

PEAK acoustics



Noise Impact Assessment

Client: Euro-Tel Design

Site: Kenwood Business Centre, New Lane, Havant, PO9 2NH

Reference No. KD1001227NR

Revision: 0.0

Date of Issue: 17/02/2022

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Executive Summary

A Noise Impact Assessment has been undertaken on behalf of Euro-Tel Design for a proposed data centre with associated air conditioning plant and emergency generators at Kenwood Business Centre, New Lane, Havant, PO9 2NH.

The proposal includes installation of two individual data cabins that each have 5/6 No. outdoor AC condenser units and a single back-up emergency generator.

Measurements of the prevailing background noise climate were undertaken from Wednesday 9th to Thursday 10th February 2022 at a location representative of the identified Noise Sensitive Receptors (NSRs).

The nearest or most-affected Noise Sensitive Receptors (NSRs) were identified as residential properties to the east on Fourth Avenue. The four closest and most exposed dwellings were selected as reception points in the assessment.

As the equipment can operate at any time, a representative background sound level from the night-time period was considered. A level of **39 dB L_{A90,15min}** was derived from the lowest night-time monitoring data.

Acoustic modelling software, SoundPLAN, was utilised to calculate external sound propagation from the proposed external plant equipment using ISO-9613-2 - *Attenuation of sound during propagation outdoors*.

A BS4142 assessment of the AC plant equipment indicated a *Low Impact*, with Rating Levels below or marginally (1dB) above the representative night-time background sound level at all NSR locations, corresponding to achievement of 'NOEL – *No Observed Effect Level*' in the NPSE.

Rating Levels from operation of the emergency generators were indicated to be above the representative night-time background sound level, however, this equipment will only operate for short testing once a month during daytime business hours and during an unlikely power outage. When considering this context, the potential noise impact is considered minimal in practice.

No mitigation of noise emissions from the proposal are deemed necessary.

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1. Introduction

- 1.1 A Noise Impact Assessment has been undertaken on behalf of Euro-Tel Design for proposed data cabins with associated air conditioning plant and emergency generators which are to be installed at Kenwood Business Centre, New Lane, Havant, PO9 2NH.
- 1.2 Equipment includes two individual data cabins which will be installed in two phases. Phase 1 includes a cabin with 6 No. outdoor AC condenser units. The phase 2 cabin is identical in size but instead has 5 No. differing outdoor AC condenser units. Each cabin is to also have a single back-up emergency generator. The AC units and back-up generators serve equipment within the data cabins and therefore have the potential to operate at any time. A site plan showing the site arrangement is given in **Appendix F**.
- 1.3 An assessment of potential noise impact upon nearby residential occupiers is to be undertaken to ensure noise from the proposed equipment will not cause detriment to their amenity.

2. National Planning Policy & Guidance

- 2.1 Guidance for the assessment of noise affecting new and existing development is given in the National Policy Framework (NPPF). Section 15 of the NPPF states:

“174. Planning policies and decisions should contribute to and enhance the natural and local environment by:

E. preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of...noise pollution.”

Section 185 further states:

“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- A. Mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- B. Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.”*

Section 187 states:

“Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them because of development permitted after they were established. Where the operation of an existing business or community facility could

have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."

- 2.2 To avoid and mitigate adverse noise effects on health arising from and impacting on new development, the NPPF makes reference to NPSE. The Noise Policy Statement for England (NPSE) was published in March 2010 and covers all forms of noise. It states the following aims in paragraph 2.2.

NOEL – No Observed Effect Level.

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level.

This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level.

This is the level above which significant adverse effects on health and quality of life occur.

3. Assessment Criteria – BS4142

- 3.1 The common standard for the assessment of industrial and commercial sound is '**BS4142 – Methods for rating and assessing industrial and commercial sound**'. The industrial noise assessment method in BS4142 is based on the difference between the measured 'background sound level' (L_{A90}), and the 'Rating Level' of the industrial source, at a noise sensitive location (NSR). BS4142:2014 states:

"The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs."

An estimation of the impact of the specific sound can be obtained by the difference of the rating sound level and the background sound level whilst considering the following:

"A Sound Rating Level at or below the background noise level is indicative of Low Impact;

A Sound Rating Level that exceeds the background noise level by around +5dB is likely an indication of Adverse Impact, depending on the context;

A Sound Rating Level that exceeds the background noise level by around +10dB is likely an indication of Significant Adverse Impact, depending on the context;"

BS4142 further states:

"The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a negligible impact, depending on the context."

- 3.2 Achievement of a *Low Impact* in accordance with BS4142 can be deemed to correspond to 'NOEL – No Observed Effect Level' in the NPSE, as detailed above in Paragraph 2.2 above.

4. Site Location

- 4.1 The site is located on the eastern boundary of Kenwood Business Park in Havant, Hampshire. Areas to the west, north and south are existing large industrial sites and associated parking facilities. Further to the west, beyond New Lane, is residential housing. Immediately east of the site location are railway lines leading to and from Havant train station. Areas beyond the rail lines to the east are predominantly residential.
- 4.2 The site, receptor, and monitoring location are shown in Figure 1 below:

Figure 1: Site, Monitoring & NSR Locations – earth.google.com



-  Site Boundary (Approx.)
-  Noise Sensitive Receptors (NSRs)

-  Background Monitoring Location M1 (Approx.)

