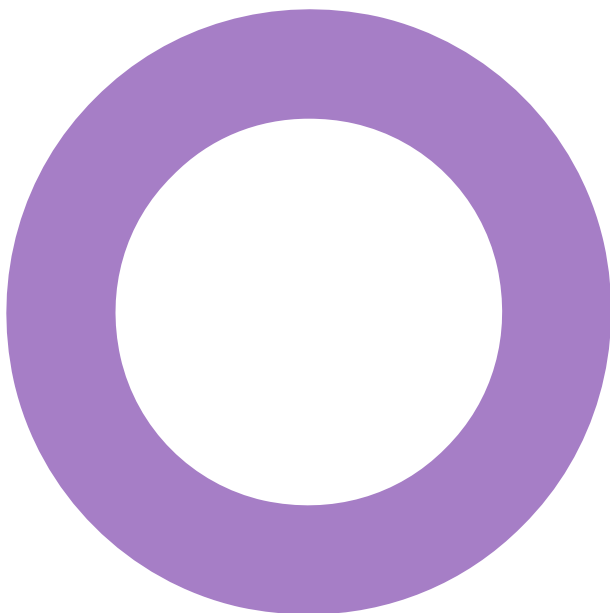


**FP McCann, Brascote Lane,
Cadeby, Leicestershire.
Proposed Pipe Manufacturing
Facility.
FP McCann Ltd.**

ACOUSTICS

PROPOSED PIPE MANUFACTURING FACILITY

REVISION 02 – 31 JANUARY 2025



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed
00	23/01/2025	Initial issue DFC	AM	AM
01	27/01/2025	Updated following team comments	AM	AM
02	03/02/2025	Updated following updates to FLK	AM	AM

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Project number: 10-15795

Document reference: REP-1015795-AM-20241211-Acoustic planning report-Rev02.docx

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Executive summary

Hoare Lea Acoustics have been appointed to provide acoustic assistance at the proposed new Pipe Manufacturing Facility located at the FP McCann site, Cadeby, Leicestershire. This new facility will be for the production of plastic pipes.

The proposed amendment as originally submitted would allow 24/7 usage of the site. However, HGV movements to the site to deliver materials, and from the site to deliver the final products, will be limited to daytime hours only. Due to the limited size and weight of the plastic pipe crates, external movements of the products to and from storage will be by means of small, electric forklift only.

An environmental noise survey has been carried out on site between 07 and 13 November 2024 to determine the prevalent ambient and background noise levels within the surrounding area.

Based on the survey results and the requirements of BS4142, all plant, equipment and machinery associated with the development shall be controlled to ensure that the overall sound pressure levels at 1 m from the façade of the nearest noise sensitive premises to the north do not exceed $L_{Aeq,T}$ 36 dB during the daytime (07:00-23:00) and $L_{Aeq,T}$ 33 dB during the night (23:00-07:00).

Sound pressure levels at 1 m from the façade of the nearest noise sensitive premises to the south shall be controlled to not exceed $L_{Aeq,T}$ 35 dB during the daytime (07:00-23:00) and $L_{Aeq,T}$ 26 dB during the night (23:00-07:00).

If the plant contains any tonal characteristics a further correction will be required.

This report details the noise impact assessment based upon the proposed 24/7 usage at the development site.

1. Introduction.

Hoare Lea Acoustics have been appointed to carry out an environmental noise survey and report to support the planning application of a new Pipe Manufacturing Facility located adjacent to the existing FP McCann site located on Brascote Lane, Cadeby, Leicestershire. The site falls within the jurisdiction of Brascote Council.

An environmental noise survey has been carried out at the site over 7 days commencing on 07 November 2024. The aim of the survey was to determine the prevalent noise levels around the site in order to set maximum noise egress limits for plant and machinery associated with the development.

Assessment has been made of typical activity and production noise levels for the existing facility and this report reviews these levels with respect to the existing noise climate at the nearest residential properties.

Recommendations for noise control measures are provided where appropriate.

2. Assessment criteria.

2.1 National Planning Policy framework.

The National Planning Policy Framework (NPPF): December 2024 sets out the Government's planning policies for England and how these are expected to be applied. The document seeks to encourage sustainable development subject to all relevant factors.

Section 15: 'Conserving and enhancing the natural environment', paragraph 187, states the following:

'Planning policies and decisions should contribute to and enhance the natural and local environment by:

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

Furthermore, paragraph 198 states 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;*
- identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason'*

Paragraph 201, additionally, states *'The focus of planning policies and decisions should be on whether proposed development is acceptable use of land rather than control of processes or emissions (where these are subject to separate pollution control regimes)'.*

NPPF also makes reference to the DEFRA Noise Policy Statement for England (NPSfE) 2010. This latter document is intended to apply to all forms of noise other than that which occurs in the workplace. It includes environmental noise and neighbourhood noise in all forms.

