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New Build Workshops Far Ings Road, Barton-upon- Humber

Noise Impact Assessment

**For:
P & N Design**

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1 Introduction

1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned by P & N Design (hereafter referred to as 'the client') to undertake a noise impact assessment for proposed new-build workshops on land at Far Ings Road, Barton-upon-Humber, DN18 5RF (hereafter referred to as 'the site').

The report presents:

- The methodology and results of a noise survey conducted at the site
- An assessment of potential impact of noise emission from the proposals on nearby noise sensitive areas

This report has been prepared on behalf of the client for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult the client and ENS as to the extent to which the findings may be appropriate for their use.

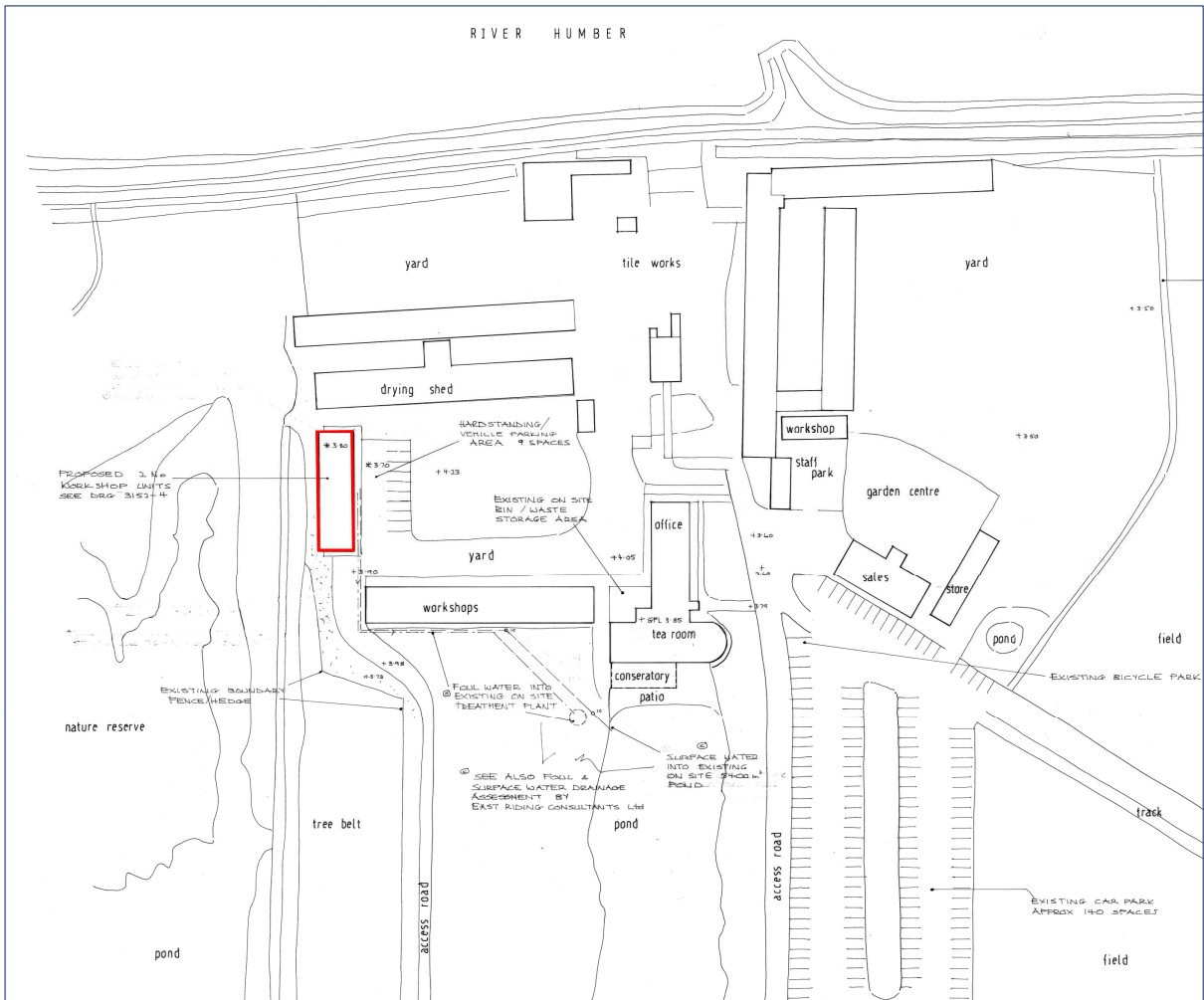
A glossary of acoustic terms used in the main body of the text is contained in Appendix A.