5. Noise Sensitive Receptors

- 5.1 The nearest or most-affected Noise Sensitive Receptors (NSRs) have been identified as residential properties that are in closest proximity or most exposed to the proposed external plant equipment. These have been identified as properties to the east on Fourth Avenue.
- 5.2 The four closest and most exposed properties have been considered and denoted 'NSRs 1-4'. These are indicated on an aerial image, **Figure 1** on Page 6. The façades that face the site location are to be considered as reception points in calculations.
- 5.3 The nearby industrial sites are not deemed noise sensitive and therefore will not be considered in the assessment.

6. Background Noise Survey

- 6.1 An unattended background noise survey was conducted at position M1 over a period of approximately 23hrs from Wednesday 9th to Thursday 10th February 2022. This period was selected to consider typical day and night-time background sound levels as the equipment has the potential to operate at any time.
- 6.2 Measurements of $L_{Aeq,T}$ and $L_{A90,T}$ were logged in 5-minute intervals in accordance with BS7445 - 'Description and Measurement of Environmental Noise'.
- 6.3 At position M1 (see Figure 1 on Page 6), the microphone was positioned on the boundary of the railway line toward the properties on Fourth Avenue. The microphone was approximately 1.6m from local ground level and away from reflective surfaces. This location was deemed to represent the noise climate at the identified receptors.
- 6.4 The noise climate at the monitoring position and receptors is dominated by road traffic on surrounding roads and light industrial activity which included faintly distinguishable plant noise and manoeuvring vehicles. Trains were observed to pass the site every 10 – 15 minutes and briefly dominated the noise climate.
- 6.5 Measurements were obtained using Class 1 instrumentation. Full equipment details are given in **Appendix B**.
- 6.6 Equipment was calibrated before and after use and no significant drift occurred during measurements. Up to date calibration certification can be provided upon request. Full calibration details are provided in **Appendix D**.
- 6.7 Daytime temperatures during the survey were noted as between 8 – 12°C with winds speeds between 3 – 5 m/s; deemed suitable for conducting environmental noise monitoring. Detailed meteorological information can be found in **Appendix C**.

7. Background Sound Levels

- 7.1 The environmental noise levels from measurement M1 are given below. Monitoring data indicates trains pass the site from approximately 05:00 – 01:00 each day. Noise data has also been given for the lowest 15-minute period in which no trains past the site.

Date(s)	Period	$L_{Aeq,T}$	$L_{A90,T}$
Wed 09 th & Thurs 10 th Feb 2022	Daytime (07:00 – 23:00)	62	40
Wed 09 th - Thurs 10 th Feb 2022	Night-time (23:00 – 07:00)	57	39
Thurs 10 th Feb 2022 (<i>no trains</i>)	Night-time (01:40 – 01:45)	40	39

Table 1: Background Noise Survey Results

- 7.2 As the equipment has the potential to operate at any time, the lowest measured night-time background sound level of 39 dB $L_{A90,15min}$, shown in **Bold** in Table 1 above, has been selected as the representative background sound level for the BS4142 assessment.
- 7.3 A time history of the full measured background sound levels is shown in **Appendix E**.

8. Noise Generating Equipment

- 8.1 Noise generating equipment includes cooling equipment and emergency back-up diesel generators as listed in Table 2. The equipment is proposed to be installed for two cabins, phase 1 & phase 2. The assessment will be undertaken for the site as a whole, inclusive of both phases.

Phase	Unit Descriptions	Operating Hours
Phase 1 Cabin	4 No. LG UU85	Any Time (24hr)
	2 No. LG ZUUW30GA1 [UUC1 U40]	Any Time (24hr)
	1 No. FG Wilson P150-5 Power Generator in acoustic enclosure	Only during power outages and for testing
Phase 2 Cabin	4 No. Akrivis EC20 (<i>only 3 operate at any one time</i>) *	Any Time (24hr)
	1 No. Akrivis EC08 (<i>only half the unit operates at any one time</i>) *	Any Time (24hr)
	1 No. FG Wilson P150-5 Power Generator in acoustic enclosure	Only during power outages and for testing

Table 2: Proposed Plant Equipment

* Although 5no. AC condenser units are proposed for the phase 2 cabin. Only 3.5 of the units will operate at any one time as the remaining capacity serves as redundancy. The Phase 2 AC units also have two operational modes (Free Cooling & DX) with different corresponding noise levels. The louder 'DX' mode will be considered in calculations, although it is understood to be only used approximately 15% of the year during the highest summer temperatures.

- 8.2 Manufacturer noise data sheets for the equipment are given in **Appendix H**. A site plan showing the site and equipment arrangement is given in **Appendix F**.
- 8.3 Assessment of the emergency back-up generators is to be considered separately due to their infrequent operation and contextual use.

9. Noise Modelling

9.1 Sound propagation from the noise generating equipment to the receptors has been calculated using industry standard acoustic modelling software 'SoundPLAN'. This software uses ISO-9613-2 - *Attenuation of sound during propagation outdoors* and the model takes into account the following key factors:

- *Geometric divergence*
- *Atmospheric absorption*
- *Ground absorption*
- *A light downwind correction toward the NSRs*
- *Surrounding structures and objects which may reflect or block sound toward the NSRs*
- *The height of the NSRs (e.g., First floor reception point)*

9.2 The following input parameters were used in the noise model:

Parameter	Input
Reflection Order	3
Ground Absorption Factor	Industrial Area G = 0.0 / Residential Area G = 0.8
Air pressure	1013.3 mbar
Relative Humidity	70.0 %
Temperature	10.0°C

Table 3: Calculation Input Parameters

10. Specific Sound Levels – AC Units

10.1 The Specific Sound Level is denoted L_{A5} and is the A-weighted, equivalent noise level at the NSR locations. The Specific Sound Levels (L_{A5}) have been calculated to the receptor locations shown in Figure 1 and described in Section 5 for the cumulative operation of the proposed AC plant equipment, these are given below for the worst affected floor levels.

