

REPORT

**Potts Bakers**

**Unit 4 Bleachcroft Way, Barnsley**

**BS4142:2014 Plant Noise Impact  
Assessment**

Client: Potts Bakers

Reference: PR2070\_FINAL

Date: 18/05/2025

Table of Contents

**1 Introduction ..... 2**

**1.1 Background ..... 2**

**1.2 Project Context..... 2**

**2 Standards ..... 3**

**2.1 BS 4142:2014 ..... 3**

**2.2 National Policy Guidance National Planning Policy Framework 2024 ..... 4**

**3 Baseline Noise Survey ..... 5**

**3.1 Site Context ..... 5**

**3.2 Instrumentation ..... 5**

**3.3 Measured Baseline Levels ..... 6**

**4 BS4142:2014 Industrial Noise Impact Assessment ..... 7**

**4.1 Methodology ..... 7**

**4.2 Operational Noise Context..... 8**

**4.3 Methodology ..... 9**

**4.4 Noise Impact Assessment – Operational Noise Breakout ..... 9**

**4.5 Noise Impact Assessment – Customer Deliveries ..... 10**

**5 Conclusion ..... 11**

## 1 Introduction

### 1.1 Background

Archo Consulting Ltd have been appointed to undertake a noise impact assessment as part of a planning application for the relocation of Potts Bakers in Barnsley. Potts bakers currently operate at Stanley Road, Stairfoot, Barnsley S70 3PG and will be relocating to a larger facility at 4 Bleachcroft Way, Barnsley around 360 metres to the south-east. Therefore, an assessment of potential noise impacts from the operation of the new facility at the closest residential receptors has been undertaken. The assessment has been undertaken with reference to *British Standard (BS) 4142:2014+A1:2019 – Methods for Rating and Assessing Industrial and Commercial Sound*.

The assessment has been undertaken to ensure that noise impacts to the closest residential receptors do not occur and where applicable, mitigation measures have been recommended. All calculations, methodology and results are presented within this report.

### 1.2 Project Context

4 Bleachcroft Way is a currently vacant industrial unit located in a busy commercial area. Residential houses exist to the south which are the closest noise sensitive receptors. The site is boarded by industrial units on the opposite side of Bleachcroft Way to the west and commercial / industrial uses to the north and east. **Appendix A** presents the drawings of the site layout.

In order to undertake a prudent and robust assessment a site visit was undertaken at the active Potts Bakers to measure the operational noise levels and assess the current noise climate. The same equipment in use at the current address of Potts Bakers will also be used at the new site and therefore, the source level measurements made from the operational site have been used to undertake the assessment.

Baseline noise level measurements were also made over the daytime and night-time at a location representative of the closest noise sensitive receptors in order to quantify the existing noise climate. The closest residential receptors described as a noise sensitive receptors (NSR1) are the houses to the south of the site. **Appendix A** presents the location of NSR1.

It is understood that the site will be operational day and night and deliveries (supplies and to customers) will occur at specific times. All this information has been used to undertake the assessment of potential noise impacts from the new site.

## 2 Standards

### 2.1 BS 4142:2014

Noise from fixed plant is typically assessed in the context of BS 4142:2014 which describes methods for rating and assessing sound of an industrial and/or commercial nature. The methods 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 and combines procedures for assessing the impact in relation to the development of new industrial and/or commercial sources affecting existing receptors.

The standard applies to industrial/commercial and background noise levels outside residential buildings and for assessing whether existing and new industrial/commercial sound sources are likely to give rise to significant adverse impacts on the occupants living in the vicinity. The assessment is undertaken by subtracting the measured background noise level from the derived rating level; the greater this difference, the greater the magnitude of the impact.

BS 4142 refers to the following:

*“A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*

*A difference of around + 5 dB is likely to be an indication of an adverse impact, depending on the context.*

*The lower the rating level 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 impact magnitude criteria presented in **Table 1** below were applied to this assessment.

**Table 1: Operational noise impact magnitude criteria for industrial/commercial sound sources**

Rating level dB $L_{Ar,Tr}$	Impact criteria
$\leq$ Measured LA90	No impact (NOEL)
= Measured LA90 dB to +3 dB	Negligible (NOEL)
Measured LA90 + 3 dB to 5 dB	Minor (LOAEL)
Measured LA90 + 5 dB to 9.9 dB	Moderate (LOAEL)
$\geq$ Measured LA90 + 10 dB	Major (SOAEL)

### **Tonality**

BS 4142:2014 states that acoustic penalties should be applied to the rating level if the level differences between adjacent one-third-octave bands are:

- 15 dB in the low-frequency one-third-octave bands (25 Hz to 125 Hz);
- 8 dB in middle-frequency one-third-octave bands (160 Hz to 400 Hz); and,
- 5 dB in high-frequency one-third-octave bands (500 Hz to 10 000 Hz).

