Tottenham Commercial Park

Assessment of noise from a proposal to redevelop Plot H as a new electricity substation

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5th October 2026

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1.0 Introduction

1.1 Sharps Acoustics LLP (SAL) has been commissioned by Goodman Logistics Tottenham Unit Trust to provide a noise impact assessment to redevelop the area of Plot H as a new electricity substation at Tottenham Commercial Park, Leeside Road N17 0QJ.

1.2 A plan showing the site location is included as Figure A1 in Appendix A. A block plan showing the proposed site layout is provided as Figure A2 in Appendix A.

1.3 This report sets out the relevant policy and guidance, presents the results of a baseline noise survey and assesses the implications for noise control at the proposed development.

2.0 Assessment Methodology and Criteria

National Planning Policy Framework

2.1 Government planning policy in relation to noise is contained in the National Planning Policy Framework (NPPF, 2026). The relevant national decision-making policy is Policy P3, "Living conditions and pollution".

2.2 Policy P3 requires development proposals to be appropriate for their location, taking into account the likely effects, including cumulative effects, of pollution on health, living conditions and the natural environment. This includes effects arising from the development itself and those resulting from pre-existing conditions in its vicinity. The policy requires that impact assessments take account of the sensitivity of the site and its intended occupiers and users, together with that of the surrounding environment and population.

2.3 In relation specifically to noise, Policy P3 states that development proposals should:

> *"Mitigate and reduce to a minimum potential adverse impacts resulting from noise, not result in levels of noise exposure which would have a significant observed adverse effect, and maintain the character of tranquil areas (those areas that have remained relatively undisturbed by noise from human sources and are prized for their recreational and amenity value for this reason)."*

2.4 Policy P3 also requires development not to give rise to or contribute to unacceptable levels of noise affecting neighbouring residents and occupiers. Adverse impacts should be avoided where possible or otherwise mitigated to an acceptable degree.

2.5 The NPPF defines the Significant Observed Adverse Effect Level (SOAEL) as the level of noise exposure above which significant adverse effects on health and quality of life occur.

Noise Policy Statement for England (NPSE)

2.6 The 2010 DEFRA publication "Noise Policy Statement for England" (NPSE) provides further policy context for the assessment and management of noise, including environmental noise. The NPSE sets out three policy aims:

- *"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."*

2.7 The NPPF does not prescribe numerical noise levels corresponding to an unacceptable adverse effect or to SOAEL. It is therefore necessary to consider the advice contained in other relevant guidance and standards when assessing the significance and acceptability of noise arising from the proposed development. This advice is discussed below.

2.8 All three aims are to be considered in the context of Government policy on sustainable development.

2.9 The NPSE introduced the concepts of the "Lowest Observed Adverse Effect Level" (LOAEL) and the "Significant Observed Adverse Effect Level" (SOAEL). Where noise effects fall between LOAEL and SOAEL, the NPSE states:

> *"… 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."*

2.10 The NPSE also notes that:

> *"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times."*

2.11 Noise effects therefore need to be considered in context. An adverse noise effect does not necessarily mean that a development is unacceptable. The degree of effect, the scope for mitigation and the wider benefits and impacts of the development should also be taken into account.

Local and Regional Planning Policy

2.12 Local Authority Planning Policy is contained in the Haringey Development Management DPD. This contains policies DM1 and DM23 which relate to the control of noise. Policy DM1, "Delivering High Quality Design" states:

> *"Development proposals must ensure a high standard of privacy and amenity for the development's users and neighbours. The Council will support proposals that:*
>
> *… Address issues of … noise, … likely to arise from the use and activities of the development."*

2.13 Policy DM23: Environmental Protection, under the heading "Noise and Vibration", states:

> *"The Council will seek to ensure that new noise sensitive development is located away from existing or planned sources of noise pollution.*
>
> *Proposals for potentially noisy development must suitably demonstrate that measures will be implemented to mitigate its impact.*

A noise assessment will be required to be submitted if the proposed development is a noise sensitive development, or an activity with the potential to generate noise."

2.14 Regional Planning Policy is found in the London Plan, Policy D14 Noise, which states:

"A In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:

1) avoiding significant adverse noise impacts on health and quality of life

2) reflecting the Agent of Change principle as set out in Policy D13 Agent of Change

3) mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses

4) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)

5) separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation

6) where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles

7) promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.