Location	Specific Sound Level, dB L_{A5}
NSR 1	31
NSR 2	33
NSR 3	37
NSR 4	35

Table 4: Specific Sound Levels

10.2 Noise maps showing external sound propagation are shown in **Appendix G**.

11. Rating Levels – AC Units

- 11.1 In accordance with BS4142, the Specific Sound Levels may be corrected for characteristics that make the sound more noticeable at the NSR location such as tonality, impulsivity and intermittency. Section 9.2 of BS4142 gives commentary on these characteristics and appropriate penalties:

“Tonality

For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0 dB and +6 dB for tonality. Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.

Impulsivity

A correction of up to +9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible.

Other sound characteristics

Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

NOTE 2 Where tonal and impulsive characteristics are present in the specific sound within the same reference period then these two corrections can both be taken into account. If one feature is dominant then it might be appropriate to apply a single correction. Where both features are likely to affect perception and response, the corrections ought normally to be added in a linear fashion.

Intermittency

When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. This can necessitate measuring the specific sound over a number of shorter sampling periods that are in combination less than the reference time interval in total, and then calculating the specific sound level for the reference time interval allowing for time when the specific sound is not present. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.”

- 11.2 The air conditioning systems serve to control temperatures for equipment within the data cabins and therefore operate when required in response to demand and meteorological conditions. As such, the equipment will operate intermittently; a 3 dB correction for intermittency is therefore to be applied for the potential that the ‘on/off’ of the units is distinctive against the residual acoustic environment.

- 11.3 Condensing equipment such as this is typically broadband in nature with no noticeable tonal, impulsive or other distinctive characteristics; no other corrections are to be applied.
- 11.4 The resultant Rating levels are summarised below:

Location	Specific Sound Level, dB L_{As}	Total BS4142 Character Corrections	Rating Level, dB L_{Ar}
NSR 1	31	+ 3	34
NSR 2	33	+ 3	36
NSR 3	37	+ 3	40
NSR 4	35	+ 3	38

Table 5: Rating Levels

12. Rating Levels Vs Background – AC Units

- 11.1 The Rating Levels from the AC equipment are to be compared to the representative background sound level to determine the noise impact in accordance with BS4142.

A Sound Rating Level at or below the background noise level is indicative of Low Impact;

A Sound Rating Level that exceeds the background noise level by around +5dB is likely an indication of Adverse Impact, depending on the context;

A Sound Rating Level that exceeds the background noise level by around +10dB is likely an indication of Significant Adverse Impact, depending on the context;

- 11.2 The indicated noise impact at the identified Noise Sensitive Receptors is summarised below:

Location	Rating Level, dB L_{Ar}	Background Sound Level, dB L_{A90}	Difference, dB	Noise Impact
NSR 1	34	39	- 5	'Low Impact'
NSR 2	36		- 3	'Low Impact'
NSR 3	40		+ 1	'Low Impact'
NSR 4	38		- 1	'Low Impact'

Table 6: Noise Impact – AC Plant

- 11.3 The Rating levels at all NSR locations are below or marginally above the representative night-time background sound level, indicative of a *Low Impact* in accordance with BS4142 and corresponding to achievement of '*NOEL – No Observed Effect Level*' in the NPSE.
- 11.4 The 1 dB exceedance at NSR 3 is considered negligible given the calculations consider the louder 'DX' cooling mode for the Phase 2 AC plant equipment, as described in Section 9. This mode is only anticipated to be used for approximately 15% of the year during the warmest summer periods and very unlikely to be used at all during the night when temperatures are typically lower.
- 11.5 No mitigation for the AC equipment is deemed necessary.

13. Consideration for Emergency Generators

- 13.1 The emergency back-up generators are only intended to operate when the local power grid supply has failed or become unstable, as well as for testing which is to occur for approximately 30 minutes during typical daytime business hours, once a month.
- 13.2 Noise data for the 'FG Wilson P150-5 Power Generator' was obtained at another completed representative City Fibre data cabin site during December of 2019 by Peak Acoustics. Measurements were conducted using Class 1 instrumentation during suitable weather conditions. A noise level of 78 dB L_{Aeq} at 1m was derived which corresponds to the manufacturer noise data given in **Appendix H**. This data was utilised in modelling and calculations due to the absence of spectral values within the manufacturers technical data sheets. The calculated sound power levels (L_w) used in the noise modelling are given in **Appendix H**.
- 13.3 Calculations have been made to consider all plant, including AC equipment and generators, operating simultaneously as representative of a mains power outage. A 3 dB Rating Level correction has been applied to the Specific Sound Levels. The predicted noise impact is summarised in Table 7 below.

NSR Location	Rating Level, dB L_{Ar}	Background Sound Level, dB L_{A90}	Difference, dB
NSR 1	40	39	+ 4
NSR 2	46		+ 10
NSR 3	43		+ 7
NSR 4	43		+ 7

Table 7: Noise Impact – All Plant

- 13.4 Rating Levels at the identified receptors with all plant equipment operating are indicated to be above the representative night-time background sound level. Whilst this may indicate the potential for an adverse impact, the relevant context is that this equipment is only to operate during an unlikely power outage and for daytime testing that occurs for approximately 30-minutes once a month. When considering this context, the potential noise impact is considered minimal in practice. No mitigation specifically for the emergency generators is deemed necessary.