### **Intermittency**

With regard to intermittency, BS 4142:2014 states the following:

“If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied.”

## **2.2 National Policy Guidance**

### **National Planning Policy Framework 2024**

The National Planning Policy Framework (NPPF) was introduced in March 2012 replacing the former Planning Policy Guidance 24: Planning and Noise. It was revised in July 2018, in February 2019, in July 2021, September 2023 and most recently December 2024. This document now forms the basis of the Government’s planning policies for England and how these should be applied.

Paragraph 187 e) of the National Planning Policy Framework (NPPF) states that planning policies and decisions should contribute to and enhance the natural and local environment by:

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

Furthermore, Paragraph 198 of the NPPF 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:*

1. *a) Mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
2. *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; and,*
3. *c) Limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.”*

The NPPF also refers to the Noise Policy Statement for England (NPSE) (Defra, 2010).

### 3 Baseline Noise Survey

#### 3.1 Site Context

Baseline noise measurements were made beginning on 30<sup>th</sup> of April 2025 starting at 20:00 and monitoring in 5-minute sample periods until 14:00 on the 1<sup>st</sup> of May capturing representative night-time noise levels. The equipment was installed to the north of 4 Bleachcroft Road in a location representative of the closest noise sensitive windows which were those of the residential properties to the south. Due to security reasons, the equipment could not be installed at the residential properties as vandalism has been reported in the locality. However, the location for the baseline position was selected as it is representative of the prevailing noise climate at NSR1.

**Appendix A** indicates the location of the baseline noise monitoring position and the closest noise sensitive receptor NSR1. All noise measurements were conducted with regard to the procedures and guidance contained in BS 7445, parts 1 and 2.

BS 4142:2014 advises the site must be considered within the context of the area and the surrounding acoustic environment. The following observations were made regarding the contributing factors to the ambient soundscape during the survey. These contributing factors must, therefore, also be taken into consideration:

- Noise from traffic on the local road network was audible and was the main contribution to the ambient noise soundscape;
- Peak noise levels occurred during intermittent bus or large vehicle passes on the local road network; and,
- Occasional sound from people on the street was audible at the location.

#### 3.2 Instrumentation

**Table 2** below details the equipment instrumentation used in the noise survey and the calibration due date at the time of the measurements:

**Table 2: Survey Instrumentation**

Instrument	Serial No.	Calibration Due Date at Time of Survey
Norsonic 140 Class 1 Sound Level Meter	1406433	October 2025
Norsonic 1209 Preamplifier	21318	October 2025
Norsonic 1225 Microphone	226973	October 2025
Nor 1252 Acoustic Calibrator	17244	January 2026

The sound level meter was fully calibrated, traceable to UKAS standards and satisfied the requirements of BS EN 61672-1:2013<sup>1</sup> for a 'Class 1' Sound Level Meter (SLM).

The SLM was set to record with a 'fast' time constant and A-weighting. The following parameters were recorded:

- $L_{Aeq}$  – the equivalent continuous sound pressure level over the measurement period;
- $L_{Amax}$  – the maximum sound pressure level occurring within the defined measurement period;
- $L_{A90}$  – the sound pressure level exceeded for 90% of the measurement period and is used within BS 4142 as a descriptor of background noise level; and
- $L_{A10}$  – the sound pressure level exceeded for 10% of the measurement period.

**Appendix B** presents descriptions of these terms.

The noise measurements were conducted with the SLM mounted on a tripod at heights between 1.2m and 1.5m above ground level. The microphone was installed more than 3.5m away from any reflecting surface other than the ground, i.e. free-field conditions. The instrument was calibrated before and after the survey using a portable calibrator. No significant deviation in the calibration level was observed.

The surveys were conducted during periods of weather favourable for noise measurements, i.e. no rainfall and wind speeds below 5m/s.

### 3.3 Measured Baseline Levels

**Table 3** below presents the results of the baseline noise measurements.

**Table 3: Baseline Noise Measurements**

Location	Period	Duration (HH:MM)	$L_{Aeq}$	$L_{Amax}$	$L_{A10}$	$L_{A90}$
MP1	Night	08:00	61.2	87.8	60.9*	46.6*

*\*Note: Taken as an arithmetic average of the individual 5min sample periods.*

The results presented in **Table 3** above represent the average and peak max values measured for the night-time period. It was considered appropriate to use the statistical average  $L_{A90}$  value for the BS4142:2014 assessment.

