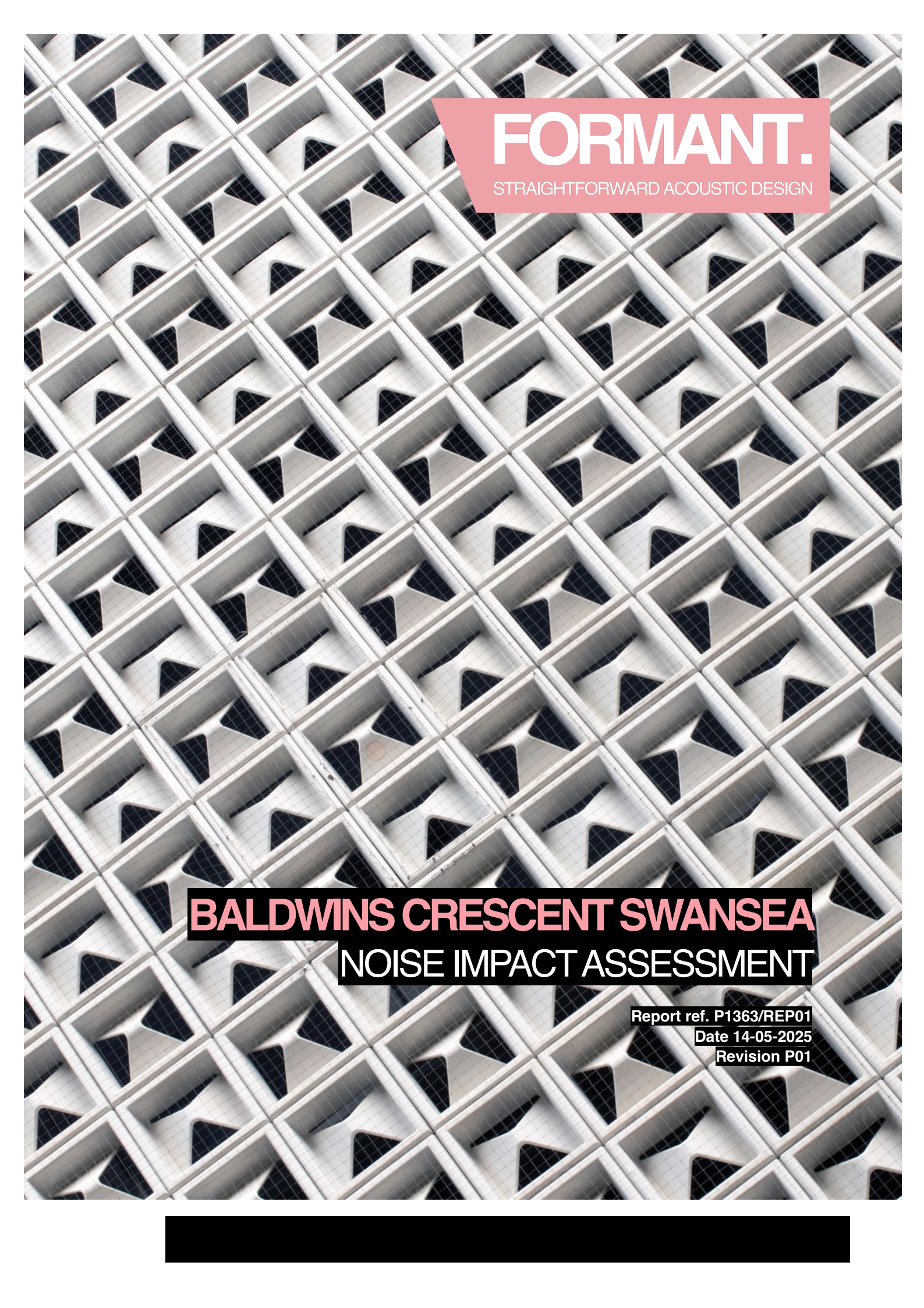




FORMANT.

STRAIGHTFORWARD ACOUSTIC DESIGN

BALDWINS CRESCENT SWANSEA
NOISE IMPACT ASSESSMENT

Report ref. P1363/REP01

Date 14-05-2025

Revision P01



CONTENTS

1

INTRODUCTION.....