14. Conclusion

- 14.1 A noise impact assessment has been undertaken at Kenwood Business Centre, New Lane, Havant, PO9 2NH in relation to the proposal for two data cabins with associated external plant equipment.
- 14.2 Measurements of the prevailing background noise climate were conducted during an unattended survey from Wednesday 9th to Thursday 10th February 2022.
- 14.3 The nearest or most-affected Noise Sensitive Receptors were identified as residential properties to the east on Fourth Avenue. Four receptor locations were selected for the assessment.
- 14.4 Noise propagation from the proposed plant equipment was calculated using 'SoundPLAN' and ISO-9613-2. Rating Levels at all receptors were indicated to be below or marginally (1dB) above the representative night-time background sound level, indicative of a *Low Impact* in accordance with BS4142 and corresponding to achievement of '*NOEL – No Observed Effect Level*' in the NPSE.
- 14.5 Considerations were made for all plant equipment, including emergency generators, operating as representative of a mains power outage. For this scenario, Rating Levels were above the representative night-time background sound level, however, when acknowledging the context of the generators infrequent and unlikely operation, the potential noise impact from this equipment is considered minimal in practice.
- 14.6 No mitigation of noise emissions from the proposal is deemed necessary.

15. Uncertainty

- 15.1 The background monitoring equipment is subject to a 1dB error margin, however calibration before and after measurements allows the drift within the margin to be monitored and thus demonstrates that minimal drift occurred throughout the measurements.
- 15.2 Uncertainty can arise in the prediction of noise propagation from and around flat reflective surfaces, such as the surrounding structures present on site. This has been reduced to a minimum by utilising an acoustic modelling software that uses the validated method, ISO-9613-2, as described in BS4142.
- 15.3 Uncertainty in the calculated specific sound levels is further reduced by utilising manufacturer given sound power levels.

APPENDIX A – Measurement Details

Measurement	Kit	Start Date	Start Time	End Date	End Time
M1	A3	09/02/2022	11:10	10/02/2022	10:25

APPENDIX B - Equipment Details

Kit	Equipment	Make	Model	Class	Serial Number
A3	Sound Meter	Svantek	971	1	41980
A3	Pre-Amp	Svantek	SV18	1	44331
A3	Calibrator	Svantek	SV33A	1	43086

APPENDIX C - Meteorology Details

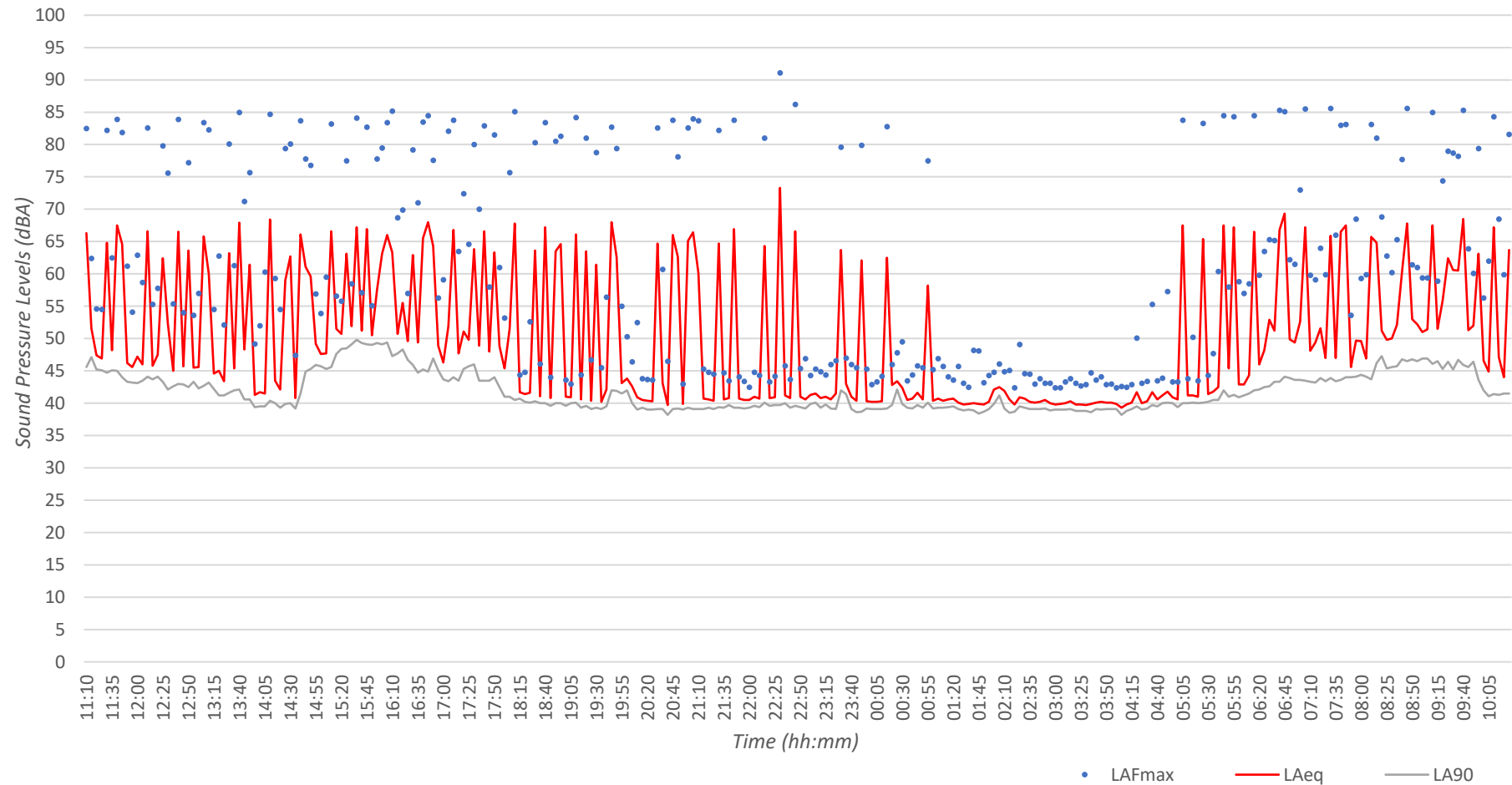
Date	Temp C°	Wind Speed m/s	Wind Direction	Humidity %	Precipitation mm	Cloud Cover (Oktas)
09/02/2022	12	3 - 5	SW	67	0.0	4/8
10/02/2022	8	3 - 5	W	62	0.0	2/8

