

SHARPS REDMORE

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Report

The Blue Bell Inn, Desford

Environmental Noise Report

Prepared by

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Project No 2321871

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This report has been prepared with all reasonable skill, care and diligence commensurate with an acoustic consultancy practice under the terms and brief agreed with our client at that time. Sharps Redmore provides no duty or responsibility whatsoever to any third party who relies upon its content, recommendations or conclusions.

1.0 Introduction

- 1.1 Sharps Redmore (SR) has been instructed to carry out a noise assessment for a change of use from café and residential to convenience foodstore at land at The Blue Bell Inn, Desford, Leicester.
- 1.2 The application site is located within the administrative area of Hinckley and Bosworth Borough Council and is an existing car park used for general parking and public house use, together with deliveries for the pub and existing café.
- 1.3 The site is on the B582 in the village centre with a mixed use of small retail outlets and residential properties to the north and east overlooking the car park and beer garden.
- 1.4 Planning permission is being sought for change of use from café (Class E) and residential (Class C3) to convenience foodstore (Class E), alongside demolition of existing single-storey element to rear of 37 High Street/2A Main Street and store to rear of public house. Erection of two-storey side extension to 37 High Street/2A Main Street, alongside two-storey rear and single-storey rear extensions. The current parking will remain materially unchanged and similar to the existing store, deliveries will be made in the car park. The proposed layout is shown in Appendix A to this report.
- 1.5 The purpose of this assessment is to assess the impact of the proposed works to the site and service area on surrounding noise sensitive properties by reference to both national and local policy aims. Based on experience of similar retail developments the following main impacts have been identified.
 - Noise from mechanical services plant e.g. refrigeration units;
 - Noise from servicing activity;
 - Noise from car park activity
- 1.6 Section 2.0 contains a discussion of the available methods of assessment and assessment criteria.
- 1.7 Section 3.0 of this report contains details of the environmental noise survey.
- 1.8 Sections 4.0 of the report contain an assessment of the impact of noise from the development of the surrounding residential properties. The report conclusions are summarised in Section 5.0.
- 1.9 A guide to the acoustic terminology used within the report is included in Appendix C.

2.0 Assessment Methodology and Criteria

National Policy

- 2.1 The National Planning Policy Framework (NPPF), July 2021, sets out the Government's planning policies for England and "these policies articulate the Government's vision of sustainable development." In respect of noise, Paragraph 185 of the NPPF states the following:

"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 impacts 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; and*
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation".*

- 2.2 Guidance on the interpretation of the policy aims contained within the NPPF is contained within National Planning Policy Guidance (NPPG). The NPPG introduces the concept of a noise exposure hierarchy based on likely average response. The guidance contained in the NPPG is summarised in the table below:

TABLE 1: Noise Exposure Hierarchy

Response	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not noticeable	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, 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.	Observed Adverse Effect	Mitigate and reduce to a minimum

Response	Examples of Outcomes	Increasing Effect Level	Action
	Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.		
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, 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 Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

- 2.3 The NPPF and NPPG reinforce the March 2010 DEFRA publication, “Noise Policy Statement for England” (NPSE), which states three policy aims, as follows:

“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life.”*

- 2.4 Together, the first two aims require that no significant adverse impact should occur and that, where a noise level which falls between a level which represents the lowest observable adverse effect and a level which represents a significant observed adverse effect, then according to the explanatory notes in the statement:

“... all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.”

2.5 Neither national nor local policy provide any objective guidance on noise however it is possible to apply objective standards to the assessment of noise and the effect produced by the introduction of a certain noise source may be determined by several methods, as follows:

- i) The effect may be determined by reference to guideline noise values. British Standard (BS) 8233:2014 and World Health Organisation “Guidelines for Community Noise” contain such guidelines.
- ii) Alternatively, the impact may be determined by considering the change in noise level that would result from the proposal, in an appropriate noise index for the characteristic of the noise in question. There are various criteria linking change in noise level to effect. This is the method that is suited to, for example, the assessment of noise from road traffic because it is capable of displaying impact to all properties adjacent to a road link irrespective of their distance from the road.
- iii) Another method is to compare the resultant noise level against the background noise level (L_{A90}) of the area. This is the method employed by BS 4142:2014 to determine the impact of noise of an industrial or industrial type nature. It is best suited to the assessment of steady or pseudo-steady noise.