NPSfE advises that the impact of noise should be assessed on the basis of adverse and significant adverse effect but does not provide any specific guidance on assessment methods or limit sound levels. Moreover, the document advises that it is not possible to have *'a single objective noise-based measure...that is applicable to all sources of noise in all situations'*. It further advises that the sound level at which an adverse effect occurs is *'likely to be different for different noise sources, for different receptors and at different times'*.

In the absence of specific guidance for assessment of environmental noise within NPPF and NPSfE, it will be necessary to base the assessment on current British Standards and relevant local or national guidance.

It is noted that NPSfE also advises that the general principle that increases in ambient noise should be 'minimised', needs to be considered in context for each site and, in this regard, states:

'Of course, taken in isolation and to a literal extreme, noise minimisation would mean no noise at all. In reality, although it has not always been stated, the aim has tended to be to minimise noise as far as is reasonably practical... the application of the NPSfE should enable noise to be considered alongside other relevant issues and not to be considered in isolation. In the past, the wider benefits of a particular...development or other activity may not have been given adequate weight when assessing the noise implications'.

2.2 BS 4142:2014 guidance.

The general principle of the BS 4142 assessment criteria is that noise nuisance can be avoided provided there is no significant change in the prevailing background noise conditions at any surrounding noise sensitive premises once the new equipment is operational.

Where the assessment indicates that the noise rating level of new plant would be 10 dB or greater above the background noise level, the standard judges that sound to be of significant adverse impact. A difference of 5dB is considered to result in adverse impact. Where the rating noise level of the plant is equal to or below background noise, there is likely to be low impact.

Further corrections should be applied if the plant noise contains tonal, intermittent and/or impulsive characteristics. The magnitude of these corrections is dependent upon the subjective perceptibility of the tones/impulses present.

3. Site and development details.

The FP McCann works are located approximately 400 metres east of the village of Cadeby located in the Hinckley and Bosworth district of Leicestershire. It is proposed that the site will be extended to the south west and south east of the existing works to for the purposes of a new Pipe Manufacturing Facility with associated plant.

The existing works to the north west of the site extension produce precast concrete structures for the construction industry and comprises a large covered production building and a large yard area used for the storage and handling of materials and concrete products. To the north of the site extension is a recently consented tile factory which has been partially constructed.

Although the existing works to the north can operate on a 24-hours basis, normal operational times are as follows:

- Monday to Friday: 2am to 7pm (machinery starting at 4am)
- Saturday: 2am to 12:30pm (machinery starting at 4am)

The extended development site is partially bounded to the south west by the A447 Ashby Road/Hinckley Road which provides a local traffic route through Cadeby between Ibstock to the north and Hinckley to the south. Traffic flows on the A447 are generally intermittent, fast and free flowing throughout the day and evening.

The majority of the FP McCann works are set back between 200 and 415 metres from the road behind open farm land and farm buildings which are accessed from Ashby Road.

The current site location and the location of the extended plot of land for proposed redevelopment are shown below with an indication of the location of the nearest dwellings to the new Facility which includes Highfield House to the south west. Other dwellings in the vicinity of the site including Freshfields to the north west are at significantly greater distance and as such, the impact on these dwellings will be lower. Rock Cottage is in the ownership of FP McCann, located on Brascote Lane to the north west.

Other dwellings are located at greater distance from the development site.

Whilst there is a dwelling at Orchard Farm to the south west, this building will be screened from the Pipe Factory by intervening farm buildings.

An aerial view of the site indicating the location of the proposed new Pipe Manufacturing Facility and the nearest sensitive residential dwellings is provided below.

