PROFESSIONAL CONSULT
FUTURE ENVIRONMENTS

NOISE IMPACT ASSESSMENT

Proposed Alterations to Food Manufacturing Facility

Lydia Becker Way, Chadderton

Issue Date: 30th October 2025

QUALITY ASSURANCE & REPORT INFORMATION

Report Version	R3	R4	R5	R6
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Project: Proposed Alterations to Food Manufacturing Facility

Client: Meller

Reference: 25.014.1.R6

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EXECUTIVE SUMMARY

This Assessment has been undertaken to identify the key sources of noise surrounding the Site which may adversely impact upon the proposed residential amenity. Accordingly, this Assessment has been completed with due regard to the National Planning Policy Framework and its associated National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts.

This Assessment has shown that, following noise mitigation, the rated level of noise falls below the typical measured background sound level during the daytime and night-time periods.

The predicted level of noise from the Development, following noise mitigation, will not exceed the noise criteria level at the closest residential dwellings to accord with the 'No Observed Adverse Effect Level' as detailed in the PPG and as such noise should not be deemed to be a determining factor in the granting of planning permission for this Site.

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1 INTRODUCTION

1.1 Appointment

1.1.1 Professional Consult Limited was instructed by Meller to prepare a Noise Impact Assessment in support of a proposed food manufacturing to the north of Lydia Becker Way in Chadderton, Oldham, to be referred to hereafter as 'the Site'.

1.2 Purpose of Assessment

1.2.1 It is understood that the building is already existing and the new occupant proposes alterations to enable them to undertake their proposed manufacturing process. These alterations consist of a number of noise producing fixed plant items.

1.2.2 Accordingly, this Assessment has been completed with due regard to the National Planning Policy Framework and its associated National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts.

1.2.3 All acronyms used within this report are defined in the Glossary presented in Appendix 2.

1.3 The Development

1.3.1 The Development includes for the installation two waste compactors, a closed end bailing press and an AVP Baler located externally to the east of the main building. There will also be external freezer plant and external condensers and inclusion of BCH water cooling plant. At the front of the building there can be up to 5 parked HGVs with trailer-mounted refrigeration plant.

1.3.2 It is understood that the plant can operate anytime 24-hours, 7-days per week.

1.4 The Site, Locality & Soundscape

1.4.1 The Site currently exists as a food manufacturing facility located to the north of Lydia Becker Way. Open land is located to the west, there are playing fields to the north and existing residential dwellings are located to the east.

1.4.2 The closest non-associated residential receptors are located to the east of the Development, off Gradient Close.

1.4.3 The soundscape at the closest residential dwellings is comprised of intermittent road traffic noise from the local road network and commercial sound from the existing factory.

1.5 Limitations

1.5.1 The limitations of this report are presented in Appendix 1.

1.6 Confidentiality

1.6.1 Professional Consult has prepared this report solely for the use of the Client. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Professional Consult; a charge may be levied against such approval.

2 POLICY & GUIDANCE

2.1 National Planning Policy Framework & National Planning Practice Guidance

2.1.1 The Government updated the National Planning Policy Framework (NPPF) on 7th February 2025 and its associated National Planning Practice Guidance (NPPG) on 14th February 2024. Together, the NPPF and NPPG set out what the Government expects of local authorities. The overall aim is to ensure the planning system allows land to be used for new homes and jobs, while protecting valuable natural and historic environments. The NPPG adds further context to the NPPF and it is intended that the two documents should be read together.

2.1.2 The NPPG adds further context to the NPPF and it is intended that the two documents should be read together.

2.1.3 Noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. When preparing local or neighbourhood plans, or taking decisions about new development, there may also be opportunities to consider improvements to the acoustic environment.

2.1.4 Local planning authorities' plan-making and decision making should take account of the acoustic environment and in doing so consider:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard of amenity can be achieved.

2.1.5 In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

2.1.6 The Observed Effect Levels are as follows:

- Significant observed adverse effect level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur;
- Lowest observed adverse effect level: this is the level of noise exposure above which adverse effects on health and quality of life can be detected; and
- No observed effect level: this is the level of noise exposure below which no effect at all on health or quality of life can be detected.

2.1.7 Table 1 summarises the noise exposure hierarchy, based on the likely average response.

Table 1. Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

2.1.8 The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation.

2.1.9 These factors include:

- The source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day - this is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;
- For non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise; and
- the spectral content of the noise and the general character of the noise. The local topology and topography should also be taken into account along with the existing and, where appropriate, the planned character of the area.

2.1.10 More specific factors to consider when relevant:

- where applicable, the cumulative impacts of more than one source should be taken into account along with the extent to which the source of noise is intermittent and of limited duration;
- Consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being

kept closed most of the time. In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations; and

- If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.

2.2 BS8233:2014 'Guidance on sound insulation and noise reduction for buildings'

Noise Criteria Limits

2.2.1 The scope of this standard is the provision of recommendations for the control of noise in and around buildings. It suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new buildings or refurbished buildings undergoing a change of use, rather than to assess the effect of changes in the external noise climate.

2.2.2 The standard suggests suitable internal noise levels within different types of buildings, including dwellings, as shown in Table 2.

Table 2. BS8233:2014 Internal Target Noise Levels

Criterion	Typical Situation	Design $L_{Aeq,T}$ (dB)
Suitable resting / sleeping conditions	Living Room	35
	Bedroom*	30

*For a Reasonable standard in bedrooms at night, individual noise evens (measured with fast time weighting) should not exceed 45dB L_{max}

2.2.3 BS8233 goes on to recommend noise levels for gardens as follows:

> *"It is desirable that the external noise level does not exceed 50dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors might be warranted".*

2.2.4 BS8233 goes on to say:

> *"In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited".*

2.2.5 With regards to external noise within balcony areas, BS8233: 2014 provides the following advice:

> *"Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels"*

Ventilation Requirements

2.2.6 Where a partially open window cannot be relied upon to provide an adequate level of facade sound insulation performance, it is necessary to consider alternative ventilation for habitable rooms. Section 8.4.5.4 within BS8233 states:

> *"The Building Regulations' supporting documents on ventilation [48, 49, 50] recommend that habitable rooms in dwellings have background ventilation. Where openable windows cannot be relied upon for this ventilation, trickle ventilators can be used and sound attenuating types are available. However, windows may remain openable for rapid or purge ventilation, or at the occupant's choice.*
>
> *Alternatively, acoustic ventilation units (see 7.7.2 below) are available for insertion in external walls. These can provide sound reduction comparable with double glazed windows. However, ducted systems with intakes on the quiet side of the building might be required in very noisy situations, or where appearance rules out through-the-wall fans."*
>
> Section 7.7.2 states:
>
> *"NOTE 5 If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level."*

2.3 BS4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'

2.3.1 This standard describes methods for rating and assessing sound of an industrial or commercial nature which includes:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- Sound from the loading and unloading of goods and materials at industrial and / or commercial premises; and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from processes or premises, such as that from forklift trucks, or that from train or ship movements on or around an industrial or commercial Site.