<sup>1</sup> British Standards Institution (2013). BS EN 61672-1:2013 Electroacoustics. Sound level meters. Specifications. BSI, London

## 4 BS4142:2014 Industrial Noise Impact Assessment

### 4.1 Methodology

Source noise measurements were made within the operational Potts Bakers site which have been used to undertake the assessment of potential noise impacts at 4 Bleachcroft Way. Since the same equipment will be relocate and used at the new factory this represents a prudent and robust approach. **Table 4** below presents the results of the measurement survey:

**Table 4: Plant Equipment and Associated Source Noise Levels**

Unit	Octave Band Noise Level (dB)								L <sub>Aeq</sub>	L <sub>Amax</sub>
	63	125	250	500	1k	2k	4k	8k		
Conveyer Belt Right Side	72.8	71.4	72.1	71.7	71.3	72.8	72.5	65.4	78.7	96.1
Conveyer Belt Left Side	71.8	70.1	71.3	72.0	68.5	69.0	64.6	58.7	75.0	81.4
Oven	72.6	79.2	75.2	72.4	69.9	68.2	65.6	60.5	75.9	84.1
Blocker Machine for Pastry	69.1	71.2	70.9	73.6	71.0	69.8	69.1	69.1	77.4	80.9
bread slicer	67.7	69.1	68.3	71.6	63.7	62.0	59.7	55.5	71.4	84.1
Bread Conveyer	68.1	67.6	72.1	73.6	72.0	76.1	76.5	71.2	81.7	97.5
Cooling Fans (external)	75.5	73.2	73.0	72.4	69.6	65.8	60.1	53.2	74.4	80.1
Dust Extraction (external)	80.7	72.6	73.3	69.0	64.9	60.0	54.0	45.8	70.9	76.4
Fridge Motor (external)	75.1	68.8	62.6	63.3	58.1	57.5	48.8	40.2	64.8	67.6

#### **Tonality:**

Examination of the One-third octave band noise data indicates that tones are not present. Therefore, no tonal penalty has been applied.

#### **Intermittency:**

The noise levels generated by units in operation is generally unvarying and consistent in nature. Therefore, no penalties for intermittency were applied.

## 4.2 Operational Noise Context

During the course of the survey it was noted that no noise from the operational activities was audible outside of the active Potts Bakers premises. Staff had a radio on continuously inside the site which was the most predominant noise source. It was explained that stock deliveries will occur to the site between 7am and 3pm approximately 6 – 10 times a week (averaging 1 per day).

With reference to the new site layout presented in **Appendix A** the following points should be noted in relation to operational noise:

- The new site will have two roller shutters for deliveries. One will be located on the southern façade which will deal with supply deliveries exclusively which will be constrained to between 7am and 3pm. The other will be located on the western façade and deal with customer deliveries only which involve up to 10 deliveries (Saturday) between 03:30 and 05:30;
- All of the machinery and production will be located in the northern part of the unit situated far away from the closest residential receptors NSR1. This section containing all of the noise generating activities will be sectioned off by Kingspan partitions and accessed by an internal double door. Noise transmission to the outside can only occur through the double doors when the western façade roller shutter is open;
- The external dust extractor will be located at the rear of the new site far away from NSR1 as presented in the site layout in **Appendix A**;
- 12 vents will be located on the roof of the site above the operational area at the opposite end of the site to the location of NSR1.
- The cooling fans will be replaced by a cooling tunnel in the new site which generates significantly less noise and will be located internally;
- The fridges and associated motors which are located externally at the current site will be located close to the dust extraction unit at the new facility.

### 4.3 Methodology

In order to assess the potential noise impacts to NSR1 the assessment has been divided into two sections:

Firstly, an assessment of operational noise breakout from all equipment operating simultaneously has been undertaken at NSR1. This involves noise breakout from the production floor through the open shutter on the western façade, noise breakout from the ventilation on the roof and noise from the external dust extractor. Since the only way noise transmission from the production floor can occur to the outside is through the double doors and the open shutter (open at the same time) it has been conservatively assumed that an open door can attenuate noise levels by 15dB which has been applied for the assessment. This is an extremely conservative approach as in reality noise levels will likely be attenuated to a far greater degree after transitioning through the open double door and open roller shutter. However, in the interest of providing a prudent and robust approach to assessment this assumption has been made. In reality, the roller shutter and double door will only be open for very brief periods of time which means noise transmission to the outside is likely to be very brief, if occurring at all. The rooftop ventilation has been conservatively assumed to achieve a noise reduction of 10dB which is typical for standard louvres and vents. In reality, the reduction achieved will likely be far greater. It should be noted that no noise was audible from the roof vents at the operational site.