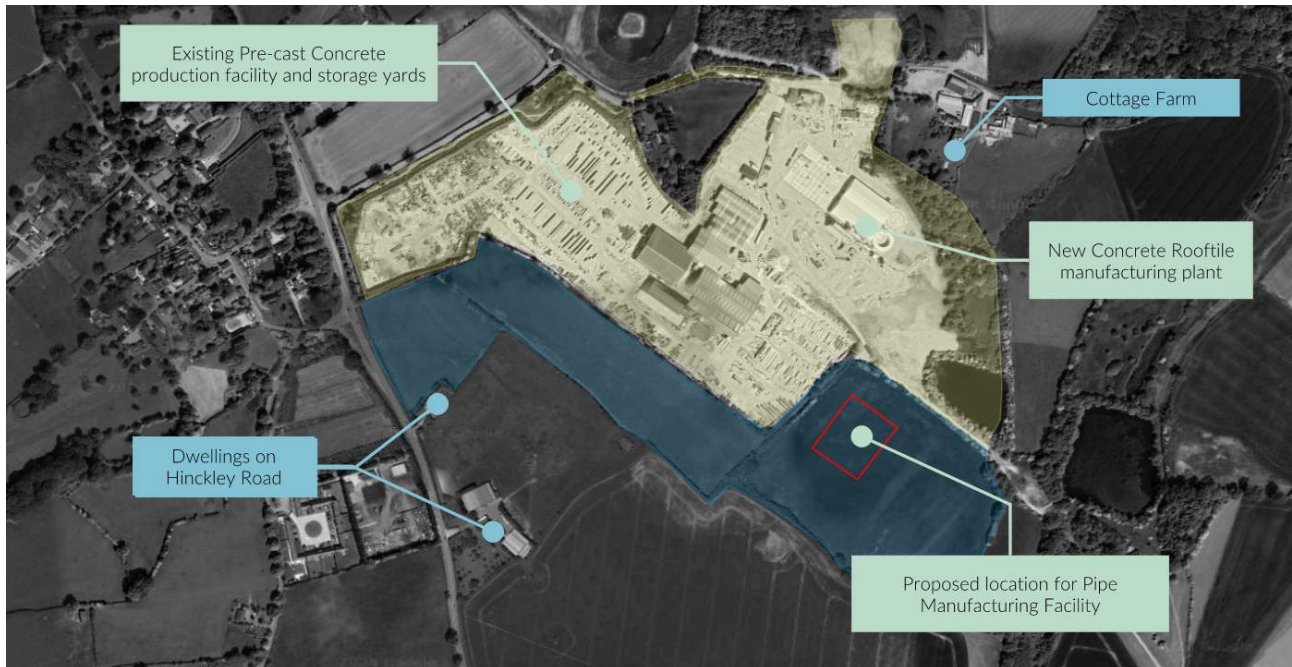


Figure 1 Annotated 3D aerial render indicating site location (courtesy of Google Earth)

It is proposed that the new Pipe Manufacturing Facility building be constructed to provide additional factory space which will primarily house three Injection Moulding Machines, four Extrusion Lines along with an Office area and associated storage space.

The position of the proposed Pipe Manufacturing Facility is indicated in Appendix 1 attached to this report.

There are three roller shutter doors on the south western elevation and one on the north eastern elevation. Each door is 5.0 metres wide by 6.0 metres high. These doors will normally be in the closed position.

The layout of the site ensures that vehicles can travel forward around the site and thus avoiding the need to utilise reversing alarms. As shown on the proposed site plan, vehicle access to the site will be via Brascote Lane to the north.

To the west and east of the building will be an External Storage Area.

The section of land located closest to the dwellings located adjacent to Hinckley Road will be retained as a biodiversity enhancement area.

HGV movements to the site to deliver materials, and from the site to deliver the final products, will be limited to daytime hours only. Due to the limited size and weight of the plastic pipe crates, external movements of the products to and from storage will be by means of a small, electric forklift.

The proposed site layout is shown in Appendix 1.

4. Environmental noise survey.

4.1 Archive Background Survey Data.

Monitoring at the site has been previously undertaken at three locations across the site to determine the diurnal noise climate.

- Position L1: 27 July 2017 to 01 August 2017 – HLA Report ref 'REP-1011371-05-AM-20190514-Noise Assessment-Rev 1' dated 24 May 2019.
- Position L2: 09 to the 16 October 2020 – HLA Report ref 'REP-1012554-05-AM-20121101-Noise Impact Assessment-Rev 2', dated 20 November 2020.
- Position L3: 09 to the 17 December 2021 - HLA Report ref 'REP-1013818-AM-20220104-Noise Assessment-Rev 2' dated 28 April 2022.

In each instance, levels were recorded continuously in 15-minute samples to determine the equivalent continuous sound level, L_{Aeq} , the short duration level L_{Amax} and also the percentiles L_{A10} and L_{A90} .

The historic measurement positions along with a summary of the typical lowest measured background noise level in each instance are indicated on the marked-up aerial view below:



Figure 2 Annotated 3D aerial render indicating historic measurement positions measured at FP McCann (courtesy of Google Earth)

4.2 Environmental noise survey (November 2024).

Monitoring at the site has been undertaken over the period Thursday 07 November to Wednesday 13 November 2024 to determine the diurnal noise climate at the nearest sensitive dwelling located to the south west of the development site.

Levels were recorded continuously in 15-minute samples to determine the equivalent continuous sound level, L_{Aeq} , the short duration level L_{Amax} and also the percentiles L_{A10} and L_{A90} . It is considered that the measurement data obtained is representative of the overall noise climate that currently occurs at the nearest residential gardens to the new facility to the south.

The measurement position is indicated on the aerial view below:



Figure 3 Annotated 3D aerial render indicating recent measurement positions measured at FP McCann (courtesy of Google Earth)

4.3 Observations.

From observations on site during equipment set up and collection, ambient and background noise levels across the site are dominated by road traffic noise along the nearby Hinckley Road, with occasional distant activity from within the existing industrial site to the north, and at the farm facilities to the south east.