2.3.2 The procedure detailed in the standard compares the measured or predicted noise level 'the specific noise level' from any of the above detailed noise sources with the background sound level at a residential dwelling. The measured background sound level at a receptor should be reliable and should not necessarily ascertain a lowest measured background sound level, but rather to quantify what is 'typical.'

2.3.3 The specific noise level also acknowledges the following reference time intervals depending upon whether the noise source operates during daytime or night-time periods:

- Daytime (07:00 - 23:00): 1 hour; and
- Night-time (23:00 - 07:00): 15 minutes.

2.3.4 There are a number of 'penalties' which can be attributed to the specific sound level, either subjectively or objectively, depending upon the 'acoustic features' of the sound level under investigation as follows. These penalties vary in their weighting depending upon the severity of the acoustic feature, as follows (with regards to the subject method):

Tonality

- +2dB: where the tonality is just perceptible;
- +4dB: where the tonality is clearly perceptible; and
- +6dB: where the tonality is highly perceptible.

Impulsivity

- +3dB: where the impulsivity is just perceptible;
- +6dB: where the impulsivity is clearly perceptible; and
- +9dB: where the impulsivity is highly perceptible.

Intermittency

- +3dB: where the intermittency is readily distinctive against the acoustic environment.

2.3.5 Where the assessment is carried out using the objective method, the tonality penalty is either 0dB or 6dB and the impulsivity penalty can range from 0dB up to 9dB in increments of 1dB, depending on the level of impulsivity identified.

2.3.6 In addition to the above acoustic features, there is a penalty for 'other sound characteristics' of +3dB where a sound exhibits characteristics that are neither tonal nor impulsive, though is readily distinctive against the acoustic environment.

2.3.7 BS4142 goes on to state that the rating level is equal to the specific sound level if there are no such features present or expected to be present.

2.3.8 Assessment of the rating level relative to the background noise level can yield the following commentary:

- Typically, the greater this difference (between the rating level and the background sound level), the greater the magnitude of impact;
- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context; and
- 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. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.

2.3.9 Whilst the amended 2019 Standard does make various references to it not being intended to assess noise impacts at indoor locations, section 1.1 does state 'The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident'. Example 6 in the Standard states 'In addition to the rating/background sound level comparison shown in Table A.6, the primary concern is the potential for disturbance of residents who could be sleeping with open bedroom windows. Other guidance, such as BS 8233, might also be applicable in this instance'.

2.3.10 With the above in mind, and for a clear need to ensure that any potential commercial or industrial noise impacts at the building façade do not give rise to internal noise level which causes sleep disturbance in bedrooms, this Assessment will ensure that the predicted rating level (specific sound level including any character corrections) does not exceed 30dB in bedrooms.

2.4 Local Authority Guidance and Criteria – Oldham Metropolitan Borough Council's Environmental Health Department

2.4.1 Consultation was provided to Oldham Metropolitan Borough Council in February 2025, which stated:

> *'Professional Consult will undertake the following noise survey at the Site:*
>
> • *Background sound survey: A background sound survey will be undertaken on-Site close to the existing residential dwellings to the east of the Site over a full weekday and weekend period.*
>
> *Professional Consult will complete the following assessments:*
>
> *The following assessments will be completed:*
>
> • *Future Commercial Noise: An assessment will be completed which assesses the proposed future commercial noise impact from the commercial facility at the closest residential dwellings to the east of the Site in line with the guidance presented in BS4142:2014+A1:2019.*
>
> *Where exceedances of any criteria are identified, Professional Consult will recommend appropriate and reasonable mitigation measures to ensure that adopted noise level criteria is not exceeded at the closest residential dwellings.'*

2.4.2 At the time of issuing this Assessment, no response had been received.

3 BACKGROUND NOISE SURVEY

3.1.1 Professional Consult has completed noise measurements as follows:

- **Noise Measurement Position 1**: Located the east of the Site, in order to minimise the impact from the existing factory. The dominant source of noise in the locality was road traffic from the surrounding road network and distant commercial sound from the factory. The noise survey started at 10:00 on 28th February and terminated at 11:30 on 3rd March 2024, thus covering a full weekday and weekend period.

3.1.2 Table 3 details the measured background sound levels during the survey.

Table 3. Summary of Measured Background Sound Levels

Period	Measured Background Sound Level, $L_{A90,15mins}$ (dB)	
	Range	Typical (Mode Average)
Daytime (07:00 – 23:00)	36 – 50	41
Night-Time (23:00 – 07:00)	34 – 49	41

3.2 Noise Survey Equipment

3.2.1 The following equipment was used for the noise surveys.

Table 4. Noise Measurement Equipment

Measurement Position	Equipment Description	Manufacturer & Type No	Serial No.	Calibration Due Date
NMP1	Sound Level Meter	01dB Fusion	15676	
	Pre-amplifier	01dB PRE22	2343059	2 April 2026
	Microphone	GRAS 40CD	606283	
	Calibrator	01dB CAL-31	104057	8 April 2025

3.2.2 The sound level meters were field calibrated prior to and following the noise surveys and there was no drift beyond the allowable limit of 1dB.

3.2.3 Weather conditions were noted using online data to identify any periods of adverse weather (wind speeds above 5m/s and rainfall) that should be removed from the analysis.

4 NOISE IMPACT ASSESSMENT

4.1 Assessment Information

4.1.1 The following noise sensitive residential receptor has been identified and accounted for in this Assessment.

Table 5. Identified Noise Sensitive Residential Receptors

Receptor	Identifier	Type	Noise Model Receiver Location
Dwelling off Gradient Close	R1	Residential	Daytime - 1.5m above local ground level in garden area Night-Time – 4.5m above ground at building façade

4.1.2 The Assessment will be completed during the daytime and night-time periods.

4.1.3 It is necessary to calculate a sound power level for noise inclusion in the noise modelling software Cadna-A. Table 6 presents the noise level data provided by the client.

