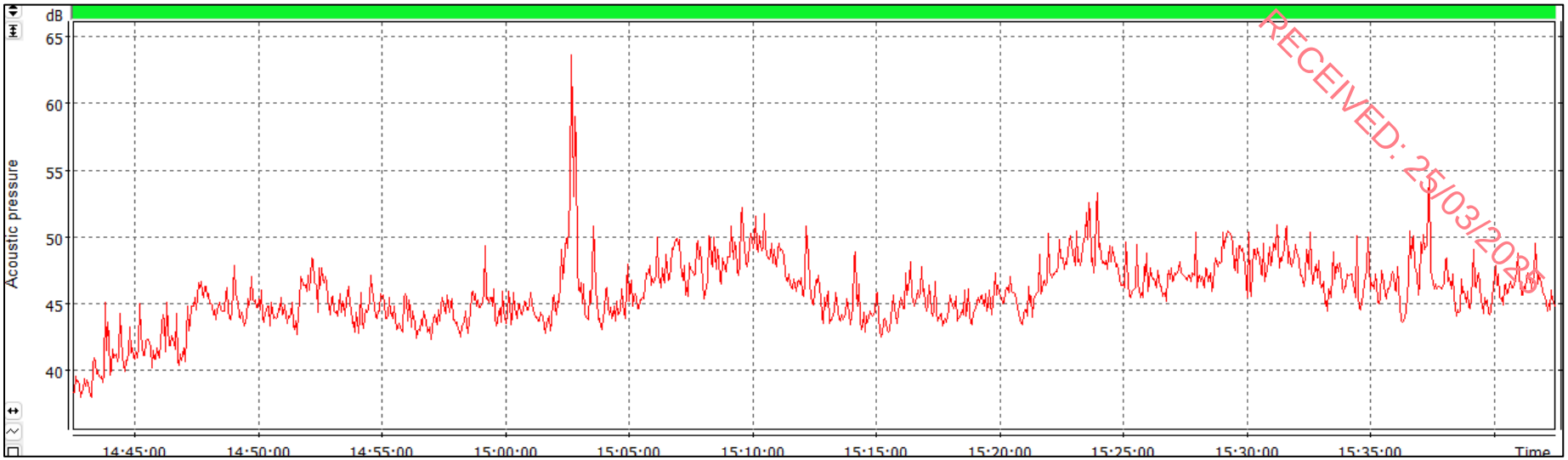

Figure 6-13 N4 Day Run 1 of 1

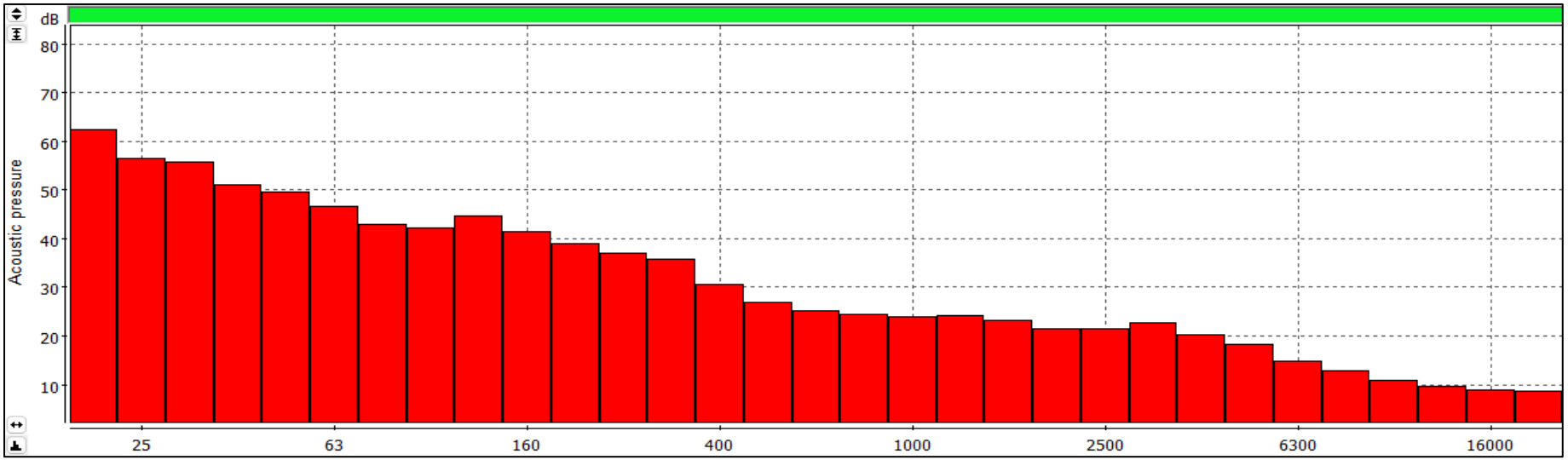

Figure 6-14 N4 Day Run 1 of 1 Third Band Octave

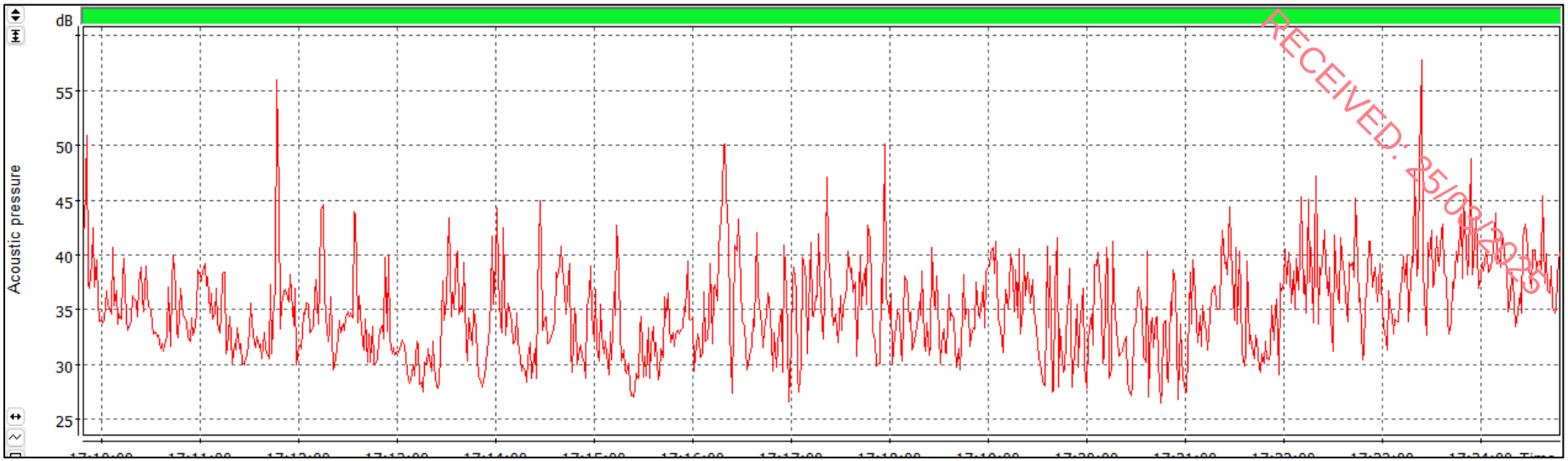

Figure 6-15 N4 Night Run 1 of 1

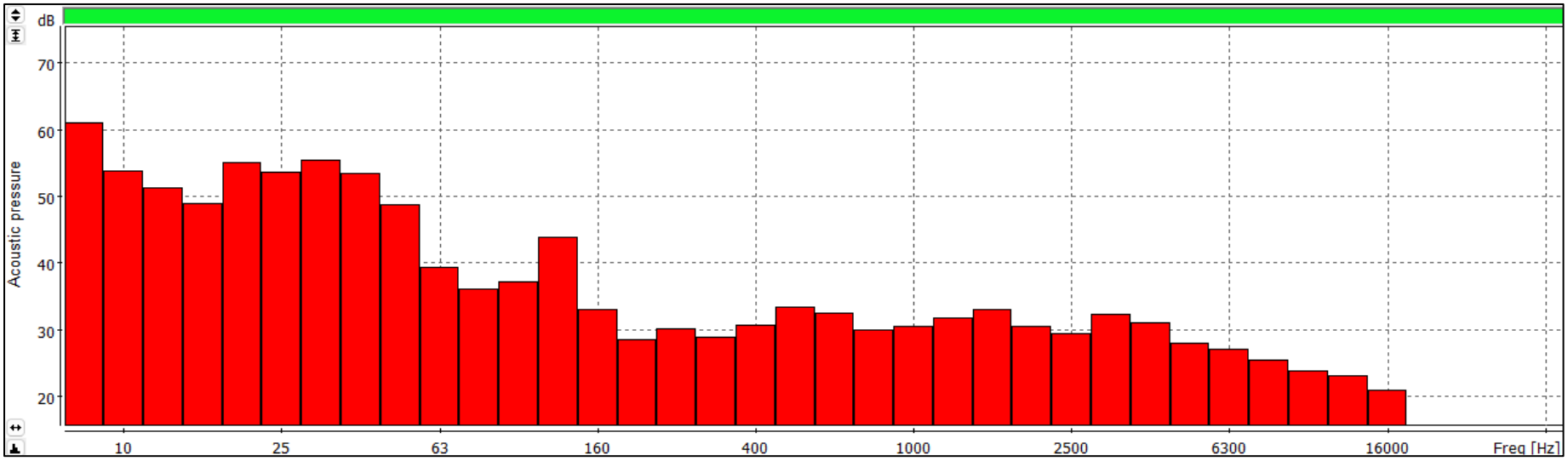

Figure 6-16 N4 Night Run 1 of 1 Third Band Octave

7. Conclusion

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LAeq represents the ambient sound levels in the area from sources near and far. The statistical noise levels of L10 and L90 are the noise levels exceeded for 10% and 90% respectively of the measurement period. A small difference in LAeq, L10 and L90 indicates a constant noise emission (or a lack of intermittent noise). The greater the difference between the LAeq, L10 and L90 indicates intermittent noise sources such as local traffic. Where external noise sources such as local road traffic have had a considerable impact on monitoring results due to the close proximity of some monitoring points to the adjacent public road, the L90 is chosen as the best descriptor of site noise.

According to Condition 6 of the grant of planning permission:

"During the operational phase of development, the noise level at existing sensitive locations shall not exceed a Laeq (1 hour) of 55dB (A) between 0800 and 1800 and an Laeq (15 minutes) of 45 dB (A) between 1800 and 0800. Noise monitoring shall be carried out at the noise monitoring locations N1 to N4 as indicated in the EIS documentation on a quarterly basis in accordance with the EPA "Environmental Noise Survey – Guidance Document", 2003".

Monitoring locations NSL2 and NSL3 are considered to be "noise sensitive locations" as defined by the EPA while N1 and N4 are defined as "boundary noise locations" where the specified limit values do not apply. During both daytime and night-time monitoring periods, noise emission values at both NSL2 and NSL3 were within the prescribed limits as stated in the planning conditions

Appendix 1 Report Terminology

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Noise Monitoring Parameters	
Survey	The measurement of noise over one or more days and is made up of a number of monitoring runs with one or more noise meters.
Run or monitoring run	A single measurement at one location to determine noise level. A number of monitoring runs will be typically be made at each location. The duration of a monitoring run is typically 15 or 30 minutes and is stipulated in the licence.
dB(A)	This is the unit used to quantify noise measurements. "dB" stands for decibel and the "A" indicates that the noise reading is A-weighted and therefore is a measurement of noise audible to the human ear. The scale is logarithmic.
$L_{Aeq,T}$	This parameter is measured on-site using a noise meter for a specified time period (T minutes). It represents the average noise level that occurred over that period.
Rated Noise Level or $L_{Ar,T}$	The Rated Noise Level is equal to $L_{Aeq,T}$ plus any penalty for confirmed tonal and/or subjective impulsive. The penalty is only added for daytime and evening monitoring.
L_{AF10} and L_{AF90}	The L_{AF10} and L_{AF900} are both statistical noise levels. L_{AF10} indicates that for 10% of the monitoring period, the sound levels were greater than the quoted value. L_{AF90} indicates that for 90% of the monitoring period, the sound levels were greater than the quoted value. The L_{AF90} indicates the background noise levels if short-term, intermittent noise sources were ignored e.g. a passing car. The L_{AF10} can be used to determine the effect to which these short-term noise sources effect the overall average reading i.e. if the L_{AF10} is very different to the L_{AF90}, then intermittent noise is a significant source of noise
L_{AFmax}	The maximum RMS A-weighted sound pressure level occurring within a specified time period. Measured using the "Fast" time weighting.
Continuous	Noise produced without interruption.
Impulsive Noise	A noise of short duration (typically less than one second), the sound pressure of which is significantly higher than the background; brief and abrupt.
Intermittent Noise	Noise produced on discontinuous basis e.g. equipment operating in cycles or events such as single passing vehicle or aircraft.
Tonal Noise	Noise, which contains a clearly audible, tone i.e. a distinguishable, discrete or continuous note (whine, hum, drone, screech, etc.).

Appendix 2 Confirmation of tonal noise

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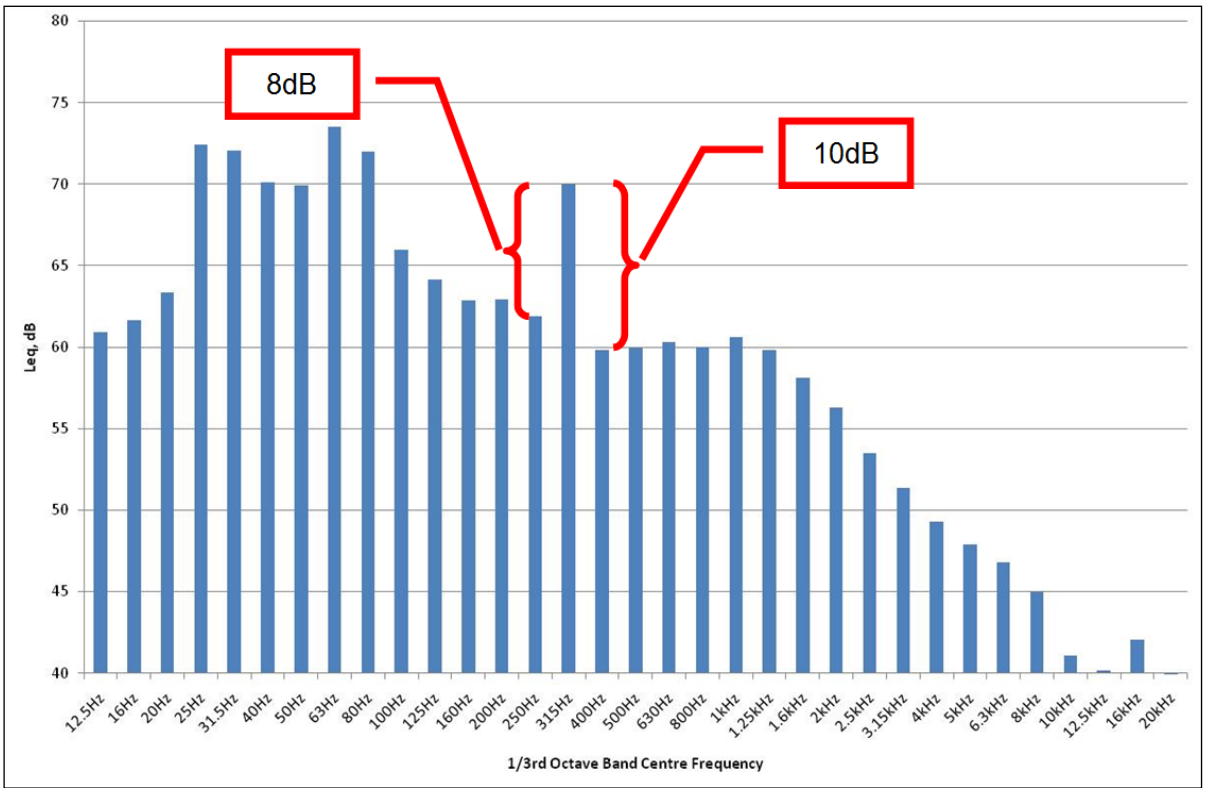
The subjective identification of tonal noise is based on the interpretation of the third octave band results. Where the sound level for a third octave band is greater than or equal to both the adjacent third octave bands by some constant level difference, then tonal noise is confirmed. The level differences vary by frequency and are shown in the table below.