4.4 Results.

4.4.1 Ambient noise levels.

The measured ambient noise levels during the November 2024 survey during each day and night of the survey period at position L4 are presented in Table 1, along with the arithmetic average for each period of the day. A time history graph of the survey results at position L4 is provided in Appendix B.

Table 1 Unattended measurement results at position L4

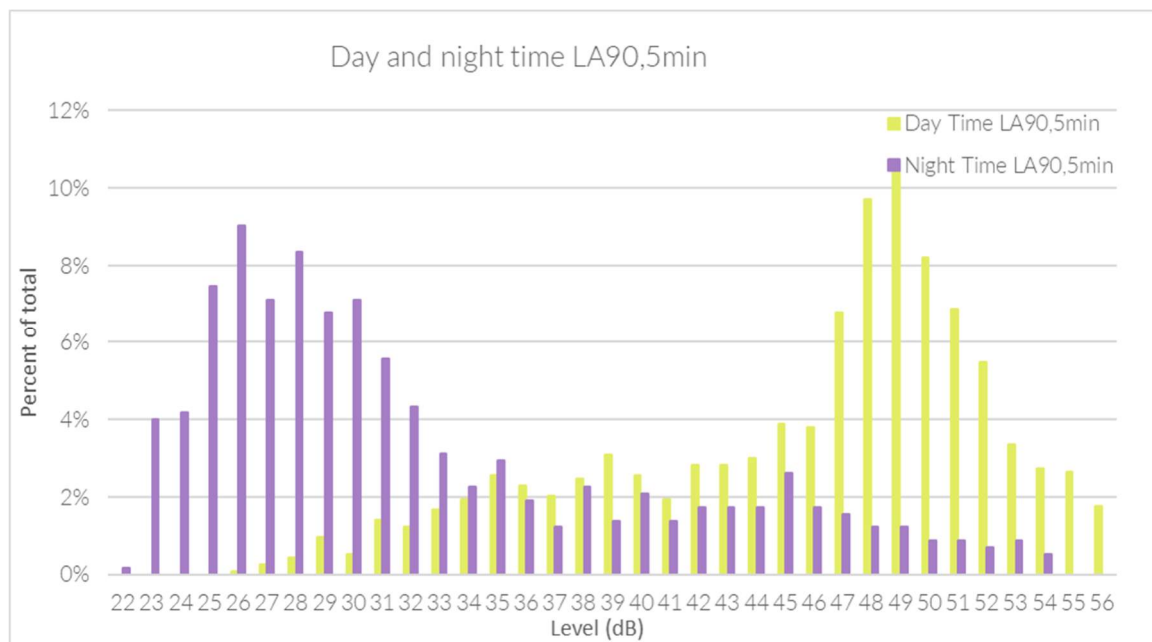
Date	Ambient sound pressure levels measured (dB)	
	Day (07:00 - 23:00) L _{Aeq} , 16hr	Night (23:00 - 07:00) L _{Aeq} , 8hr
07/11/2024	52 ^[1]	46
08/11/2024	51	43
09/11/2024	51	42
10/11/2024	53	49
11/11/2024	55	49
12/11/2024	54	49
13/11/2024	56 ^[1]	-
Representative level	53	47

[1] – Partial measurement and so excluded from dataset.

4.4.2 Typical background noise levels.

In line with the requirements of BS 4142: 2014 Method for rating and assessing industrial and commercial sound (British Standards Institution, 2014), in order to ‘quantify what is typical during particular time periods’, a statistical analysis of the measured background sound levels has been undertaken. The periods of interest have been taken as daytime (07:00 to 23:00) and night-time (23:00 to 07:00).

The 15-minute duration background sound values measured during the day will never be higher than the $L_{A90,1\text{-hour}}$ for that period so represent a worst-case. The measured 15-minute values will be used in place of the 1 hour reference time interval required by BS 4142.



In line with BS 4142:2014, for the purpose of analysis and establishing representative background noise levels during the periods of interest, the background noise levels have been quantified using statistical analysis from the continuous logging measurements.

From the analysis carried out, the representative background noise levels measured during the survey are presented to follow, based on the 10th percentile of measured noise levels during daytime operational hours:

Naneby Hall Cottage (North)(December 2021)

- 36 dB $L_{Aeq, 15\text{-min}}$ during the daytime (07:00 to 23:00), and
- 33 dB $L_{Aeq, 15\text{min}}$ during the night (23:00 to 07:00)

Dwellings adjacent to Hinckley Road (South)(November 2024)

- 35 dB $L_{Aeq, 15\text{-min}}$ during the daytime (07:00 to 23:00), and
- 26 dB $L_{Aeq, 15\text{min}}$ during the night (23:00 to 07:00)

Whilst there are lower background noise levels that occur during the day and night, an assessment of these values would not be in accordance with the principles of BS 4142 which, in paragraph 8.1 states,

‘the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods’.