Table 6. Supplied Noise Level Data & Calculation of Sound Power Level – Fixed Plant

Item	Measured at (m)	Sound Pressure Level LAeq (dB)	Calculated Sound Power Level, L_{WA} (dB)	Number of Plant Items	Height Above Ground Level (m)
CP30 Rolonof Waste Compactor	3	67	79.8	2	2.5
CHB45 Closed End Bailing Press	3	70	82.8	1	1.3
AVP 500 Baler	3	70	82.8	1	1.2
Azanefreezer	10	77	105	2	1.5
Gas cooler	10	60	88	1	1.5
Co2 pack	10	58	86	1	1.5
HGV trailer-mounted Fridge Unit x5	1	85	93	5	2.5

4.1.4 In order to assess a worst case scenario the noise level during the emergency load has been used to inform the assessment.

4.2 Commercial Noise - BS4142:2014+A1:2019 Assessment

4.2.1 In order to calculate an accurate overall specific sound pressure level at the closest residential receptors, a noise model has been built using CadnaA and the following inputs have been included in the model:

- Proposed Scheme Layout;
- Site elevations have been taken as existing using 1m DTM Lidar height data. This includes the existing bund located to the east of the Site;
- A Point source has been used for the proposed plant. It is assumed that all fixed plant can operate in any given 1-hour daytime period;

- The earth bund to the east of the Site has been included in the model;
- A reflection order of 2 has been used in all calculations; and
- Noise levels generated using ISO 9613-1 and ISO 9613-2 "Acoustics - Attenuation of sound during propagation outdoors" as incorporated into CadnaA software.

4.2.2 Figures 1 & 2 in Appendix 4 details the grid noise map for the daytime and night-time periods respectively. Analysis of the grid noise maps indicates the following calculated specific sound pressure levels at the closest receptors.

Table 7. Calculated Specific Sound Pressure Level at Receptor

Receptor	Period	Calculated Specific Sound Pressure Level, $L_{Aeq,T}$ (dB)
R1	Daytime (07:00 – 23:00)	44.7
	Night-Time (23:00 – 07:00)	52.3

4.2.3 The following has been considered in determining if any acoustic features exist in the predicted noise level at the closest residential receptors:

- Tonality - In determining if any tones exist in the measured noise levels, the methodology set out in BS4142:2014 has been followed using the objective method – either a 0dB penalty is allocated where no tones are present or 6dB penalty is allocated where tonality is present;
- Impulsivity – in determining if any impulsiveness is evident in the measured noise levels, the methodology set out in BS4142:2014 has been followed using the objective method which can result in a penalty from 0dB to 9dB being allocated depending upon the extent of impulsiveness;
- Intermittency – whether or not the measured operations turn on or off during the (1hr) assessment period; and
- Other sound characteristics – where no penalties are allocated for the above features, but there will be an audible noise at the closest receptor.

4.2.4 Table 8 allocates appropriate character corrections.

Table 8. Allocation of Character Corrections

Measured Noise Source	Tonality Correction (dB)	Impulsivity Correction (dB)	Intermittency Correction (dB)	Other Sound Characteristics Correction (dB)	Comments
Fixed Plant	2	0	0	0	Low level tonality may be perceptible.
Highest Correction for Assessment Period	**+2**	0	0	0	-
Overall Correction to be added to Specific Noise at Receptors				**+2dB**	

4.2.5 Table 9 completes the BS4142 Assessment. The average measured daytime background sound level has been used to inform the Assessment.

Table 9. BS4142 Assessment

Receptor	Period	Overall Calculated Specific Noise Level at Receptor $L_{Aeq\,t}$ (dB)	Total Overall Correction (dB)	Calculated Rating Level (dB)	Typical Measured Background Sound Level, $L_{A90,T}$ (dB)	Difference +/- (dB)
R1	Daytime (07:00 – 23:00)	44.7	2	46.7	41	+5.7
	Night-Time (23:00 – 07:00)	52.3	0	52.3	41	+11.3

4.2.6 The assessment indicates that the rated level of noise exceeds the typical daytime and night-time background sound level and so the following section considers noise mitigation.

5 MITIGATION

5.1 Commercial Noise

5.1.1 The previous section has indicated that daytime and night-time noise levels exceed the typical measured background sound level.

5.1.2 This section will ensure that that noise levels do not exceed the daytime and night-time background noise levels and the most effective method for reducing the rated noise level is the installation of two acoustic fences which can be viewed in Figure 3 and Figure 4 in Appendix 4.

5.1.3 Table 10 completes the BS4142 Assessment for the daytime period with noise mitigation installed.

Table 10. BS4142 Assessment – Post Mitigation

Receptor	Period	Overall Calculated Specific Noise Level at Receptor $L_{Aeq\,t}$ (dB)	Total Overall Correction (dB)	Calculated Rating Level (dB)	Typical Measured Background Sound Level, $L_{A90,T}$ (dB)	Difference +/- (dB)
R1	Daytime (07:00 – 23:00)	35.6	2	37.6	41	-3.4
	Night-Time (23:00 – 07:00)	40.3	0	40.3	41	-0.7

5.1.4 The assessment indicates that the rated level of noise achieves the criteria stated in BS4142:2014+2019 during the daytime and night-time periods and BS41422014+2019 provides the following advice for this outcome:

> *'Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.'*

5.1.5 Accordingly, no further noise mitigation measures are required.

6 CONCLUSION

6.1.1 Professional Consult Limited was instructed by Meller to prepare a Noise Impact Assessment in support of a proposed food manufacturing to the north of Lydia Becker Way in Chadderton, Oldham.

6.1.2 The Site currently exists as a food manufacturing facility located to the north of Lydia Becker Way. Open land is located to the west, there are playing fields to the north and existing residential dwellings are located to the east.

6.1.3 The closest non-associated residential receptors are located to the east of the Development off Gradient Close.

6.1.4 The soundscape at the closest residential dwellings is comprised of intermittent road traffic noise from the local road network and commercial sound from the existing factory.

6.1.5 The Development includes for the installation two waste compactors, a closed end bailing press and an AVP Baler located externally to the east of the main building. There will also be external freezer plant and external condensers and inclusion of BCH water cooling plant. At the front of the building there can be up to 5 parked HGVs with trailer-mounted refrigeration plant.

6.1.6 This Assessment has been undertaken to identify the key sources of noise surrounding the Site which may adversely impact upon the proposed residential amenity. Accordingly, this Assessment has been completed with due regard to the National Planning Policy Framework and its associated National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts.

6.1.7 This Assessment has shown that, following noise mitigation, the rated level of noise falls below the typical measured background sound level during the daytime and night-time periods.

6.1.8 The predicted level of noise from the Development, following noise mitigation, will not exceed the noise criteria level at the closest residential dwellings to accord with the ‘No Observed Adverse Effect Level’ as detailed in the PPG and as such noise should not be deemed to be a determining factor in the granting of planning permission for this Site.