Guideline noise values

2.6 There are a number of guidance documents that contain recommended guideline noise values. These are discussed below.

2.7 British Standard 8233:2014 is principally intended to assist in the design of new dwellings; however, the Standard does state that it may be used in the assessment of noise from new sources being brought to existing dwellings.

2.8 The original BS 8233 was based on the advice contained in the draft World Health Organisation document “Guidelines for Community Noise”. This document was released in final form in 2000. The World Health Organisation guidance is referenced in the NPSE.

2.9 The WHO advice is the most useful, comprehensive, and pertinent advice in this case, because it is not specific to the circumstances of the assessment. Instead, it provides guidance on acceptable limits in, for example, schools, dwellings and offices.

2.10 The WHO guideline values are appropriate to what are termed “critical health effects”. This means that the limits are at the lowest noise level that would result in any psychological, physiological or sociological effect. They are, as defined by NPSE, set at the Lowest Observed Adverse Effect Level (LOAEL), but do not define the level above which effects may be considered significant (SOAEL). Compliance with the LOAEL should, therefore, be seen as a robust aim.

2.11 The WHO LOAEL guideline values are summarised in the following table.

TABLE 2: WHO Guidelines

Document	Level	Guidance
World Health Organisation "Community Noise 2000"	$L_{AeqT} = 55 \text{ dB}$	Serious annoyance, daytime and evening. (Continuous noise, outdoor living areas)
	$L_{AeqT} = 50 \text{ dB}$	Moderate annoyance, daytime and evening. (Continuous noise, outdoor living areas).
	$L_{AeqT} = 35 \text{ dB}$	Moderate annoyance, daytime and evening. (Continuous noise, dwellings, indoors)
	$L_{AeqT} = 30 \text{ dB}$	Sleep disturbance, night-time (indoors)
	$L_{AMAX} = 60 \text{ dB}$	Sleep disturbance, windows open at night. (Noise peaks outside bedrooms, external level).
	$L_{AMAX} = 45 \text{ dB}$	Sleep disturbance at night (Noise peaks inside bedrooms, internal level)

- 2.12 For L_{AeqT} criteria the time base (T) given in the document is 16 hours for daytime limits and 8 hours for night time limits. When assessing impact, this has the tendency to smooth out the hourly variations in noise level. As such, our calculations are carried out to a 1-hour time base, which is more stringent assessment than is given in the guidance but is reflective of the actual duration of the delivery process.
- 2.13 In 2018 the WHO published the "Environmental Noise Guidelines for the European Region" (ENGER). The new WHO Environmental Noise Guidelines (page 28) explain that *"The current environmental noise guidelines for the European Region supersede the CNG from 1999. Nevertheless, the GDG (Guideline Development Group) recommends that all CNG indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) should remain valid"*. Hence the CNG remain relevant to this assessment.
- 2.14 The WHO ENGER brings together the latest research on the effects of specific types of noise on health in relation to transportation noise sources (road, rail and aircraft noise exposure), wind turbines and leisure noise. Hence in direct relation to the specific proposal that this noise assessment considers, the new WHO ENGER are not of material consideration.

Changes in noise level

- 2.15 Changes in noise levels of less than 3 dBA are not perceptible under normal conditions and changes of 10 dB are equivalent to a doubling of loudness. This guidance has been accepted by Inspectors, at Inquiry, to encompass changes in noise levels in the index $L_{Aeq,T}$ in relation to road traffic noise and therefore if of limited use in this case.
- 2.16 The following table shows the response to changes in noise level (known as the Semantic Scale).

TABLE 3: Change in noise level

Change in noise level L_{AeqT} dB	Response	Impact
<3	Imperceptible	None
3 - 5	Perceptible	Slight
6 - 10	Up to a doubling	Significant
11 – 15	More than a doubling	Substantial
> 15	-	Severe

BS 4142:2014+A1:2019

2.17 As discussed, this BS described a method for rating and assessing sound of industrial and/or commercial nature according to the following summary process:

- i) Carry out a numerical assessment of the noise, taking into the character and areas of uncertainty, by comparing the noise against the existing background noise level. The greater the difference between the two, the greater the impact.
- ii) By considering the noise impact against the context in which it is placed. There are many contextual points to consider when considering an assessment of sound impact including the following:
 - The absolute level of sound.
 - The character and level of the specific sound compared to the existing noise climate.
 - The sensitivity of the receptors.
 - The time and duration that the specific sound occurs. The conclusions of assessments undertaken using alternative assessment methods, for example WHO guideline noise values or change in noise level.
 - The ability to mitigate the specific sound through various methods, for example by screening, the selection of quiet plant equipment, the use of attenuators, through the imposition of noise management plans and good practice, façade design and layout/orientation.
 - The form and scale and scale of a development. For example, does not the proposed development involve a new industrial/commercial premise or is the proposal the installation of new plant or an extension to an existing premises?