1.2 Site Description

The site is located to the north of Far Ings Road, approximately centred on grid reference: 502201,423322, to the east Far Ings Nature Reserve.

The approximate site location is presented on Figure 1.1 below, with the proposed new workshops indicated in red.

Figure 1.1: Development Site Boundary



The proposals are for the construction of two new workshop units to the west of the existing workshop and yard area. The new workshops will be of masonry construction, with a maximum height of approximately 5.2m.

The proposed development is located adjacent to an existing handmade tile manufacturing unit to the north, and two further workshops to the south, which are understood to be in retail use.

2 Noise Criteria

2.1 Assessment Guidance

Natural England have requested an assessment of the potential noise effects from the proposals on birds within Far Ings Nature Reserve, which lies to the west of the site.

Guidance for assessing potential impacts has been drawn from the Waterbird Disturbance Mitigation Toolkit in conjunction with the Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance document produced by the Institute of Estuarine & Coastal Studies (IECS) University of Hull.

These guidance documents provide information on the correlation between noise emission levels and potential disturbance to a range of bird species. A summary of the adopted noise levels and their accompanying effects is set out below.

High Level Disturbance Stimuli

- Sudden single noise of over 60dB (at the bird) e.g. single or initial pile impact, dropping of piles on hard surface in undisturbed environment.
- Continuous/repetitive noise over 72dB (at the bird) e.g. ongoing percussive or Movax vibro-piling (depending on receptor distance).

Moderate Disturbance Stimuli

- Sudden noises of 55-60dB (at the bird) e.g. as above (55-60dB can be moderate or high depending on context).
- Continuous/repetitive noises 60-72dB (at the bird) e.g. as above.
- High level disturbance activities that have reduced impact due to habituation. As above, but if ongoing, habituation can occur reducing impact.

Low Level Disturbance Stimuli

- Noise of less than 55dB (at bird). This is often below background levels in estuaries.
- Noise of 55-72dB in a highly disturbed environment e.g. with background ambient noise levels of >60dB.
- Moderate level disturbances that have reduced impact due to habituation. As above but with regular occurrence increasing habituation.
- Works that are out of sight of birds and create a low -level noise e.g. behind bank - but overflying birds may respond and locate away from works.
- High level works where the birds are always over 500m away (before start up). This may be reduced to a 300m radius with habituation.
- Moderate level works where the birds are over 300m away (before start up). Potential for further slight range reduction with habituation (c. 250m)

British Standard 4142: 2014 +A1:2019 “Methods for rating and assessing industrial and commercial sound”

BS 4142¹ presents methods for rating and assessing the potential impact of commercial and industrial sound upon noise sensitive receptors. The Standard is appropriate for the consideration of industrial and manufacturing processes, fixed installations which comprise mechanical and electrical plant and equipment and mobile plant / vehicles that form an intrinsic part of the industrial/commercial including the loading and unloading of goods and materials at the premises.

¹ British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound. British Standards Institution (2019)

The noise impact magnitude is derived from the numerical subtraction of the representative² background noise level from the measured or calculated rating level of the specific sound under consideration. Typically, the greater this difference, the greater the magnitude of the impact:

- 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 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 'rating level' must be determined considering the need for any 'character corrections' to the specific industrial/commercial noise level to account for tonal qualities, impulsive qualities, other sound characteristics and/or intermittency. This can be done using a subjective, objective or reference methods. Where multiple features are present the corrections should be added in a linear fashion to the specific level.

BS 4142 requires separate analysis for day and night time periods, evaluating the Rating level over an appropriate reference time interval (T_r) of:

- 1 hr during the day (between 07:00 – 23:00 hrs)
- 15 min during the night (between 23:00 – 07:00 hrs)

² 'Representative' is generally considered to be 'typical' (e.g. formed by analysis of modal / mean average values) rather than the lowest measured

3 Noise Survey and Results

3.1 Representative Noise Levels

Noise monitoring was undertaken on Tuesday 17th February 2026 to assess noise levels in the vicinity of the proposed development. Noise monitoring locations are indicated on the site plan presented in Appendix B.