APPENDIX 1: LIMITATIONS

This report and its findings should be considered in relation to the terms of reference and objectives agreed between Professional Consult Limited and the Client.

The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

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APPENDIX 2: GLOSSARY OF ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or L_{Aeq}, L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

An indication of the range of sound levels commonly found in the environment is given in the following table.

Table 1: Typical Sound Pressure Levels

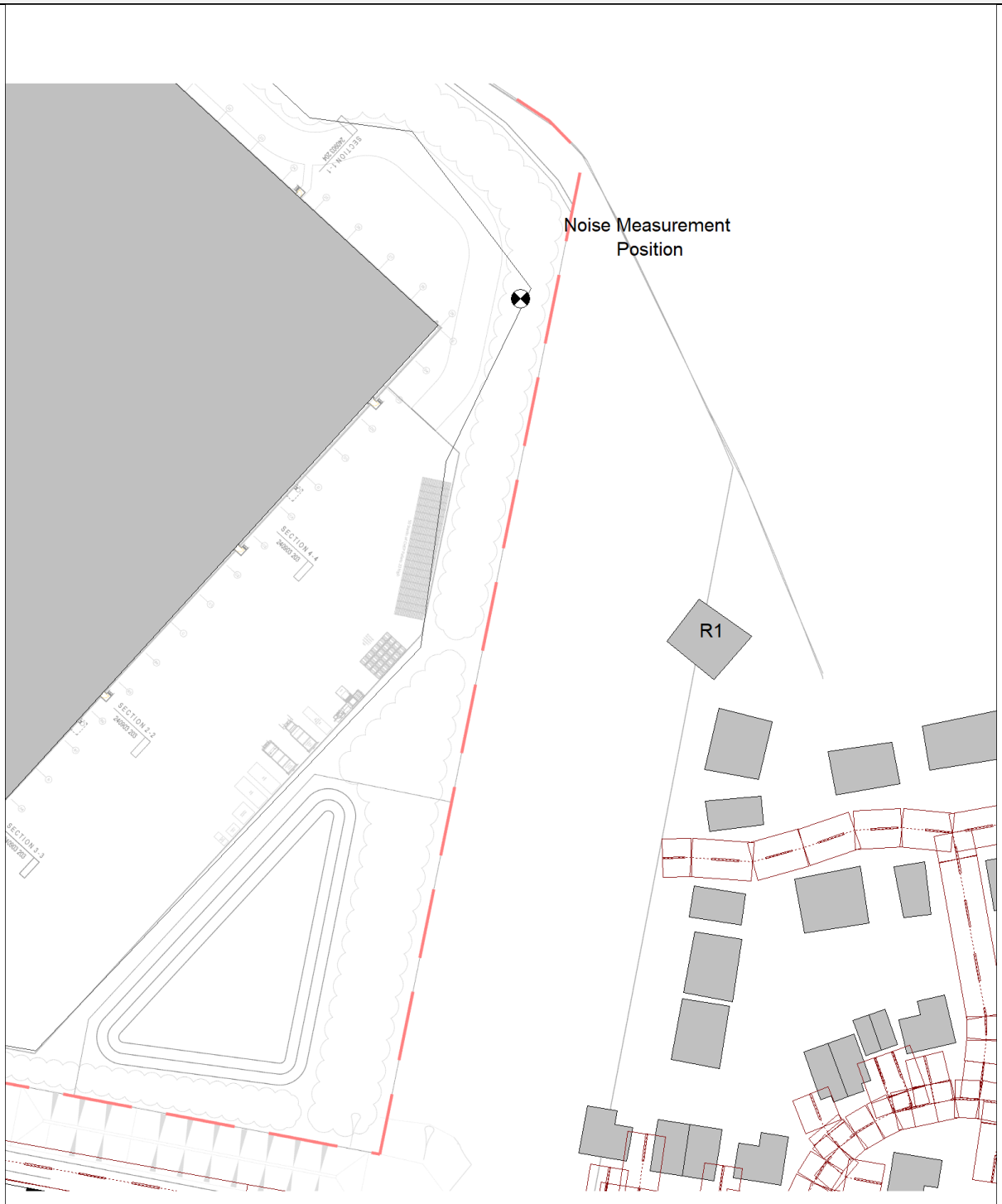
Sound Pressure Level (dB)	Location/Example
0	Threshold of hearing
20 - 30	Quiet bedroom at night
30 - 40	Living room during the day
40 - 50	Typical office
50 - 60	Inside a car
60 - 70	Typical high street
70 - 90	Inside factory
100 - 110	Burglar alarm at 1m away
110 - 130	Jet aircraft on take off
140	Threshold of pain

Table 2: Terminology

Descriptor	Explanation
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2x10-5Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq, T}$	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L_{Amax}	L_{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
L_{10} & L_{90}	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.
Free-field Level	2A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally as measured outside and away from buildings.
Fast	A time weighting used in the root mean square section of a sound level meter with a 125millisecond time constant.
Slow	A time weighting used in the root mean square section of a sound level meter with a 1000millisecond time constant.

APPENDIX 3: PROPOSED LOCATION PLAN AND NOISE MAESUREMENT POSITION

Figure **Proposed Location Plan and Noise Measurement Position**



Title : Site Location and Noise Measurement Positions	Figure 1	Built by: MP	PROFESSIONAL CONSULT FUTURE ENVIRONMENTS
	Date : 03/04/2025	Checked by: JG	