1

2

PROPOSED DEVELOPMENT.....

1

3

LEGISLATION, POLICY AND GUIDANCE.....

3

4

BASELINE NOISE SURVEY

4

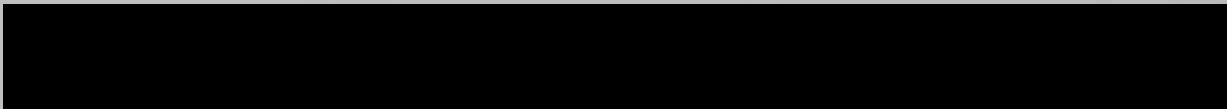
5

NOISE IMPACT ASSESSMENT.....

7

REVISION HISTORY

Date	Revision	Notes
14/05/2025	P01	For information





1 INTRODUCTION

Formant has been appointed to review the potential noise impacts arising from the proposed new light industrial development in the centre of an existing industrial area at Baldwins Crescent, Swansea SA1 8PT. The proposed development will comprise 7 no. small industrial units which will be rented out to businesses whose activities are unknown at this stage.

The proposed development will not contain noise-sensitive uses but it has the potential to generate noise from building services plant (e.g. extract fans or condensers) and commercial activities, which could have an adverse noise impact on nearby noise-sensitive receptors (NSRs).

This report provides:

- 1) A description of the existing site, the proposed development and its potential noise impacts
- 2) A summary of applicable legislation, policy and guidance
- 3) An initial assessment of potential noise impacts

2 PROPOSED DEVELOPMENT

2.1 EXISTING SITE

The existing site is accessed via Baldwins Crescent to the south and the north, with light industrial units on its western boundary (LPG Service Centre) and eastern boundary (Adler & Allen and Welsh Dragon Fuels). Larger industrial units are located on the opposite sides of Baldwins Crescent to the north (Gower Chemicals) and south (various motor trade related businesses in the SA1 Business park).

Other noise sources in the local area include:

- The A483 Fabian Way, which runs on an elevated section around 100 m south of the site
- Unit Superheater Engineering, a large factory around 200 m east of the site
- Trojan Electronics, a large factory around 250 m east of the site and
- NPT Recycling, a recycling facility around 325 m northeast of the site.

2.2 NOISE SENSITIVE RECEPTORS

The nearest noise-sensitive receptors (NSR) are residential properties around 105 m east of the site on Baldwins Crescent. The residential properties are located a similar distance from Fabian Way, albeit they are exposed to a greater length of the road, due to the route of the road and the fact that the proposed site is screened from the road by a very large/tall industrial building (SA1 Business Park), whereas the NSRs are not so well screened.

The residential properties back onto the Unit Superheating Engineering factory site and are fully screened from the proposed development by intervening buildings.

A site location plan showing the proposed development and nearby NSR is shown in Figure 1.



2.3 PROPOSED DEVELOPMENT AND POTENTIAL NOISE IMPACTS

- 1) Typical light industrial workshop activities could take place inside the buildings with sound pressure levels of around 85 dBA.
- 2) Typical commercial vehicle movements in the yard would comprise light goods vehicles arriving/departing the site 10 times per hour.
- 3) Building services plant (e.g. process extract fans or condensers) with sound power levels of up to 75 dBA might be installed on at least half the units, located on the front elevations.

Page 2

3 LEGISLATION, POLICY AND GUIDANCE

3.1 POLICY

3.1.1 PLANNING POLICY WALES

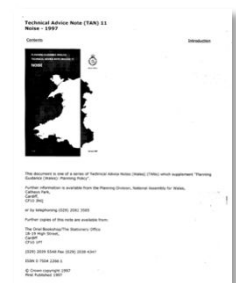
Planning Policy Wales (PPW) sets out the policy framework for all planning applications in Wales. It provides broad objectives to create appropriate soundscapes and manage noise pollution. It states that developers must:

- address any implication arising as a result of its association with, or location within, air quality management areas, noise action planning priority areas or areas where there are sensitive receptors;
- not create areas of poor air quality or inappropriate soundscapes; and
- seek to incorporate measures which reduce overall exposure to air and noise pollution and create appropriate soundscapes.