2.18 It is therefore entirely possible that whilst the numerical outcome of a BS 4142 assessment is indicative of adverse or even significant adverse impact, when the proposal is considered in context the significance of the impact is reduced to an acceptable level.

3.0 Survey Details

- 3.1 A noise survey was undertaken at the site between 16th and 17th May 2023 to obtain measurements of the existing noise climate. Measurements were taken at a location that was chosen to represent the residential properties to the north of the site. These being the nearest noise sensitive premises to the plant and delivery area. The measurement location is shown at MP1 in Figure 1 below.

FIGURE 1: Monitoring Location



- 3.2 The sound level meter was set up to continually record noise levels at 15-minute intervals. Noise measurements were taken using a Norsonic 118 type 1 sound level meter which was calibrated at the start and end of the survey and no variation in level was noted. All measurements were carried out in free-field conditions.
- 3.3 The weather conditions during the survey were noted from site observations and from online information and were dry with a light breeze suitable for taking sound level measurements.
- 3.4 A summary of the survey results are shown below in table in Table 4. A graphical summary is shown at Appendix B and full survey data is available if required upon request.

TABLE 4: Survey Results – Summary

Day	Daytime (0700 – 1900 hrs)		Evening (1900 - 2300 hrs)		Night Time (2300 – 0700 hrs)	
	L _{Aeq}	L _{A90} *	L _{Aeq}	L _{A90} *	L _{Aeq}	L _{A90} *
16-17 th May	50 dB	44 dB	44 dB	35 dB	44 dB	34 dB

*Representative background level for period determined from modal analysis of data

- 3.5 Being a village centre location the existing noise climate is dominated by road traffic noise and existing noise from plant serving the pub kitchen.

4.0 Noise Assessment

- 4.1 As outlined in section 1.0 of this report the main impacts from the proposed works will be noise from mechanical services plant, delivery activity and car park activity.

Mechanical Services Plant

- 4.2 The precise details of the mechanical services plant and refrigeration equipment (type and noise signature) to be installed by both retailers are not known at this stage. However, it is expected that fixed plant would include refrigeration pack, condenser units and heat pumps which will be located in an external plant area located on the rear (southern) façade of the building.
- 4.3 With regard to the assessment of industrial noise sources in commercial premises (i.e. fixed mechanical plant associated with the supermarket) BS 4142:2014+A1:2019 enables the resultant noise from new equipment to be compared to the existing background noise level (L_{A90}) of an area to assess the significance of impact.
- 4.4 In terms of seeking to set appropriate plant rating sound limits, the advice in BS 4142:2014 is *“The lower the rating level is relative to the measured background sound level, the less likely 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 of having a low impact, depending on context”* (clause 11 noted’).
- 4.5 Based on the survey results the representative background noise level for the day, evening and night time period has been calculated as follows:

TABLE 5: Representative Background Levels

Daytime (0700-1900hrs)	Evening (1900-2300 hrs)	Night time (2300 – 0700 hrs)
44 dB	35 dB	34 dB

- 4.6 To prevent significant adverse impacts on the health and quality of life of existing noise sensitive receptors, the “rating noise level” (the predicted noise level plus any penalty for character), should not exceed the typical measured daytime and night time background noise level by more than 10 dB, and to prevent adverse harm by around 5 dB depending on context. Where the rating level does not exceed the background noise level, this is an indication of a specific sound having a low impact.
- 4.7 To avoid any adverse impact from noise it is suggested that noise from fixed plant should not exceed the background levels shown in table 5 required by BS 4142:2014 which advises low impact (the level at which no mitigation measures are required) would be achieved where the noise level does not exceed background levels. Consequently, the resultant noise criterion for plant will be 44 dB during the day, 35 dB during the evening and 34 dB during the night time period. The above limits could be secured by a planning condition such as:

“The rating level of noise emitted by all fixed plant shall not exceed the representative background level as determined at the nearest noise sensitive premises. Measurement and assessment shall be according to BS 4142:2014 +A1 2019.”