APPENDIX 4: FIGURES

Figure 1 **Daytime Grid Noise Map**

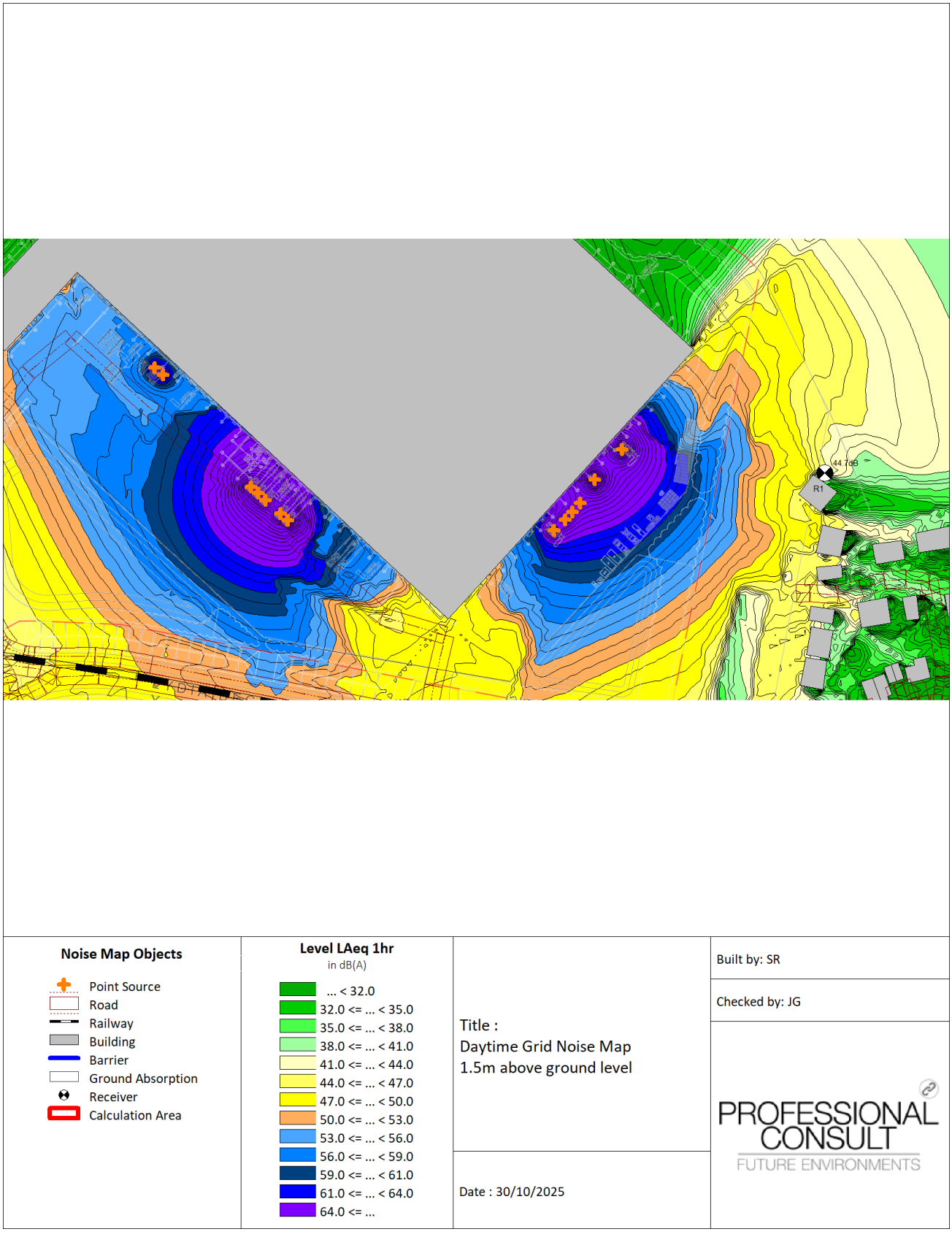
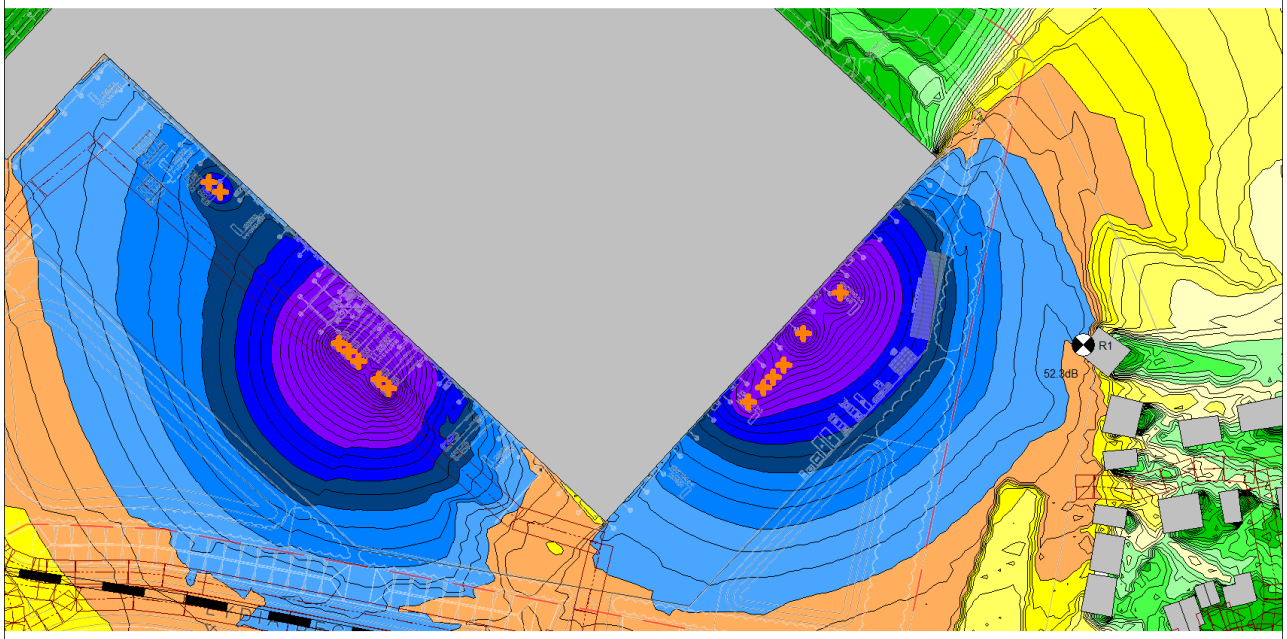


Figure 2 **Night-Time Grid Noise Map**



Noise Map Objects

- Point Source
- Road
- Railway
- Building
- Barrier
- Ground Absorption
- Receiver
- Calculation Area

Level LAeq 15min
in dB(A)

- ... < 32.0
- 32.0 <= ... < 35.0
- 35.0 <= ... < 38.0
- 38.0 <= ... < 41.0
- 41.0 <= ... < 44.0
- 44.0 <= ... < 47.0
- 47.0 <= ... < 50.0
- 50.0 <= ... < 53.0
- 53.0 <= ... < 56.0
- 56.0 <= ... < 59.0
- 59.0 <= ... < 61.0
- 61.0 <= ... < 64.0
- 64.0 <= ...