B Boroughs, and others with relevant responsibilities, should identify and nominate new Quiet Areas and protect existing Quiet Areas in line with the procedure in Defra's Noise Action Plan for Agglomerations.

Derivation of suitable assessment methodology and criteria

2.15 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 several other sources such as the World Health Organisation's (WHO) "*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 can predict impact to all properties adjacent to a road link irrespective of their distance from the road.

iii) Another method is described within British Standard BS 4142 (BS4142), the current version of which is BS 4142: 2014+A1: 2019, 'Methods for rating and assessing industrial and commercial sound', to determine the significance of sound impact from sources of industrial and/or commercial in nature. The sources that the standard is intended to assess are sounds from industrial and manufacturing processes, sound from fixed plant installations, sound from loading and unloading of goods at industrial and/or commercial premises and the sound from mobile plant and vehicles, such as forklift, train or ship movements.

2.16 In order to assess noise in this instance, the approach set out in BS4142 is most appropriate, as the noise sources present would be entirely within the scope of that standard. Paragraphs 2.14 to 2.20 below explain the key features of this standard in more detail.

British Standard BS4142: 2014 + A1:2019

2.17 British Standard BS4142:2014+A1: 2019 *'Methods for rating and assessing industrial and commercial sound'* (BS4142) describes a method for rating and assessing sound of an industrial or commercial nature, which includes, in Section 1.1 of the standard:

"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 premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site."

2.18 The industrial or commercial sound is assessed outside an existing or proposed dwelling or premises used for residential purposes. BS 4142 does not consider internal spaces in terms of its numerical assessment.

2.19 The procedure contained in BS 4142 begins by quantifying the "specific sound level", which is the measured or predicted level of sound from the source in question over a one-hour period for the daytime or a 15-minute period for the night-time. Daytime and night-time are not defined in BS 4142, but the standard notes that they are typically taken to be 0700 to 2300 hours for daytime, and 2300 to 0700 hours for night-time.

2.20 BS 4142 sets out a number of methods of determining the specific sound level including, for situations where the specific sound source does not yet exist, the ability to estimate it, stating, at Section 7.3.6:

"Determine the specific sound level by calculation alone if measurement is not practicable, for example if the source is not yet in operation. In such cases, report the method of calculation in detail and give the reason for using it."

2.21 The specific sound level is converted to a rating level by adding penalties on a sliding scale to account for potentially tonal, impulsive or intermittent elements. The standard sets out subjective and objective methods for determining the presence of tones or impulsive elements, but notes that the objective methods should be used where the subjective method is not sufficient. For situations where the specific sound source does not yet exist, the objective methods cannot be used.

2.22 The assessment outcome results from a comparison of the rating level with the background sound level (which is determined by the assessment of typical background noise levels by survey). The standard states, in Section 11:

"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.

NOTE 2 Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."

2.23 Finally, BS 4142 requires that the level difference is considered in the context in which it is found. Contextual considerations include:

- Absolute level of sound. If the existing level is particularly high or low, then this can affect the significance of a particular difference (assessed as described in 2.24 above).
- The character and level of the residual sound compared to the character and level of the specific sound.
- Sensitivity of receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions such as:

  i) facade insulation treatment;

ii) ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and

ii) acoustic screening.

3.0 Noise Survey

3.1 Noise survey work was undertaken to existing baseline noise levels at the site between 28th August and 3rd September 2026. A Norsonic 140 fully integrating (Class 1) sound level meter was used and a calibration check was carried out before and after the survey, with no drift noted. The microphone was at a height of approximately 4m above ground in free field conditions to assess existing noise levels at first floor receptor level. Meteorological conditions were suitable for the measurement of environmental sound throughout.

3.2 The survey location is shown in Figure A1 in Appendix A.

3.3 At the time of setting up the equipment, at this location the background and ambient noise climates were dominated by vehicles entering and leaving the industrial estate and road traffic circulating along main roads together with discernible engine/generator noise from portacabins (office and welfare facilities) in a compound on the opposite side of the road, associated with the residential development. It is understood that this compound is used between 0700 and 1700 hours on weekdays, half day Saturday and not at all Sunday and that the generators are turned off outside these times. It was also apparent that construction work was near completion with no outside working going on although on occasion banging and clattering noise could be discerned.