3.1.2 TECHNICAL ADVICE NOTE 11 (WALES)

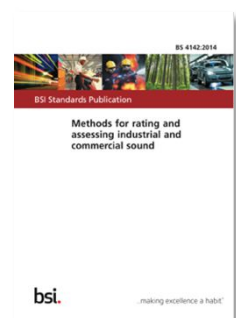
Technical Advice Note (Wales) 11 (TAN11) sets out the Welsh Assembly Government's policies on noise-related planning issues. It sets out the overarching policy context for management of noise within the planning system, in terms of both noise-generating and noise-sensitive developments.



3.2 GUIDANCE

3.2.1 BS 4142:2014

BS4142 provides a method for rating industrial/commercial sound and a method for assessing resulting impacts upon people. The method is applicable to fixed plant installations and commercial vehicle movements within the site boundary and has been used as the basis for the assessment of noise from these sources.



3.2.2 IEMA GUIDELINES

The Institute of Environmental Management and Assessment (IEMA) Guidelines provides the impact scale below which relates to established human responses to noise and is useful for the assessment of changes in noise levels at NSRs:

Noise level change (dBA)	Subjective response	Significance
0	No change	No impact
0.1 - 0.9	Imperceptible change	Negligible impact
1.0 - 2.9	Barely perceptible	Minor impact
3.0 - 5.9	Noticeable	Moderate impact
6.0 - 9.9	Up to a doubling or halving of loudness	Substantial impact
10.0 or more	More than a doubling or halving of loudness	Major impact

Table 1: Significance criteria for assessing the change in noise levels



4 BASELINE NOISE SURVEY

4.1 MEASUREMENT METHODOLOGY

A baseline noise survey was undertaken by Paul Driscoll MIOA of Formant, between 06 and 09 May 2025. All measurements were taken at approximately 1.7 metres above local ground level. External measurements were made in line with BS 7445:2003 *Description of Environmental Noise*. All measurements were made at a distance of at least 3 metres from the façade of buildings or other reflecting surfaces therefore they represent free-field noise levels.

4.2 EQUIPMENT

All measurement equipment owned or hired and operated by Formant has annual or bi-annual calibration checks carried out by external companies traceable to UKAS or national standards. Copies of all calibration records are kept and can be provided upon request. The following measurement equipment was used to conduct the survey:

- Nti XL2 Class 1 Sound level meter, XL2, SNo. A2A-08079-E0, FW4.71 Type Approved
- Larson Davies CAL200 Calibrator, SNo. 18652

4.3 DESCRIPTION OF SOUNDSCAPE

The soundscape at the site during the survey was dominated by traffic on the A483 Fabian Way and on Baldwins Crescent as well as industrial noise sources on nearby sites (e.g. machinery, grinding, dropping materials, unloading/loading tippers, reversing alarms, HGV movements, etc.) The traffic on Baldwins Crescent was predominantly HGVs and LGVs accessing the nearby industrial sites. No other significant noise sources were noted.

4.4 WEATHER CONDITIONS

The weather conditions during the attended measurements were sunny and warm with a very light breeze. During the unattended survey the weather was generally sunny and warm, with no periods of precipitation.

4.5 NOISE PARAMETERS

A full range of noise data was captured during the survey including the following parameters:

L_{Amax}	The sound pressure level of the single noisiest event during the measurement period.
L_{Aeq}	Time averaged sound pressure level. This is generally considered to be an acceptable representative descriptor of environmental noise.
L_{A90}	Sound pressure level exceeded for 90% of the measurement period, this is generally accepted to be indicative of the continuous background noise level.



4.6 MEASUREMENT RESULTS

A summary of the key noise survey results is provided in Table 1 and the time history graph of the results from the unattended noise logger is provided in Figure 3.