Frequency range	Level Difference
25 Hz to 125 Hz	15 dB
160 Hz to 400 Hz	8 dB
500 Hz to 10,000 Hz	5 db

In the example below, tonal noise was subjectively assessed. The third band monitoring results were therefore reviewed and are shown below. A peak can be seen at 315 Hz. This peak is 8 dB above the lower adjacent third octave and 10 dB higher than the higher adjacent third octave band. From a review of the table above, the Level Difference for 315 Hz is 8 dB.

For the example below, tonal noise is confirmed as there is a difference greater than or equal to 8 dB either side of 315 Hz.

Knowing the frequency of the confirmed tonal noise can help in identifying the source of the noise and its reduction.



Appendix 3 LAFmax data

Some authorities require that LAFmax be reported, however, there are no limits set for this parameter. In order to keep the body of the report uncluttered, the data regarding this parameter is reproduced below.

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Location	NSL	Period	LAFmax
N1	No	Day	90.3
N1	No	Night-time	81.3
N4	No	Day	70.7
N4	No	Night-time	66.2
NSL2	Yes	Day	91.4
NSL2	Yes	Night-time	86.5
NSL3	Yes	Day	84.1
NSL3	Yes	Night-time	83.4

Appendix 4 Certificates of Calibration

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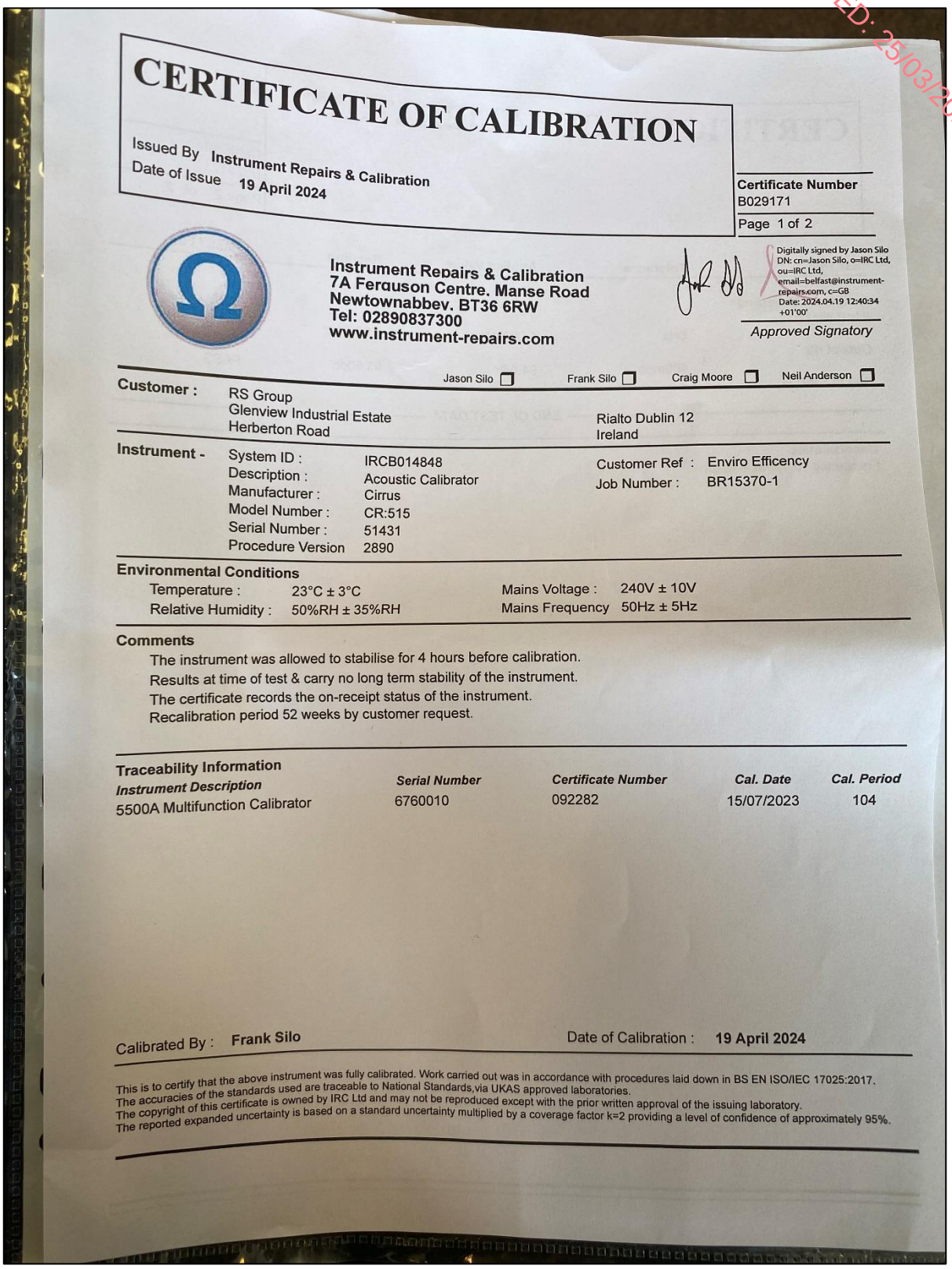
Figure 7-1 LEN 071 Certificate of Calibration



CERTIFICATE OF CALIBRATION

Issued By Instrument Repairs & Calibration
Date of Issue 19 April 2024

Certificate Number
B029171
Page 1 of 2

Instrument Repairs & Calibration
7A Ferguson Centre, Manse Road
Newtownabbey, BT36 6RW
Tel: 02890837300
www.instrument-repairs.com

Digitally signed by Jason Silo
DN: cn=Jason Silo, o=IRC Ltd, ou=IRC Ltd, email=belfast@instrument-repairs.com, c=GB
Date: 2024.04.19 12:40:34 +01'00'

Approved Signatory

Jason Silo ☐ Frank Silo ☐ Craig Moore ☐ Neil Anderson ☐

Customer : RS Group
Glenview Industrial Estate
Herberton Road
Rialto Dublin 12
Ireland

Instrument -

System ID :	IRCB014848	Customer Ref :	Enviro Efficency
Description :	Acoustic Calibrator	Job Number :	BR15370-1
Manufacturer :	Cirrus		
Model Number :	CR:515		
Serial Number :	51431		
Procedure Version	2890		

Environmental Conditions

Temperature :	23°C ± 3°C	Mains Voltage :	240V ± 10V
Relative Humidity :	50%RH ± 35%RH	Mains Frequency	50Hz ± 5Hz

Comments

The instrument was allowed to stabilise for 4 hours before calibration.
Results at time of test & carry no long term stability of the instrument.
The certificate records the on-receipt status of the instrument.
Recalibration period 52 weeks by customer request.

Traceability Information

Instrument Description	*Serial Number*	*Certificate Number*	*Cal. Date*	*Cal. Period*
5500A Multifunction Calibrator	6760010	092282	15/07/2023	104

Calibrated By : **Frank Silo** Date of Calibration : **19 April 2024**

This is to certify that the above instrument was fully calibrated. Work carried out was in accordance with procedures laid down in BS EN ISO/IEC 17025:2017.
The accuracies of the standards used are traceable to National Standards,via UKAS approved laboratories.
The copyright of this certificate is owned by IRC Ltd and may not be reproduced except with the prior written approval of the issuing laboratory.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%.

Figure 7-2 LEN 088 Certificate of Calibration

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AcSoft
Noise, Vibration & Air Quality

CALIBRATION CERTIFICATE

Date of issue: 16-10-2023 **Certificate No:** 1506084-1 **Page:** 1/8

INSTRUMENT DETAILS	Manufacturer:	**SVANTEK**	
	Model:	**SVAN 971**	
	Serial No.:	40395	
	Description:	Sound Level Meter	
SENSOR DETAILS	Manufacturer:	**ACO**	**SVANTEK**
	Model:	**7052E**	**SV18**
	Serial No.:	87404	42615
	Description:	Microphone	Preamplifier
CUSTOMER	Environmental Efficiency		
ENVIRONMENTAL CONDITIONS	Temperature:	21.7 – 22.8	°C
	Humidity:	51 – 52	%
	Pressure:	101.9 – 102.0	kPa
DATE OF CALIBRATION	16-10-2023		
APPROVED BY	A. Pullinger		

AcSoft
Noise, Vibration & Air Quality

AcSoft Calibration | 11 Abbey Court
Fraser Road | Priory Business Park
MK44 3WH | Bedford

+44 (0) 1234 639550

www.acsoft.co.uk

This calibration was performed by AcSoft Calibration.
AcSoft Calibration is a trading name of AcSoft Ltd, 11 Abbey Court, Fraser Road, Priory Business Park, Bedford, MK44 3WH

Figure 7-3 LEN 128 Certificate of Calibration

RECEIVED 03/2025

CALIBRATION CERTIFICATE

Issued By AcSoft Limited Calibration Laboratory

Date Of Issue: 21-05-2024 **Certificate No:** 1508748-1

Calibrated By: W. Jay

Approved By: W. Jay

CUSTOMER

Environmental Efficiency
Parnell House
19 Quinnsboro Road
Bray
County Wicklow
Ireland

INSTRUMENT DETAILS

Manufacturer:	SVANTEK
Model:	SV971A
Serial No.:	128783
Firmware Version:	1.07.4
Description:	Sound Level Meter
Performance Class:	1

Type Approved to IEC 61672-1:2013: No
(If Yes, there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2013)

SENSOR DETAILS

Manufacturer:	ACO	SVANTEK
Model:	7152	SV18A
Serial No.:	89700	148362
Description:	Microphone	Preamplifier

P/O NUMBER 3063
DATE RECEIVED 20-05-2024
DATE CALIBRATED 21-05-2024

CALIBRATION RESULTS

The sound level meter submitted for testing successfully completed the periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed. However, no general statement or conclusion can be made about conformance of the sound level meter to the full specifications of IEC 61672-1:2013 because (a) evidence was not publicly available, from an independent testing organization responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the class Y specifications in IEC 61672-1:2013 or correction data for acoustical test of frequency weighting were not provided in the Instruction Manual and (b) because the periodic tests of IEC 61672-3:2013 cover only a limited subset of the specifications in IEC 61672-1:2013.

REPORTED RESULTS

The results contained in this Certificate refer only to the measurements made at the time of test for the instrument detailed above. These results do not reflect the instrument's ability to maintain calibration.

Page **1** of **8**

This calibration was performed by AcSoft Ltd, 11 Abbey Court, Fraser Road, Priory Business Park, Bedford, MK44 3WH
T: 01234 639550 W: www.acsoft.co.uk E: sales@acsoft.co.uk

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Appendix 5 Certificate of Competence

Institute of Acoustics

Certificate of Competence in Environmental Noise Measurement

This is to certify that

Rebecca Stokes

has completed a course of instruction approved by the Institute of Acoustics and designed to enable the candidate to undertake environmental noise measurements in a competent manner and has achieved a satisfactory performance in the written and practical examinations

Jonty Stewart
Education Committee Chairman

Allan Chesney
Chief Executive Officer

Examination Date: 19 May 2023
Centre: Shorcontrol Safety Ltd
Candidate Number: ENM260

For the purposes of Credit Transfer or Professional Development this Certificate may be considered to be equivalent to 25 points or hours

The Institute of Acoustics Limited, Silbury Court, 406 Silbury Boulevard, Milton Keynes MK9 1AF
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2024 Q3

Air, Noise & Groundwater Monitoring Results

Environmental Efficiency

Bray (Co. Wicklow) 01 276 1428
Lisburn (Co. Antrim) 028 9262 6733
Birmingham (U.K.) 0121 673 1804

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Groundwater Monitoring Report Q3 2024

for

Kilchreest Quarry

Document Number: 2589-34 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- Air & Noise Modelling
- Energy & Water use reduction
- IPC/IED/Waste Licence Compliance
- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations

- ISO9001:2008 Registration No. 2015/2170
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- EMPI Membership

Document Lead Sheet

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Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Groundwater Monitoring Report
	Document number	2589-34
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	20/09/2024
	Document author	RS	Date written	03/10/2024
	Approved by	RTS	Date approved	01/11/2024
	Report version nr	1.00		
	Issued by	KW	Date report issued	01/11/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	No
	If **not** satisfactory, further testing/assessment required	Choose an item.
	If satisfactory, when is next test/assessment due?	Q4 2024

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Report History

1.00 Issued

Contents

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1. Introduction

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Environmental Efficiency Consultants (Ire) Limited was commissioned by Kilchreest Quarry to conduct groundwater sampling and analysis on a quarterly basis. The sampling was conducted from two boreholes BH1 and BH3 as indicated in the map below. Borehole BH2 has been decommissioned and no longer exists on site.

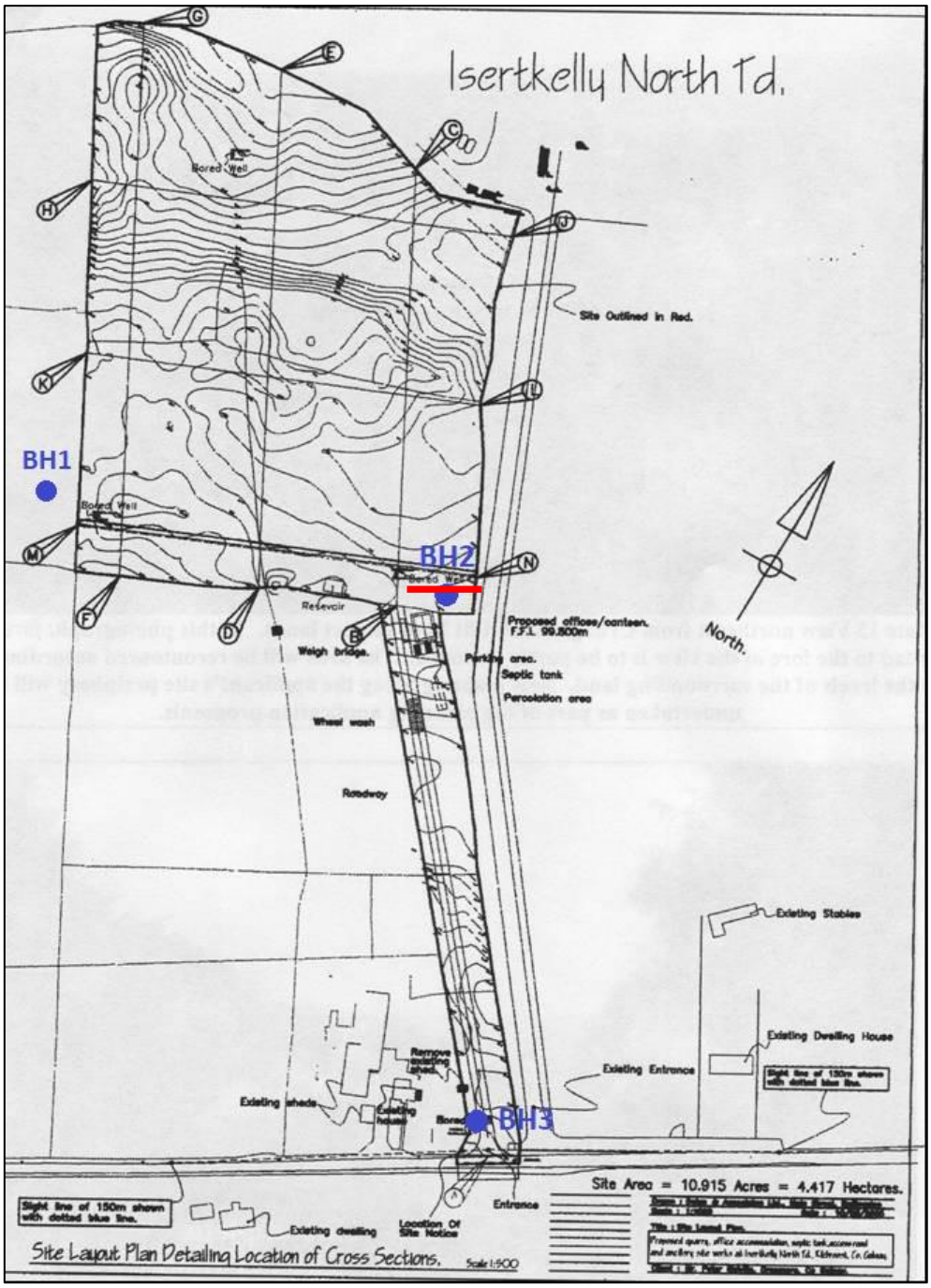

Figure 1-1 Borehole Monitoring Locations

2. Executive Summary

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The majority of the results for BH3 fall within the relevant guideline values for the monitoring period Q3 2024. However, the Faecal coliform bacteria, Escherichia Coli Bacteria and phosphate were above the recommended limit with values. The recommended limit for groundwater is 0.035 mg/l.

