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Dear Sirs

NOISE IMPACT ASSESSMENT FOR PROPOSED RETAIL DEVELOPMENT LAND AT BANKWOOD WAY, BIRSTALL

1.00 INTRODUCTION

- 1.01 Environmental Noise Solutions Ltd (ENS) has been commissioned by Lidl GB Ltd undertake a noise impact assessment for a proposed retail development at land at Bankwood Way, Birstall (hereafter referred to as the application site).
- 1.02 The objectives of the noise impact assessment were to:
- Measure the baseline noise levels at the application site and its surrounding environs during representative periods of the daytime and night time
 - Assess the potential impact of the development with reference to pertinent guidelines
 - Provide recommendations for structural and management controls, as necessary, to protect the noise amenity of the nearest residential dwellings
- 1.03 This report details the methodology and results of the assessment. It has been prepared to accompany a planning application to be submitted to Kirklees Council.
- 1.04 This report has been prepared for Lidl GB Ltd for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult Lidl GB Ltd and ENS as to the extent to which the findings may be appropriate for their use.
- 1.05 A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

2.00 PROPOSED DEVELOPMENT AND APPLICATION SITE SETTING

- 2.01 The proposed development consists of a Lidl food store (2,200 sqm gross internal area), a separate Home Bargains store (2,203 sqm gross internal area) with associated 512 sqm gross garden centre, a joint servicing area and 147 car parking spaces. The proposed layout plan is contained in Appendix 2 for reference.
- 2.02 The application site is located on an existing retail park/commercial estate to the north of Birstall (see Appendix 3 for site location plan).
- 2.03 The nearest noise sensitive receptors (NSRs) to the application site are considered to be:
- Existing residential dwellings on Nab Lane circa 500 metres to the south (NSR1)
 - Existing residential dwellings on Greenacres Drive circa 800 metres to the west (NSR2)

- 2.04 The proposed opening hours are understood to be 0700 to 2200 hours Monday to Sundays, subject to restrictions imposed by Sunday trading laws which currently limit trading to any 6 consecutive hours between 1000 and 1800 hours on a Sunday.
- 2.05 Due to the significant separation distances to the nearest residential dwellings, it is anticipated that unrestricted delivery hours will be feasible at the application site. The noise impact assessment has therefore been undertaken on the basis of 24/7 deliveries.
- 2.06 Based on the likely refrigeration and comfort cooling requirements of the Lidl food store, it is understood that the following items of plant are required:
- 2 no. dry coolers (42 dB(A) at 5 metres per unit)
 - 6 no. heat pumps (43 dB(A) at 1 metre per unit)
 - 1 no. condensing unit (62 dB(A) at 1 metre)
- 2.07 It is understood that the heat pumps/condensing units will operate between 0700 hours and 2130 hours, whilst the dry coolers will operate 24/7.
- 2.08 The cumulative noise levels associated with the refrigeration and air conditioning units are therefore:
- 50 dB(A) at 5 metres between 0700 and 2130 hours
 - 45 dB(A) at 5 metres between 2130 and 0700 hours
- 2.09 Based on the likely comfort cooling requirements of the Home Bargains store, it is anticipated that 7 no. Mitsubishi PUHZ ZRP250 units (noise level of 59 dB(A) at 1 metre) are to be installed on the southern elevation of the store.
- 2.10 The cumulative noise level associated with the plant units is taken as 67 dB(A) at 1 metre (i.e. $59 + [10 \times \log(7)]$) and it is understood that the plant only operates during store opening hours.
- 2.11 For reference, Planning Permission ref: 2021/62/92528/E for a comparable development at the application site was granted by Kirklees Council in November 2023. Due to the low anticipated noise levels associated with the development, there were no specific concerns from Environmental Health relating to noise at the site. As the current proposals are not materially different to the previously approved scheme with respect to noise, it is expected that the conclusions of Environmental Health will remain unchanged.

3.00 BASELINE NOISE SURVEY

- 3.01 In order to determine the baseline noise levels in the vicinity of the application site, a baseline noise survey was undertaken on Monday 28th September through to Tuesday 29th September 2020.
- 3.02 For the purpose of the assessment, the following noise monitoring positions were adopted (see Appendix 3 for approximate monitoring positions):
- MP1 was located in the vicinity of existing residential dwellings on Nab Lane (NSR1)
 - MP2 was located in the vicinity of existing residential dwellings on Greenacres Drive (NSR2)
- 3.03 Noise measurements were undertaken using a Bruel & Kjaer 2250 Type 1 integrating sound level meter. Measurements consisted of A-weighted broadband parameters, together with linear octave band L_{eq} levels. All measurements were made in a free field environment at a height of approximately 1.5 metres above ground level.
- 3.04 The measurement system calibration was verified immediately before the commencement of the measurement sessions and again at the end, using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted. Weather conditions throughout the surveys were appropriate for monitoring, with dry conditions and wind speeds of < 5 m/s.
- 3.05 Table 3.1 overleaf contains a summary of the measurement data for each monitoring session, at each monitoring position, rounded to the nearest decibel.