APPENDIX D - Calibration Details

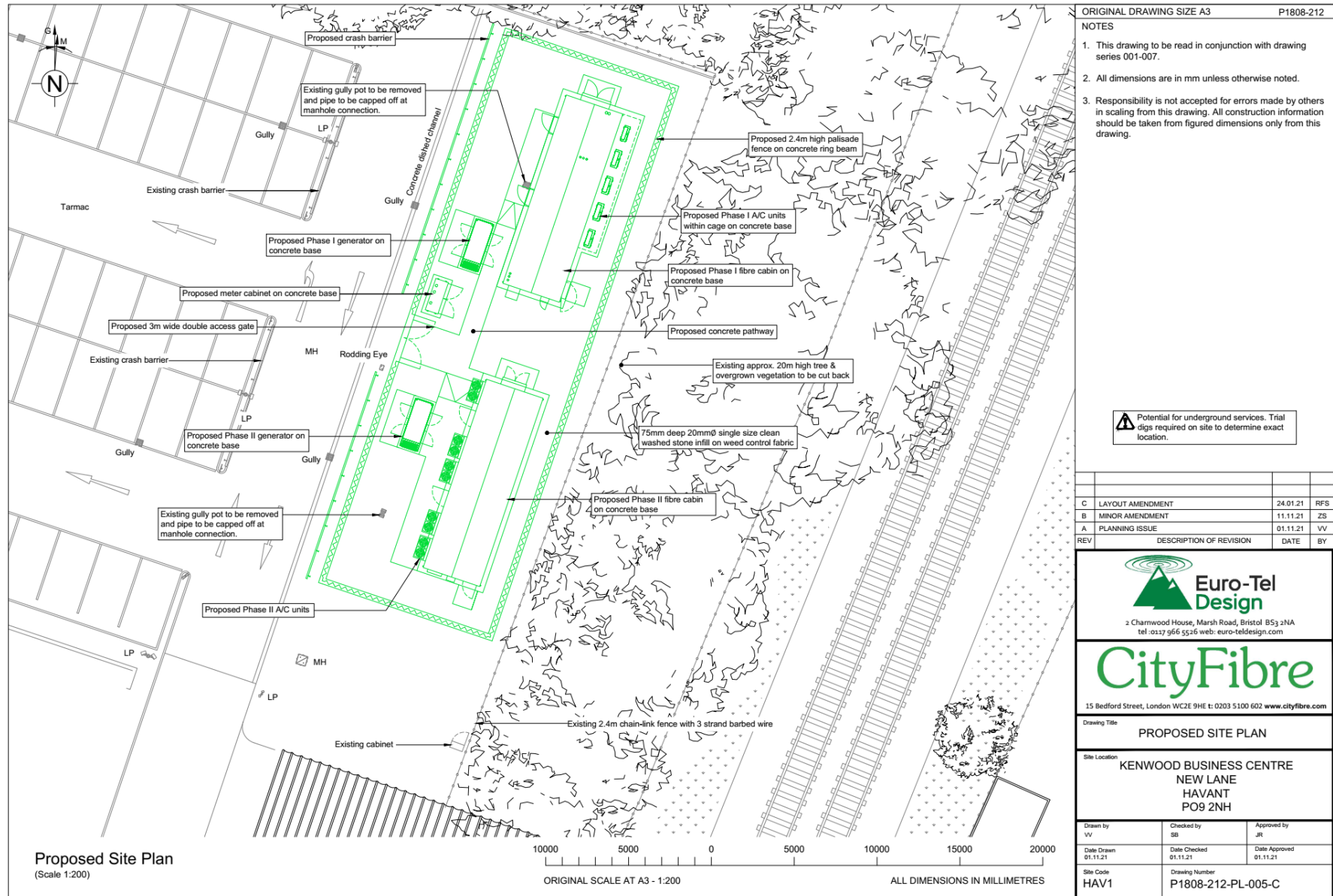
Measurement	Calibrator Ref Level (dB)	Deviation Before (dB)	Deviation After (dB)
M1	113.9	0.7	0.5

APPENDIX E – Noise Survey Time History

Background Sound Levels Time History (M1): Wednesday 9th to Thursday 10th February 2022