The results for Certificate of analysis can be seen in Appendix 1.

Please note sampling could not be conducted at BH1 as the borehole was blocked.

3. Results

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Groundwater and surface water quality was assessed by comparing analytical results to the most relevant of the following water quality guidelines – Generic Assessment Criteria (GAC):

- European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016. S.I. No. 366 of 2016.
- Environmental Protection Agency, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, (Interim Guideline Values (IGVs)), 2003.

The results for the groundwater analysis can be seen in the table below.

*Please note sampling could not be conducted at BH1 as the borehole was blocked.

Table 2 - 1 BH3 Monitoring Results Q2 2024

Parameter	Result	Units	Generic Assessment Criteria	Source
COD	20	mg O2/l	No Value	-
Ammonia	< 0.050	mg/l	175 µg/l	GTV
Nitrate	9.6	mg/l	37.5 mg/l	GTV
Nitrite	0.28	mg/l	375 µg/l	GTV
Phosphate	0.52	mg/l	0.035 mg/l	GTV
Chloride	23	mg/l	187.5 mg/l	GTV
TPH (C6 – C10)	< 0.10	µg/l	0.10 µg/l	GTV
TPH (C10 – C21)	< 0.10	µg/l	0.10 µg/l	GTV
TPH (C21 – C40)	< 0.10	µg/l	0.10 µg/l	GTV
Total TPH (C6 – C40)	< 10	µg/l	7.5 µg/l	GTV
Total Organic Carbon	2.2	mg/l	No Value	-
Electrical Conductivity	700	µS/cm	1875 µS/cm	GTV
Faecal Coliform Bacteria	15	cfu/100ml	0	IGV
Escherichia Coli Bacteria	10	cfu/100ml	0	IGV
Ground water Level	25.0	Meters	N/A	-

GTV = Groundwater Threshold Value. Outlined in Groundwater Regulations (S.I. No. 9 of 2010 / S.I. No. 366 of 2016).

IGV = Interim Guideline Values (IGVs) presented by EPA in 2003.

4. Discussion

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Faecal coliform bacteria , Escherichia Coli Bacteria and Phosphate were above the recommended limit for the monitoring period Q3 2024. During and after precipitation, bacteria, and other harmful microorganisms from any of these sources may be washed into rivers, lakes, or groundwater. Poor well construction or poor maintenance can increase the risk of groundwater contamination. Total coliform bacteria are not likely to cause illness, but their presence indicates that your water supply may be vulnerable to contamination by more harmful microorganisms. The presence of E.coli in water indicates recent faecal contamination and may indicate the possible presence of disease-causing pathogens, such as bacteria, viruses, and parasites. Although most strains of E.coli bacteria are harmless, certain strains, such as E.coli 0157:H7, may cause illness. The level of phosphate was 0.52 mg/l with the groundwater threshold value being 0.035 mg/l. All other results for the groundwater monitoring of BH3 fall within the recommended water quality guidelines for the monitoring period Q3 2024.

The generic assessment criteria values come from the following documents:

- European Union Environmental Objectives (Groundwater) (Amendment) Regulations 2016. S.I. No. 366 of 2016.
- Environmental Protection Agency, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, (Interim Guideline Values (IGVs)), 2003.

Appendix 1 Certificate of Analysis GW Monitoring

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Environmental Efficiency

Bray 01 276 1428
Lisburn 028 9262 6733
Birmingham 0121 673 1804

Certificate of Analysis 2589-GW3-Q3-2024

Emission point data

Client:	Kilchreest Quarry
Site:	Kilchreest
Site code:	KT
Emission point	GW3
Licence type	County Council
Licence No.	05-2870
Project Manager	RS
Analysed by:	Chemtest
Sample type:	Water

Sampling data

Results for Quarterly Monitoring Period	Q3 2024
Date sample collected	20/09/2024
Time sample collected	15:24
Sample collection	SOP 01.01
Sample type	Groundwater

Results

Parameter	Result	ELV	Units	Accred.	Technique
COD	20	n/s	mg O2/l	UKAS	Colorimetric Analysis
Ammonia	< 0.050	n/s	mg/l	UKAS	Colorimetric Analysis
Nitrate	9.6	n/s	mg/l	UKAS	Colorimetric Analysis
Nitrite	0.28	n/s	mg/l	UKAS	Colorimetric Analysis
Phosphate	0.52	n/s	mg/l	None	Colorimetric Analysis
Chloride	23	n/s	mg/l	UKAS	Colorimetric Analysis
TPH (C6 - C10)	< 0.10	n/s	ug/l	None	GC FID Detection
TPH (C10 - C21)	< 0.10	n/s	ug/l	None	GC FID Detection
TPH (C21 - C40)	< 0.10	n/s	ug/l	None	GC FID Detection
Total TPH (C6 - C40)	< 10	n/s	ug/l	UKAS	GC FID Detection
Total Organic Carbon	2.2	n/s	mg/l	UKAS	Catalytic Oxidation
Electrical Conductivity	700	n/s	µS/cm	UKAS	Conductivity Meter
Faecal Coliform Bacteria	15	n/s	cfu/100ml	INAB	MTM025
Escherichia Coli Bacteria	10	n/s	cfu/100ml	INAB	MTM025
Ground Water Level	25.0	n/s	Meters	N/A	Dip Meter

Signed (Lab Manager)

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Directors: Robert S. Sutcliffe, Ronan T. Sutcliffe

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- Energy & Water use reduction
- IPPC/Waste Licence Compliance
- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- Member Environmental Services Association
- EMPI Membership

ISO 14001
RoSPA Member

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Lisburn (Co. Antrim) 028 9262 6733
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Dust Deposition Report Q3 2024

for

Kilchreest Quarry

Document Number: 2589-36 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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- Bund Testing
- Environmental Management Systems to ISO 14001
- Air & Noise Modelling
- Energy & Water use reduction
- IPC/IED/Waste Licence Compliance
- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations

- ISO9001:2008 Registration No. 2015/2170
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- EMPI Membership

Document Lead Sheet

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Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	Isertkelly Ltd.
	Permit/Lic No. (if applic)	05-2870

Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Dust Monitoring Report
	Document number	2589-36
	Report template	As previous report
	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	30/09/2024
	Document author	RS	Date written	31/10/2024
	Approved by	RTS	Date approved	01/11/2024
	Report version nr	1.00		
	Issued by	KW	Date report issued	01/11/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q4 2024

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Report History

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Contents

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1. Introduction

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Environmental Efficiency Consultants (Ire) Limited was commissioned by Kilchreest Quarry to conduct dust deposition monitoring and analysis on a quarterly basis. The sampling was conducted from three dust monitoring points D1, D2 and D3 as indicated in the map below.

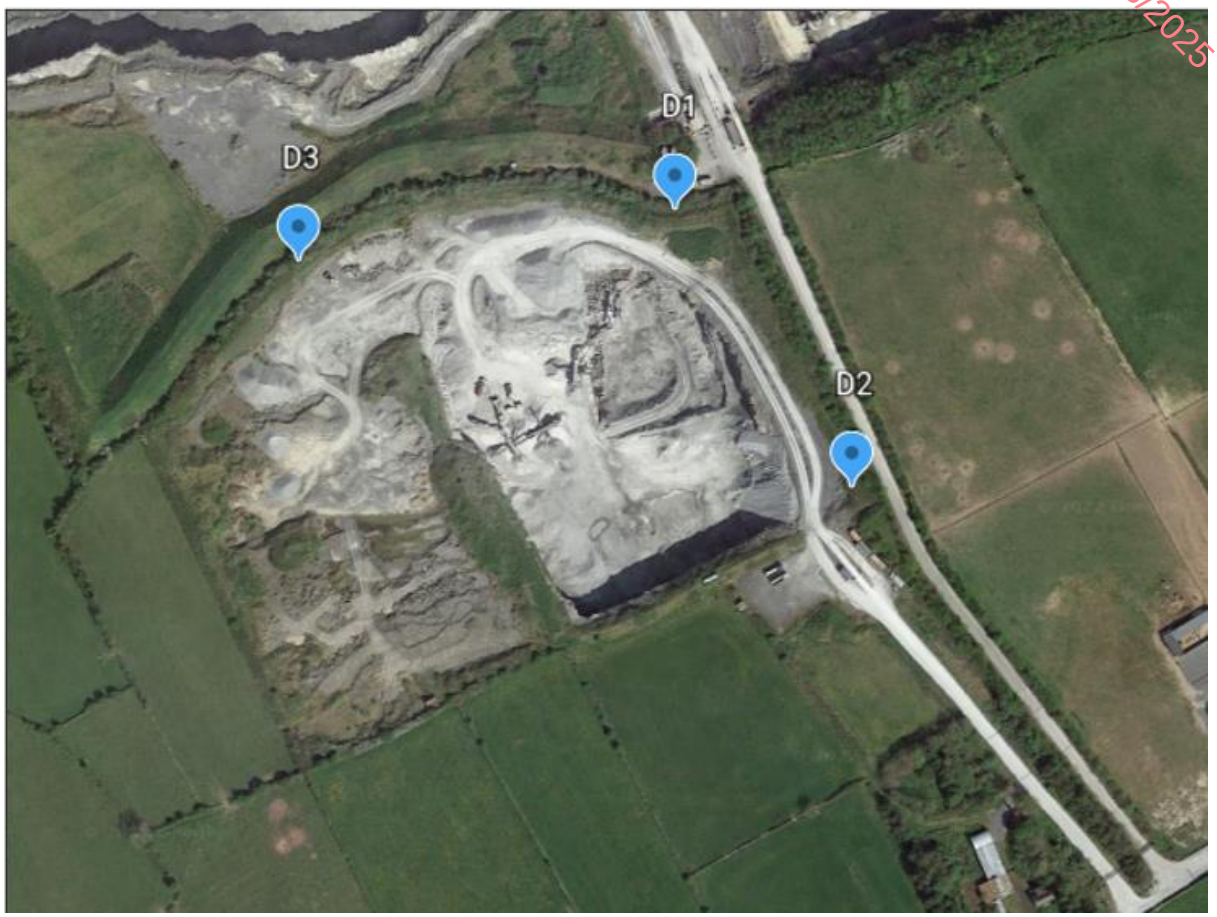

Figure 1-1 Dust Monitoring Locations

2. Executive Summary

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Environmental Efficiency conducted environmental dust monitoring at three locations in Kilchreest Quarry for Q3 2024.

All results for the Bergerhoff monitoring points were below the TA Luft Dustfall limit.

3. Methodology

Environmental Efficiency Consultants Ltd conduct environmental dust deposition monitoring on a quarterly basis at Kilchreest Quarry. Environmental Efficiency collects Bergerhoff bottles on-site following each monitoring period and, upon return to the laboratory, conducts testing in accordance with the company's internal SOP's; SOP 03.04 Determination of Suspended Solids/SOP 99.12 Total Dust Deposition, to determine Total Dust Deposition at each monitoring location in mg/m2/day. Results are subsequently compared to a dust limit value of 350 mg/m2/day, as prescribed by German TA Luft Guidelines, to determine whether dust levels constitute levels which are not acceptable as per this environmental quality standard (i.e., levels at which there may be nuisance caused or hazard posed).

4. Results

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Environmental dust monitoring results for each monitoring period are presented in the tables below. Certificates of analysis are provided in Appendix 1.

Table 4 - 1 Dust Monitoring Results – Q3 2024

Location	Units of Measurement	Results	Prescribed Limit Value	Compliant
D1	mg/m^2/day	28.6	350	Yes
D2	mg/m^2/day	65.7	350	Yes
D3	mg/m^2/day	113.7	350	Yes

5. Conclusion

Environmental Efficiency conducted environmental dust monitoring at three locations in Kilchreest Quarry for Q3 2024. The dust fall limit specified for the quarry is based on the German TA Luft Environmental Guidelines which specifies a limit of 350 mg/m^2/day. All results for the three monitoring locations were below the prescribed limit value for Q3 2024.

Appendix 1 Certificate of Analysis

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Bray 01 276 1428
Lisburn 028 9262 6733
Birmingham 0121 673 1804

Certificate of Analysis for Total Dust Deposition

Project No: 2589
Client: Kilchreest Quarry
Site: Kilchreest
Site code: KC
Period: Q3 2024
Collected by: IM
Analysed by: RS
Sample method: Bergerhoff bottle
Sample type: Dust fall
SOP: 99.12

Results

Location	Start monitoring	End monitoring	Date analysed	Days on site	Result, mg/m2 day
D1	01-Sep-24	30-Sep-24	31-Oct-24	30	28.6
D2	01-Sep-24	30-Sep-24	31-Oct-24	30	65.7
D3	01-Sep-24	30-Sep-24	31-Oct-24	30	113.7

Signature

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

Environmental Services for Industry including –
- Air, Noise & Water Monitoring
- Bund Testing
- Environmental Management Systems to ISO 14001
- Air & Noise Modelling
- Energy & Water use reduction
- IPPC/Waste Licence Compliance
- EIS & Planning
- Occupational Dust & Noise

Affiliations & Accreditations
- ISO14001:2004 Registration No. 2012/1427
- MCERTS Certified personnel for stack testing
- Member of Royal Society for Prevention of Accidents
- Member Environmental Services Association
- EMPI Membership

RoSPA Member

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Environmental Efficiency

Bray (Co. Wicklow) 01 276 1428
Lisburn (Co. Antrim) 028 9262 6733
Birmingham (U.K.) 0121 673 1804

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Noise Monitoring Report Q3 2024

for

Kilchreest Quarry

Document Number: 2589-35 v1.00

Email: energy@enviro-consult.com www.enviro-consult.com
Registered Office: Parnell House, 19 Quinsboro Road, Bray, Co. Wicklow A98 XV04. Registered Number 243 412
Directors: Robert B. Sutcliffe, Ronan T. Sutcliffe

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Document Lead Sheet

Client	Organisation	Isert Kelly
	Site	Kilchreest Quarry
	Client contact	IsertKelly Ltd.
	Permit/Lic No. (if applic)	05-2870

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Order	Proposal number	6182
	Client PO or other reference	N/A

Deliverable	Report title	Environmental Noise Monitoring Report
	Document number	2589-35
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	Type of document	Report
	Method Statement	MS 2589-01
	Format for issue	PDF

Approval & Issue	Site visit by	IM	Date last site visit	20/09/2024
	Document author	RS	Date written	03/10/2024
	Approved by	RTS	Date approved	01/11/2024
	Report version nr	1.00		
	Issued by	KW	Date report issued	01/11/2024
	Doc issued to	As per client info		
	Method issue	Email		

Action	All results satisfactory	Yes
	If **not** satisfactory, further testing/assessment required	N/A
	If satisfactory, when is next test/assessment due?	Q4 2024

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Report History

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Table of Contents

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1. Introduction

The client is required to carry out a noise survey at various specified locations in the vicinity of the site. This document reports the results of the noise survey.