Secondly, an assessment of potential noise impacts from the trucks undertaking customer deliveries between 03:30 and 5:30am has been undertaken at NSR1. The truck will load at the western façade and depart the site through a gate to the north on the opposite side of the site to NSR1. A noise level of 67.5dB has been modelled for the truck movements between 03:30 and 5:30am which has been taken from historical noise data libraries.

### 4.4 Noise Impact Assessment – Operational Noise Breakout

The closest noise sensitive receptors (NSR1) to the site are the residential properties directly to the south. **Appendix A** presents the location of NSR1 in relation to the new factory and external noise sources.

Using the above information, **Table 5** and **Table 6** below present the results of the BS4142:2014 noise impact assessment to NSR1:

**Table 5: Noise Impact Assessment – Operational Noise**

Source	Measured Noise Level (dBA)	Attenuation (dB)	Distance to NSR1 (Metres)	Predicted Level at NSR1 (dB)	Measured L <sub>A90</sub> Background Noise Level (dB)	BS4142:2014 Assessment
Internal Operation	77.8	-15 (double door)	40	30.8	46.6	No Impact (NOEL)
Rooftop Vents	77.8	-10 (Louvre attenuation)	57	32.7		No Impact (NOEL)
Dust Extractor	76.4	N/A	70	39.5		No Impact (NOEL)
Fridge Motor	64.8	N/A	25	36.9		No Impact (NOEL)

It can be observed from **Table 5** above that the BS4142:2014 assessment predicts **NO IMPACT (NOEL)** as the predicted noise levels from operation at NSR1 are significantly below the measured nighttime background noise level. Therefore, no further mitigation is deemed necessary.

#### 4.5 Noise Impact Assessment – Customer Deliveries

**Table 6** below presents the noise impact assessment from the customer delivery truck at 05:30am on the western façade of the site:

**Table 6: Noise Impact Assessment – Customer Delivery Truck Noise Assessment**

Source	Measured Noise Level (dBA)	Distance to NSR1 (Metres)	Predicted Level at NSR1 (dB)	Measured L <sub>A90</sub> Background Noise Level (dB)	BS4142:2014 Assessment
Delivery Truck	67.5	40	35.5	46.6	No Impact (NOEL)

It can be seen from **Table 6** above that the predicted noise level at NSR1 from the truck delivery is significantly below the measured background noise level. This is a very brief event and considering the industrial nature of the surroundings it is considered very unlikely that noise impacts will occur.