5. Noise assessment from proposed works.

HGV movements to the site to deliver materials, and from the site to deliver the final products, will be limited to daytime hours only. Due to the limited size and weight of the plastic pipe crates, external movements of the

products to and from storage will be by means of a small, electric forklift. As such, any noise from the proposed works is deemed to be limited to that of noise break-out from the production building, HGV movements and plant noise as detailed below.

5.1 Noise Break-out from the Production Building.

Sound transfer to outside from activity within the building will be determined by the sound reduction provided by the building fabric and by the distance between the building and the receptor.

It is understood that the main building fabric will be constructed from steel frame with an outer cladding. As a worst case, it is assumed that the outer cladding will be composite thermal panels with a minimum manufacturer's rated sound reduction of R_w 25dB(A).

Measurement exercises carried out in several large manufacturing workshops indicate reasonably consistent levels in the range 75-77 dB L_{Aeq} with an overall mean level of 76 dB $L_{Aeq,1hr}$ and highest maximum levels in the range 90-95 dB L_{Amax} . These levels are quite loud and would require shouted conversation for communication between two individuals 1m apart. For warehouse operations, a recent measurement exercise within an existing warehouse facility indicated that, over a one-hour period in an active section of the warehouse, typical sound levels were in the range $L_{Aeq,5-min}$ 50-64dB with an overall mean level of $L_{Aeq, 1-hour}$ 59dB. Short duration maximum levels were in the range L_{Amax} 80-82dB.

The assessment below has been based on the higher manufacturing sound levels. On this basis, the break-out sound level just outside the building, from standard theory, would be approximately L_{Aeq} 47dB.

For positions at a significant distance from the proposed building, there will be additional distance attenuation and an accepted method of determining noise breakout can be calculated in accordance with the principles of BS EN 12354-4.

The predicted break-out sound levels at the nearest dwellings to the north (Naneby Hall Cottage) is 21 dB.

The predicted break-out sound levels at the nearest dwellings to the south (Hinckley Road) is 19 dB.

Assessment of the calculated emission levels at the nearest dwellings in accordance with BS 4142 is shown below:

Table 2 BS4142 Assessment of break-out noise impact at nearest dwellings (North).

Parameter	Nearest dwellings	
	Day, dB	Night, dB
<i>Specific sound level, L_{Aeq}</i>	21	21
<i>Residual sound level, L_{Aeq}</i>	50-58	37-55
Acoustic feature correction (other)	+3	+3
<i>Rating level at nearest dwelling</i>	24	24
<i>Background sound level, $L_{A90, T}$</i>	36	33
<i>Excess of rating over background sound level</i>	-12	-9
<i>BS4142 Assessment- impact</i>	Less than 'low impact'	Less than 'low impact'

Table 3 BS4142 Assessment of break-out noise impact at nearest dwellings (South).

Parameter	Nearest dwellings	
	Day, dB	Night, dB
<i>Specific sound level, L_{Aeq}</i>	19	19
<i>Residual sound level, L_{Aeq}</i>	50-58	37-55

Acoustic feature correction (other)	+3	+3
Rating level at nearest dwelling	22	22
Background sound level, $L_{A90, T}$	35	26
Excess of rating over background sound level	-13	-4
BS4142 Assessment impact	Less than 'low impact'	Less than 'low impact'

BS 4142 defines 'other sound characteristics' where, *'the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied'*.

The table above shows that the BS 4142 assessment at the nearest dwellings with B2 activity within the Pipe Manufacturing Facility would fall into the category of less than 'low impact' during the day and night at the nearest dwellings to the north and to the south.

5.2 HGV Impact.

A Trip Generation Review has been conducted by ADL Traffic & Highway Engineering Ltd as detailed in the report reference 'ADL/AM/5321/24A' dated October 2024.

This report states in Paragraph 6.6 that *'FP McCann have confirmed that the proposed development could generate a total maximum material output of approximately 116T over a 24-hour period. Based upon this output, the development could generate the following on a daily basis (worst-case scenario assuming all extrusion and injection moulders are at 100% capacity for 24 hours)'*.

- Tanker: 4 inbound + 4 outbound = 8 two-way
- Artics: 6 inbound + 6 outbound = 12 two-way
- Total: 10 inbound + 10 outbound = 20 two-way

Paragraph 6.7 states that, 'This equates to an hourly average of:

- 24-hour: 0.33 tankers + 0.50 artics = 0.83 two-way HGV trips
- 16-hour: 0.50 tankers + 0.75 artics = 1.25 two way HGV trips

Paragraph 6.8 states the, 'The sensitivity test demonstrates that, on average, the site could generate 0.83 HGV trips over a 24-hour period and 1.25 HGV trips per hour over a 16-hour period.

