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GLADMAN DEVELOPMENTS LIMITED

HALTERWORTH LANE, ROMSEY

NOISE ASSESSMENT REPORT

JANUARY 2024

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GLADMAN DEVELOPMENTS LIMITED

HALTERWORTH LANE, ROMSEY

NOISE ASSESSMENT REPORT

JANUARY 2024

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APPENDICES

DRAWING NUMBER	TITLE	SCALE
GM13034-001	Noise Monitoring Location Plan	1:3000

EXECUTIVE SUMMARY

Wardell Armstrong LLP has carried out a noise assessment for a proposed residential development, and primary school extension, at Land off Halterworth Lane, Romsey.

The assessment is based on the results of a noise survey carried out on the 22nd and 23rd of May 2019. Consultations have been carried out with the Environmental Health Department at Test Valley Borough Council, which has confirmed that the noise monitoring results are appropriate to assess current noise levels across the site.

The dominant source of noise affecting the proposed development site is road traffic on Halterworth Lane, Elmtree Gardens and Botley Road.

A noise risk assessment has been carried out in line with ProPG Planning Guidance. The noise risk assessment indicates that the proposed dwellings located nearest to the southern site boundary are at a Negligible–Low risk of experiencing an adverse noise impact. Dwellings located towards the western site boundary have been found likely to experience a Low-Medium risk of an adverse noise impact.

A Stage 1 Overheating Risk Assessment has been carried out in line with the AVO Design Guide. This assessment shows that the proposed dwellings located in the southern part of the site are at a Negligible risk of experiencing overheating. Dwellings located nearest to the western site boundary are at a Low-Medium risk of experiencing overheating. Therefore, in line with AVO, any overheating will be sufficiently mitigated through the normal opening of windows and a detailed Stage 2 assessment is not required.

The majority of the proposed development is expected to achieve the internal and external noise guideline levels with no noise mitigation in place. Only those dwellings closest to and facing Halterworth Lane, Elmtree Gardens and Botley Road are expected to require noise mitigation.

For the dwellings located closest to Halterworth Lane, external amenity areas will be protected from noise by locating garden areas on the screened side of the proposed dwellings, furthest away from the sources of noise.

Facades of dwellings located closest to and facing Halterworth Lane and Botley Road will achieve appropriate internal noise levels during the daytime and night-time, with closed windows and alternative passive ventilation methods in place.

Sensitive rooms located on the screened facades of dwellings and on all facades of dwellings further into the proposed development are likely to achieve the internal noise guideline levels

even with the windows open. Alternatively, satisfactory internal conditions could be ensured through revision to the site design at the reserved matters stage to accommodate good acoustic design principals such as layout and orientation of habitable rooms.

1 INTRODUCTION

1.1 Halterworth Lane, Romsey

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Gladman Developments Limited to undertake a noise assessment for a proposed residential development on Land off Halterworth Lane, Romsey.

1.1.2 The proposed development site is located to the east of Romsey. The north and east of the site are bordered by open agricultural land with Highwood Lane and further open land beyond. To the south, the site is bound by Halterworth Primary School with residential premises fronting Elmtree Gardens and Botley Road. To the west, the site is bound by residential properties fronting Halterworth Lane. The site is currently open agricultural land. There is a small pumping station within the development.

1.1.3 The total area of the proposed development site is 12.8ha and is shown on drawing number GM13034–001. The proposed development comprises residential dwellings across the majority of the proposed development site, and there is provision for a proposed extension to the existing Halterworth Primary School next to the southern part of the site.

1.1.4 This noise assessment has been prepared to accompany an outline planning application for the development. The report assesses the results of noise monitoring carried out in accordance with current guidance. It includes outline recommendations for noise mitigation where appropriate.

2 CONSULTATION AND ASSESSMENT METHODOLOGY

2.1 Consultation

2.1.1 The potential impacts of the proposed development and general principles of the assessment methodology were sent via email to the Environmental Health Department at the Test Valley Borough Council (TVBC) on the 17th of April 2019.

2.1.2 Consultation with TVBC has also been carried out to agree that previously measured data is suitable to assess the current noise levels at the site. Mr Michael Thorne, a Senior Environmental Protection Officer at TVBC, confirmed via email dated 9th April 2021 that previously measured noise data would be suitable to assess the noise levels at the proposed development site.

2.2 Scope of Works

2.2.1 The noise assessment has been carried out in accordance with all relevant guidance.

2.2.2 The noise assessment considers potential noise impacts at the proposed residential dwellings and extension to the school, specifically in terms of impacts of road traffic noise from the adjacent roads.

2.3 Noise Survey

2.3.1 As part of this assessment, WA carried out partially attended noise monitoring in May 2019 to assess the noise levels at the proposed development site.