Table 3.1 – Baseline Noise Measurement Data

Position	Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{AFMax} (dB)	Comment
MP1	05/10/20	1156–1220	52	48	72	Road traffic on surrounding road network
MP1	05/10/20	1408–1438	53	49	68	
MP1	05/10/20	2301–2316	46	44	61	Road traffic on surrounding road network
MP1	05/10/20	2316–2331	45	43	59	
MP1	06/10/20	0013–0028	47	43	57	
MP1	06/10/20	0028–0043	48	44	59	
Daytime ambient and background noise levels 52–53 dB $L_{Aeq, T}$ and 48–49 dB $L_{A90, T}$, respectively Night time ambient and background noise levels 45–48 dB $L_{Aeq, T}$ and 43–44 dB $L_{A90, T}$, respectively						
MP2	05/10/20	1241–1311	52	50	68	Road traffic on surrounding road network
MP2	05/10/20	1453–1507	52	50	67	
MP2	05/10/20	2336–2351	45	42	56	Road traffic on surrounding road network
MP2	05/10/20	2351–0006	45	42	56	
MP2	06/10/20	0049–0104	44	41	55	
Daytime ambient and background noise levels 52 dB $L_{Aeq, T}$ and 50 dB $L_{A90, T}$, respectively Night time ambient and background noise levels 44–45 dB $L_{Aeq, T}$ and 41–42 dB $L_{A90, T}$, respectively						

- 3.06 The ambient noise climate in the vicinity of the application site is due to road traffic on local road, and distant road traffic on the A62 Gelderd Road, the A643 Leeds Road, and the M62 and M621 motorways.

4.00 NOISE IMPACT ASSESSMENT CRITERIA

National Planning Policy Framework

4.01 The National Planning Policy Framework (NPPF) was updated in December 2023 and sets out the Government's planning policies for England and how these are expected to be applied.

4.02 Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 180 where it 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.....noise pollution'.

4.03 Paragraph 191 advises that:

'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.....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'.

4.04 The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF

Noise Policy Statement for England

4.05 The Noise Policy Statement for England (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision is supported by the following aims:

- Avoid significant adverse impacts on health and quality of life.
- Mitigate and minimise adverse impacts on health and quality of life.
- Where possible, contribute to the improvement of health and quality of life.

4.06 NPSE describes the following levels at which noise impacts may be identified:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

Planning Practice Guidance – Noise

4.07 Planning Practice Guidance on Noise (PPG) is an online resource (as updated October 2019) which provides additional guidance and elaboration on the NPPF. It advises that the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur.
- Whether or not an adverse effect is occurring or likely to occur.
- Whether or not a good standard of amenity can be achieved.

4.08 In line with the Explanatory Note of the NPSE, the PPG references the LOAEL and SOAEL in relation to noise impact. It also presents a table of noise exposure hierarchy, which relates the NOAEL, LOAEL and SOAEL levels to the subjective perception of noise and examples of outcomes (reproduced in Table 4.1 below).

Table 4.1: Summary of noise exposure hierarchy (from NPPG, Noise)

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, 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. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, 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
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

4.09 However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

'...the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation'.

BS 4142:2014+A1-2019 'Methods for Rating and Assessing Industrial and Commercial Sound

- 4.10 British Standard BS 4142:2014+A1-2019 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS 4142) describes methods for determining, at the outside of a building, noise levels from factories or industrial premises and a method for assessing whether the noise is likely to give rise to adverse impacts, and states:

The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. Typically, the greater this difference, the greater the magnitude of the impact. For example:

- *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*

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.

Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the absolute level of sound.

- 4.11 The rating level is described as the specific sound level (the equivalent continuous A-weighted sound pressure level at the assessment position (NSR) produced by the specific sound source over the given reference time interval) plus any adjustment for the characteristic features of the sound. The character correction relates to whether and to what degree the specific sound is assessed to have an element of tonality, impulsivity and/or characteristics that are readily distinctive against the residual acoustic environment.
- 4.12 The background noise level is the A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 percent of a given time interval, T, measured using time weighting 'F' and quoted to the nearest whole number of decibels.
- 4.13 The reference time interval of the specific sound is 1 hour during the day and 15 minutes at night.

5.00 NOISE IMPACT OF THE PROPOSED FOOD STORE

5.01 The principal noise sources potentially associated with the proposed Lidl food store are considered to be:

- Noise associated with servicing arrangements (deliveries)
- Noise associated with fixed external plant

5.02 The following sections of the noise impact assessment discuss the potential noise impacts of the above activities on the amenity of the nearest NSRs.