Title :
Night-Time Grid Noise Map
4.5m above ground level

Date : 30/10/2025

Built by: SR

Checked by: JG

PROFESSIONAL CONSULT
FUTURE ENVIRONMENTS

Figure 3 **Daytime Grid Noise Map – Mitigated**

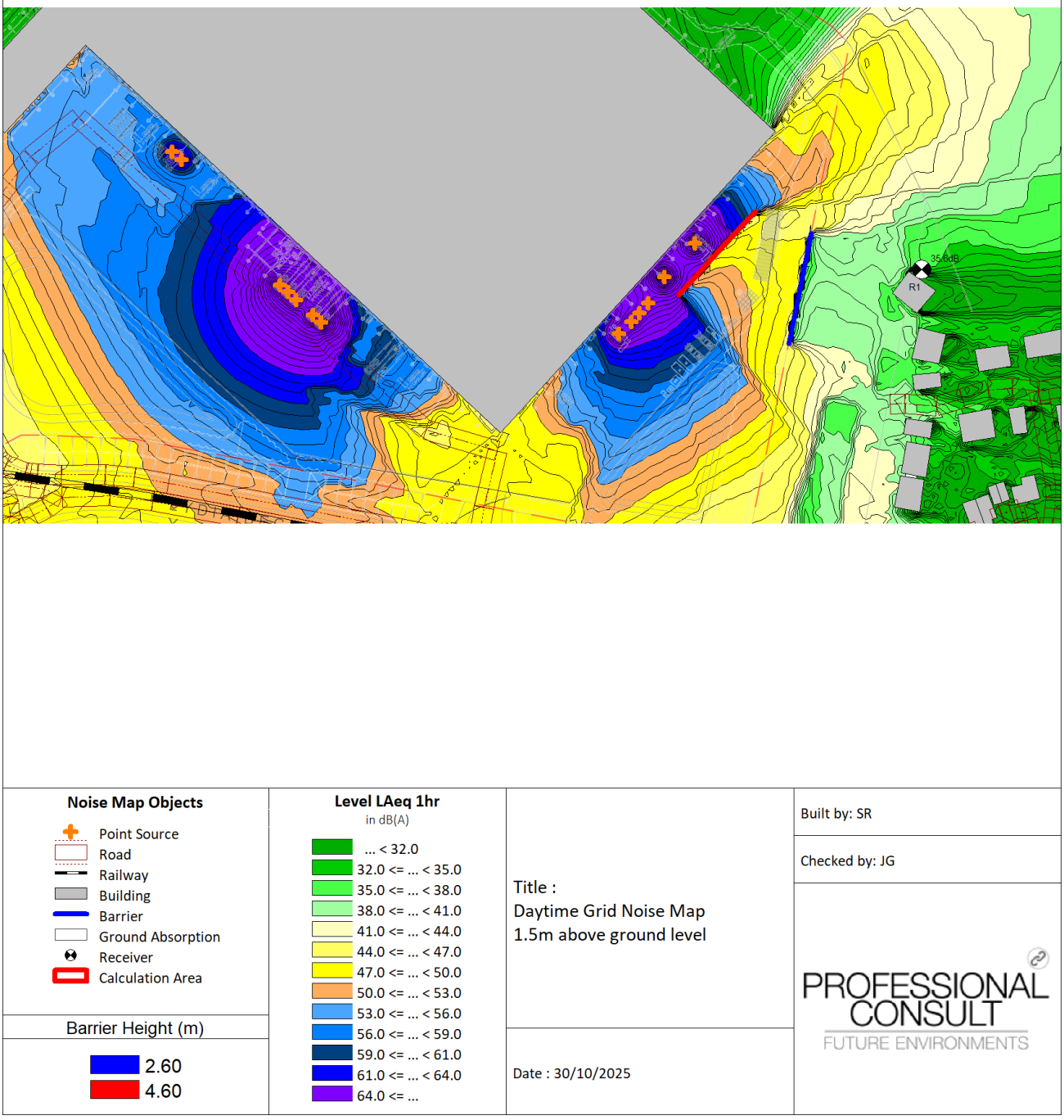
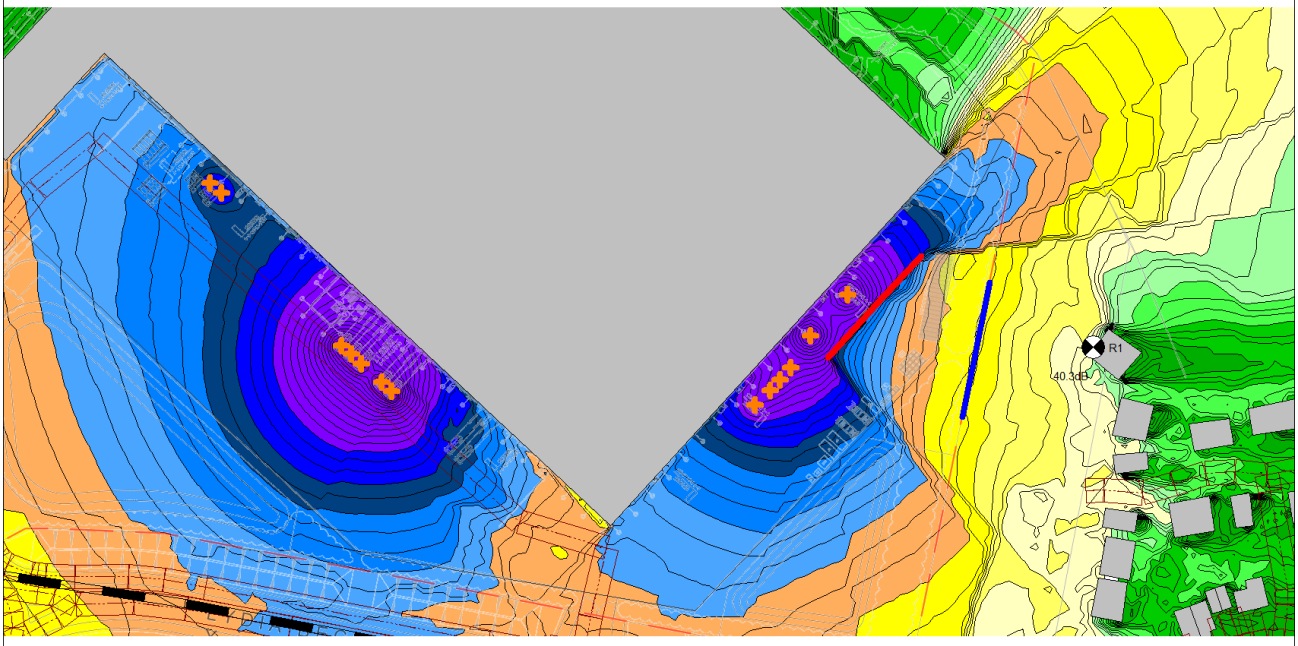


Figure 4 **Night-time Grid Noise Map – Mitigated**



Noise Map Objects

- Point Source
- Road
- Railway
- Building
- Barrier
- Ground Absorption
- Receiver
- Calculation Area

Barrier Height (m)

- 2.60
- 4.60

Level LAeq 15min
in dB(A)

- ... < 32.0
- 32.0 <= ... < 35.0
- 35.0 <= ... < 38.0
- 38.0 <= ... < 41.0
- 41.0 <= ... < 44.0
- 44.0 <= ... < 47.0
- 47.0 <= ... < 50.0
- 50.0 <= ... < 53.0
- 53.0 <= ... < 56.0
- 56.0 <= ... < 59.0
- 59.0 <= ... < 61.0
- 61.0 <= ... < 64.0
- 64.0 <= ...