The noise climate in the vicinity of the site was controlled by road traffic noise from the A15, which lies approximately 280m to the east, plus contributions from passing aircraft and birdsong. Analysis of concurrent audio recordings indicates noise from the existing commercial units was also audible during certain periods, including yard activities and manoeuvring vehicles.

All measurements were undertaken using NTi XL3 Type 1 integrating sound level meters. The meter was connected to a windshield covered microphone at a height of approximately 4 metres above ground. External measurements were undertaken in free field conditions, a minimum of 3 metres from any reflective surfaces.

The calibration of the measurement system was verified immediately before and after the survey period using a Brüel & Kjaer Type 4231 calibrator. No drift in calibration levels greater than 0.5 dB was noted.

Measurements consisted of A-weighted broadband parameters including $L_{Aeq, T}$, and L_{A90} together with linear 1/3rd octave band data.

Weather conditions throughout the survey were considered appropriate for noise monitoring, with an absence of rain and average wind speeds < 5ms⁻¹.

3.2 Summary of Results

Table 3.1 presents a summary of the noise data for each measurement period, rounded to the nearest decibel.

Table 3.1: Summary of Noise Measurement Data

Position	Start Time (hh:mm)	Measured sound pressure level (dB)		
		$L_{Aeq, T}$	$L_{A10, T}$	$L_{A90, T}$
1	10:23	53	56	49
	11:00	51	56	49
	12:00	53	57	48
	13:00	54	56	49
	14:00	52	55	48
	15:00	51	54	49
	16:00	51	54	49

4 Assessment

4.1 Noise Modelling

To calculate specific noise levels at the nearest noise sensitive receptors resulting from the proposals, a three-dimensional Cadna-A noise model has been developed. Noise model geometry is based on Ordnance Survey mapping data and drawings supplied by the client. Propagation of noise has been calculated in broadband terms according to ISO 9613: 1996. All buildings within the model are assumed to be acoustically reflective, and second order reflections have been considered. The noise model assumes soft ground for propagation corrections.

At this stage in the development, details of the exact workshop uses is not available therefore it is not possible to quantify the prospective noise emission levels at this stage. To present the most onerous assessment, the noise model assumes an internal reverberant noise level of 80 dB $L_{Aeq,1hr}$ which is considered representative of the highest likely noise level likely to occur in a small workshop such as the proposed.

As the workshops are understood to be of a masonry construction with a tiled roof, noise emission from the building fabric is not anticipated. The noise model assumes that each workshop door is fully open, with noise emission calculated based on a vertical area source for each door which is 3m wide and 2m tall. The noise model includes a -3dB correction for transmission between an internal reverberant field and the outside.

The noise model also considers the impact of servicing/deliveries to the development assuming one delivery per hour, with the following considered:

- HGV ingress and parking
- Unloading externally with goods moved on metal pallets
- Engine start and idle (30 seconds)
- HGV egress

Noise contour plots illustrating the propagation of noise from the site are presented as Appendix C.

4.2 Assessment

The results of the noise modelling set out in Appendix C demonstrate that the proposals would not exceed a noise level ≤ 45 dB $L_{Aeq,1hr}$ at the boundary of the site.

With reference to the noise guidance set out in Section 2, such noise levels would be significantly below the lower guideline noise level of 55 dB and would therefore be below the level at which it may be considered a low-level stimulus.

In terms of context, the area in the immediate vicinity of the development is presently exposed to ambient noise from road traffic and commercial sources. Noise from the proposals is not predicted to exceed the existing background noise level summarised in Section 3 at the site boundary, and is therefore indicative of a 'low impact' according to the BS 4142 guidance set out in Section 2. Whilst BS 4142 is intended to assess the impact of noise on human receptors, it is considered that were the background noise level is not exceeded, it is unlikely that adverse impacts would occur for wildfowl.

Noise levels at a distance of 10m from the western façade of the workshop are predicted to be > 10 dB below the existing background noise level. It is generally accepted that noise levels which are greater than 10 dB below the existing background noise level can be considered 'inaudible'. As such, the potential for impact diminishes significantly with distance from the site boundary.

Based on the above, the proposals would not be expected to result in noise impacts for any areas within the Far Ings Nature Reserve.