Noise from car park activity

- 4.8 The car parking arrangements will be similar to the existing. This currently operates during normal trading hours for the existing café and during normal pub opening times up to 2300 hours. It is understood that there are no existing restrictions on the car park use.
- 4.9 Central England Co-Op will typically trade between 0700 and 2200 hours. Being a village centre location there is no significant change the ambient noise levels during the day and evening hours, therefore the impact of car parking at trading activity during the evening period is no greater than existing activity.
- 4.10 It is therefore concluded that the store can trade between the suggested hours without causing significant adverse impact to local residents in the surrounding area.

Noise from delivery activity

- 4.11 Deliveries will be received in the existing shared service yard which is accessed off the B582 This is consistent with the current arrangement for pub deliveries. SR is not aware of any existing restrictions on deliveries.
- 4.12 SR has measured noise levels of the different components of service activity at similar stores and the following maximum levels have been recorded. All measurements are normalised to 10 metres.

TABLE 6 – Service yard noise levels (10m)

Event Noise Level						
Arrival		Unloading		Departure		Overall
Duration (Mins)	L _{AeqT} (dB)	Duration (Mins)	L _{AeqT} (dB)	Duration (Mins)	L _{AeqT} (dB)	L _{AMAX} (dB) Arrival- departure/Unloading
2	67	40	58	0.5	69	73 /78

- 4.13 The nearest noise sensitive properties to the service yard are the residential properties at along Main Street. These properties are approximately 20 metres from the centre of the delivery arrivals area. Considering the noise source levels and distance attenuation to the nearest receptors the predicted noise level from delivery activity has been calculated in Table 7 below. A 2m close boarded boundary fence has been included in these calculations to provide in the region of 10dB attenuation. Night time deliveries are not proposed and the assessment is restricted to daytime hours with a typical frequency of no more than 1 delivery per day.

TABLE 7: Predicted noise levels – Delivery activity: 1 hour

Activity	L _{Aeqt} dB	Duration (mins)	Distance attenuation dB (20m)	L _{Aeq} 1 hour conversion dB	L _{Aeq} 1hr dB	L _{Amax} dB
Arrival	67	2	(20 log 10/20 = -6	(10 log 2/60) = -14	47	78
Unload	58	40	-6	(10 log 40/60) = -2	50	
Depart	69	0.5	-6	(10 log 0.5/60) = -21	41	
Total L _{Aeq} 1 hr					52	
Screening -10dB					42	
Totals					42	Max 62

*Where T = 1 hour for comparison with WHO guidelines and daytime BS 4142 assessment, and 15 minutes for BS 4142 night time assessment

- 4.14 The advice in BS 4142 is the greater the difference between the rating level and background level the greater the magnitude of impact. A difference of around +10 dB is an indication of a significant adverse impact, a difference of around +5 dB is an indication of an adverse impact and where the rating level is below the background level the impact is considered low.
- 4.15 BS 4142 also requires that any assessment should have regard to contextual considerations, and an *“effective assessment cannot be conducted without an understanding for the reason(s) for the assessment and the context in which the sound occurs/will occur.”* This is particularly relevant in this case as the site is an existing retail store which has the benefit to unrestricted delivery activity and in such cases any initial assessment of the noise should be considered in context of this extant planning consent and the character and level of the existing noise climate.
- 4.16 Predicted noise levels from delivery activity (L_{Aeq1hr}) will be no greater than the existing ambient noise levels measured. In terms of character the site is in a village centre location and as such noise from commercial activity is an existing part of the noise climate. Therefore, noise from deliveries will not be out of character with the existing noise climate and use of the car park.
- 4.17 In addition to the above to mitigate the impact of any potential delivery noise it is recommended that all deliveries are carried out in accordance with a delivery management plan (DMP), which can be secured by planning condition. The above measures have been shown to reduce the subjective impact of noise from delivery activity by restricting such activities as audible reversing alarms, and noise from on-board refrigeration units.
- 4.18 Having regard to the mitigation measures that will be incorporated into the development it is concluded that the site could receive deliveries during the daytime without causing significant adverse impact to both existing and future residents in line with policy aims of the NPPF.