3.4 On returning to collect the survey equipment and in the absence of any generator noise from the compound, it was also possible to discern some industrial sounds such as ventilation or fan noise together with distant road traffic noise and on occasion high level jet aircraft noise.

3.5 For information purposes it can be noted:

- Measurements of sound level were all made with the A-weighting, which is a filter applied to the sound level meter to simulate the frequency response of the human ear, which is more sensitive to high frequency sound than low.

- L_{Aeq} is the equivalent continuous noise level which is a method of averaging the varying noise level over the time period into a single figure value. The L_{Aeq} has the same sound energy as the fluctuating level over that period. The L_{Aeq} is also known as the "ambient level" and in BS4142 the L_{Aeq} in the absence of the proposed development sound is known as the "residual level".

- L_{A90} is the noise level exceeded for 90% of the time and is referred to as the background noise level.

3.6 Survey results are shown graphically in Figure B1 in Appendix B and are summarised in Table 3.1 below.

Table 3.1: Summary of noise survey results

Period	Measured levels, dB	
	$L_{Aeq,T}$	$L_{A90,T}$
Day (0700 to 2300 hours)	61	54
Night (2300 to 0700 hours)	56	49

4.0 Assessment

4.1 Details of the proposed plant and building façade construction have not yet been finalised. It is not, therefore, possible to predict noise emissions from the site with any precision. In such circumstances, it is normal practice to impose a planning condition to control its noise.

4.2 British Standard BS4142 recommends that, subject to context, rating levels which are at or below the existing background noise level are likely to result in a low impact. Further, noise would not result in a significant adverse impact (meaning that it would need to be avoided) unless the rating level is 10dB above the background noise level.

4.3 The closest dwellings are the new flats to the north of the site. In accordance with the Agent of Change principle, these have been designed with noise control built in. According to the developers' External Noise Assessment Report (Energist UK, 29th November 2021), the closest facades to this development site would be exposed to levels of 57dB, $L_{Aeq,16h}$ during the day and 56dB, $L_{Aeq,8h}$ at night. Noise mitigation to deal with these levels was recommended in that report and this has been secured by condition for that development (Enfield Council ref 22/02098/RM).

4.4 Referring to the measured background noise levels in Table 3.1 above, in SAL view, the Lowest Observed Adverse Effect Level (LOAEL) thresholds and Significant Adverse Effect Level (SOAEL) thresholds for day and night time periods in this case would therefore be as shown in Table 4.1 below.

Table 4.1: LOAEL and SOAEL values for noise from proposed development

Period	**LOAEL, dB, $L_{Ar,T}$**	**SOAEL, dB, $L_{Ar,T}$**
Day (0700 to 2300 hours)	54	64
Night (2300 to 0700 hours)	49	59

4.5 These levels relate to free field noise rating levels at the façade of the closest dwellings.

4.6 In order to ensure that there are no significant adverse effects from the proposed development, levels would need to be below the SOAELs in Table 4.1. However, in addition to requiring levels to be below a significant adverse effect, planning policy requires that levels above the LOAEL are mitigated and minimised, so far as can be achieved. Accordingly, to ensure that there are no adverse effects from the proposed development, the following condition is recommended:

"The rating level of noise emitted by the operation of plant at the site shall not exceed 54dB at any noise sensitive premises between 07:00 and 23:00 and 49dB between 23:00 and 07:00 hours. The measurement and assessment shall be made according to BS 4142:2014+A1:2019."

Achieving the recommended noise level

4.7 As stated above, at this stage, it is not possible to predict noise levels with precision. However, it is possible to comment on the achievability of the proposed condition. Relevant factors are:

- Source noise levels – scope of reducing levels by selection of quieter plant.
- The scope for mitigating noise break out of the building housing the proposed plant.
- Distance attenuation between the site and the closest dwellings.
- Noise mitigation built into the design of the closest dwellings.

4.8 The proposed noise limits can inform the selection of plant and the design of the building envelope, enabling appropriate noise-control measures to be incorporated into the development. They will be able to calculate noise attenuation with distance and predict levels at the closest dwellings.

4.9 The closest dwellings are flats which are designed to deal with external noise levels; the levels required by the proposed condition would be below the levels which the flats are designed to protect against.