Position	Details	Photo										
MP1 Proposed development location. Soundscape dominated by traffic noise from Fabian Way and on Baldwins Crescent. Industrial noise clearly audible from various directions, most notably from the northeast (appearing to be in the direction of NPT Recycling).	06/05/2025 to 09/05/2025 <table><tr><th>DAYTIME</th><th>NIGHT-TIME</th></tr><tr><td>0700-2300 hrs</td><td>2300-0700 hrs</td></tr><tr><td>L_{Aeq} 56-60 dB</td><td>L_{Aeq} 50 dB</td></tr><tr><td>L_{Amax(F)} 83 dB</td><td>L_{Amax(F)} 77 dB*</td></tr><tr><td>L_{A90} 48 dB*</td><td>L_{A90} 35 dB*</td></tr></table>	DAYTIME	NIGHT-TIME	0700-2300 hrs	2300-0700 hrs	L_{Aeq} 56-60 dB	L_{Aeq} 50 dB	L _{Amax(F)} 83 dB	L _{Amax(F)} 77 dB*	L _{A90} 48 dB*	L _{A90} 35 dB*	
DAYTIME	NIGHT-TIME											
0700-2300 hrs	2300-0700 hrs											
L_{Aeq} 56-60 dB	L_{Aeq} 50 dB											
L _{Amax(F)} 83 dB	L _{Amax(F)} 77 dB*											
L _{A90} 48 dB*	L _{A90} 35 dB*											
MP2 NSR proxy location, approx. 3 m from the front garden of the nearest NSR. Soundscape dominated by traffic on Fabian Way and Baldwins Crescent	09/05/2025 10:30 Duration, T: 15 mins L_{Aeq} 55 dB L _{Amax(F)} 67 dB L _{A90} 48 dB											
* Night-time L _{Amax(F)} night-time values are the 95 th percentile of the full dataset. L _{A90} values are modal average of the individual 15-minute measurements during each period.												

Table 2: Noise survey results summary

4.6.1 BACKGROUND SOUND LEVELS

The representative background sound levels we been determined by considering the spread of L_{A90} values over the survey period as illustrated in Figure 2. The modal average background sound levels of **48 dBL_{A90} (day)** and **35 dBL_{A90} (night)** and these align well with the spread of values in figure 2 therefore they are considered suitably representative values for the BS 4142 assessment.

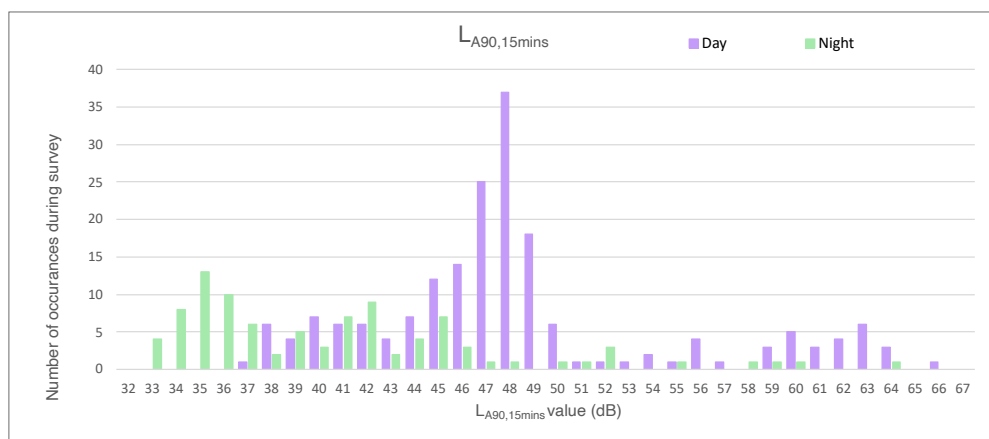


Figure 2:
Analysis of night-time L_{A90} values for each 15-minute sample period during the survey