5.0 Summary and Conclusion

5.1 Sharps Redmore has undertaken an environmental noise assessment for the conversion of the existing unit at land at The Blue Bell Inn, Desford. The following activities have been assessed.

- Fixed mechanical plant
- Delivery noise
- Car Parking noise

5.2 A noise survey has been carried out at a location representative of the closest residential properties to the site.

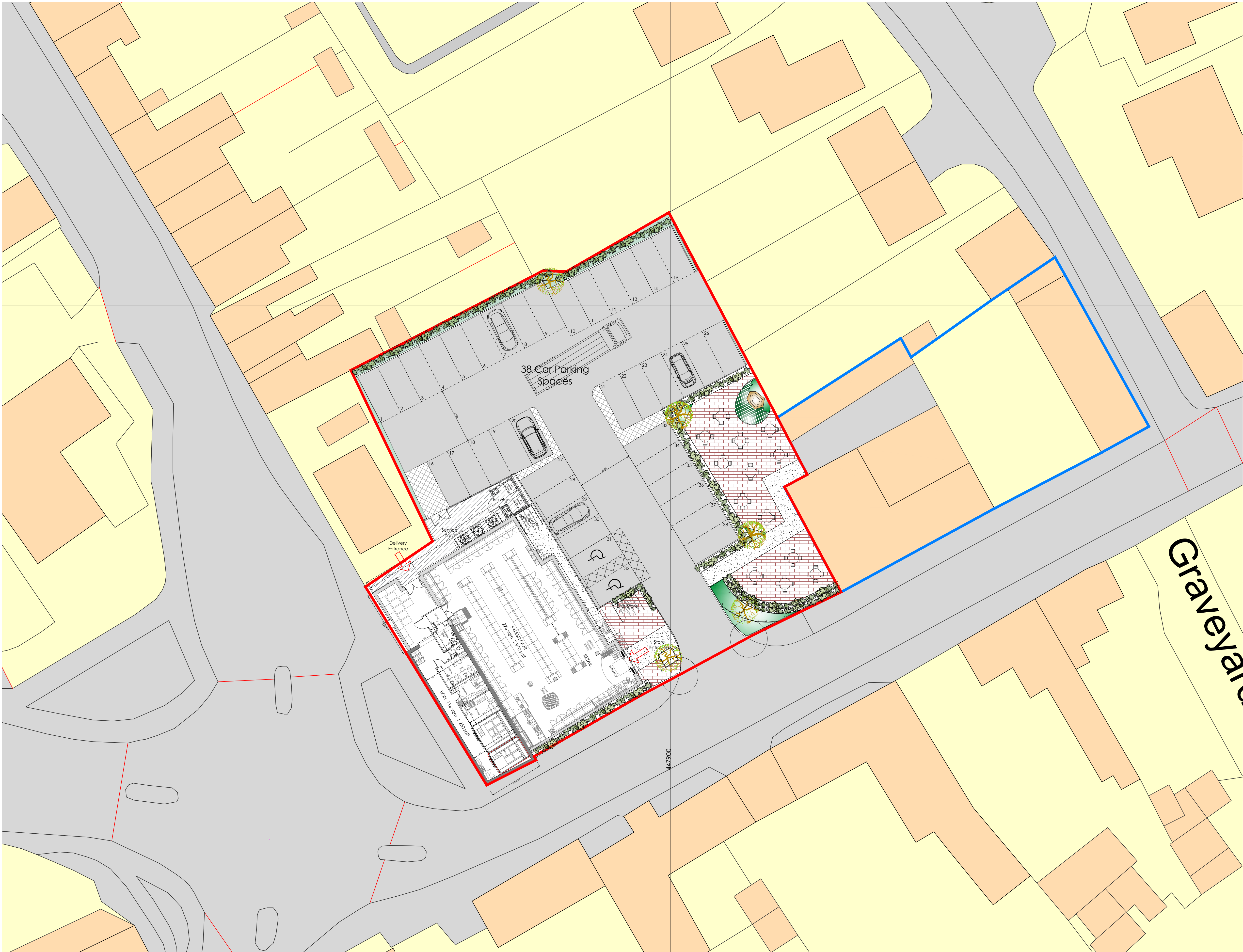
5.3 In terms of noise the following matters are relevant.