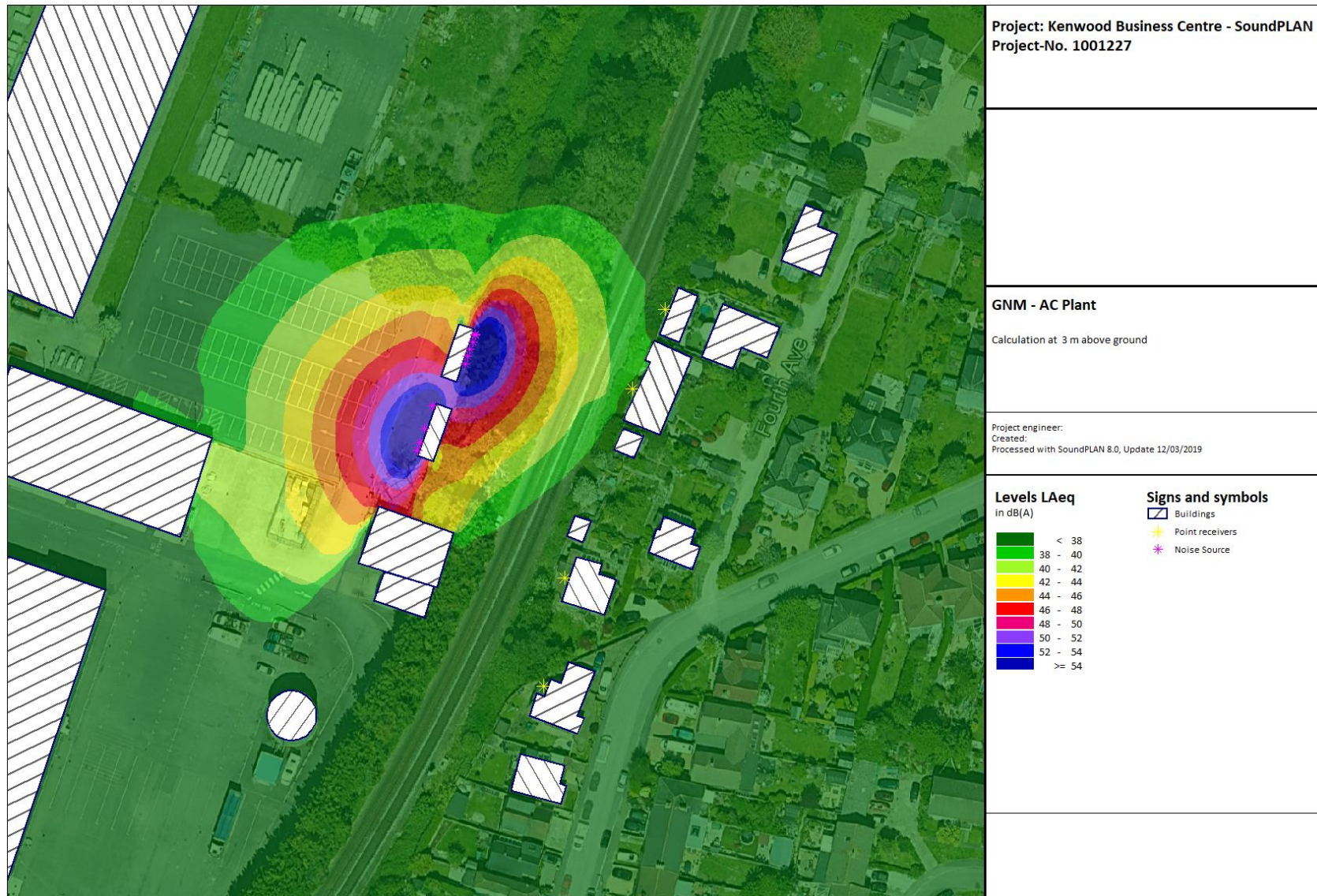


APPENDIX F – Site Plan

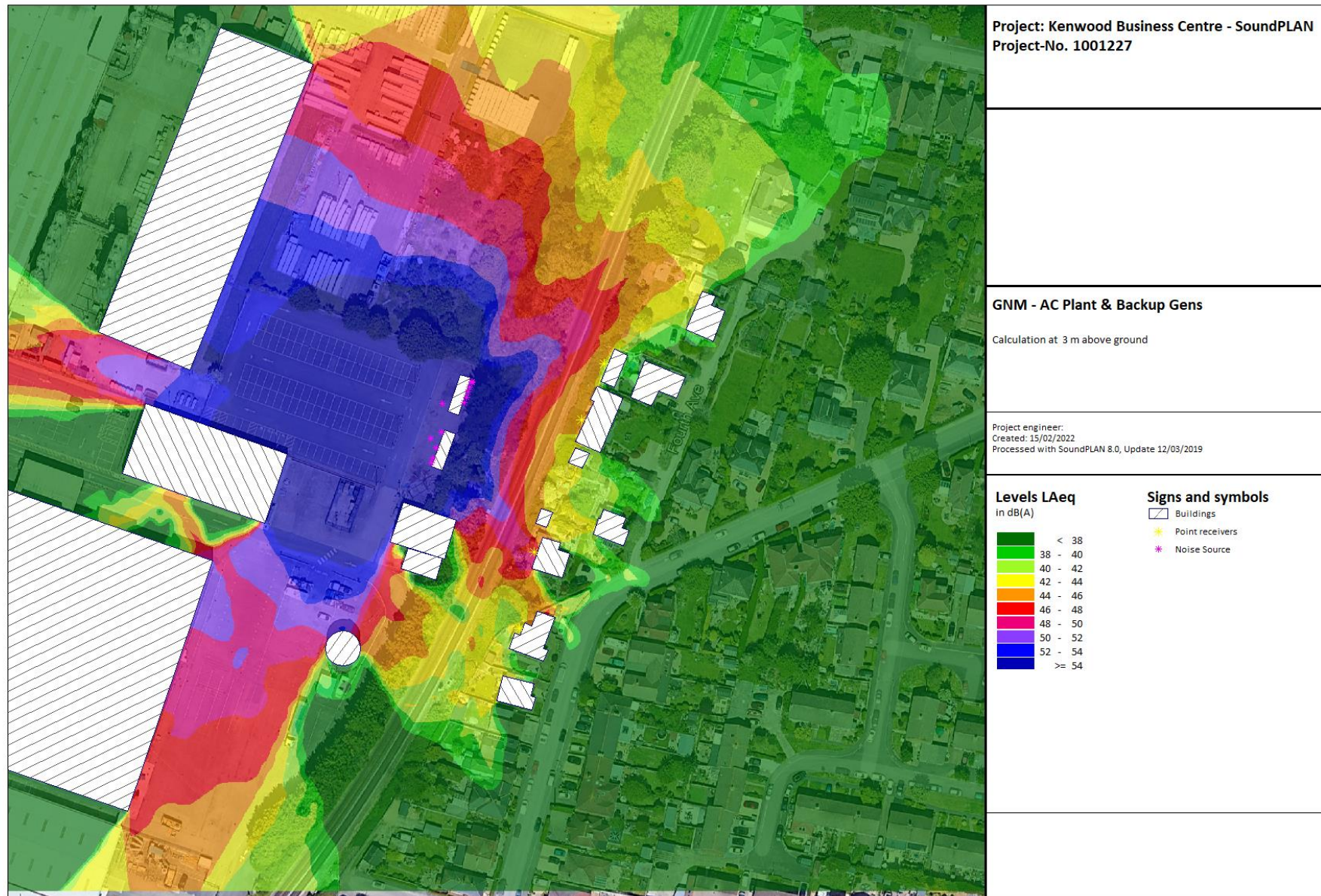


APPENDIX G – Grid Noise Maps

AC Plant Equipment Only



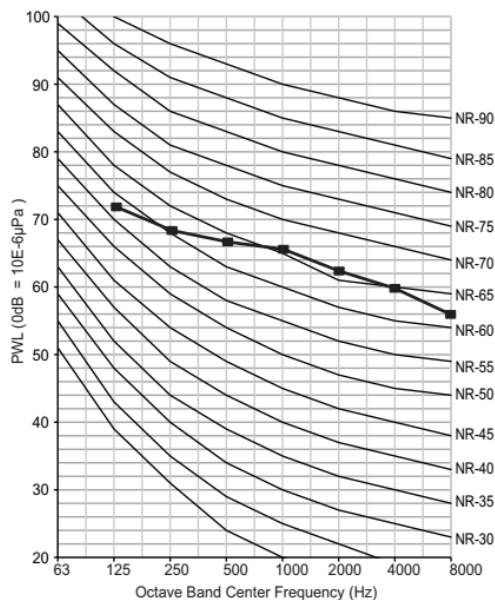
All Plant Equipment



APPENDIX H – Manufacturer Technical Data

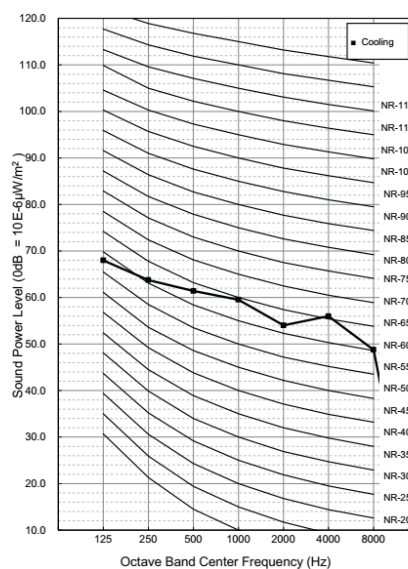
LG UU85

AUUW85LAE [UU85W U74]



LG ZUUW30GA1 [UUC1 U40]

ZUUW30GA1 [UUC1 U40] + 36k indoor units