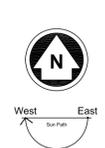
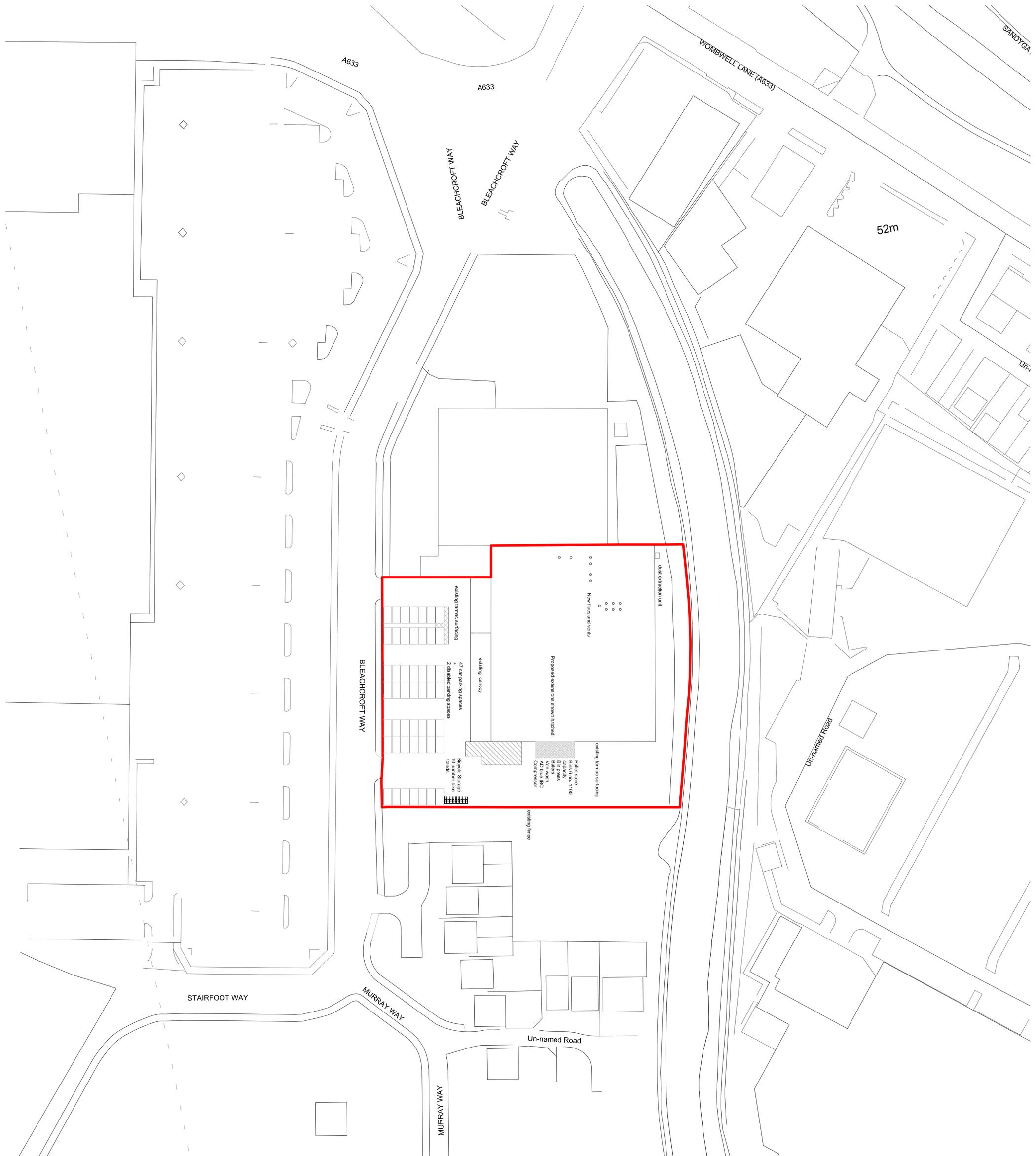
## 5 Conclusion

An assessment of potential noise impacts has been undertaken for the relocation of Potts bakers to 4 Bleachcroft Way, Barnsley. The assessment used a worst-case scenario approach referencing measured source data from the active Potts Bakers site. The assessment has been conducted in accordance with BS4142:2014.

The BS4142:2014 assessment predicts **NO IMPACT (NOEL)** from continuous operation of the bakers during the night-time and **NO IMPACT (NOEL)** from customer deliveries at 5:30am.

Therefore, no further mitigation measures are required.

## **Appendix A – Site Location, NSR1 and MP1**



0 5 10 15 20 25m  
 Scale 1:500 @ A1  
 Proposed Block Plan  
 Unit 4  
 Bleachcroft Way  
 Stairfoot  
 Barnsley  
 S70 3PA  
 Dwg sheet 007

## Appendix B – Description of Acoustic Terms

Term	Description
Noise sensitive receptors	People, property or designated sites for nature conservation that may be at risk from exposure to noise and vibration that could potentially arise as a result of the proposed development/project
Noise and Vibration study area	The area assessed for noise and vibration impacts during this assessment
Baseline scenario	Scenarios with the proposed development/project not in operation
Decibel (dB)	A unit of noise level derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 $\mu$ Pa, the threshold of normal hearing is 0dB, and 140dB is the threshold of pain. A change of 1dB is only perceptible under controlled conditions. Under normal conditions a change in noise level of 3dB(A) is the smallest perceptible change.
dB(A)	Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).
LAeq,T	The equivalent continuous sound level – the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). LAeq,T is used to describe many types of noise and can be measured directly with an integrating sound level meter.
LA10,T	The A weighted noise level exceeded for 10% of the specified measurement period (T). LA10 is the index generally adopted to assess traffic noise

Term	Description
LA90, T	The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 2014 it is used to define the 'background' noise level.
LAmax	The maximum A-weighted sound pressure level recorded during a measurement.
Rw	Single-number quantity which characterizes the airborne sound insulating properties of a material or building element over a range of frequencies.
Sound Reduction Index (SRI)	Laboratory measure of the sound insulating properties of a material or building element in a stated frequency band.