Noise Associated with Servicing Arrangements (Deliveries)

5.03 The delivery process involves an HGV reversing into the delivery bay, where a delivery plate is lowered into the rear of the HGV. The unloading of the HGV then takes place without the need for ramps or lifts, due to the rear of the trailer being level with the delivery area.

5.04 The delivery yard is to be located on the south-western façade of the proposed Lidl food store and the principal noise source associated with deliveries is that of palletted goods being moved over the delivery plate.

5.05 Measurements have previously been undertaken by ENS at numerous Lidl food stores with delivery noise levels of up to **58 dB L_{Aeq,T}** measured at a distance of 10 metres to the delivery plate with a direct line of sight to unloading operations during an HGV delivery.

5.06 The closest receptors to the delivery yard are at least **470 metres** from the delivery plate and fully screened by intervening buildings and topography.

5.07 As a working approximation, BS 5228:2009 Part 1 states that screening attenuation may be taken to be 10 dB *'when the noise screen completely hides the sources from the receiver.'*

5.08 Allowing for distance and a conservative 10 dB screening attenuation, the resultant delivery noise levels at the nearest residential dwellings are **≤ 15 dB L_{Aeq,T}**.

5.09 Such levels are significantly (circa 28 dB) below the night time background noise levels in the vicinity, and will be wholly inaudible at the nearest dwellings. It is therefore considered that (even night time) delivery noise represents a No Observed Effect Level and there is no justification to restrict delivery hours.

Noise associated with fixed external plant

5.10 The cumulative noise levels associated with the external fixed plant units are:

- 50 dB(A) at 5 metres between 0700 and 2130 hours
- 45 dB(A) at 5 metres between 2130 and 0700 hours

5.11 The plant is located in a plant compound located on the north-western façade of the proposed Lidl food store.

5.12 The closest receptors are at least **490 metres** from the plant compound and fully screened by intervening buildings and topography.

5.13 Allowing for distance and a conservative 10 dB screening attenuation, the resultant cumulative noise levels associated with the external fixed plant units are < 0 dB(A) during both the daytime and night time.

5.14 It is therefore considered that fixed plant associated with the food store represents a No Observed Effect Level.

6.00 NOISE IMPACT OF THE PROPOSED HOME BARGAINS STORE

6.01 The principal noise sources potentially associated with the proposed Home Bargains retail store are considered to be:

- Noise associated with servicing arrangements (deliveries)
- Noise associated with fixed external plant

6.02 The following sections of the noise impact assessment discuss the potential noise impacts of the above activities on the amenity of the nearest NSRs.

Noise Associated with Servicing Arrangements (Deliveries)

6.03 The delivery process involves an HGV reversing into the delivery bay, where palletted goods are unloaded externally using a tail lift and wheeled into the store via the service point. Note: this necessitates the use of a tail lift operation (rather than palletted goods being unloaded straight from the HGV into the store).

6.04 The delivery bay is to be located on the western façade of the proposed store and the principal noise source associated with deliveries is that of palletted goods being unloaded and moved into the store.

6.05 Measurements have previously been undertaken by ENS for tail lift deliveries, with delivery noise levels of up to **66 dB L_{Aeq}** measured at a distance of 5 metres to the delivery bay with a direct line of sight to unloading operations during an HGV delivery.

6.06 The closest receptors to the delivery yard are at least **480 metres** from the yard and fully screened by intervening buildings and topography.

6.07 Allowing for distance and a conservative 10 dB screening attenuation, the resultant delivery noise levels at the nearest residential dwellings are **≤ 16 dB L_{Aeq,T}**.

6.08 Such levels are significantly (circa 27 dB) below the night time background noise levels in the vicinity, and will be wholly inaudible at the nearest dwellings. It is therefore considered that (even night time) delivery noise represents a No Observed Effect Level and there is no justification to restrict delivery hours.

Noise associated with fixed external plant

6.09 The cumulative noise level associated with the external fixed plant units is taken as 67 dB(A) at 1 metre.

6.10 The closest receptors are at least **490 metres** from the Home Bargains plant compound and fully screened by intervening buildings and topography.

6.11 Allowing for distance and a conservative 10 dB screening attenuation, the resultant daytime cumulative noise level associated with the external fixed plant units is **≤ 3 dB(A)**.

6.12 It is therefore considered that fixed plant associated with the Home Bargains store represents a No Observed Effect Level.

7.00 CONCLUSIONS

- 7.01 A noise impact assessment has been undertaken for a proposed retail development at land at Bankwood Way, Birstall.
- 7.02 The ambient noise climate in the vicinity of the application site is due to road traffic on local road, and distant road traffic on the A62 Gelderd Road, the A643 Leeds Road, and the M62 and M621 motorways.
- 7.03 In terms of the National Planning Policy Framework Planning Practice Guidelines on Noise, noise associated with the proposed development is considered to represent a No Observed Effect Level (NOEL). The noise impact is therefore considered to be negligible, with no specific mitigation measures required.