Data sourced directly from LG Electric

FG Wilson P150-5 Power Generator



Sound Pressure Levels (dBA)

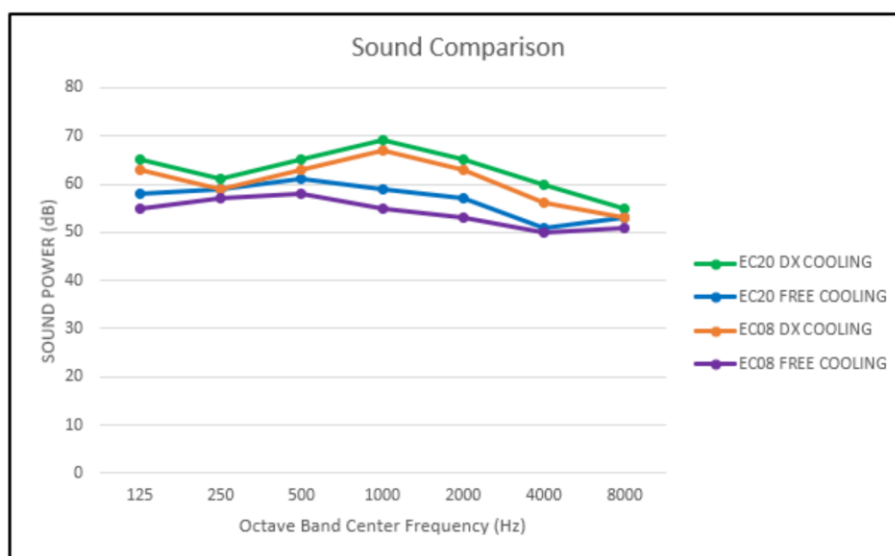
Generator Set Model		50 Hz						60 Hz					
		15 m (50 ft)		7 m (23 ft)		1 m (3 ft)		15 m (50 ft)		7 m (23 ft)		1 m (3 ft)	
		75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load
P150-5	Prime	60	61	66	67	76	78	61	62	67	68	79	79
	Standby	60	61	66	67	77	78	61	62	67	68	79	79