Based upon the current proposed site layout shown in Appendix 1, dwellings to the north and south west of site will only have line-of-sight to the HGV route as HGVs move around the site.

From Brascote Lane in the north, HGVs will travel 1,140 metres around the site before exiting the site back on to Brascote Lane. The section of access road visible to Naneby Hall Cottage to the north is 160 metres in length at a typical distance of 240 metres from the nearest residential façade. At 10mph, this section of road would take approximately 36 seconds to traverse.

The section of access road visible to dwellings on Hinckley Road to the south west is 400 metres in length at a typical distance of 320 metres from the nearest residential façade. At 10mph, this section of road would take approximately 90 seconds to traverse.

An assessment of the noise from HGV movements at the nearest dwellings to the north and to the south west has, therefore, been based upon the following assumptions:

- 1 movement per hour during the daytime
- The typical vehicle traverse distances as detailed above.

- Source noise data from BS 5228-1
- Point source attenuation based upon a typical distances detailed above.

With regard to the typical distances detailed above, these are calculated based upon the average distance of the vehicle from source to the most sensitive receiver as the vehicle travels along the access road. Although there will be brief moments when vehicles are in marginally closer proximity, for the majority of the assessment period these distances will be significantly greater.

5.2.1 HGV Movements (Naneby Hall Cottage)

Parameter	Naneby Hall Cottage (Daytime)
Archive HGV noise level ($L_{Aeq,T}$ at 2m)	75
On time correction	-20
Specific Noise Level - $L_{Aeq,T}$ dB	55
movements in assessment period (dB)	+0 (1)
Distance Attenuation	-42
Level at Dwelling - L_{Aeq}	13

From the above, the BS 4142 assessment for vehicle movements at the nearest dwellings to the north can be calculated as follows:

Parameter	Naneby Hall Cottage (Daytime)
Specific sound level, L_{Aeq}	13
Acoustic feature correction (intermittent +3, tonal +2)	+5
Rating level at nearest dwelling	18
Background sound level, $L_{A90,T}$	36
Excess of rating over background sound level	-18
BS4142 Assessment	'low impact'

The calculated rating sound levels from vehicle movements at the nearest residential dwellings to the north east are below the typical lowest measured night-time background sound levels and indicate a BS 4142 condition of 'low impact' during the daytime based upon the predicated traffic flow data. There will be no HGV movements during the night and so there will be no impact from this activity during this time at the nearest dwellings.

5.2.2 HGV Movements (Hinckley Road)

Parameter	Hinckley Road (Daytime)
Archive HGV noise level ($L_{Aeq,T}$ at 2m)	75
On time correction	-16
Specific Noise Level – $L_{Aeq,T}$ dB	59
movements in assessment period (dB)	+0 (1)
Distance Attenuation	-44
Level at Dwelling – L_{Aeq}	15

From the above, the BS 4142 assessment for vehicle movements at the nearest dwellings to the south can be calculated as follows:

Parameter	Hinckley Road (Daytime)
Specific sound level, L_{Aeq}	15
Acoustic feature correction (intermittent +3, tonal +2)	+5
Rating level at nearest dwelling	20
Background sound level, $L_{A90,T}$	35
Excess of rating over background sound level	-15
BS4142 Assessment	'low impact'

The calculated rating sound levels from vehicle movements at the nearest residential dwellings to the south are below the typical lowest measured night-time background sound levels and indicate a BS 4142 condition of 'low impact' during the day based upon the predicated traffic flow data. There will be no HGV movements during the night and so there will be no impact from this activity during this time at the nearest dwellings.

5.3 Plant noise control.

5.3.1 Plant noise limits.

Based on the requirements set out in Section 2, and the noise survey results, the cumulative maximum sound pressure levels for any fixed plant, equipment and machinery associated with the development shall not exceed the levels presented in Table 3 at 1 m from the nearest noise sensitive premises.

BS 4142 recommends a 1-hour assessment period is used during daytime hours, and a 15-minute assessment period is used during night-time hours. As the shorter period has been captured during the noise survey exercise carried out on site, the background noise levels used provide a more robust assessment than recommended by BS 4142 during the daytime.

Table 3 Maximum permissible sound pressure levels at 1m from the nearest noise sensitive premises

Time of day	Maximum sound pressure level at 1m from the nearest noise sensitive premises to the north (Naneby Hall Cottage) (L_{Aeq} , dB) *	Maximum sound pressure level at 1m from the nearest noise sensitive premises to the north (Hinckley Road) (L_{Aeq} , dB) *
Daytime 07:00 to 23:00	36	35
Night 23:00 to 07:00	33	26

*A further correction would be applicable if the plant contains distinguishing features, as per BS4142:2014 guidance.