I trust the foregoing is sufficient for your needs. Should you have any queries regarding the above, please do not hesitate to contact me.

Yours sincerely

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Appendix 1 Glossary of Acoustic Terms

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 Network

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.

$L_{AF \max}$

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.

Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparison between different noise events which occur over different lengths of time.

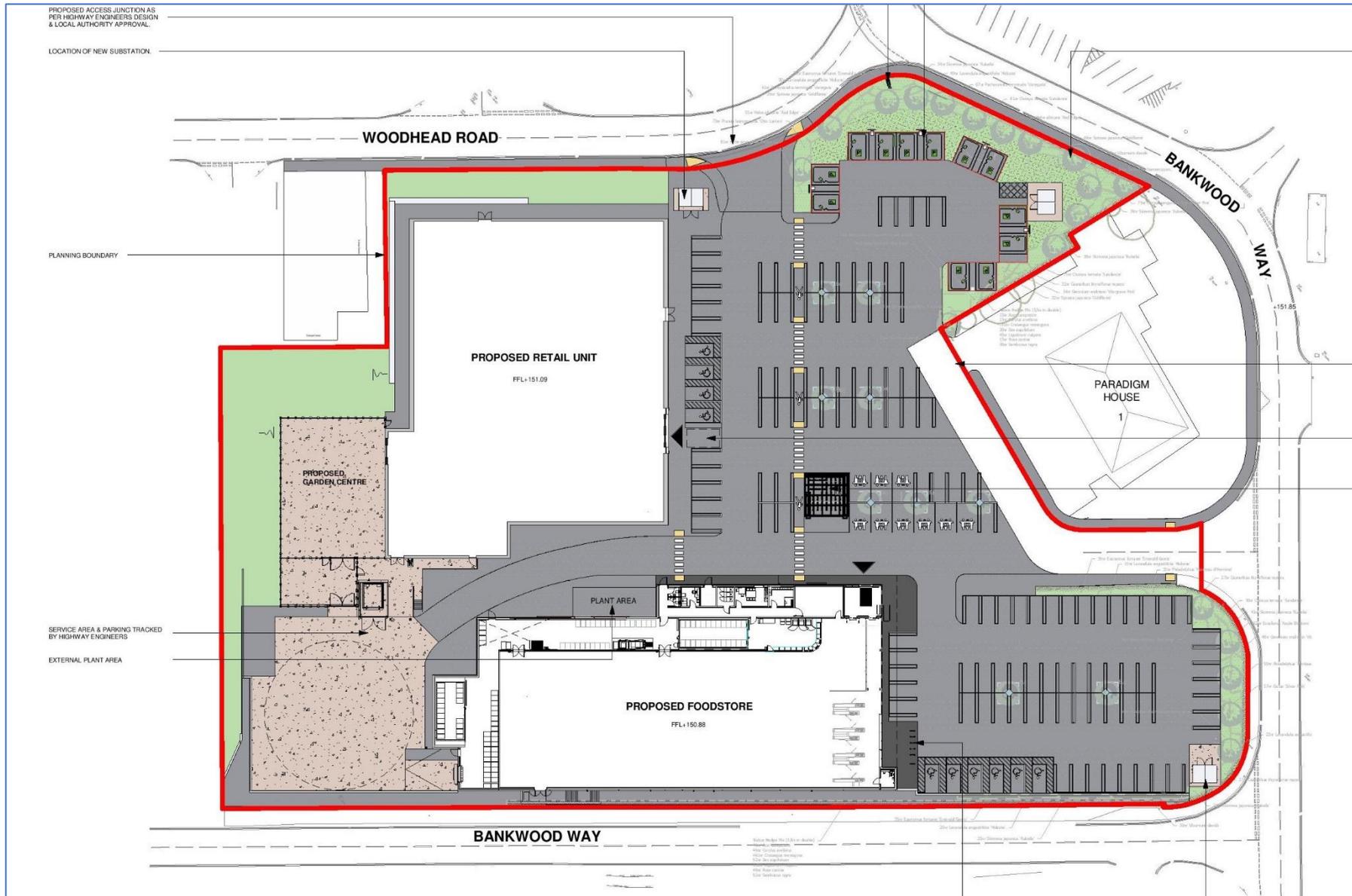
Weighted Sound Reduction Index (R_w)

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).

Weighted Airborne Sound Insulation ($D_{nT,w}$)

Single number quantity which characterises the airborne sound insulation between rooms.

Appendix 2 Proposed Layout Plan



Appendix 3
Annotated Site Plan and Noise Monitoring Locations