Title :
Night-Time Grid Noise Map
4.5m above ground level

Date : 30/10/2025

Built by: SR

Checked by: JG

PROFESSIONAL CONSULT
FUTURE ENVIRONMENTS

APPENDIX 5: MEASURED BACKGROUND SOUND LEVELS

Start Time	Measured Sound Pressure Level, dB	
	LAeq,T	LA90,T
28/02/2025 10:00	50	39
28/02/2025 10:15	47.4	40
28/02/2025 10:30	48.1	39
28/02/2025 10:45	46.3	37
28/02/2025 11:00	44	39
28/02/2025 11:15	45.3	37
28/02/2025 11:30	43.6	36
28/02/2025 11:45	43.6	37
28/02/2025 12:00	41.8	37
28/02/2025 12:15	46.5	38
28/02/2025 12:30	49.6	41
28/02/2025 12:45	48.1	40
28/02/2025 13:00	44.9	37
28/02/2025 13:15	47.2	41
28/02/2025 13:30	46.9	41
28/02/2025 13:45	49.3	41
28/02/2025 14:00	45.7	39
28/02/2025 14:15	44.2	39
28/02/2025 14:30	47.8	41
28/02/2025 14:45	46.9	38
28/02/2025 15:00	44.9	37
28/02/2025 15:15	42.7	38
28/02/2025 15:30	48.5	38
28/02/2025 15:45	44.2	38
28/02/2025 16:00	45.8	39
28/02/2025 16:15	49.1	38
28/02/2025 16:30	44.9	36
28/02/2025 16:45	45.5	36
28/02/2025 17:00	44.3	36
28/02/2025 17:15	44.2	37
28/02/2025 17:30	44.1	37
28/02/2025 17:45	43.7	39
28/02/2025 18:00	45.5	40
28/02/2025 18:15	44.9	41
28/02/2025 18:30	47.8	42
28/02/2025 18:45	46.3	43
28/02/2025 19:00	47.6	45
28/02/2025 19:15	48.9	44
28/02/2025 19:30	46.7	44
28/02/2025 19:45	49.6	44
28/02/2025 20:00	48.3	43
28/02/2025 20:15	48.8	43
28/02/2025 20:30	47.2	45
28/02/2025 20:45	46.4	44

28/02/2025 21:00	48.3	46
28/02/2025 21:15	46.6	45
28/02/2025 21:30	47.6	45
28/02/2025 21:45	46.9	45
28/02/2025 22:00	46.8	44
28/02/2025 22:15	45.9	43
28/02/2025 22:30	45	43
28/02/2025 22:45	45.4	43
28/02/2025 23:00	47.4	44
28/02/2025 23:15	46.6	45
28/02/2025 23:30	46.3	45
28/02/2025 23:45	45.5	44
01/03/2025 00:00	45.1	43
01/03/2025 00:15	45	43
01/03/2025 00:30	45.4	44
01/03/2025 00:45	45.9	44
01/03/2025 01:00	44.6	43
01/03/2025 01:15	44	42
01/03/2025 01:30	45.5	43
01/03/2025 01:45	42.6	41
01/03/2025 02:00	41.9	40
01/03/2025 02:15	42.4	41
01/03/2025 02:30	41.7	40
01/03/2025 02:45	40.5	38
01/03/2025 03:00	41.4	39
01/03/2025 03:15	41.4	40
01/03/2025 03:30	41.6	40
01/03/2025 03:45	44.5	41
01/03/2025 04:00	42	41
01/03/2025 04:15	42.1	40
01/03/2025 04:30	41.2	39
01/03/2025 04:45	43.1	41
01/03/2025 05:00	44.2	43
01/03/2025 05:15	43.5	42
01/03/2025 05:30	45.5	43
01/03/2025 05:45	48.9	43
01/03/2025 06:00	54.3	45
01/03/2025 06:15	48	44
01/03/2025 06:30	46.5	45
01/03/2025 06:45	45.8	44
01/03/2025 07:00	53.5	44
01/03/2025 07:15	50.2	45
01/03/2025 07:30	48.4	44
01/03/2025 07:45	45.9	44
01/03/2025 08:00	46.1	43
01/03/2025 08:15	46.2	44
01/03/2025 08:30	48.5	46

01/03/2025 08:45	48	44
01/03/2025 09:00	45.2	42
01/03/2025 09:15	43.6	40
01/03/2025 09:30	45.1	39
01/03/2025 09:45	47.2	39
01/03/2025 10:00	43.1	38
01/03/2025 10:15	42.5	37
01/03/2025 10:30	47.9	38
01/03/2025 10:45	45.6	39
01/03/2025 11:00	44.2	39
01/03/2025 11:15	42.8	38
01/03/2025 11:30	43.6	39
01/03/2025 11:45	43.2	38
01/03/2025 12:00	43.2	37
01/03/2025 12:15	41.3	37
01/03/2025 12:30	43	37
01/03/2025 12:45	44.5	38
01/03/2025 13:00	42.9	37
01/03/2025 13:15	41.4	38
01/03/2025 13:30	42.4	38
01/03/2025 13:45	41.8	38
01/03/2025 14:00	41.8	36
01/03/2025 14:15	42.4	38
01/03/2025 14:30	43.7	39
01/03/2025 14:45	42.5	38
01/03/2025 15:00	43.1	39
01/03/2025 15:15	44.9	41
01/03/2025 15:30	43.2	39
01/03/2025 15:45	44.5	39
01/03/2025 16:00	45.2	39
01/03/2025 16:15	44	40
01/03/2025 16:30	44.3	40
01/03/2025 16:45	43.7	41
01/03/2025 17:00	55.6	40
01/03/2025 17:15	44.1	40
01/03/2025 17:30	43.4	40
01/03/2025 17:45	45.3	41
01/03/2025 18:00	44.7	41
01/03/2025 18:15	49.4	41
01/03/2025 18:30	46.4	41
01/03/2025 18:45	45.2	41
01/03/2025 19:00	51.6	41
01/03/2025 19:15	44.4	41
01/03/2025 19:30	44.9	41
01/03/2025 19:45	43	40
01/03/2025 20:00	43	40
01/03/2025 20:15	43.8	40