Conclusions

4.10 Sharps Acoustics LLP has undertaken a noise assessment of the proposed electricity substation at Tottenham Commercial Park. A baseline noise survey established representative background sound levels of 54dB, $L_{A90,T}$ during the daytime and 49dB, $L_{A90,T}$ at night.

4.11 As details of the proposed plant and building construction have not yet been finalised, it is not possible to predict noise emissions from the development at this stage. It is therefore recommended that noise from the proposed fixed plant be controlled by a planning condition requiring rating levels, determined in accordance with BS 4142:2014+A1:2019, not to exceed 54dB during the daytime or 49dB at night at the nearest dwellings.

4.12 These limits provide a basis for the selection of plant and the design of appropriate noise control measures. The plant specification and detailed building design would be required to comply with the proposed condition.

Appendix A: Figures

Figure A1: Site location plan

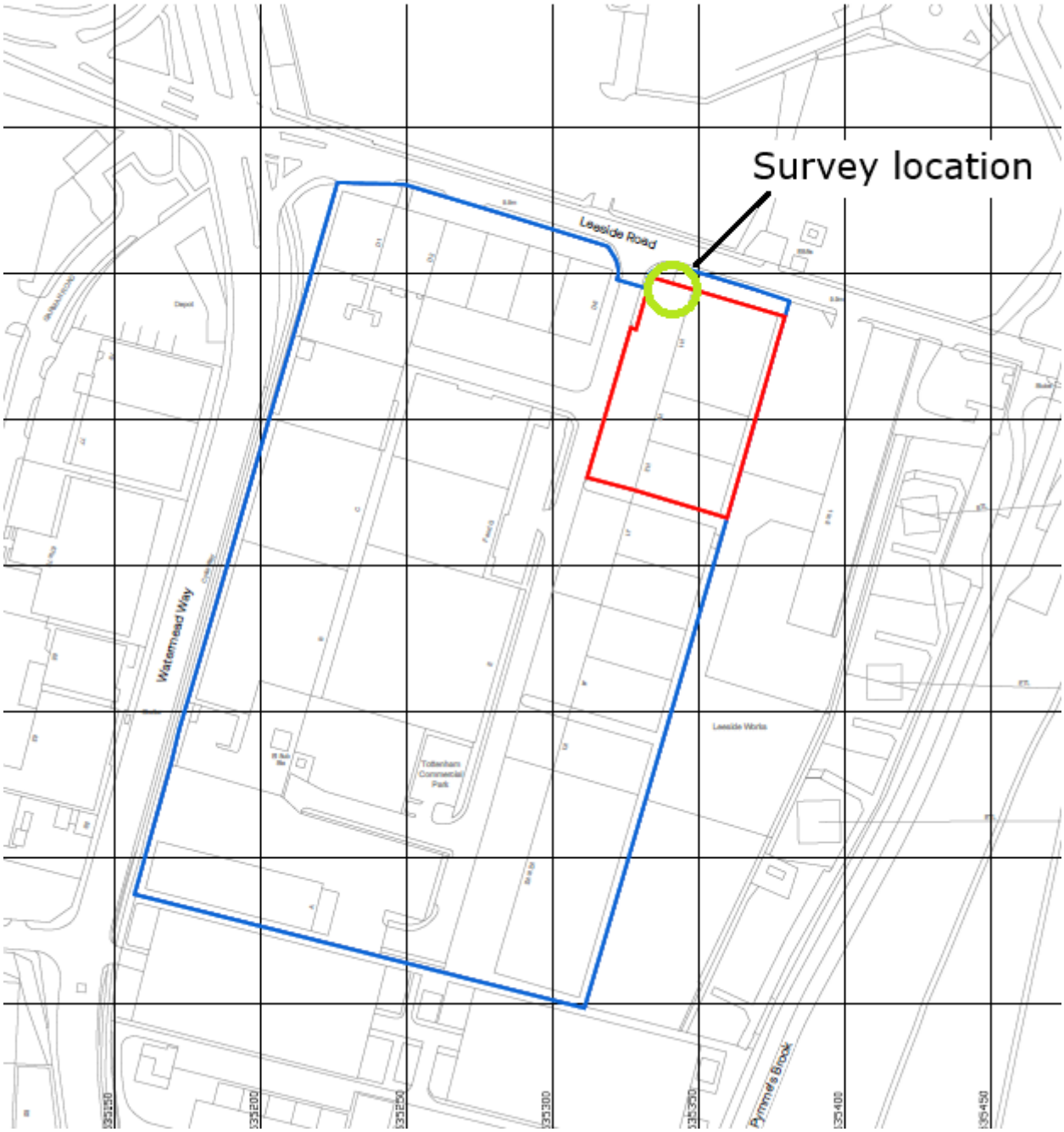
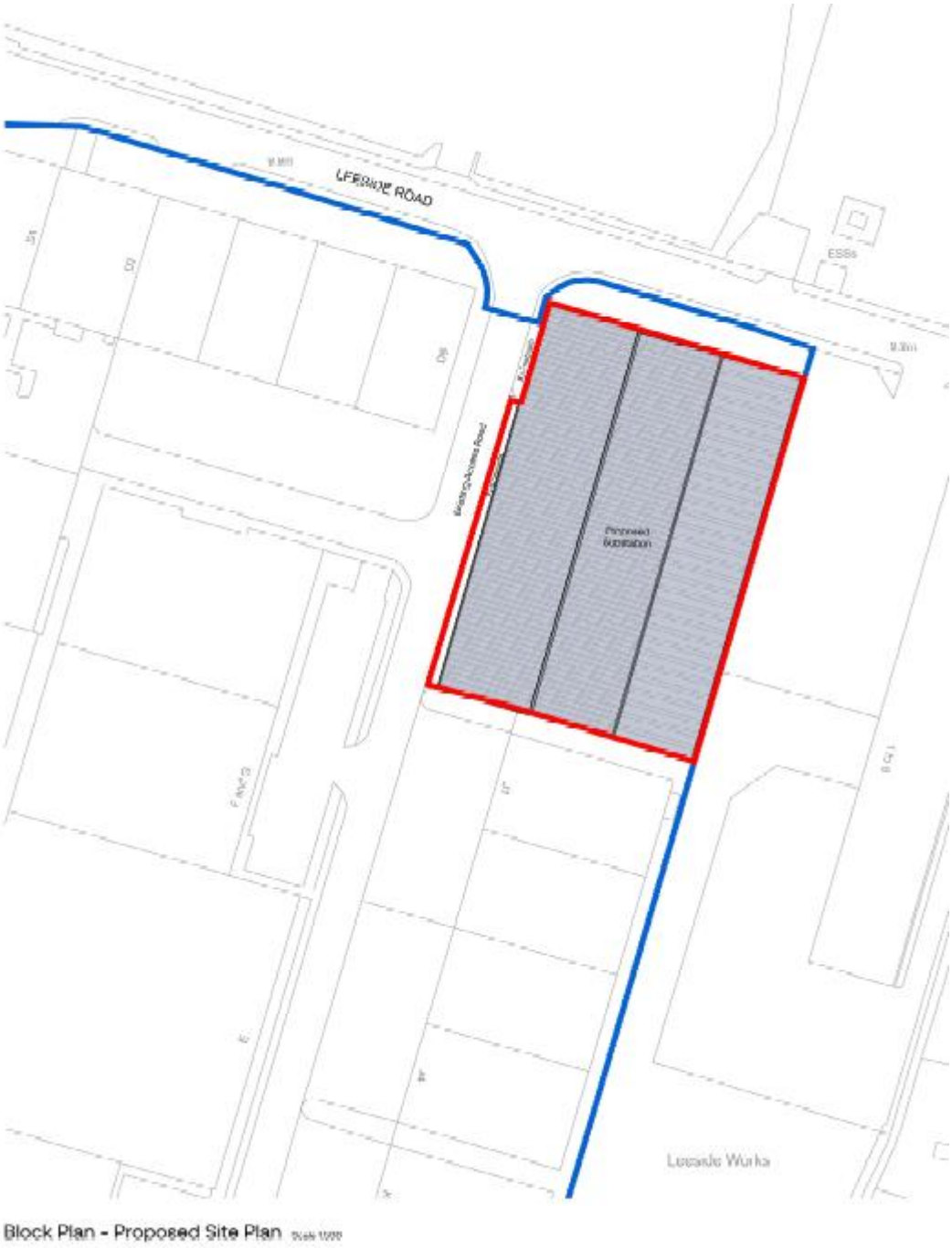


Figure A2: Proposed block plan



Appendix B: Graph of survey results

Figure B1: Graph of survey results