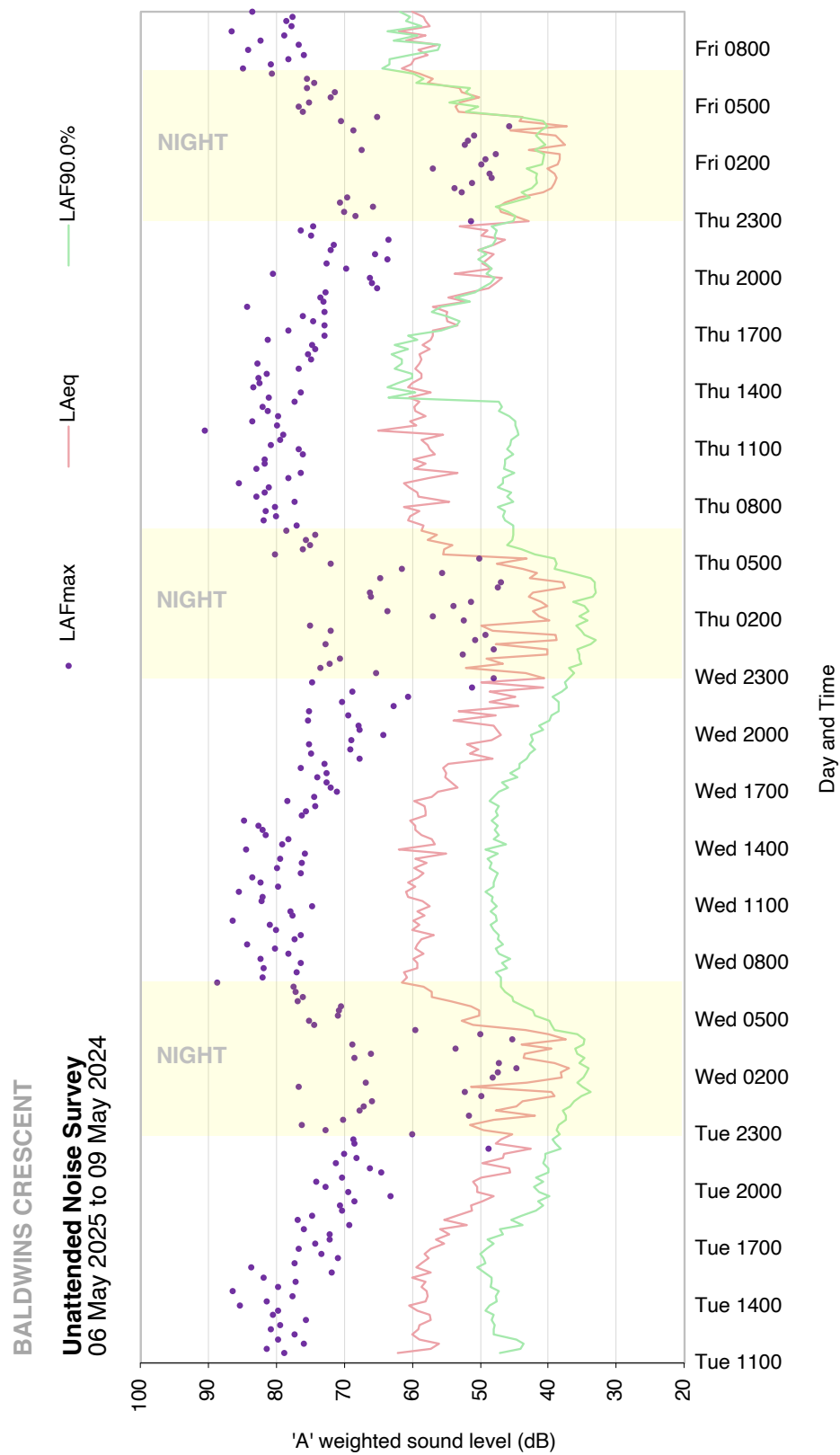


Figure 3: Time history graph for the unattended noise logger



5 NOISE IMPACT ASSESSMENT

5.1 BS 4142 ASSESSMENT METHOD

The methodology in BS 4142 has been adopted to assess potential impacts by considering the noise of the plant as experienced at the location of the NSRs and comparing this with the underlying background sound level. The methodology refers to the following types of noise:

1. The **ambient sound level** ($L_a = L_{Aeq,T}$): The equivalent continuous A-weighted sound pressure level of the sound at the assessment location over a given time interval, T
2. The **background sound level** ($L_{A90,T}$): The sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T.
3. The **specific sound level** ($L_s = L_{Aeq,Tr}$): The sound pressure level produced by the specific sound source at the assessment location.
4. The **rating level** ($L_{Ar,Tr}$): The specific sound level plus any adjustment for the characteristic features of the sound (see 'feature corrections' below).