01/03/2025 20:30	45	42
01/03/2025 20:45	46	42
01/03/2025 21:00	45.1	43
01/03/2025 21:15	45.5	42
01/03/2025 21:30	45.6	42
01/03/2025 21:45	44.8	42
01/03/2025 22:00	45.7	44
01/03/2025 22:15	47.7	45
01/03/2025 22:30	46.7	45
01/03/2025 22:45	48.1	46
01/03/2025 23:00	49	47
01/03/2025 23:15	48.3	46
01/03/2025 23:30	45.4	43
01/03/2025 23:45	44.4	42
02/03/2025 00:00	43.2	41
02/03/2025 00:15	51.6	41
02/03/2025 00:30	49.6	39
02/03/2025 00:45	42.7	40
02/03/2025 01:00	42.2	40
02/03/2025 01:15	42.8	41
02/03/2025 01:30	43.8	42
02/03/2025 01:45	42.9	41
02/03/2025 02:00	42.7	41
02/03/2025 02:15	41.6	40
02/03/2025 02:30	40.7	38
02/03/2025 02:45	40.1	38
02/03/2025 03:00	40.5	39
02/03/2025 03:15	41.7	41
02/03/2025 03:30	41.8	41
02/03/2025 03:45	41.5	39
02/03/2025 04:00	40.6	39
02/03/2025 04:15	38.1	36
02/03/2025 04:30	45.8	34
02/03/2025 04:45	38.1	36
02/03/2025 05:00	42.7	39
02/03/2025 05:15	46.9	42
02/03/2025 05:30	48.7	42
02/03/2025 05:45	46.4	43
02/03/2025 06:00	46.8	43
02/03/2025 06:15	45.8	42
02/03/2025 06:30	49.1	43
02/03/2025 06:45	51.7	45
02/03/2025 07:00	46.4	45
02/03/2025 07:15	47.6	45
02/03/2025 07:30	47.4	45
02/03/2025 07:45	48.5	45
02/03/2025 08:00	49.5	47

02/03/2025 08:15	51.2	47
02/03/2025 08:30	52.8	50
02/03/2025 08:45	51.5	45
02/03/2025 09:00	45.6	43
02/03/2025 09:15	45.9	42
02/03/2025 09:30	47.6	42
02/03/2025 09:45	46.4	42
02/03/2025 10:00	43.9	40
02/03/2025 10:15	43.1	40
02/03/2025 10:30	44.7	40
02/03/2025 10:45	42.3	39
02/03/2025 11:00	42.5	39
02/03/2025 11:15	44.3	40
02/03/2025 11:30	44.9	41
02/03/2025 11:45	44.3	40
02/03/2025 12:00	44.4	41
02/03/2025 12:15	44	39
02/03/2025 12:30	44.3	40
02/03/2025 12:45	44.9	42
02/03/2025 13:00	46.5	43
02/03/2025 13:15	47.5	43
02/03/2025 13:30	46.9	43
02/03/2025 13:45	46.1	43
02/03/2025 14:00	45.1	42
02/03/2025 14:15	45.7	43
02/03/2025 14:30	45.4	43
02/03/2025 14:45	45.5	43
02/03/2025 15:00	46.6	43
02/03/2025 15:15	47.8	44
02/03/2025 15:30	48.4	44
02/03/2025 15:45	48.1	44
02/03/2025 16:00	47.4	44
02/03/2025 16:15	47	44
02/03/2025 16:30	50.8	44
02/03/2025 16:45	47.2	43
02/03/2025 17:00	49.4	44
02/03/2025 17:15	48.7	44
02/03/2025 17:30	48.1	45
02/03/2025 17:45	45.3	43
02/03/2025 18:00	44.1	42
02/03/2025 18:15	45	41
02/03/2025 18:30	42.3	40
02/03/2025 18:45	46.4	40
02/03/2025 19:00	42.7	41
02/03/2025 19:15	46.1	41
02/03/2025 19:30	46.1	42
02/03/2025 19:45	46.5	42

02/03/2025 20:00	42.6	41
02/03/2025 20:15	44.3	40
02/03/2025 20:30	42.9	41
02/03/2025 20:45	49.2	44
02/03/2025 21:00	47.9	46
02/03/2025 21:15	49.8	44
02/03/2025 21:30	44.8	43
02/03/2025 21:45	44.6	41
02/03/2025 22:00	44.6	39
02/03/2025 22:15	43.1	40
02/03/2025 22:30	43.4	40
02/03/2025 22:45	44	41
02/03/2025 23:00	44.4	41
02/03/2025 23:15	43.9	40
02/03/2025 23:30	42.8	39
02/03/2025 23:45	46.7	40
03/03/2025 00:00	44.6	40
03/03/2025 00:15	40.7	38
03/03/2025 00:30	43.4	38
03/03/2025 00:45	40	38
03/03/2025 01:00	38.8	36
03/03/2025 01:15	38.4	36
03/03/2025 01:30	38.6	36
03/03/2025 01:45	37.5	36
03/03/2025 02:00	39	36
03/03/2025 02:15	38.2	36
03/03/2025 02:30	39	37
03/03/2025 02:45	38.1	36
03/03/2025 03:00	38.8	36
03/03/2025 03:15	39.2	37
03/03/2025 03:30	39.5	37
03/03/2025 03:45	40.5	39
03/03/2025 04:00	39.7	38
03/03/2025 04:15	42.6	40
03/03/2025 04:30	42.7	41
03/03/2025 04:45	43.9	43
03/03/2025 05:00	45.4	44
03/03/2025 05:15	47.1	45
03/03/2025 05:30	57	46
03/03/2025 05:45	49.7	48
03/03/2025 06:00	54.7	48
03/03/2025 06:15	51.2	49
03/03/2025 06:30	51.2	47
03/03/2025 06:45	51.2	47
03/03/2025 07:00	48.9	47
03/03/2025 07:15	49.7	47
03/03/2025 07:30	48	46

03/03/2025 07:45	49.5	46
03/03/2025 08:00	49.1	47
03/03/2025 08:15	48.3	46
03/03/2025 08:30	49.2	46
03/03/2025 08:45	47.5	45
03/03/2025 09:00	50.6	46
03/03/2025 09:15	48.8	46
03/03/2025 09:30	49.2	47
03/03/2025 09:45	47.1	45
03/03/2025 10:00	47.6	45
03/03/2025 10:15	47.7	45
03/03/2025 10:30	49	45
03/03/2025 10:45	47.6	45
03/03/2025 11:00	47.1	44
03/03/2025 11:15	48.4	43