Calculated Sound Power Levels (L_{WA})

Unit	Octave Centre Frequency Band (Hz)								dB L _{WA}
	63	125	250	500	1k	2k	4k	8k	
FG Wilson P150-5 Generator	92	96	93	90	85	81	75	68	91

	Aubren Ltd	Date: 20-Jan-22	FEX2T AC System
	EC Series Noise Information		

See below graph which shows the noise data for the Akrivis EC Series in Free Cooling and mechanical cooling modes.



The above graph shows the following:

1. The green line shows the Akrivis EC20 system running in mechanical (DX) cooling. This will be approx. 15% of the year, generally during hot summer days.
2. The brown line shows the Akrivis system running in Free Cooling. This will be approx. 85% of the year.
3. The blue line shows the Akrivis EC08 system running in mechanical (DX) cooling. This will be approx. 15% of the year, generally during hot summer days.
4. The purple line shows the Akrivis EC08 system running in Free Cooling. This will be approx. 85% of the year.
5. This noise data for the Akrivis system will be independently tested and verified to EN ISO 9614 with test data supplied as part of FAT hand over pack.

APPENDIX I – Acoustic Terminology

To aid the understanding of acoustic terminology and the relative difference between noise levels the following background information is provided.

We perceive sound when the ear detects fluctuations in air pressure (sound waves), which are then processed by the brain and perceived as sound. Humans can hear an incredibly wide range of sound intensities ranging from jet engines to fingertips lightly brushing against each other. This range is quantified using a logarithmic scale called the decibel scale (dB). The comfortable range of the decibel scale typically ranges from 0dB (the threshold of hearing) to around 140dB. Here are some examples common environments and their typical noise levels.

Noise Level	Environment
0 dB(A)	Threshold of hearing
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a moving car
60 to 70 dB(A)	Typical high street
100 to 110 dB(A)	Fire alarm at 1 metre away
140 dB(A)	Threshold of pain

Terminology

dB (decibel) – A unit used to quantify the pressure level of sound. Defined as 20 times the logarithm of the ratio between the root-mean-square pressure of a given sound field and a reference pressure level (2×10^{-5} Pa – threshold of hearing).

$L_{Aeq, T}$ – The equivalent continuous sound pressure level over a stated period. It quantifies a fluctuating sound level over a given period as the equivalent continuous sound level in which the same amount of acoustic energy is contained over. This is A-weighted in order to assess human perception.

L_{A90} – The sound level exceeded 90% of the time. Typically used to describe background noise the L_{90} is regarded as the ‘average minimum level’ and quantifies the common sound level of a fluctuation sound field i.e. the sound level that occurs 90% of the time. Alternatively, L_{10} describes the sound level exceeded 10% of the time and therefore quantifies the ‘average maximum level’ of sound which is often used during the calculation of road traffic noise.

A-Weighting – A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.

R_w – The Weighted Sound Reduction Index (R_w) is a number used to rate the effectiveness of a soundproofing system or material.



Let us introduce ourselves

Peak Acoustics formed in 2011, we are a fully accredited specialist consultancy and testing organisation.

We are a diverse team of Acoustic Consultants, Specialist Engineers and Building Compliance Technicians, with a network spanning the UK. We are proud to offer our services nationally, with no job too big or small.

We provide Acoustic Consultancy, Building Compliance Testing and Energy Services.

Additional Services

We offer an extensive range of services in the sectors of Acoustic Consultancy, Building Compliance & Energy Efficiency. We are able to put together custom packages combining multiple services which saves both time and money for you.

Building Compliance

- Sound Insulation Testing
- Air Tightness Testing
- Ventilation Testing
- Water Efficiency Calculations
- Sound Insulation Specification

Energy Efficiency

- SAP Calculations
- EPC's
- SBEM Calculations
- Energy Statements
- Sustainability Statements
- MEES Regulations
- Commercial EPC's

Acoustic Consultancy

- Noise Assessment for planning conditions
- Construction site noise monitoring
- Noise at work assessments
- Noise & Vibration Impact Assessments

Peace of mind

We are accredited and registered by all the relevant major UK authorities to provide the services we offer. Peak Acoustics is UKAS accredited for sound insulation testing, ATTMA registered for Air Leakage Testing. and our Energy team are all Domestic On-Completion Energy Assessors.

Our Added Value

We combine our detailed knowledge of building regulations with our technical understanding of building physics, acoustics and environmental sciences to maximise development quality. Our work ensures appropriate strategies and studies are prepared to demonstrate to local authorities how proposed developments will be of high quality and generate acceptable impact on the surrounding environment.

Contact Us

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Opening hours

Mon - Fri: 8:30 - 17:00