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2. Executive Summary

A noise survey to EPA NG4 was undertaken on 20-Sep-24. The compliance of the locations with the specified limits is shown in the table below.

Table 2-1 Summary of compliance

Location	Noise Sensitive Location	Day	Night-time
N1	No	N/A	N/A
N4	No	N/A	N/A
NSL2	Yes	Compliant	Compliant
NSL3	Yes	Compliant	Compliant

3. Facility Description

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The following activities are carried out on the site

- Hauling of materials from the site using HGV lorries.
- The operation of machinery.

The site has the hours of operation shown in the table below.

Table 3-1 Hours of operation

Period	Operational hours	Surveyed
Day	08:00 – 17:00	Yes
Evening - No monitoring	Not operational	No
Night-time	Not operational	Yes

4. Monitoring requirements

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Noise is required to be monitored at the locations shown in the table immediately below. The noise limits applicable, the required number of sampling periods (e.g. number of separate measurements at one location during one monitoring period, e.g. daytime) and the required duration of each sampling period are shown in the second table below. Note that noise monitoring was only carried out during periods where there was activity or equipment running on the site.

Table 4-1 Locations monitored

Location	Location Description	NSL
N1	Entrance	No
N4	Boundary	No
NSL2	Beside house	Yes
NSL3	Beside house	Yes

Table 4-2 Periods monitored and limits

Monitoring Period	Monitored	NSL	Limit. dBA	Allowance, dBA	T (Sampling Period), minutes	No. of runs
Day	Yes	Yes	55	0	60	1
Night-time	Yes	Yes	45	0	15	1
Day	Yes	No	N/A	N/A	60	1
Night-time	Yes	No	N/A	N/A	15	1

5. Sampling Methodology

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5.1 Instrumentation Used

The equipment shown in the table below was used during the noise survey. All Sound Level Meters are Type I. The SLMs and calibrators are identified by a LEN (Laboratory Equipment Number) and this is shown in the table below. Calibration certificates for the equipment, where appropriate, are shown in the appendices and are referenced by the LEN.

Table 5-1 Equipment Used

Equipment used	LEN (Lab equipment Number)	Make/Model	Serial Number	Cal cert
First SLM	LEN 128	Svantek SV2	128783	Yes
Second SLM	LEN 088	Svantek SV1	40395	Yes
First Calibrator	LEN 003	Cirrus	51431	Yes
Anemometer	N/A	Testo	N/A	N/A

All noise measurements were 'A' weighted and the time-weighting 'Fast' was applied (to equate to human ear hearing). Each SLM is calibrated in the field before the start of the survey and again at the end of the survey. Unless stated otherwise in this report, there was no drift in calibration greater than 0.1 dB over the duration of the survey.

All SLMs used are capable of third band octave measurement. Third band octave readings were recorded at all locations where tonal noise was subjectively detected by the survey personnel. Where tonal noise was detected, the third band octave readings were analysed off site to verify the presence of tonal. The simplified methodology for the objective identification of tones specified in Annex D of ISO 1996K2:2007(E) is used for this purpose.

5.2 Noise Survey Personnel

The noise survey was undertaken by Environmental Efficiency staff as follows:

Author (Name & Quals)	Rebecca Stokes, IOA Certificate in Environmental Noise Measurement
Author (Initials)	RS

5.3 Meteorological Conditions

Weather conditions on the day of monitoring were considered appropriate for surveying purposes and therefore did not affect the readings i.e. conditions were dry and wind speed was less than 5 m/s (the normal upper limit for taking measurements).

The Sound Level Meter was also fitted with a windshield to minimise interference from potential meteorological conditions, in keeping with good practice. The meteorological conditions during the survey periods are shown below.

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Table 5-2: Meteorological Conditions

Survey	Date	Time	Av. wind speed, m/s	Temp, C	Prevailing wind direction	Weather
Start	20-Sep-24	14:36:00	1.2	20.0	SW	No precipitation
Completion	20-Sep-24	19:10:00	1.2	19.0	SW	No precipitation

5.4 Measurement Locations

The locations of noise monitoring locations are described in the table below and shown in Figure 5-1. Photographs of the SLM at each location are shown following the map.

Table 5-3: Description of monitoring locations

Location	Height above ground, m	Distance from reflective surface, m	Location Description	Noise sensitive location
N1	1.2	>3.5	Site entrance	No
N4	1.2	>3.5	Boundary	No
NSL2	1.2	>3.5	Beside house	Yes
NSL3	1.2	>3.5	Beside house	Yes

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Figure 5-1 Site map

Figure 5-2 SLM at N1

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Figure 5-3 SLM at NSL2

Figure 5-4 SLM at NSL3

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Figure 5-5 SLM at N4

5.5 Ground attenuation

If the intervening ground between a noise source and a measurement location is acoustically absorptive, this can result in a reduction in noise level at the receptor due to absorption of sound energy by the ground itself. On the contrary, if the intervening ground is acoustically reflective ground, its products the opposite effect

The details of the intervening ground between sources and measurement positions are described in the following table:

Table 5-4: Ground attenuation

Location	% Soft Ground	% Hard Ground	Comments
N1	85	15	No comment
N4	0	100	No comment
NSL2	0	100	No comment
NSL3	60	40	No comment

6. Noise Survey

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The measurement parameters LAeq,T, LAF90 and LAF10 plus the derived parameter LAr,T are tabulated below in the tables for each monitoring location. Associated particulars such as a description of the on-site noise and off-site noise noticed at each location are also provided where relevant. A graphical representation of the parameters LAeq,T, LAF90 and LAr,T over each monitoring period is provided in the graphs above each table.

The derived noise parameter LAr,T, termed the Rated Noise Level, includes a penalty of 5 dBA for tonal or impulsive noise where such noise is present. This penalty is normally added to LAeq,T. Where traffic or other off site noise sources are significant, the parameter LAF90 may be a better descriptor of site noise and where this is the case the Rated Noise Level is equal to LAF90 plus the penalty. In the tables below, where LAF90 is considered a better descriptor of site noise, an asterisk is appended to the measurement.

The penalty for on-site tonal noise and/or on-site impulsive noise is only applied during the daytime and evening periods. No tonal or impulsive noise is permitted during night-time; if such noise is present then this is a breach regardless of the LAeq,T or LAF90 noise level.

Where on site tonal is subjectively heard this is noted in the tables below in the column 'On site tonal?'. In all cases where on-site tonal is heard the simplified methodology for the objective identification of tones specified in Annex D of ISO 1996K2:2007(E) is used to confirm the presence of tonal. Where on site tonal is confirmed, this is shown in the tables below in the column 'Tonal confirmed'. The third octave graphs used to confirm on site tonal are shown in the discussion section.

The parameter LAFmax has no bearing on compliance and is not shown in the tables below; however, as it is may be required to be reported separately (e.g. in an Annual Environmental Report) it is included in the appendices.

The column headed 'On site impulsive' states whether impulsive noise was heard by the monitoring personnel.

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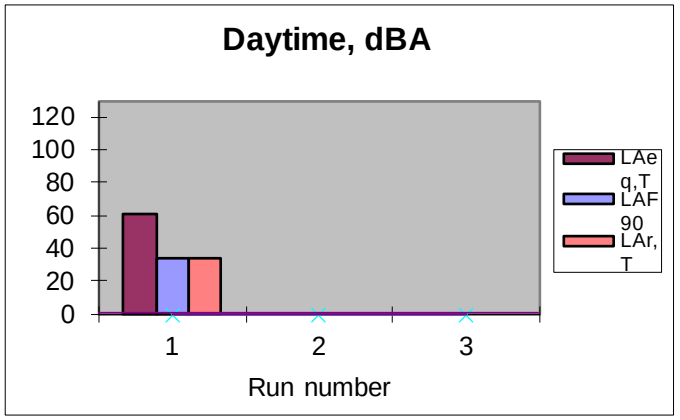
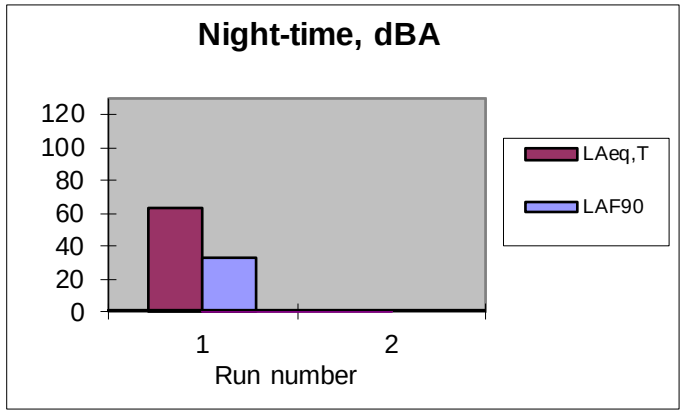
Location N1





Period	Run	LEN	Date/Time	$LAeq_{,T}$	LAF90[1]	LAF10	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $LAr_{,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 128	20/09/2024 14:36	61	34	56	No	N/A	No	34	Heaving traffic on local road	HGV's	N/A
Night-time	1	LEN 128	20/09/2024 18:24	64	32	56	No	N/A	No	32	Heavy road traffic	N/A	N/A

[1] LA90 chosen due to significant road traffic noise

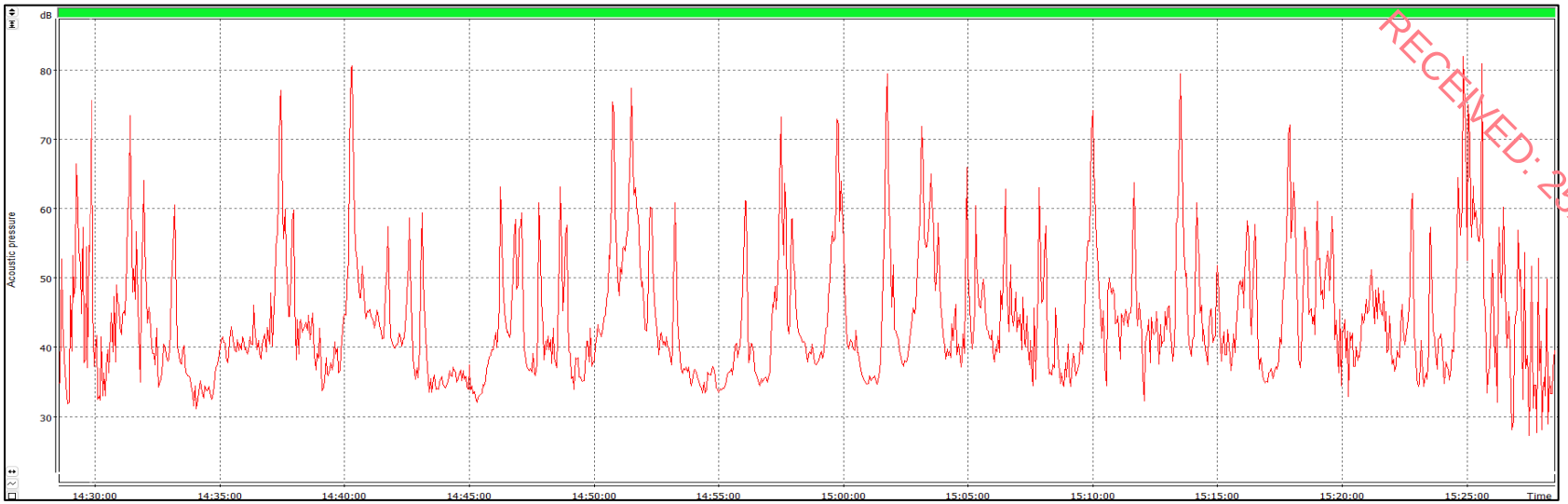


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Figure 6-1 N1 Day Run 1 of 1

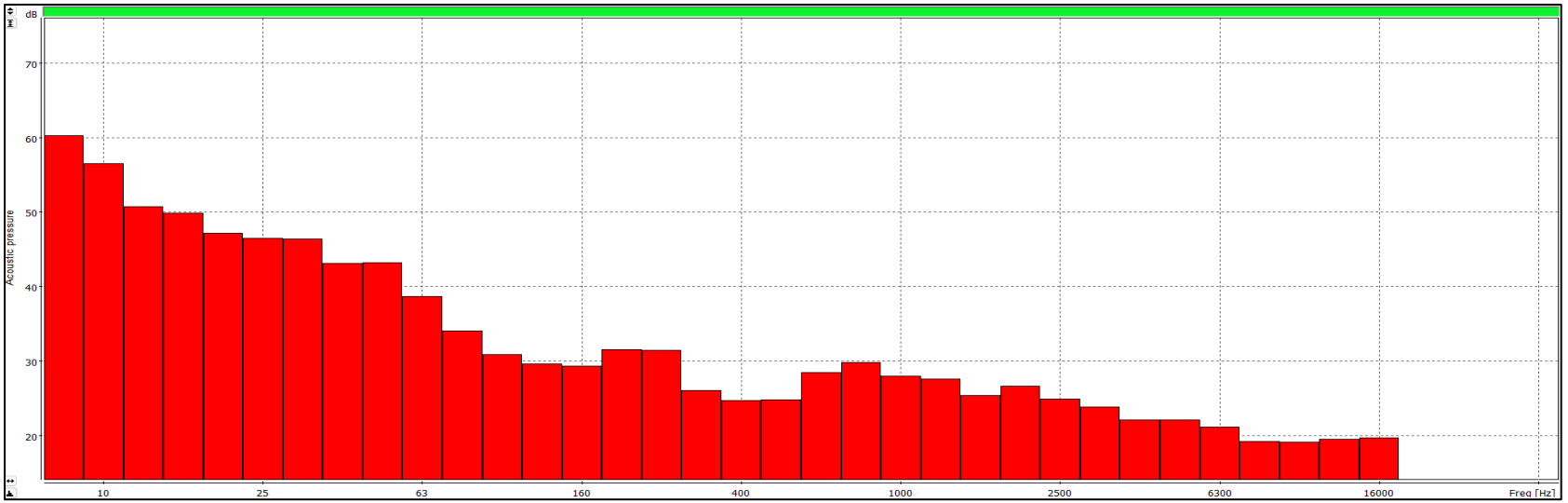

Figure 6-2 N1 Day Run 1 of 1 Third Band Octave

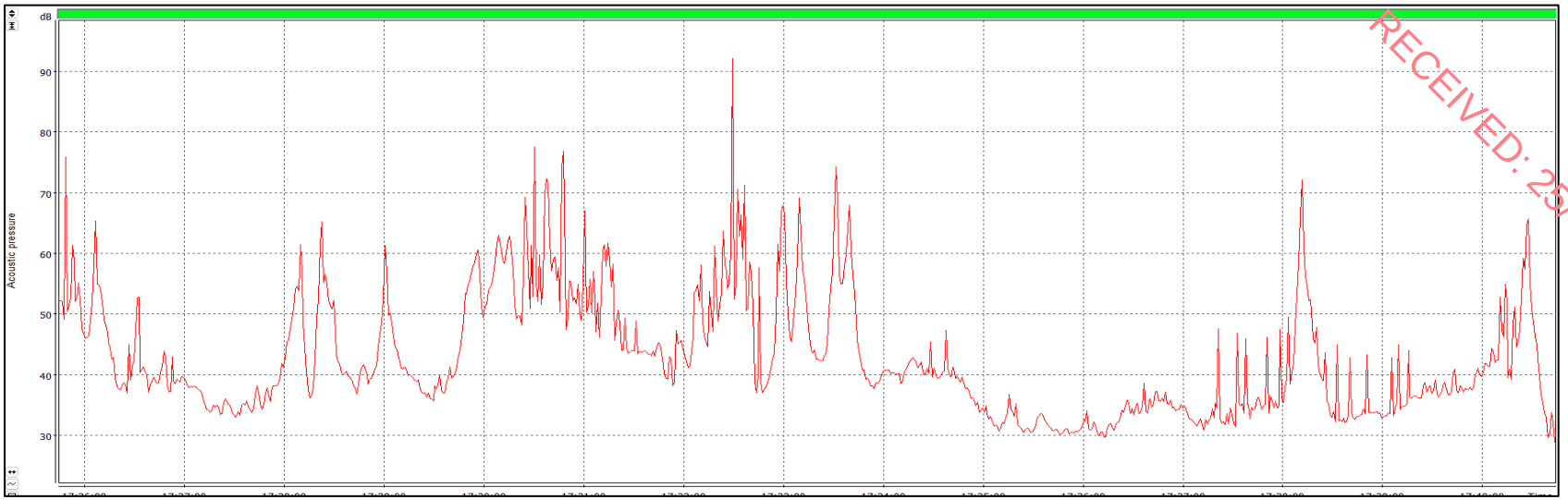

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Figure 6-3 N1 Night Run 1 of 1