- The site is an existing public house and has no restrictions on trading or delivery hours;
- Plant noise will be controlled by condition requiring that noise should not exceed existing background level;
- Noise from car parking will be no greater than the existing site, which currently has no restrictions on trading hours.
- The impact of deliveries has been assessed against national standards and subject to mitigation measures, including the mitigation measures which will be implemented through a delivery management plan (DMP) it is concluded that deliveries could be received during daytime.

5.4 Considering the above and having assessed the main noise impacts from the development against national standards, and given the existing noise climate and extant use of the site, it is concluded that the proposed store can be developed as outlined within the report without causing significant impact or disturbance to local residents as advised by the National Planning Policy Framework.

APPENDIX A

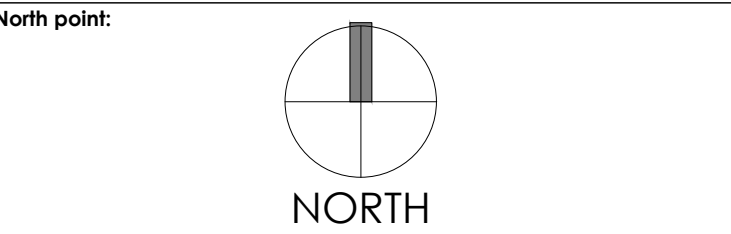
SITE LAYOUT



Proposed Site Plan

1:200

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Notes:

Revision Log:			
P1	Ownership boundary and landscape updated	DR	22.06.23

Rev:	Description:	By:	Date:
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Project:
Proposed Mixed Use Development -
Co-operative Store & Residential Accommodation
High Street,
Desford
Leicester, LE9 9JF

Client:
Everards Brewery c/o APB

Scale:			
0	2.5m	5m	10m
			1:200

Drawn by:	Checked:	Date:	Paper Size:
CES	MVFA	Feb '22	A1

Drawing Title:
Proposed Site Plan

Drawing Status:
PLANNING ISSUE

Drawing Number:	Revision Number:
5166/JP/21/005	P2



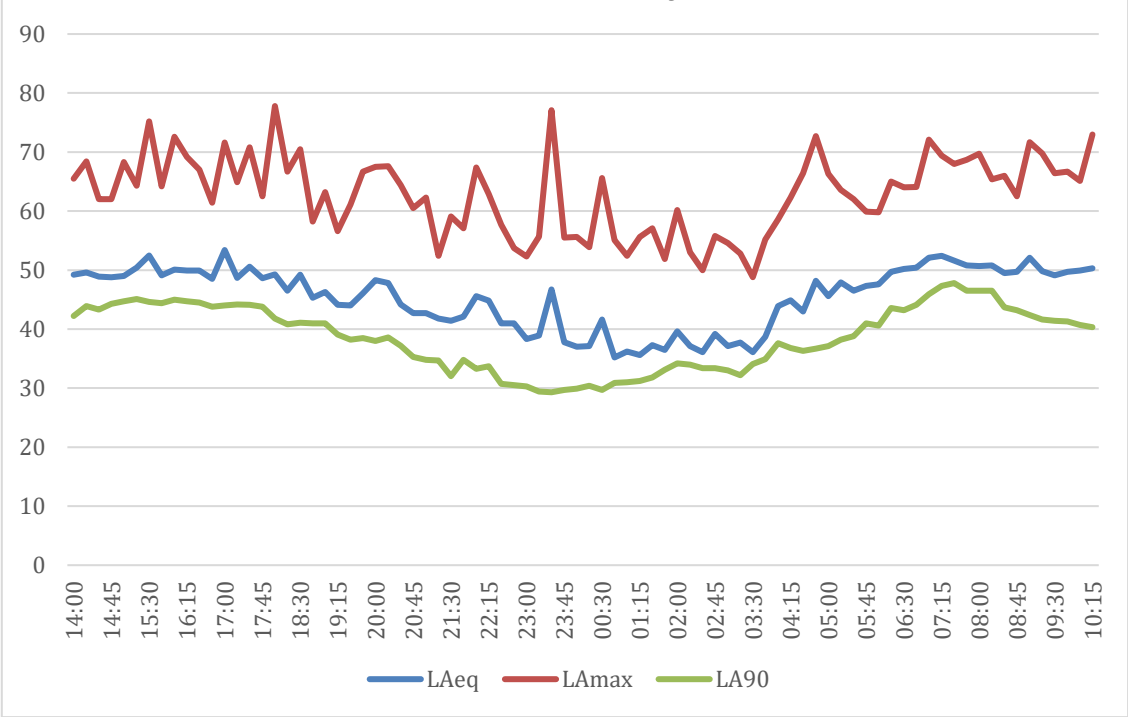
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APPENDIX B