5.1.1 FEATURE CORRECTIONS

BS 4142 states the following regarding tonal and intermittent noise which is audible at the assessment position (i.e. at the NSR location, not at the source):

- **“TONALITY:** For sound ranging from not tonal to prominently tonal ... [apply] a correction of between 0 dB and +6 dB.
- **IMPULSIVITY:** A correction of up to +9 dB can be applied for sound that is highly impulsive.”

5.1.2 IMPACT ESTIMATE

BS 4142 states that an initial estimate of the impact can be obtained by subtracting the measured background sound level from the rating level and considering the following:

- a) “Typically, the greater this difference, the greater the magnitude of the impact.
- b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
- d) 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 low impact, depending on the context.”

The full impact also needs to take account of the site context, therefore the above dB values do not necessarily correspond directly with the noise impact being significant or not.

5.2 COMPUTER NOISE MODEL

A 3D computer noise model of the proposed site has been built using industry standard software iNoise which implements the noise propagation settings in ISO 9613. Noise sources have been included to represent the potential noise sources described in Section 2.3.

The ground factor has been set to 0.0 in to conservatively represent fully reflective ground conditions (even though there are some areas of soft ground/vegetation/hedges near the site). The screening effect of the many lorries and shipping containers between the proposed site and the NSRs has not been included in the model on the conservative assumption that these are temporary screening and could be removed in future.

5.2.1 NOISE SOURCES

The following noise sources have been included in the model:

..... **External plant** line source running along the front elevation of the building, 1.2 m above ground level with a notional sound power level of 75 dBA plus 6 dB correction to account for 4 no. plant items. The source is set to run continuously, 24 hrs a day.

 **Commercial vehicles** accessing the workshops. An area source representing the vehicle route into the site. Source sound power based on a generic light goods vehicle traveling at up to 20 mph (96 dBA sound power) with up to 10 no. vehicles per hour taking an average of 1 minute to pass through the yard (i.e. 6.7% on-time) during daytime hours only.

 **Workshop activities** within the proposed buildings. A vertical area source up to 4 m tall, with sound power of 85 dBA, located on the front elevations of the proposed building. A percentage on-time of 50% during daytime hours only, representing continuous workshop noise for up to 30 mins workshop, with roller shutter doors open.



Figure 4: Proposed site plan showing modelled noise sources

5.3 SPECIFIC SOUND LEVELS

The results of the computer noise model have been used to predict the specific sound level from each individual source at the nearest NSR location and the results are shown in Table 4 and Figures 5/6:

Noise source	Daytime (0700-2300 hrs)		Night (2300-0700 hrs)	
	Specific sound level (dBA)	Compare to background (48 dBA)	Specific sound level (dBA)	Compare to background (35 dBA)
Fixed plant	30.0	-18.0	30.0	-5.0
Delivery vehicles	32.8	-15.2	n/a	n/a
Workshops	31.4	-16.6	n/a	n/a
Cumulative	36.4	-11.6	30.0	-5.0