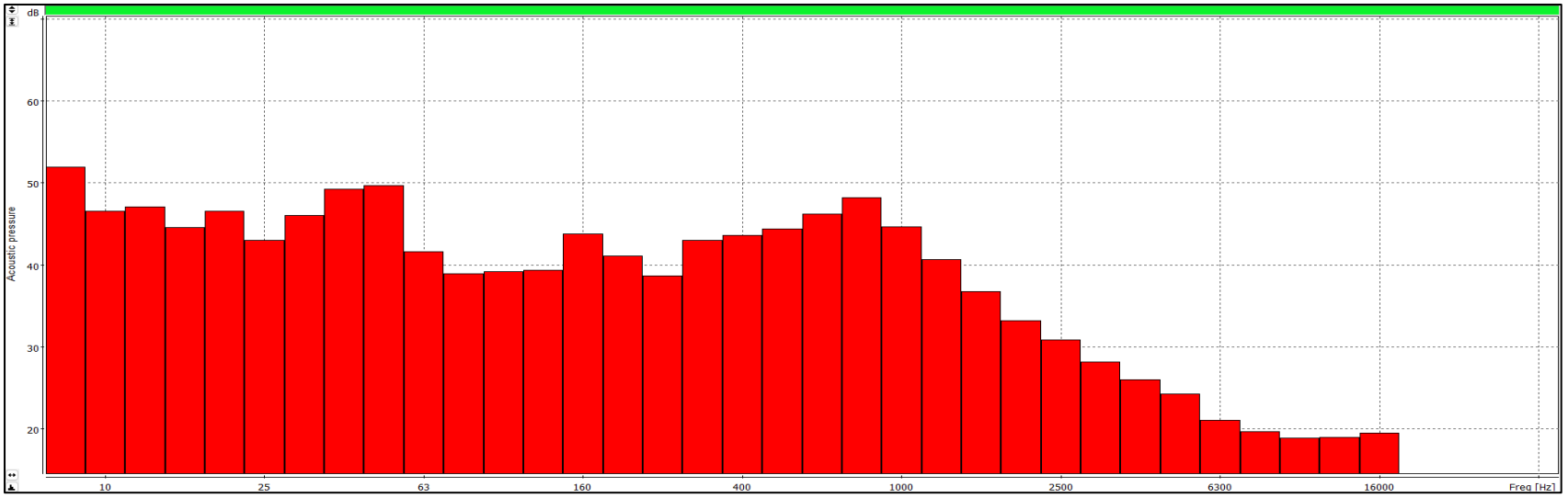

Figure 6-4 N1 Night Run 1 of 1 Third Band Octave

Location NSL2

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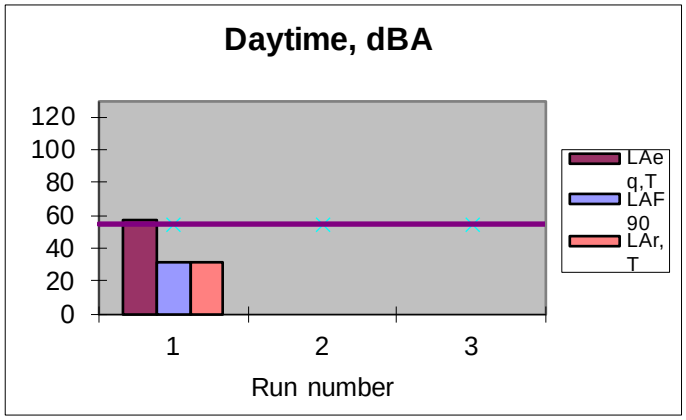

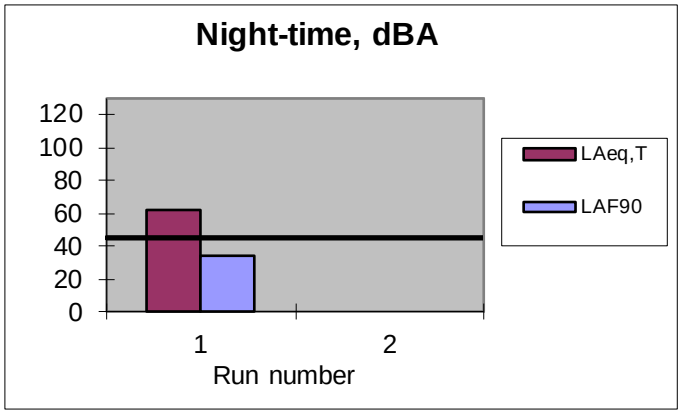

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}[1]	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 088	20/09/2024 15:34	57	31	55	No	N/A	No	31	Heavy traffic from local road	HGV's, site works	Yes
Night-time	1	LEN 128	20/09/2024 18:48	62	34	54	No	N/A	No	34	Heavy road traffic	N/A	Yes

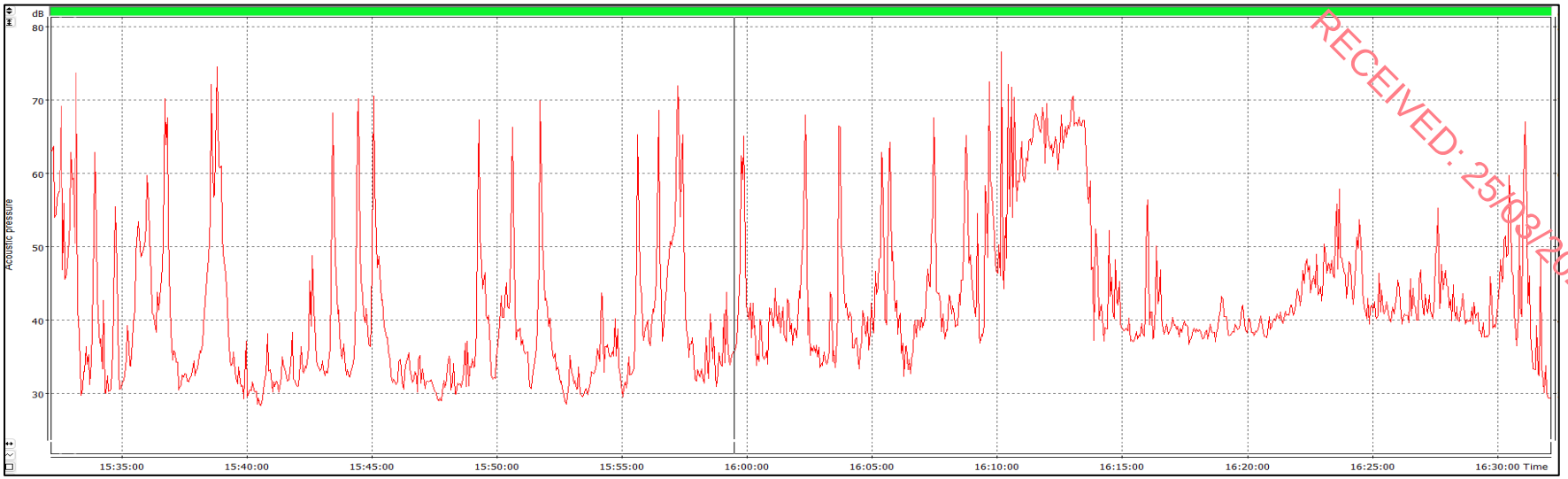

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Figure 6-5 NSL2 Day Run 1 of 1

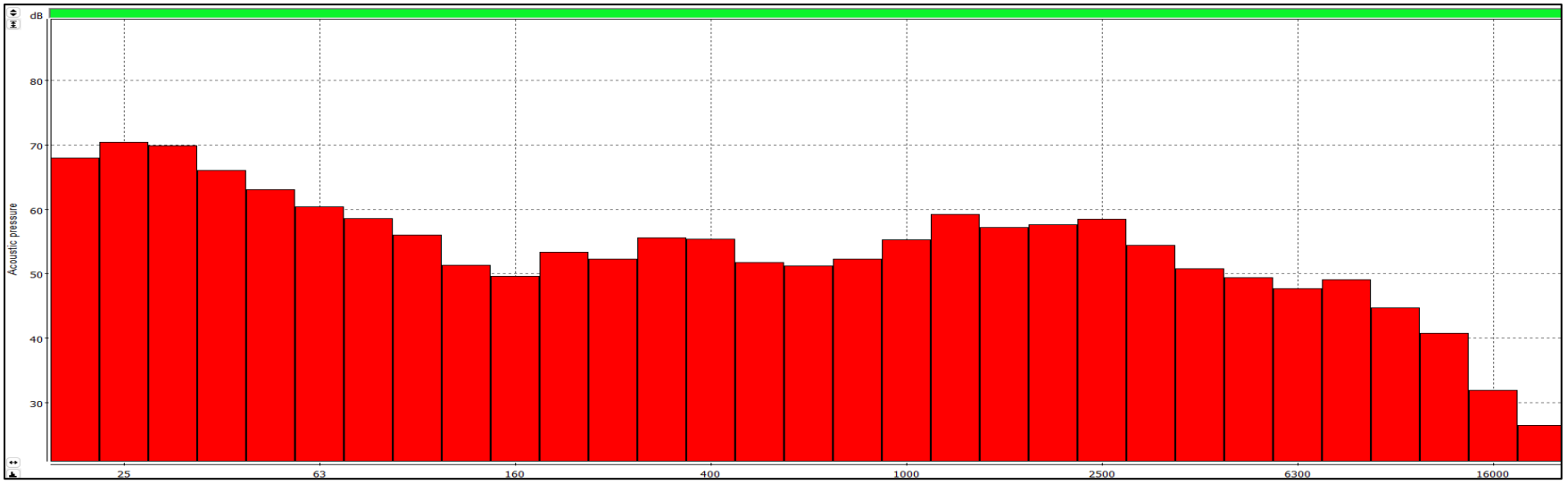

Figure 6-6 NSL2 Day Run 1 of 1 Third Band Octave

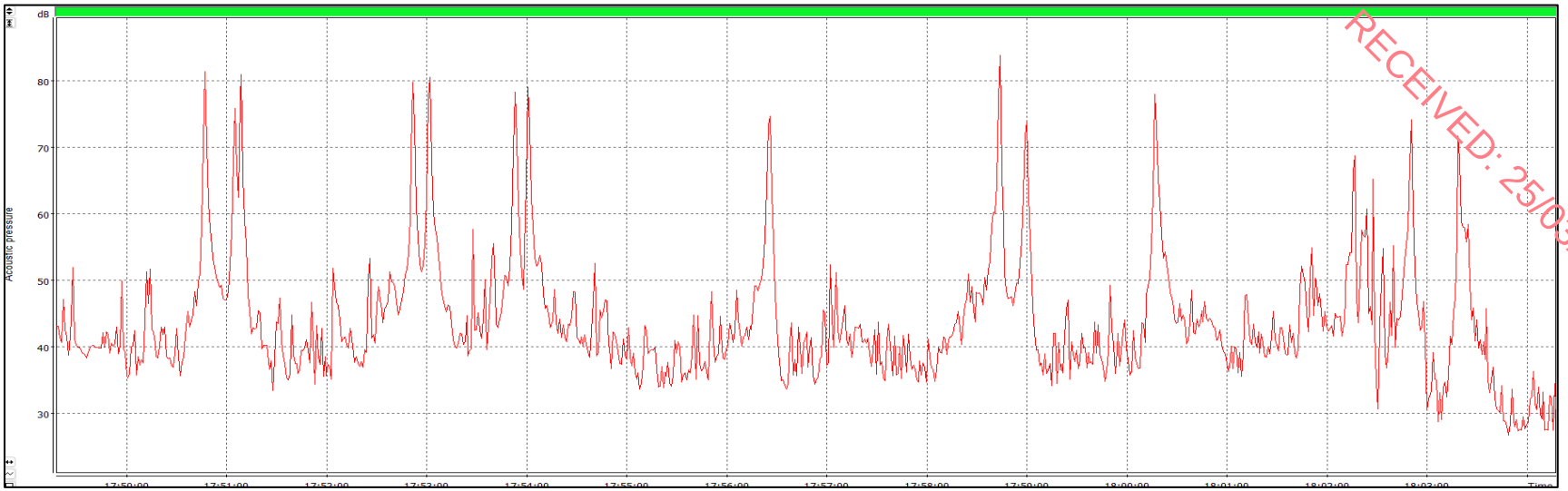

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Figure 6-7 NSL2 Night Run 1 of 1

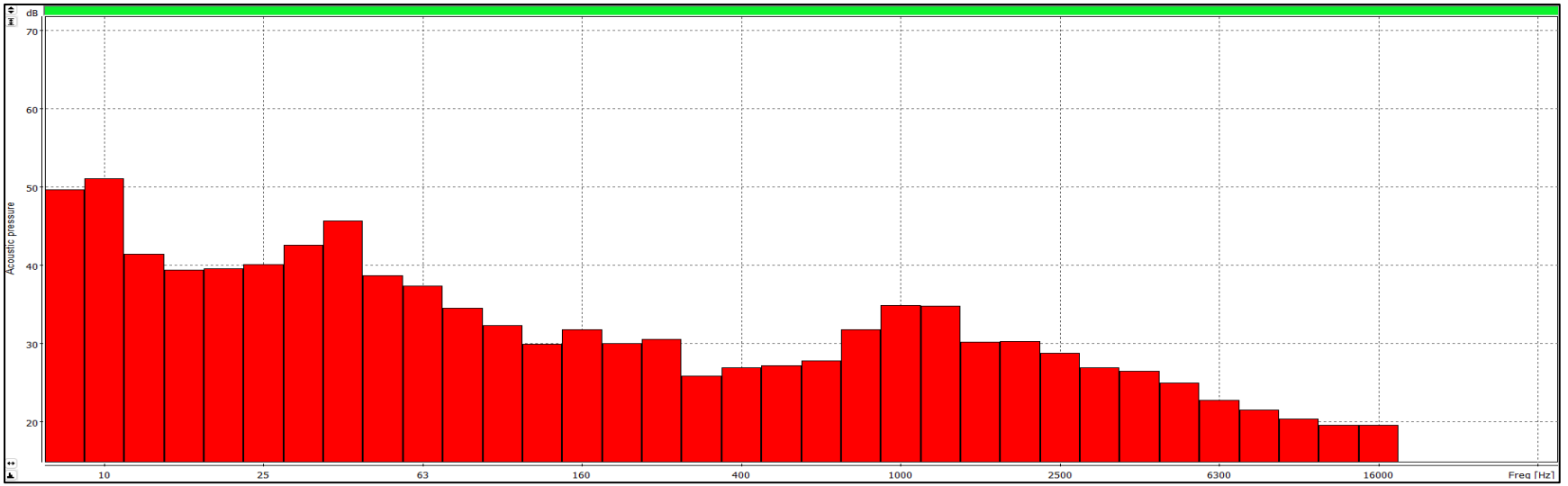

Figure 6-8 NSL2 Night Run 1 of 1 Third Band Octave

Location NSL3

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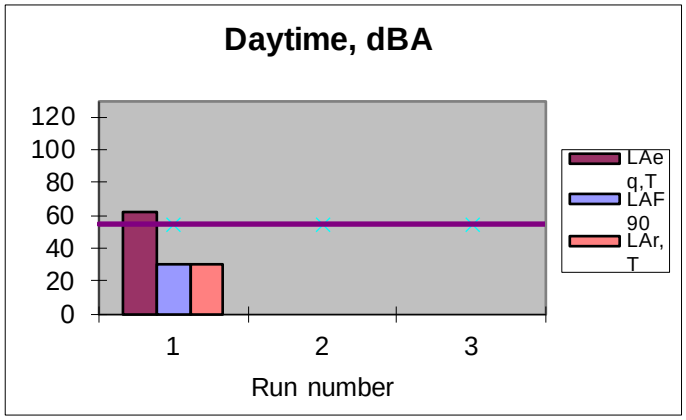