6. Discussion.

6.1 BS4142 Assessment.

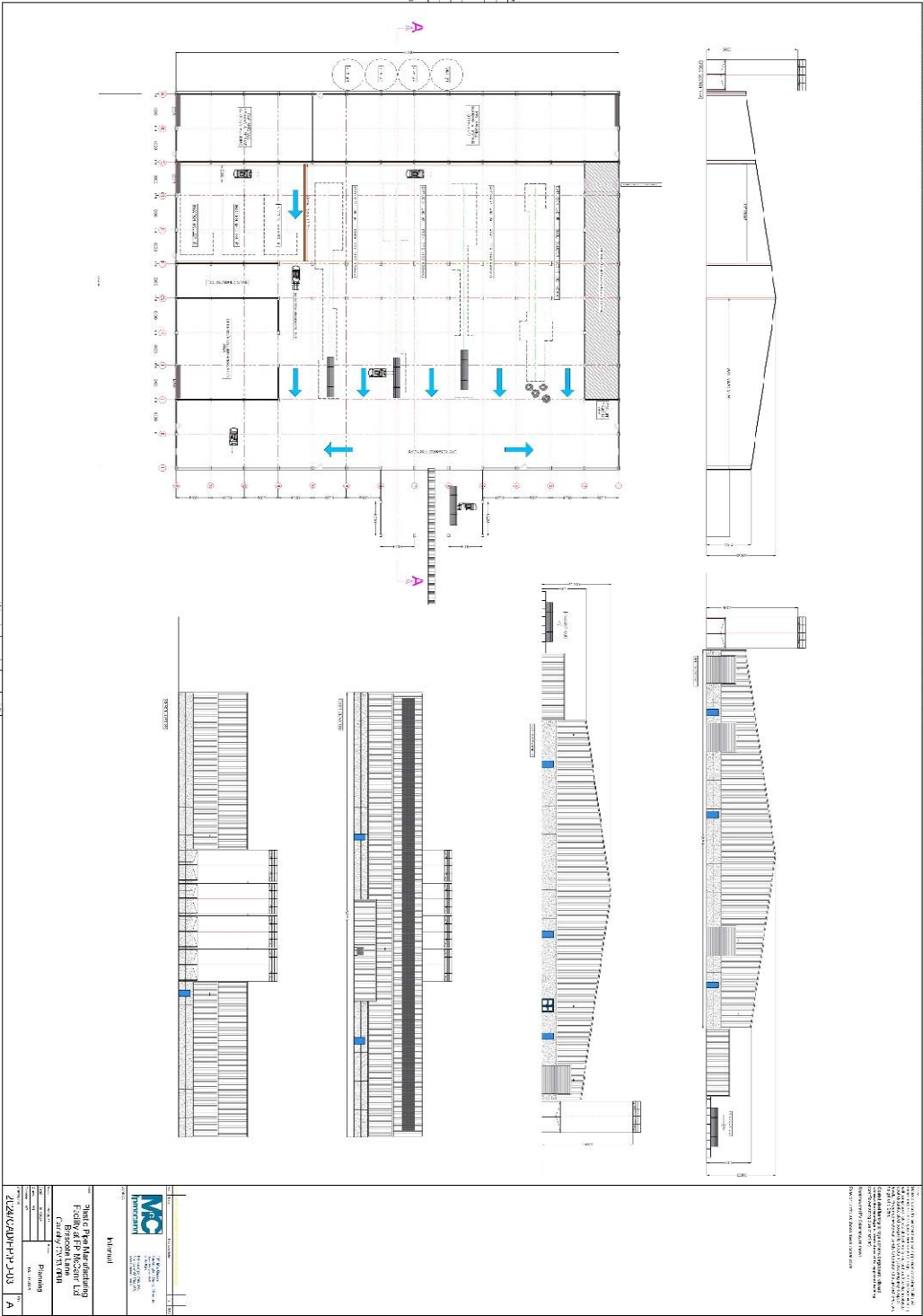
In the case of noise breakout from the warehouse buildings, calculations at Section 5.1 indicate that immission levels would achieve a BS 4142 condition of 'low impact' at the nearest dwellings based upon typical B2 usage.

The calculations shown in Section 5.2 indicate that vehicle related activity on the service yards at the proposed new development would achieve a BS 4142 condition of 'low impact' at the nearest dwellings at all times of the day and night without the requirement for any additional mitigation.

In the case of noise from vehicle movement, it is noted that vehicle movement is an intermittent and occasional activity and that there will be no noise from this source for the majority of the day.

Section 5.3 derives plant noise limit levels for the development which would enable a BS 4142 condition of 'low impact' to be achieved at all nearby dwellings at all times.





Appendix B: Survey and equipment details.

Unattended noise measurements were carried out site between 12:00 on 07 November 2024 and 11:00 on 13 November 2024.

Prior to commencement of the unattended survey, a subjective assessment of the noise climate was undertaken and compared to that of the immediate vicinity of the nearby residential premises. The chosen logger position at position L1 was deemed to be representative of the noise levels at the nearest noise sensitive premises.