SURVEY RESULTS

Desford 16-17th May 2023



APPENDIX C

ACOUSTIC TERMINOLOGY

Acoustic Terminology

- C1 Noise, defined as unwanted sound, is measured in units of decibels, dB. The range of audible sounds is from 0 dB to 140 dB. Two equal sources of sound, if added together will result in an increase in level of 3 dB, i.e. $50\text{ dB} + 50\text{ dB} = 53\text{ dB}$. Increases in continuous sound are perceived in the following manner:
- 1 dB increase - barely perceptible.
 - 3 dB increase - just noticeable.
 - 10 dB increase - perceived as twice as loud.
- C2 Frequency (or pitch) of sound is measured in units of Hertz. 1 Hertz (Hz) = 1 cycle/second. The range of frequencies audible to the human ear is around 20Hz to 18000Hz (or 18kHz). The capability of a person to hear higher frequencies will reduce with age. The ear is more sensitive to medium frequency than high or low frequencies.
- C3 To take account of the varying sensitivity of people to different frequencies a weighting scale has been universally adopted called "A-weighting". The measuring equipment has the ability automatically to weight (or filter) a sound to this A scale so that the sound level it measures best correlates to the subjective response of a person. The unit of measurement thus becomes dBA (decibel, A-weighted).
- C4 The second important characteristic of sound is amplitude or level. Two units are used to express level, a) sound power level - L_w and b) sound pressure level - L_p . Sound power level is an inherent property of a source whilst sound pressure level is dependent on surroundings/distance/directivity, etc. The sound level that is measured on a meter is the sound pressure level, L_p .
- C5 External sound levels are rarely steady but rise or fall in response to the activity in the area - cars, voices, planes, birdsong, etc. A person's subjective response to different noises has been found to vary dependent on the type and temporal distribution of a particular type of noise. A set of statistical indices have been developed for the subjective response to these different noise sources.
- C6 The main noise indices in use in the UK are:
- L_{A90} : The sound level (in dBA) exceeded for 90% of the time. This level gives an indication of the sound level during the quieter periods of time in any given sample. It is used to describe the "background sound level" of an area.
 - L_{Aeq} : The equivalent continuous sound level in dBA. This unit may be described as "the notional steady noise level that would provide, over a period, the same energy as the intermittent noise". In other words, the energy average level. This unit is now used to measure a wide variety of different types of noise of an industrial or commercial nature, as well as aircraft and trains.

L_{A10}: The sound level (in dBA) exceeded for 10% of the time. This level gives an indication of the sound level during the noisier periods of time in any given sample. It has been used over many years to measure and assess road traffic noise.

L_{AMAX} The maximum level of sound measured in any given period. This unit is used to measure and assess transient noises, i.e. gun shots, individual vehicles, etc.

- C7** The sound energy of a transient event may be described by a term SEL - Sound Exposure Level. This is the L_{Aeq} level normalised to one second. That is the constant level in dBA which lasting for one second has the same amount of acoustic energy as a given A weighted noise event lasting for a period of time. The use of this unit allows the prediction of the L_{Aeq} level over any period and for any number of events using the equation;

$$L_{AeqT} = SEL + 10 \log n - 10 \log T \text{ dB.}$$

Where

n = Number of events in time period T.

T = Total sample period in seconds.

- C8** In the open, known as free field, sound attenuates at a rate of 6 dB per each doubling of distance. This is known as geometric spreading or sometimes referred to as the Inverse Square Law. As noise is measured on a Logarithmic scale, this attenuation in distance = 20 Log (ratio of distances), e.g. for a noise level of 60 dB at ten metres, the corresponding level at 160 metres is:

$$60 - 20 \log \frac{160}{10} = 60 - 24 = 36 \text{ dB}$$