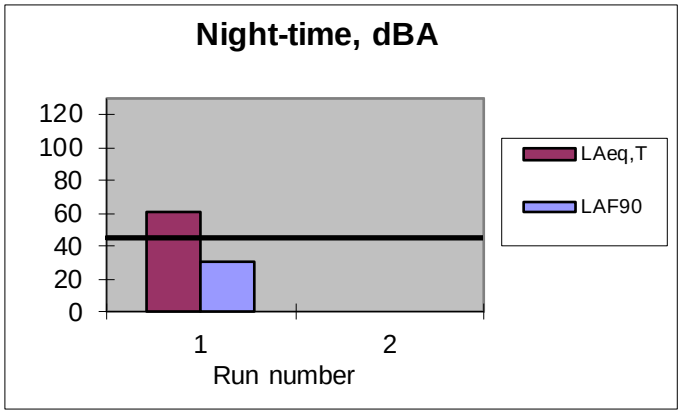

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}[1]	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 088	20/09/2024 14:38	62	31	56	No	N/A	No	31	Heavy Traffic on local road	HGV's	Yes
Night-time	1	LEN 088	20/09/2024 19:10	61	30	54	No	N/A	No	30	Heavy road traffic	N/A	Yes

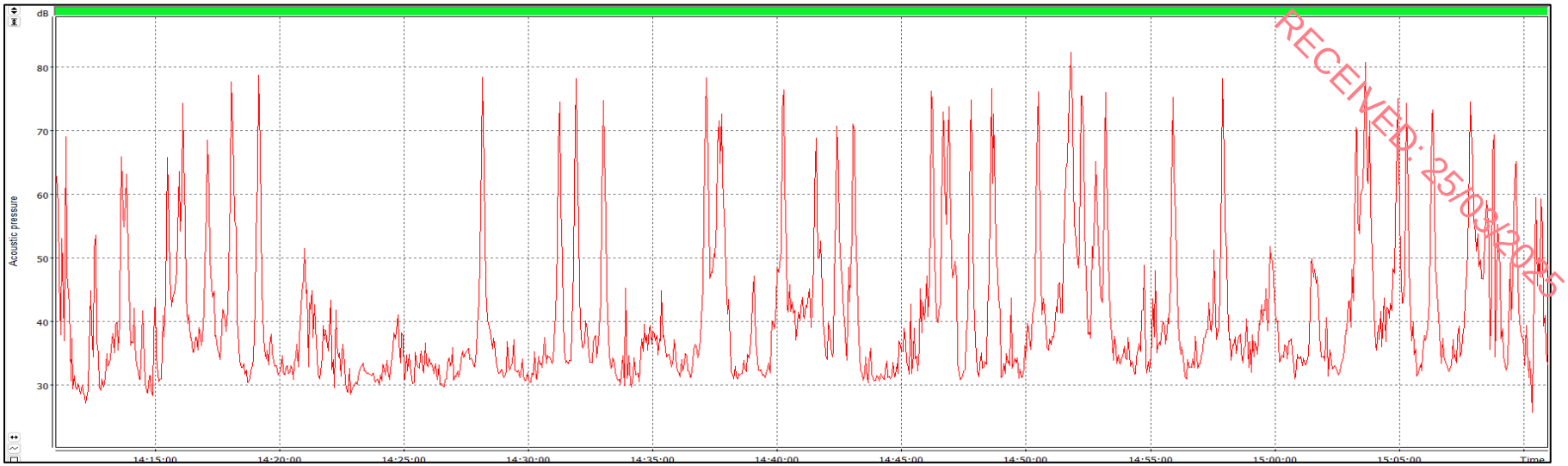

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Figure 6-9 NSL3 Day Run 1 of 1

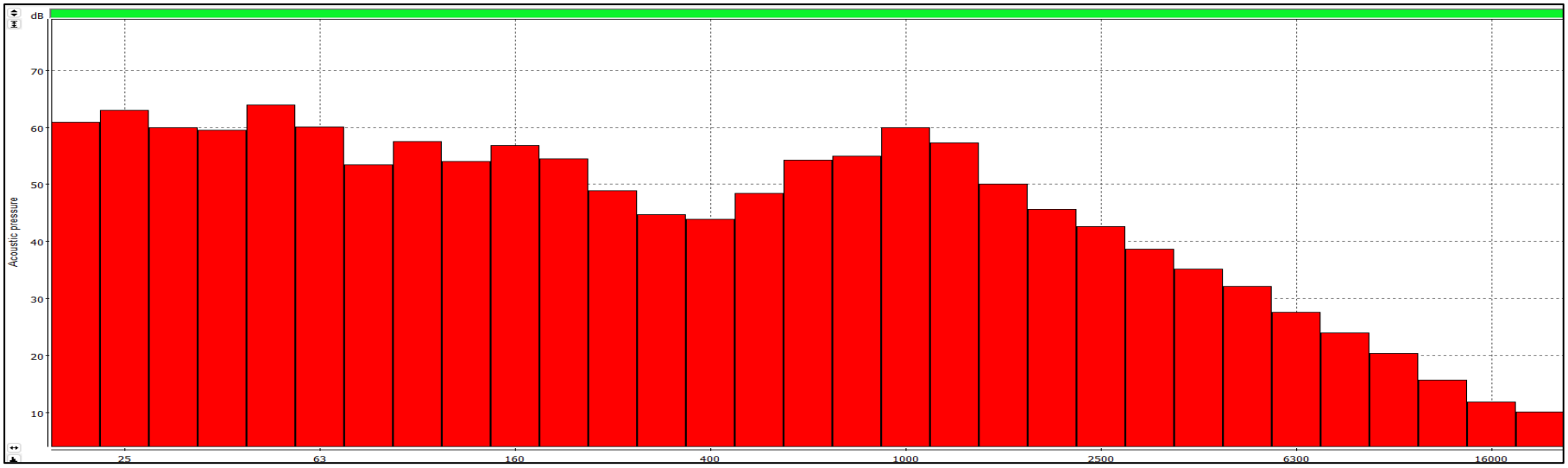

Figure 6-10 NSL3 Day Run 1 of 1 Third Band Octave

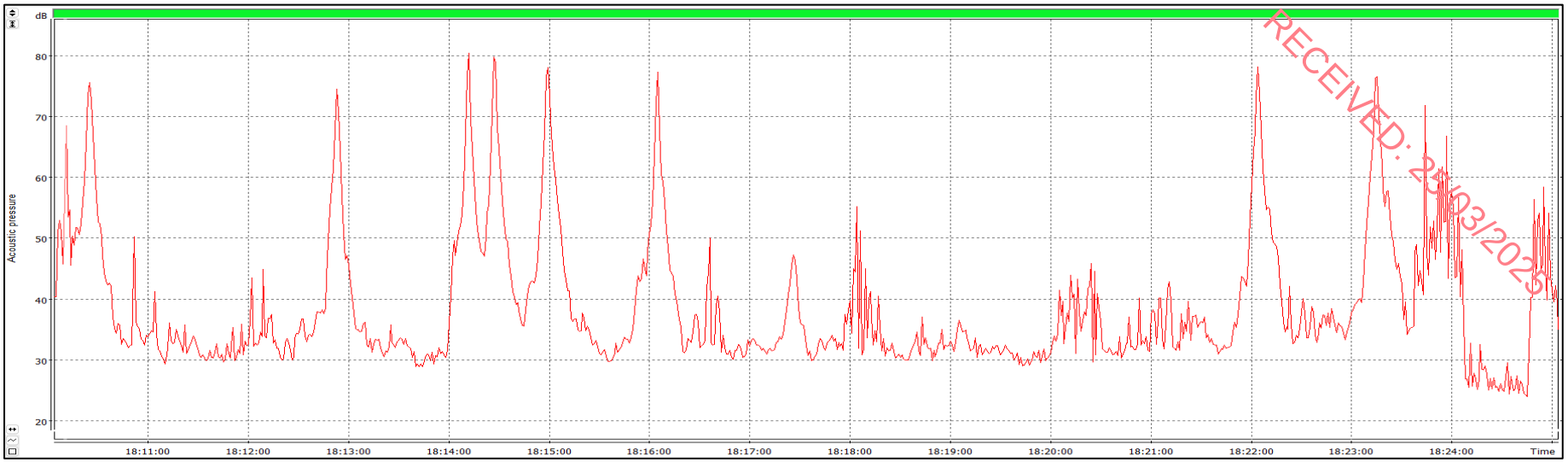

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Figure 6-11 NSL3 Night Run 1 of 1 Third Band Octave

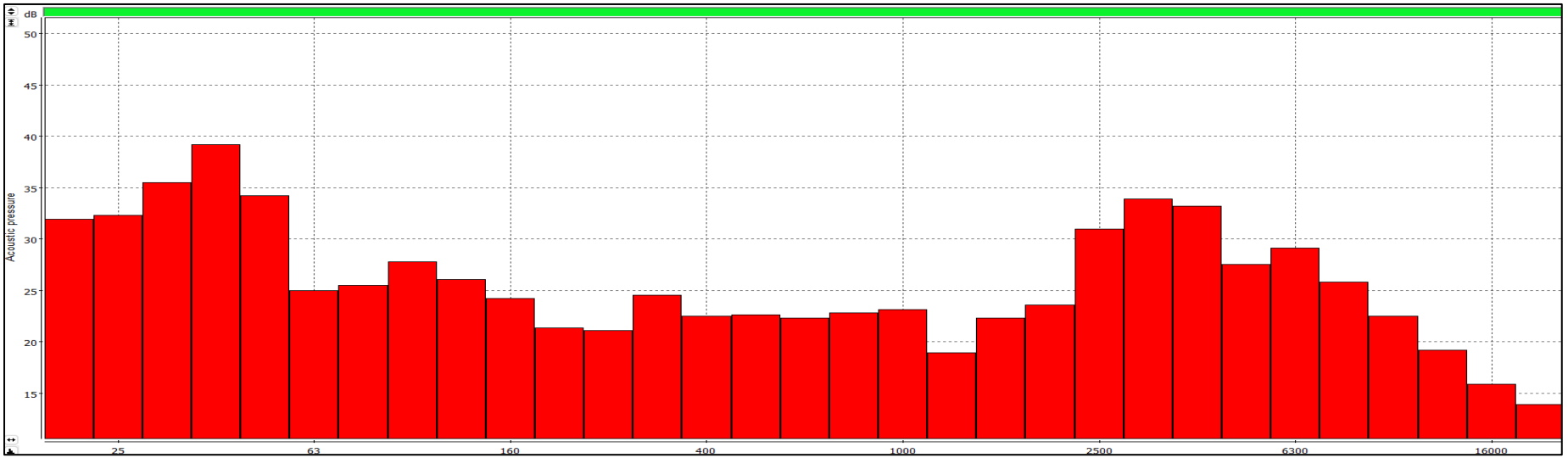

Figure 6-12 NSL3 Night Run 1 of 1 Third Band Octave

Location N4

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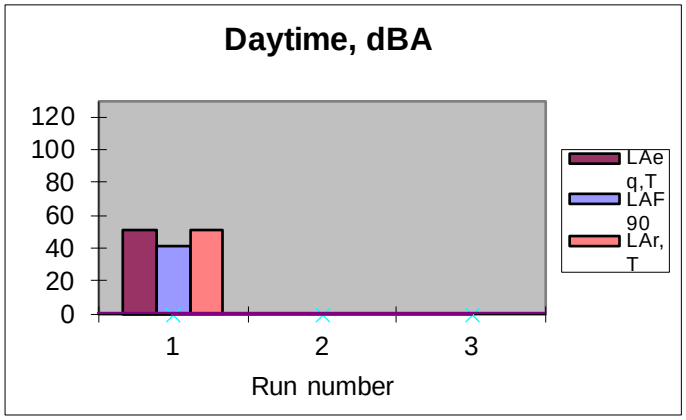

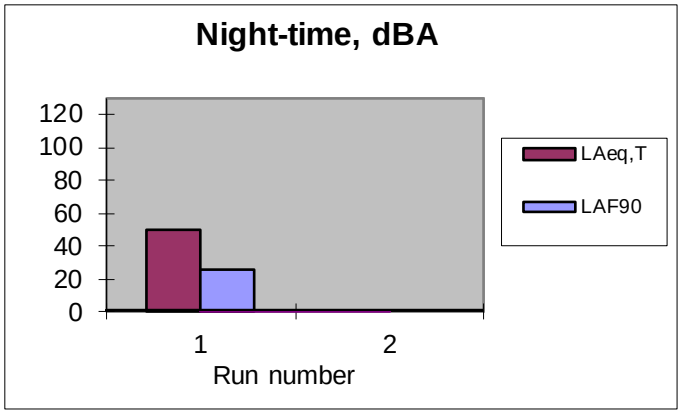

Period	Run	LEN	Date/Time	$L_{Aeq,T}$	L_{AF90}	L_{AF10}	On site tonal?	Tonal confirmed	On site impulsive?	Rated Noise Level, $L_{Ar,T}$	Description Off-site Noise	Description of On-site Noise Sources	Compliant
Daytime	1	LEN 128	20/09/2024 15:44	51	41	54	No	N/A	No	51	Distant road traffic	HGVs, site works	N/A
Night-time	1	LEN 088	20/09/2024 18:00	50	26	44	No	N/A	No	50	Distant road traffic	N/A	N/A

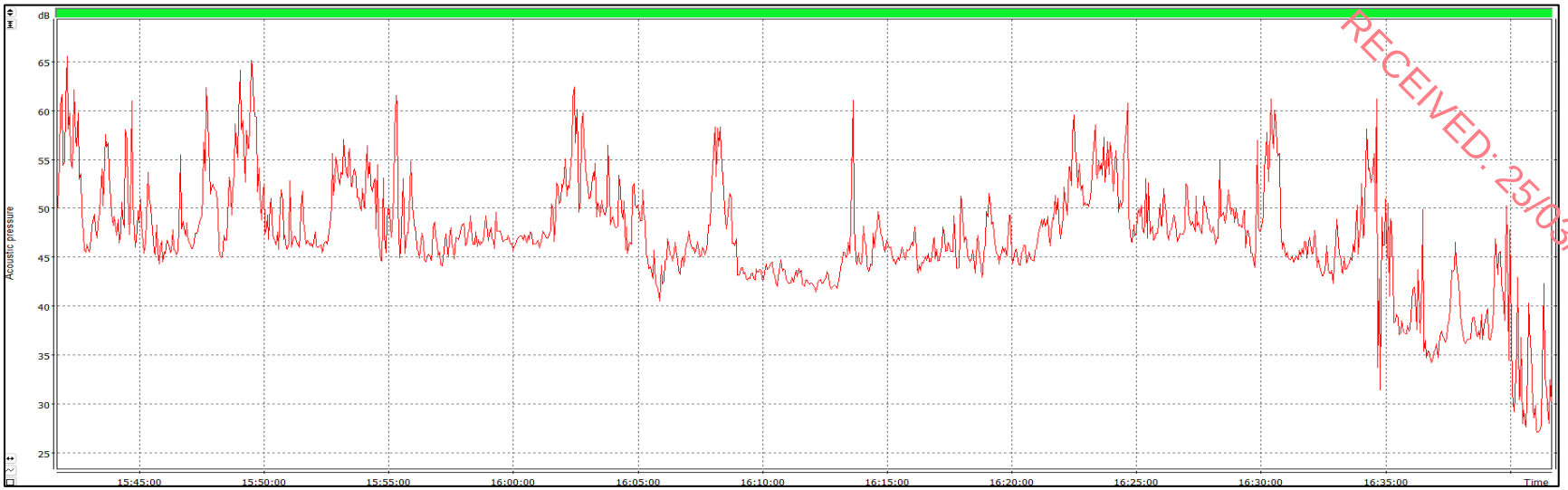

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Figure 6-13 N4 Day Run 1 of 1