Table 3: Specific sound levels at each NSR and comparison with background levels

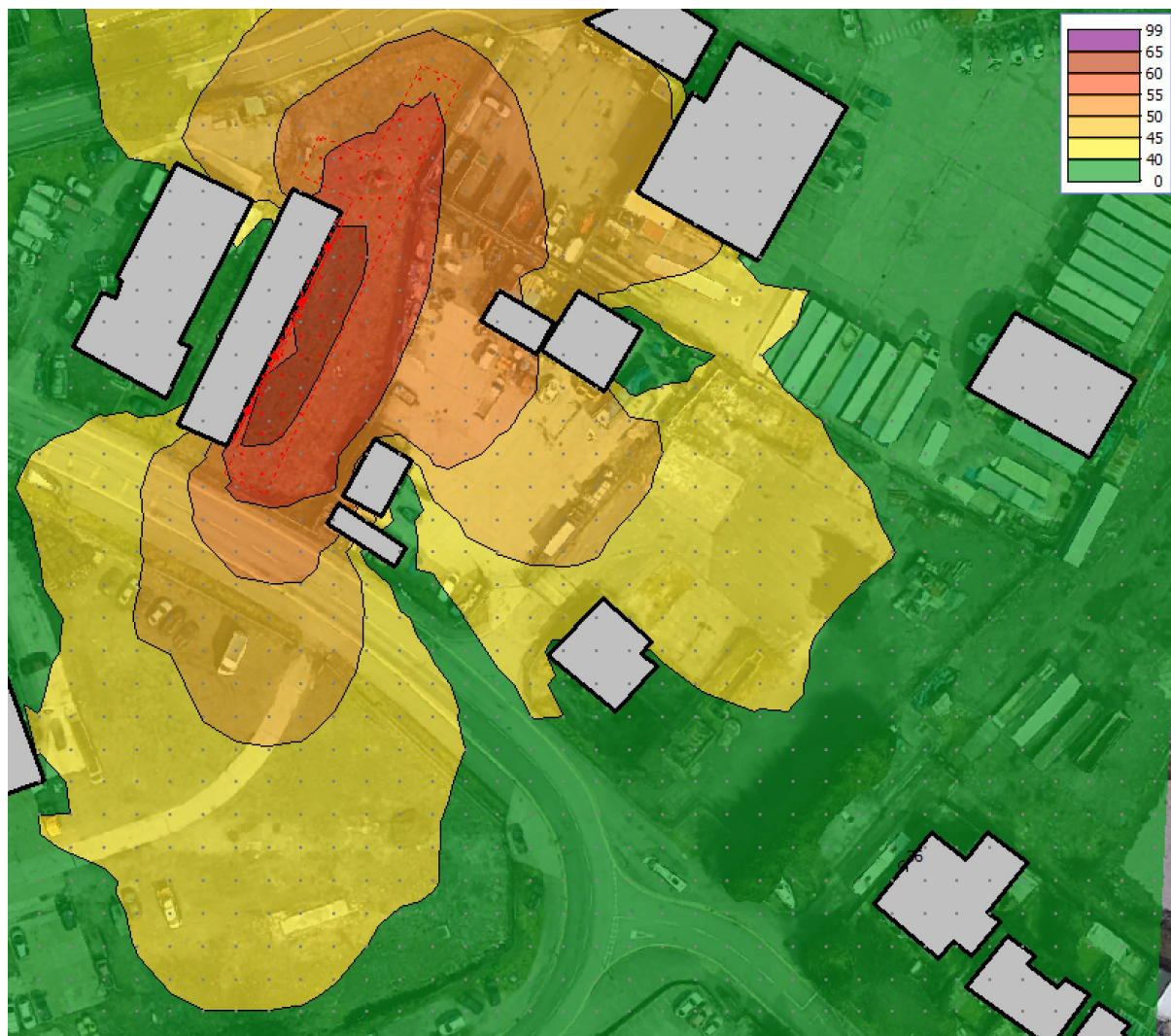


Figure 5: Daytime noise contour plot for proposed development specific sound levels (at 4 m above ground)