The microphone was fitted with a windshield. The meter was calibrated before and after the survey and no significant drift was noted.

Equipment details.

Table A1 summarises the details of the equipment used during the environmental noise survey. All equipment used was within dates of calibration and calibration certificates are available on request.

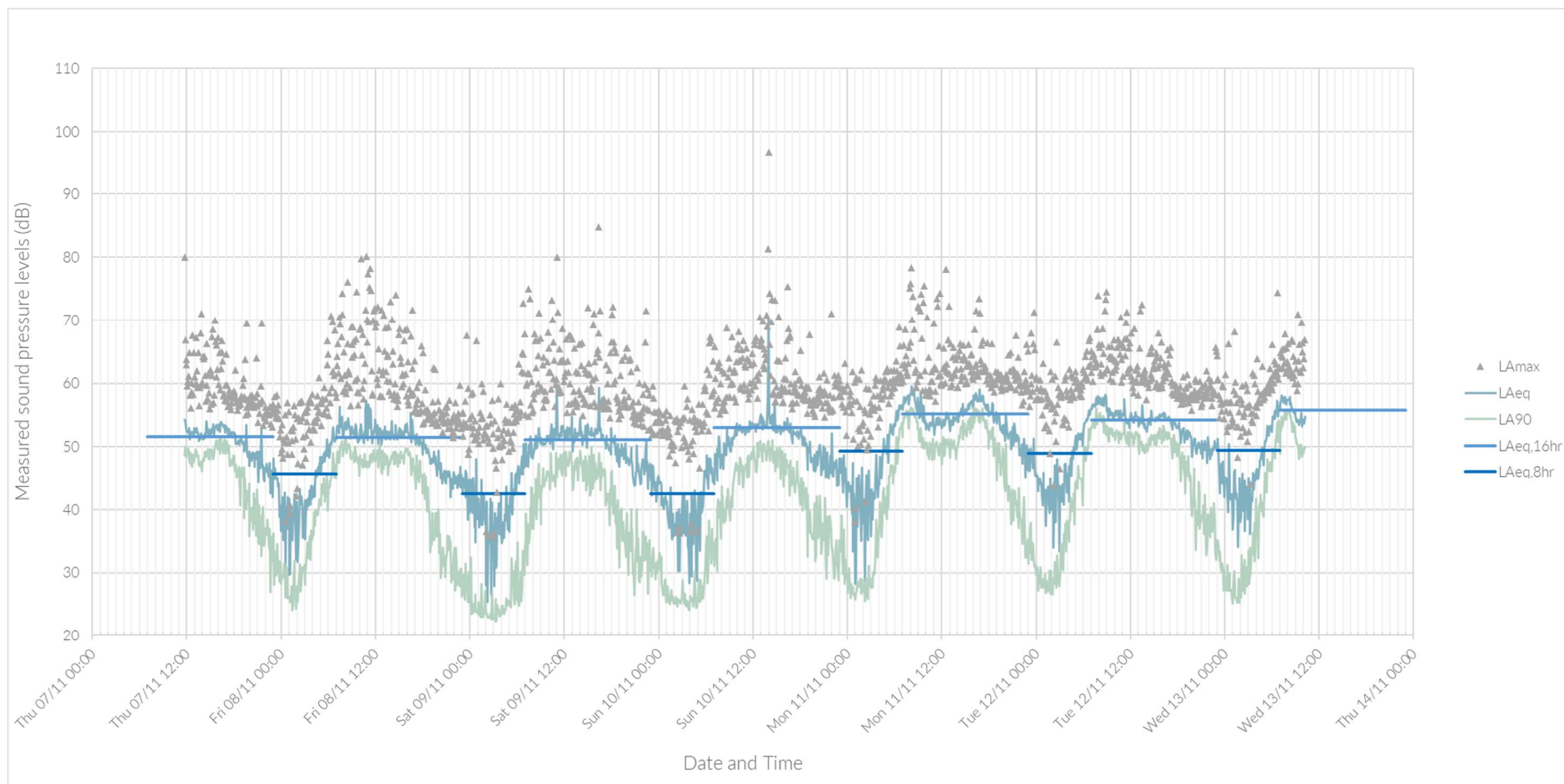
Table A1 Equipment used during environmental noise survey

Description	Serial Number	Calibration Date
Rion - Sound Level Meter: NL-52	632046	18/08/2023
Rion - Microphone: UC-59	18987	
Rion - Pre-amplifier: NH-25	32074	

Weather information.

Weather reports for the area indicate that temperatures ranged between 9 °C to 19 °C. Weather conditions were noted to be predominantly dry, with wind speeds generally below 5m/s and not expected to have adversely affected measurements during the survey period.

Appendix C: Time history of unattended measurements.





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