5 Summary and Conclusions

A noise impact assessment has been undertaken for two new-build workshops on land at Far Ings Road, Barton-upon-Humber, DN18 5RF

Noise monitoring was undertaken on Tuesday 17th February 2026 to assess prevailing background noise levels in the vicinity of the site. A summary of the noise survey results is presented in Section 3 of this report.

Noise levels from the proposed workshops and servicing area have been predicted in areas proximate to the site to assess potential for disturbance to wildlife.

The predicted noise levels have been assessed against relevant guidance set out in Section 2 of this report. The results of the assessment indicate that the proposals would not result in adverse noise effects.

On this basis, noise is not considered to be a constraint for the development.

Appendix A – Abbreviations and Definitions

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 μPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$$L_p = 20 \log_{10}(p/p_0)$$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 μPa).

A-weighting

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T , has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T . $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T . L_{A90} is typically taken as representative of background noise.

$L_{Amax, F}$

The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Single Event Level / Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, regardless of the event duration. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_w)

Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_w is used to characterise the insulation of a material or product that has been measured in a laboratory).

Appendix B –Site Plans

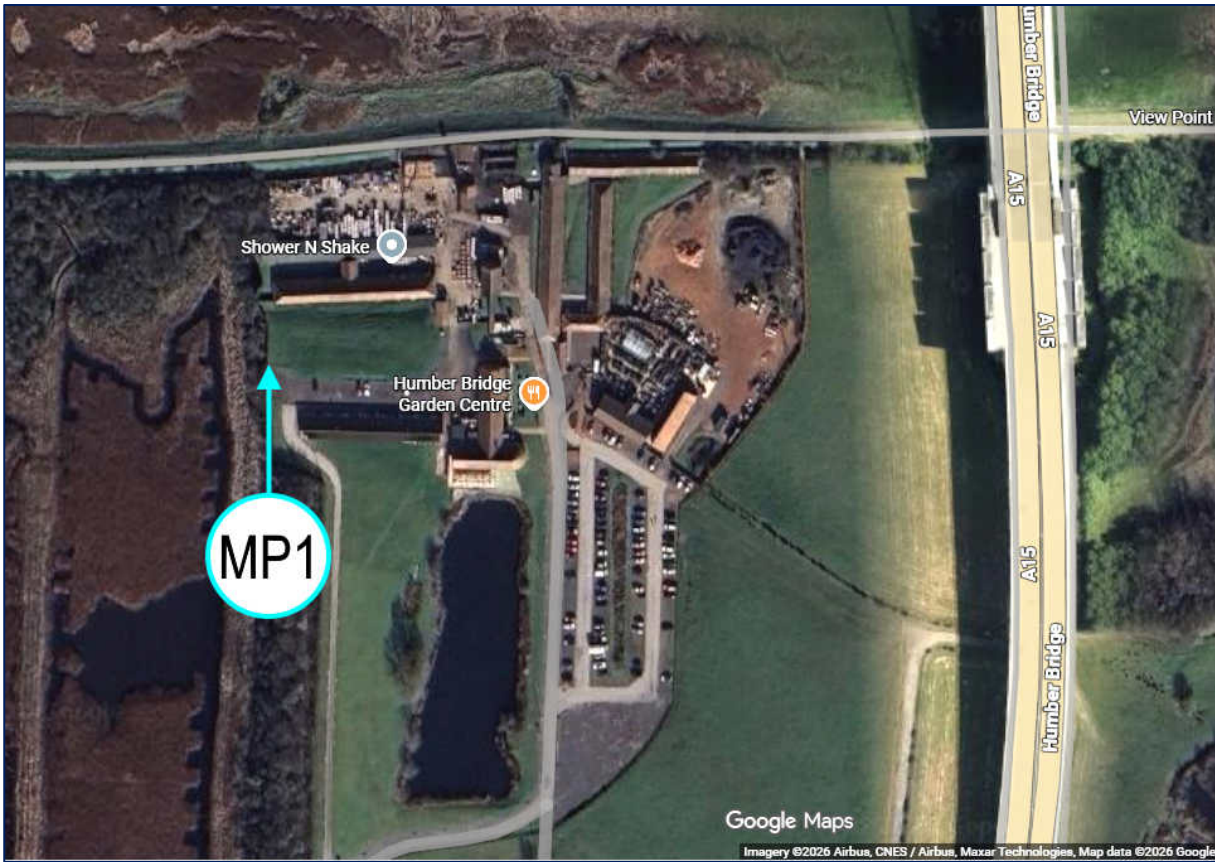


Figure B1: Noise monitoring and sensitive receptor locations

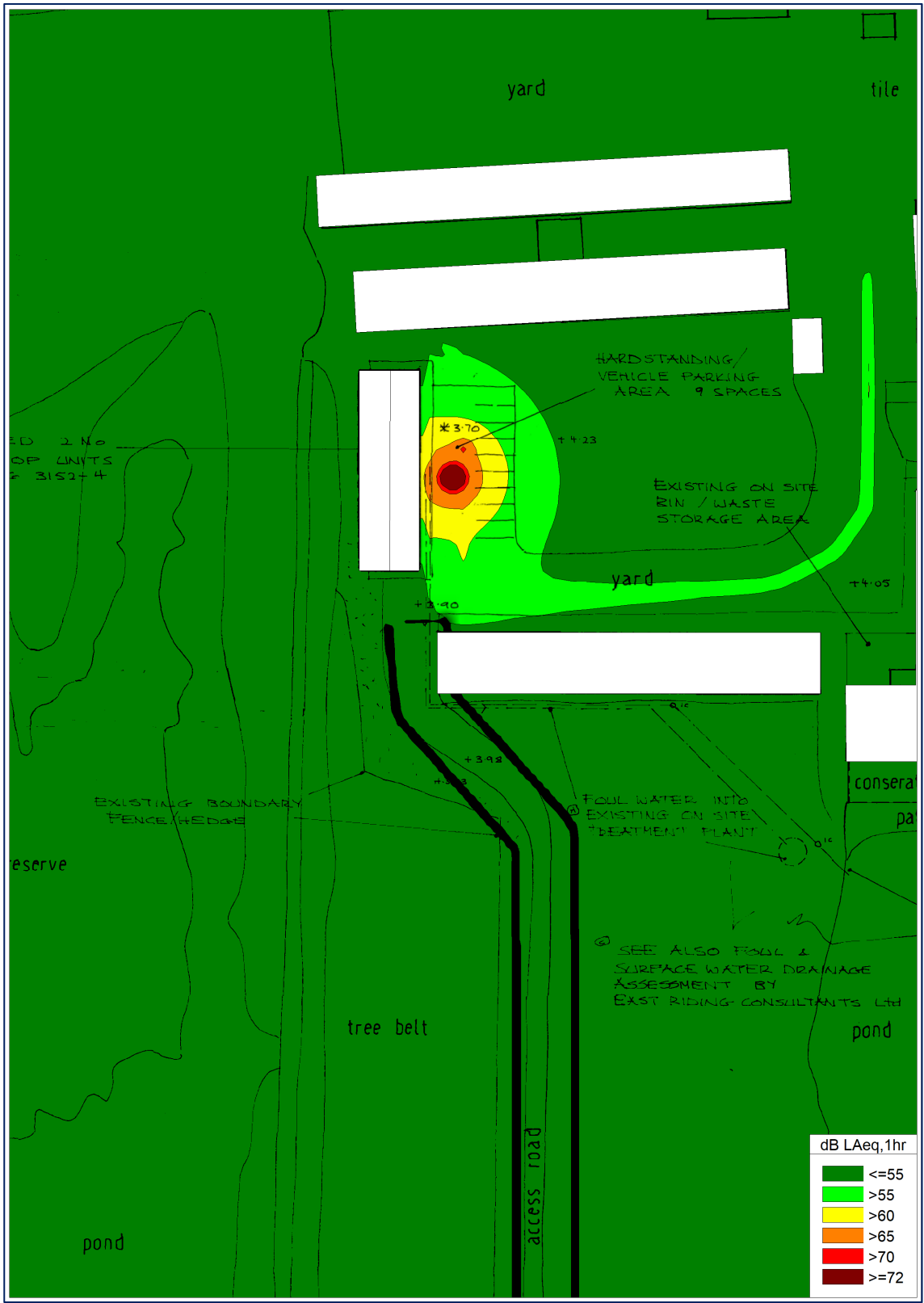


Figure C2: Noise contour plot at 1.5m above ground level - Servicing