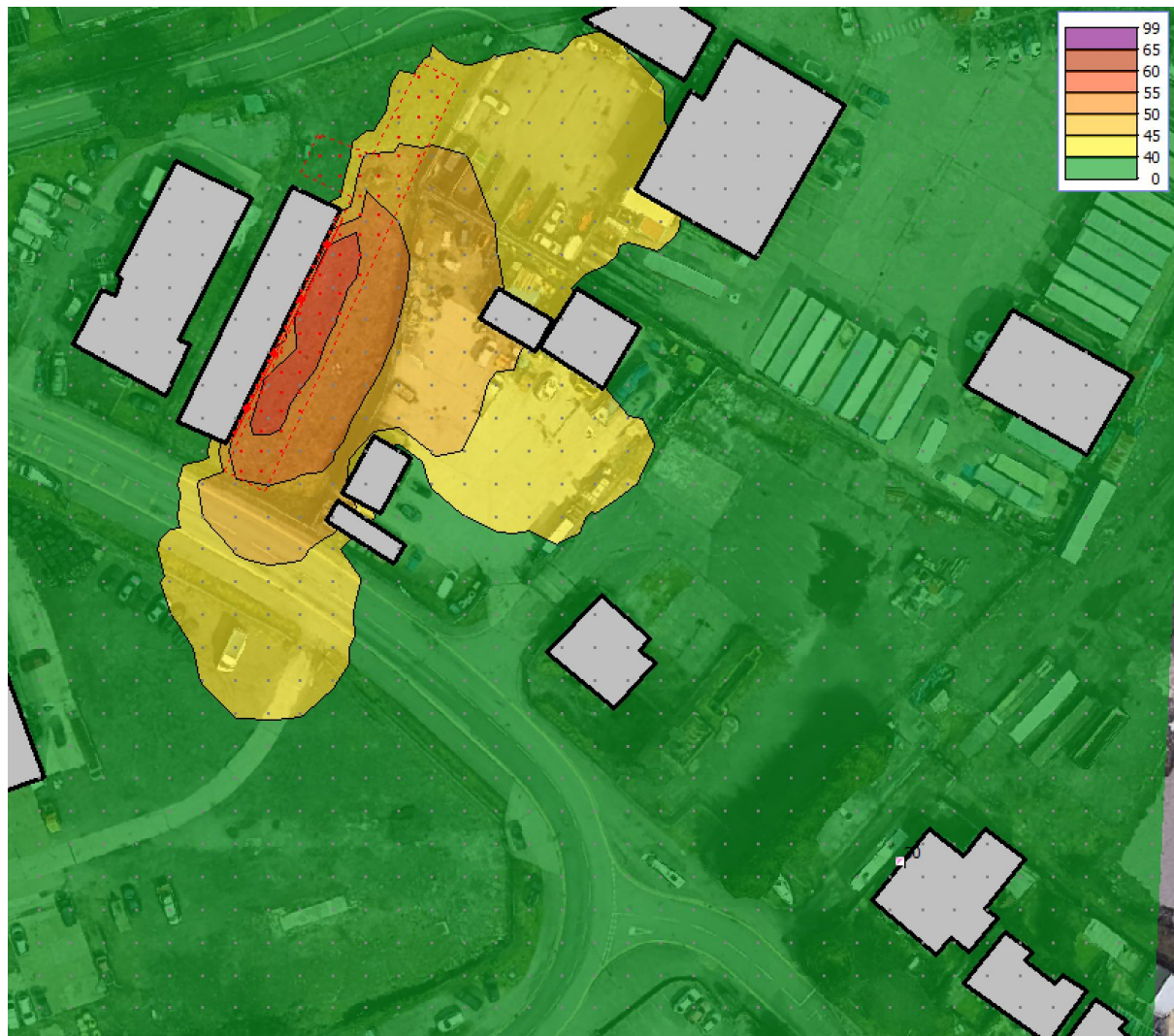


Figure 6: Daytime noise contour plot for proposed development specific sound levels (at 4 m above ground)

5.4 RATING LEVELS

The specific sound level from each noise source is well below the background level, therefore even if the noise sources exhibit qualities which could incur feature corrections, they will likely be inaudible over the underlying background level, therefore no feature corrections are required. This means that the specific sound levels shown in Table 3 are effectively equal to the rating level for each item.

The predicted cumulative rating levels are around **12 dB below the background levels during daytime and 5 dB below background during night time at the NSR**. In line with BS 4142, this is considered a '**low impact**' depending on the context.



5.5 SITE CONTEXT

The existing NSRs are already exposed to commercial/industrial noise of a similar nature from multiple commercial and industrial sources, several of which are nearer to the NSRs and unscreened. As such the proposed development is not introducing a new noise source into the existing soundscape.

The noise model does not take account of anything on the land between the proposed development, despite the fact that during the survey the land was full of commercial vehicles, shipping containers, HGVs and large trailers, all of which would increase the degree of screening of the NSRs from the proposed site, thus resulting in rating sound levels even lower than predicted.

On the basis of the above, site context does not change the outcome of the initial assessment and a **low impact** is predicted.

5.6 SUMMARY OF BS 4142 ASSESSMENT

The BS 4142 assessment shows that the predicted rating levels from the individual noise sources are well below the representative background sound level at the NSRs during daytime and night time periods. In line with BS 4142, these rating levels are indicative of a 'low impact', including consideration of the context of the site.

The context of the site does not change the outcome of the assessment, therefore our conclusion is that **no significant adverse impacts are predicted at the NSR locations as a result of the proposed development.**