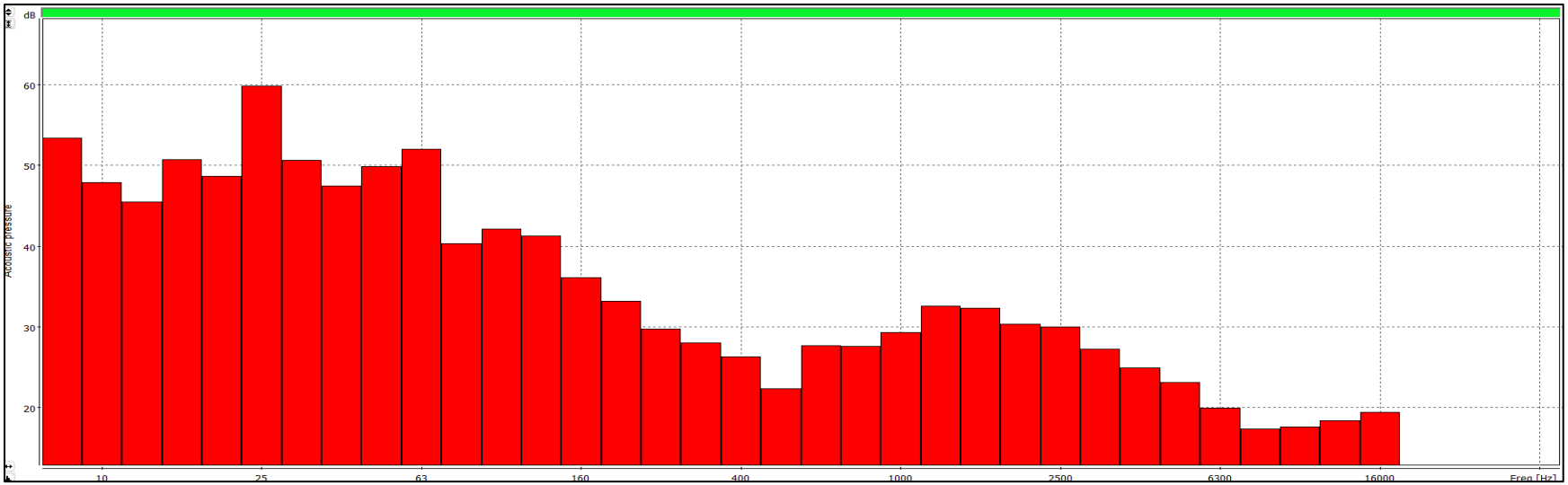

Figure 6-14 N4 Day Run 1 of 1 Third Band Octave

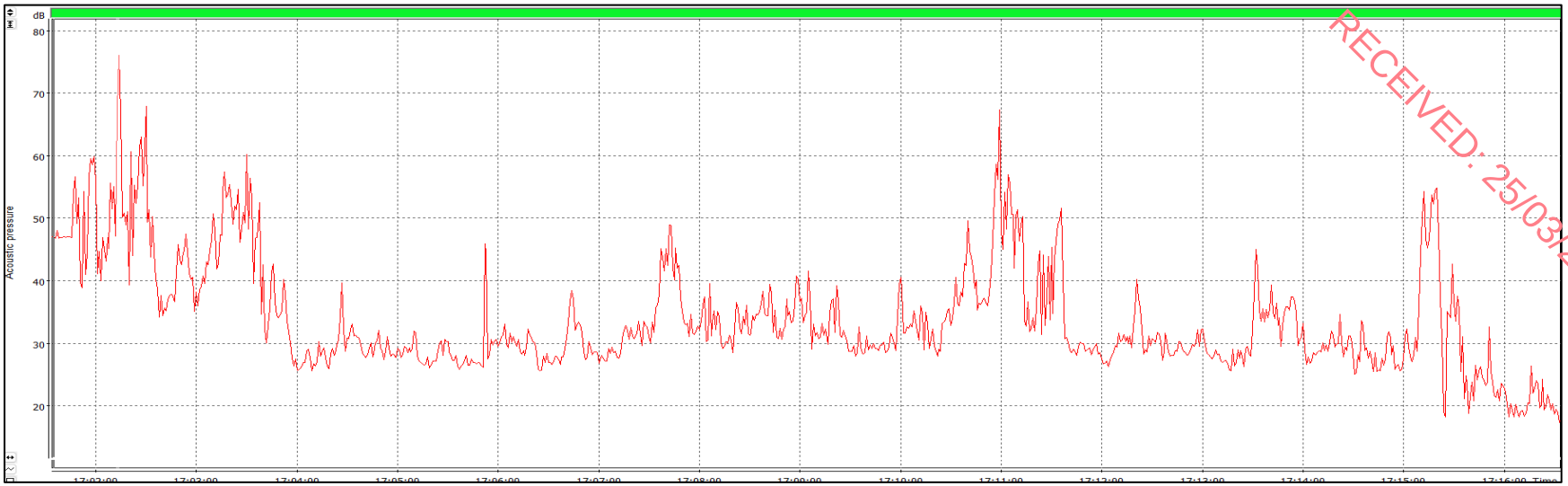

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Figure 6-15 N4 Night Run 1 of 1

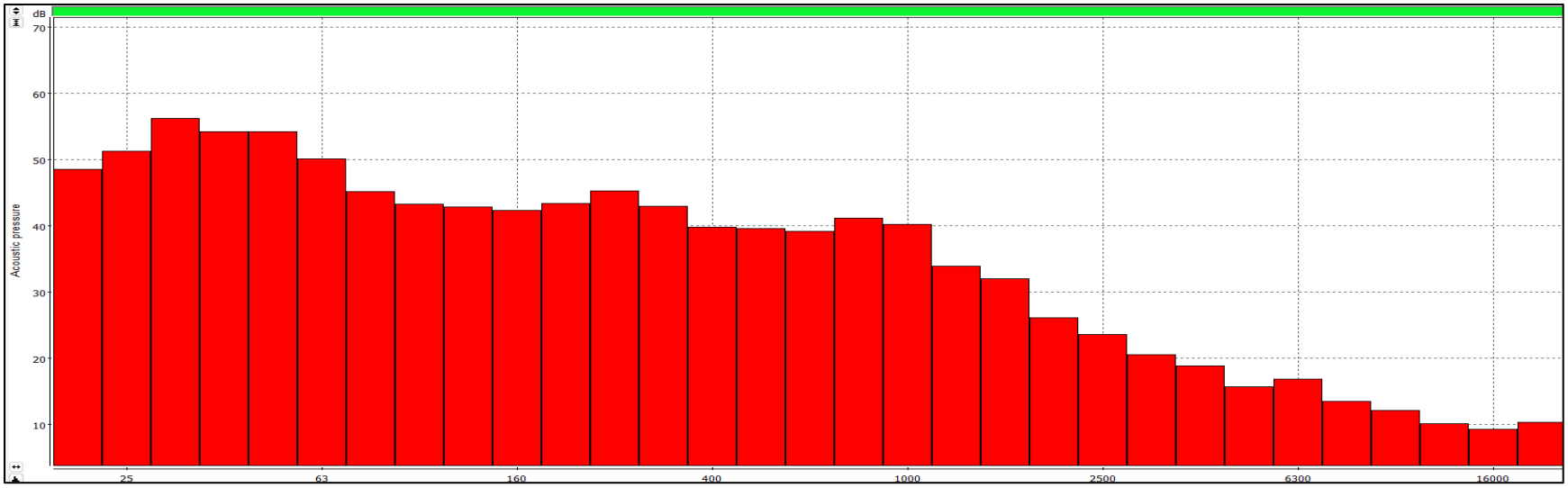

Figure 6-16 N4 Night Run 1 of 1 Third Band Octave

7. Conclusion

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LAeq represents the ambient sound levels in the area from sources near and far. The statistical noise levels of L10 and L90 are the noise levels exceeded for 10% and 90% respectively of the measurement period. A small difference in LAeq, L10 and L90 indicates a constant noise emission (or a lack of intermittent noise). The greater the difference between the LAeq, L10 and L90 indicates intermittent noise sources such as local traffic. Where external noise sources such as local road traffic have had a considerable impact on monitoring results due to the close proximity of some monitoring points to the adjacent public road, the L90 is chosen as the best descriptor of site noise.

According to Condition 6 of the grant of planning permission:

"During the operational phase of development, the noise level at existing sensitive locations shall not exceed a Laeq (1 hour) of 55dB (A) between 0800 and 1800 and an Laeq (15 minutes) of 45 dB (A) between 1800 and 0800. Noise monitoring shall be carried out at the noise monitoring locations N1 to N4 as indicated in the EIS documentation on a quarterly basis in accordance with the EPA "Environmental Noise Survey – Guidance Document", 2003".

Monitoring locations NSL2 and NSL3 are considered to be "noise sensitive locations" as defined by the EPA while N1 and N4 are defined as "boundary noise locations" where the specified limit values do not apply. During both daytime and night-time monitoring periods, noise emission values at both NSL2 and NSL3 were within the prescribed limits as stated in the planning conditions.

Appendix 1 Report Terminology

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Noise Monitoring Parameters	
Survey	The measurement of noise over one or more days and is made up of a number of monitoring runs with one or more noise meters.
Run or monitoring run	A single measurement at one location to determine noise level. A number of monitoring runs will be typically be made at each location. The duration of a monitoring run is typically 15 or 30 minutes and is stipulated in the licence.
dB(A)	This is the unit used to quantify noise measurements. "dB" stands for decibel and the "A" indicates that the noise reading is A-weighted and therefore is a measurement of noise audible to the human ear. The scale is logarithmic.
$L_{Aeq,T}$	This parameter is measured on-site using a noise meter for a specified time period (T minutes). It represents the average noise level that occurred over that period.
Rated Noise Level or $L_{Ar,T}$	The Rated Noise Level is equal to $L_{Aeq,T}$ plus any penalty for confirmed tonal and/or subjective impulsive. The penalty is only added for daytime and evening monitoring.
L_{AF10} and L_{AF90}	The L_{AF10} and L_{AF900} are both statistical noise levels. L_{AF10} indicates that for 10% of the monitoring period, the sound levels were greater than the quoted value. L_{AF90} indicates that for 90% of the monitoring period, the sound levels were greater than the quoted value. The L_{AF90} indicates the background noise levels if short-term, intermittent noise sources were ignored e.g. a passing car. The L_{AF10} can be used to determine the effect to which these short-term noise sources effect the overall average reading i.e. if the L_{AF10} is very different to the L_{AF90}, then intermittent noise is a significant source of noise
L_{AFmax}	The maximum RMS A-weighted sound pressure level occurring within a specified time period. Measured using the "Fast" time weighting.
Continuous	Noise produced without interruption.
Impulsive Noise	A noise of short duration (typically less than one second), the sound pressure of which is significantly higher than the background; brief and abrupt.
Intermittent Noise	Noise produced on discontinuous basis e.g. equipment operating in cycles or events such as single passing vehicle or aircraft.
Tonal Noise	Noise, which contains a clearly audible, tone i.e. a distinguishable, discrete or continuous note (whine, hum, drone, screech, etc.).

Appendix 2 Confirmation of tonal noise

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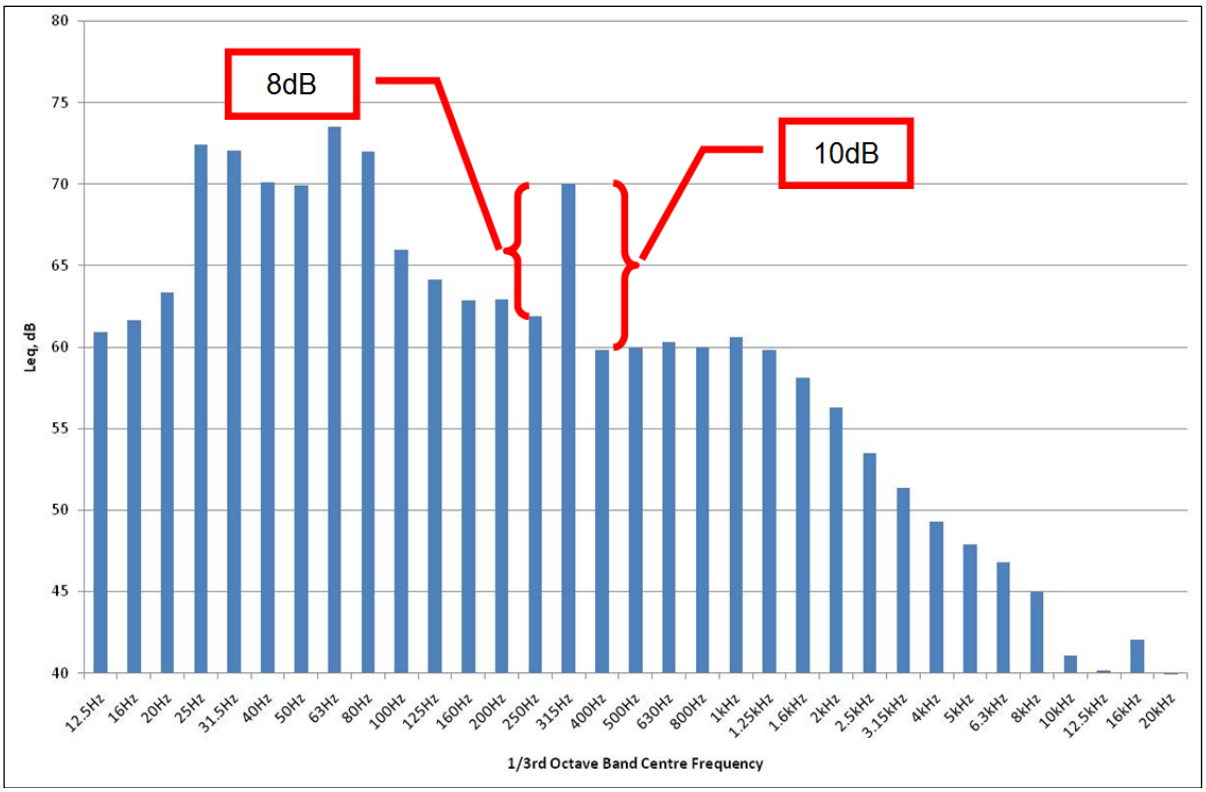
The subjective identification of tonal noise is based on the interpretation of the third octave band results. Where the sound level for a third octave band is greater than or equal to both the adjacent third octave bands by some constant level difference, then tonal noise is confirmed. The level differences vary by frequency and are shown in the table below.

Frequency range	Level Difference
25 Hz to 125 Hz	15 dB
160 Hz to 400 Hz	8 dB
500 Hz to 10,000 Hz	5 db

In the example below, tonal noise was subjectively assessed. The third band monitoring results were therefore reviewed and are shown below. A peak can be seen at 315 Hz. This peak is 8 dB above the lower adjacent third octave and 10 dB higher than the higher adjacent third octave band. From a review of the table above, the Level Difference for 315 Hz is 8 dB.

For the example below, tonal noise is confirmed as there is a difference greater than or equal to 8 dB either side of 315 Hz.

Knowing the frequency of the confirmed tonal noise can help in identifying the source of the noise and its reduction.



Appendix 3 LAFmax data

Some authorities require that LAFmax be reported, however, there are no limits set for this parameter. In order to keep the body of the report uncluttered, the data regarding this parameter is reproduced below.

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Location	NSL	Period	LAFmax
N1	No	Day	93.1
N1	No	Night-time	101
N4	No	Day	75.8
N4	No	Night-time	82.1
NSL2	Yes	Day	90.1
NSL2	Yes	Night-time	86.4
NSL3	Yes	Day	84.1
NSL3	Yes	Night-time	82.7

Appendix 4 Certificates of Calibration

RECEIVED: 25/03/2025

Figure 7-1 LEN 128 Certificate of Calibration

CALIBRATION CERTIFICATE

Issued By AcSoft Limited Calibration Laboratory

Date Of Issue: 21-05-2024 **Certificate No:** 1508748-1

Calibrated By: W. Jay

Approved By: W. Jay

CUSTOMER

Environmental Efficiency
Parnell House
19 Quinnsboro Road
Bray
County Wicklow
Ireland

INSTRUMENT DETAILS

Manufacturer:	SVANTEK
Model:	SV971A
Serial No.:	128783
Firmware Version:	1.07.4
Description:	Sound Level Meter
Performance Class:	1

Type Approved to IEC 61672-1:2013: No
(If Yes, there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2013)

SENSOR DETAILS

Manufacturer:	ACO	SVANTEK
Model:	7152	SV18A
Serial No.:	89700	148362
Description:	Microphone	Preamplifier

P/O NUMBER 3063
DATE RECEIVED 20-05-2024
DATE CALIBRATED 21-05-2024

CALIBRATION RESULTS

The sound level meter submitted for testing successfully completed the periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed. However, no general statement or conclusion can be made about conformance of the sound level meter to the full specifications of IEC 61672-1:2013 because (a) evidence was not publicly available, from an independent testing organization responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the class Y specifications in IEC 61672-1:2013 or correction data for acoustical test of frequency weighting were not provided in the Instruction Manual and (b) because the periodic tests of IEC 61672-3:2013 cover only a limited subset of the specifications in IEC 61672-1:2013.

REPORTED RESULTS

The results contained in this Certificate refer only to the measurements made at the time of test for the instrument detailed above. These results do not reflect the instrument's ability to maintain calibration.

Page **1** of **8**

This calibration was performed by AcSoft Ltd, 11 Abbey Court, Fraser Road, Priory Business Park, Bedford, MK44 3WH
T: 01234 639550 W: www.acsoft.co.uk E: sales@acsoft.co.uk

Figure 7-2 LEN 088 Certificate of Calibration

RECEIVED: 25/03/2025

AcSoft
Noise, Vibration & Air Quality

CALIBRATION CERTIFICATE

Date of issue: 16-10-2023 **Certificate No:** 1506084-1 **Page:** 1/8

INSTRUMENT DETAILS	Manufacturer:	**SVANTEK**	
	Model:	**SVAN 971**	
	Serial No.:	40395	
	Description:	Sound Level Meter	
SENSOR DETAILS	Manufacturer:	**ACO**	**SVANTEK**
	Model:	**7052E**	**SV18**
	Serial No.:	87404	42615
	Description:	Microphone	Preamplifier
CUSTOMER	Environmental Efficiency		
ENVIRONMENTAL CONDITIONS	Temperature:	21.7 – 22.8	°C
	Humidity:	51 – 52	%
	Pressure:	101.9 – 102.0	kPa
DATE OF CALIBRATION	16-10-2023		
APPROVED BY	A. Pullinger		

AcSoft
Noise, Vibration & Air Quality

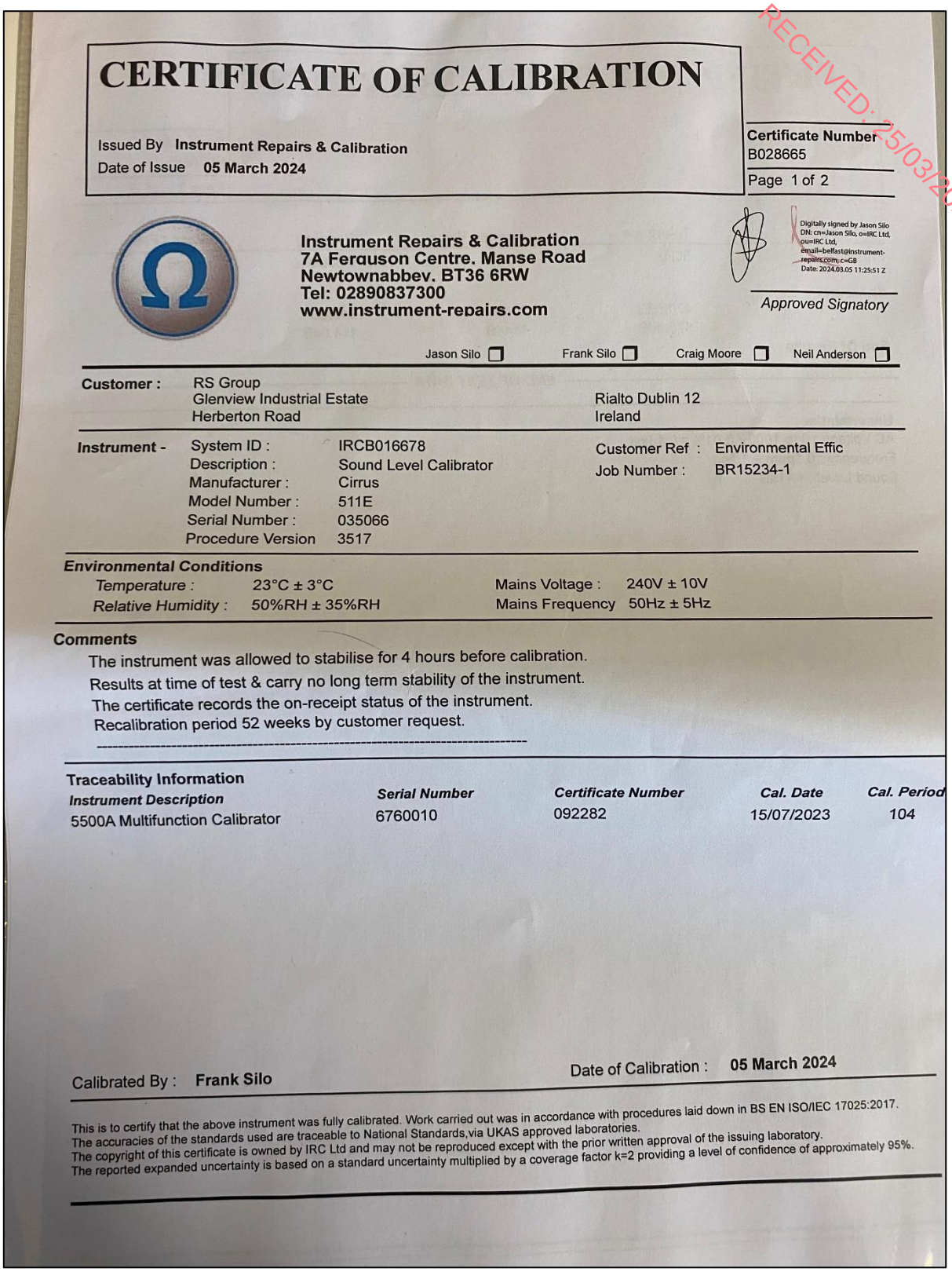
AcSoft Calibration | 11 Abbey Court
Fraser Road | Priory Business Park
MK44 3WH | Bedford

+44 (0) 1234 639550

www.acsoft.co.uk

This calibration was performed by AcSoft Calibration.
AcSoft Calibration is a trading name of AcSoft Ltd, 11 Abbey Court, Fraser Road, Priory Business Park, Bedford, MK44 3WH

Figure 7-3 LEN 003 Certificate of Calibration



CERTIFICATE OF CALIBRATION

Issued By **Instrument Repairs & Calibration**
Date of Issue **05 March 2024**

Certificate Number
B028665
Page 1 of 2

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Instrument Repairs & Calibration
7A Ferguson Centre, Manse Road
Newtownabbey, BT36 6RW
Tel: 02890837300
www.instrument-repairs.com

Digitally signed by Jason Silo
DN: cn=Jason Silo, o=IRC Ltd, ou=IRC Ltd, email=belfast@instrument-repairs.com, c=GB
Date: 2024.03.05 11:25:51 Z

Approved Signatory

Jason Silo ☐ Frank Silo ☐ Craig Moore ☐ Neil Anderson ☐

Customer : RS Group
Glenview Industrial Estate
Herberton Road
Rialto Dublin 12
Ireland

Instrument -

System ID :	IRCB016678	Customer Ref :	Environmental Effic
Description :	Sound Level Calibrator	Job Number :	BR15234-1
Manufacturer :	Cirrus		
Model Number :	511E		
Serial Number :	035066		
Procedure Version	3517		

Environmental Conditions

Temperature :	23°C ± 3°C	Mains Voltage :	240V ± 10V
Relative Humidity :	50%RH ± 35%RH	Mains Frequency	50Hz ± 5Hz

Comments

The instrument was allowed to stabilise for 4 hours before calibration.
Results at time of test & carry no long term stability of the instrument.
The certificate records the on-receipt status of the instrument.
Recalibration period 52 weeks by customer request.

Traceability Information

Instrument Description	*Serial Number*	*Certificate Number*	*Cal. Date*	*Cal. Period*
5500A Multifunction Calibrator	6760010	092282	15/07/2023	104

Calibrated By : **Frank Silo**

Date of Calibration : **05 March 2024**

This is to certify that the above instrument was fully calibrated. Work carried out was in accordance with procedures laid down in BS EN ISO/IEC 17025:2017.
The accuracies of the standards used are traceable to National Standards,via UKAS approved laboratories.
The copyright of this certificate is owned by IRC Ltd and may not be reproduced except with the prior written approval of the issuing laboratory.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%.

Appendix 5 Certificate of Competence

Institute of Acoustics

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Certificate of Competence in Environmental Noise Measurement

This is to certify that

Rebecca Stokes

has completed a course of instruction approved by the Institute of Acoustics and designed to enable the candidate to undertake environmental noise measurements in a competent manner and has achieved a satisfactory performance in the written and practical examinations

Jonty Stewart
Education Committee Chairman

Allan Chesney
Chief Executive Officer

Examination Date: 19 May 2023
Centre: Shorcontrol Safety Ltd
Candidate Number: ENM260

For the purposes of Credit Transfer or Professional Development this Certificate may be considered to be equivalent to 25 points or hours

The Institute of Acoustics Limited, Silbury Court, 406 Silbury Boulevard, Milton Keynes MK9 1AF
T: +44 (0)300 999 9675 E: ioa@ioa.org.uk W: ioa.org.uk
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2025 Q1

Groundwater Monitoring Results

BH1 (From office Tap)

Complete Laboratory Solutions
[Tel] 091 574355
[Fax] 091 574356
[Email] services@cls.ie
[web] www.cls.ie

RECEIVED: 20/01/2025

CERTIFICATE OF ANALYSIS

Client : Isertkelly Ltd.

Unit 1, Block 1, Liosban Ind Est, Tuam Rd
Galway

Report No. : 583760
Date of Receipt : 20/01/2025
Start Date of Analysis : 20/01/2025
Date of Report : 11/02/2025
Order Number : Not required
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Drinking Water Limits in accordance with S.I. No. 99 of 2023	Units
1831788	Isertkelly LTD. Kilchrest, Co. Galway	Aluminium, Total	I, R	3	200ug/l	ug/l
		Ammonia as N	I, R	<0.005	0.5mg/l	mg/l
		Ammonium as NH4	I, R	<0.01	0.5mg/l	mg/l
		Arsenic, total	I, R	18	10ug/l	ug/l
		Chloride	I, R	101	250mg/l	mg/l
		Clostridium Perfringens in Water	I, R	0	0 cfu/100mls	cfu/100ml
		COD	I, R	<10	0	mg/l
		Colour, apparent	I, R	18.3	Must be acceptable to consumers and no abnormal change	mg/l Pt Co
		Conductivity @20C	I, R	789	2,500µS/cm	uS/cm
		E.coli (Filtration)	I, R	0	0 cfu/100mls	cfu/100ml
		Enterococci (Incubated at 37 °C)	I, R	0	0 cfu/100mls	cfu/100ml
		Iron, total	I, R	407	200ug/l	ug/l
		Manganese, total	I, R	24	50ug/l	ug/l
		Nitrate as NO3	I, R	1.97	50mg/l	mg/l
		Nitrite as NO2	I, R	<0.017	0.5mg/L	mg/l
		pH	I, R	7.3	6.5-9.5 pH Units	pH Units
		TOC	I, R	1.85	No abnormal change	mg/l
		TON as N	I, R	0.445	n/a	mg/l
		Total Coliforms (Filtration)	I, R	4	0 cfu/100mls	cfu/100ml
		Total Hardness (Kone)	I, R	332	No Limit Set	mg/l CaCO3
		Total Phosphorus as P	I, R	<0.05	n/a	mg/l
		Turbidity	I, R	1.6	Must be acceptable to consumers and no abnormal change, ideally <1.0NTU	N.T.U.

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 108T

Approved by:

Luiza Singh

Luiza Singh
Deputy Quality Manager

Complete Laboratory Solutions,
Ros Muc, Connemara,
Co. Galway

Complete Laboratory Solutions (Medpharma),
Unit 3A & Unit 8,
Small Business Park,
Tuam Road, Galway.

Symbol Reference - I:17025 accredited; S:Subcontracted; R:Analysis carried out in Ros Muc; M:Analysis carried out in MedPharma; F:Field test; O:Tested outside hold time.

Complete Laboratory Solutions
[Tel] 091 574355
[Fax] 091 574356
[Email] services@cls.ie
[web] www.cls.ie

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See below for test specifications and accreditation status.
This report only relates to items tested and shall not be reproduced but in full with the permission of CLS.
0cfu is reported in waters, this refers to 'not detected in volume tested'
It is recommended that water samples requiring microbiological analysis should be tested within 24 hours of sampling.CLS will test food, water and swabs samples within 24 hours of receipt.
Where samples have been taken by the Client, results apply to the samples as received.

In-House Test	Specification	Expanded Measurement of Uncertainty	17025	GMP/FDA*	ISO**
Aluminium, Total	ICP-MS CLS129	+/- 11.64%	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 15.2 %	Yes	No	Yes
Ammonium as NH4	Konelab CLS 40	+/- 15.2 %	Yes	No	Yes
Arsenic, total	ICP-MS CLS 129	+/- 6.93%	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 7.81%	Yes	No	Yes
Clostridium Perfringens in Water	CLS 43	±0.11cfu/ml	Yes	No	Yes
COD	CLS 52	+/- 4.48 %	Yes	No	Yes
Colour, apparent	CLS 29	+/- 11.9 %	Yes	No	Yes
Conductivity @20C	CLS 67	+/- 6.64 %	Yes	No	Yes
E.coli (Filtration)	CLS 16	±0.17 cfu/100ml	Yes	No	Yes
Enterococci (Incubated at 37 °C)	CLS 42	±0.11 cfu/100ml	Yes	No	Yes
Iron, total	ICP-MS CLS129	+/- 12.43%	Yes	No	Yes
Manganese, total	ICP-MS CLS129	+/- 16.40%	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 15.41%	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 4.23%	Yes	No	Yes
pH	CLS 26	+/- 0.092 pH units	Yes	No	Yes
TOC	CLS 150	+/- 18.08 %	Yes	No	Yes
TON as N	Konelab CLS 38	+/- 15.32%	Yes	No	Yes
Total Coliforms (Filtration)	CLS 16	±0.16cfu/100ml	Yes	No	Yes
Total Hardness (Kone)	Konelab CLS 77	+/- 10.53%	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 18.01 %	Yes	No	Yes
Turbidity	CLS 30	+/- 13.69%	Yes	No	Yes

*Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).
**Laboratory Analysis, Sampling, Food Safety Monitoring and Analysts on Contract are all ISO 9001 certified.

Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1831788	Isertkelly LTD. Kilchrest, Co. Galway	Good condition	20/01/2025

Complete Laboratory Solutions,
Ros Muc, Connemara,
Co. Galway

Complete Laboratory Solutions (Medpharma),
Unit 3A & Unit 8,
Small Business Park,
Tuam Road, Galway.

Symbol Reference - I:17025 accredited; S:Subcontracted; R:Analysis carried out in Ros Muc; M:Analysis carried out in MedPharma; F:Field test; O:Tested outside hold time.