2.4 Noise Guidance and Standard

2.4.1 The noise assessment takes into account current guidance and standards including the following:

- National Planning Policy Framework, 2023 (NPPF).
- Noise Policy Statement for England, 2010 (NPSE).
- Planning Practice Guidance - Noise, 2019 (PPG-Noise).
- ProPG: Planning & Noise: Professional Practice Guidance on Planning and Noise, 2017 (ProPG).
- AVO: Acoustics, Ventilation and Overheating: Design Guide, 2020 (AVO).
- British Standard 8233: 2014 Guidance on Sound Insulation and noise reduction for buildings (BS8233).
- Building Bulletin 93: Acoustic Design of Schools – Performance Standards, 2015 (BB93).

- Department of Transport's memorandum, 'Calculation of Road Traffic Noise', 1998 (CRTN).

2.4.2 Further details of these documents are included in Appendix A.

2.5 COVID-19

2.5.1 The noise survey which has been used to support this assessment was carried out in May 2019 and therefore the impact of reduced traffic flows caused by the COVID-19 pandemic does not affect the outcome of this assessment. We feel that pre-pandemic traffic noise levels are representative of current ambient noise conditions, and therefore further monitoring was not required.

3 NOISE SURVEY

3.1 Scope

3.1.1 On the 22nd and 23rd May 2019, WA carried out a partially attended noise survey to measure existing ambient and background noise levels at the proposed development site.

3.1.2 Site walkovers were carried out prior to and during the noise survey to identify the noise sources affecting the proposed development site. The site walkovers identified that the main noise sources which were audible at the proposed development site are road traffic on Botley Road and Halterworth and activity at Halterworth Primary School.

3.1.3 Partially attended noise measurements, supplemented with audio recording and site observations were taken on the 22nd and 23rd May 2019.

3.1.4 Three monitoring locations were selected to best capture any noise from Botley Road, Halterworth Lane and Halterworth Primary School.

3.1.5 The monitoring locations are shown on Drawing GM13034-001 and are described as follows:

- ***Monitoring Location 1 (ML1):*** Partially attended noise monitoring, between 1000 hours on the 22nd May 2019 and 1000 hours on the 23rd May 2019, was undertaken at the south-eastern site boundary, approximately 80m from Botley Road. The noise monitoring location has been used to capture road traffic noise levels at the development site.
- ***Monitoring Location 2 (ML2):*** Partially attended noise monitoring, between 1400 hours on the 22nd May 2019 and 1000 hours on the 23rd May 2019, was undertaken at the western site boundary, approximately 5m away from Halterworth Lane. The noise monitoring location has been used to capture road traffic noise levels at the development site.
- ***Monitoring Location 3 (ML3):*** Partially attended noise monitoring, between 1000 and 1300 hours on the 22nd May 2019, was undertaken at the southern site boundary, adjacent to Halterwoth Primary School. The noise monitoring location has been used to capture noise from the school, and the noise levels at the location of the school extension.

3.1.6 The noise measurements were made using Class 1, integrating sound level meters. The microphones were mounted on tripods 1.5m above the ground and more than 3.5m from any other reflecting surfaces, and with the microphone diaphragms horizontal. The sound level meters were calibrated to a reference level of 94dB at 1kHz both before, and on completion of, the noise survey. No drift in the calibration during the survey was noted.

3.1.7 Table 1 presents the noise monitoring periods and observations made of noise sources audible at each monitoring location.

Table 1: Details of Noise Monitoring

Monitoring Location	Start Date and Time	Finish Date and Time	Observations
1	10:00 22/05/2019	10:00 23/05/2019	Noise levels at this monitoring location were dominated by road traffic on Botley Road. Noise associated with birdsong and aircraft flyovers was occasionally audible.
2	14:00 22/05/2019	10:00 23/05/2019	Road traffic on Halterworth Lane was considered to be the dominant source of noise at this location. Noise associated with birdsong, aircraft flyovers and farm animals was occasionally audible.
3	10:00 22/05/2019	13:00 22/05/2019	Halterworth Primary School was considered to be the dominant source of noise at this location. Noise associated with birdsong, aircraft flyovers and animals at the farm was also occasionally audible.

3.1.8 Road traffic noise from Botley Road and Halterworth Lane was dominant across the proposed development site. Noise from children playing in the outdoor recreational areas of Halterworth Primary school was dominant in the southern part of the site during the lunch break, between 1205 and 1305 hours.

3.1.9 For the purpose of this assessment, daytime hours are taken to be 0700 to 2300 hours and night-time to be 2300 to 0700 hours.

3.1.10 A-weighted[1] L_{eqs}[2] were measured in accordance with the requirements of BS8233. The maximum and minimum sound pressure levels, A-weighted L_{90s}[3] , A-weighted L_{10s}[4] were also measured to provide additional information.

[1] A' Weighting — An electronic filter in a sound level meter which mimics the human ear's response to sounds at different frequencies under defined conditions

[2] L_{eqs} — Equivalent continuous noise level; the steady sound pressure which contains an equivalent quantity of sound energy as the time-varying sound pressure levels.

[3] L_{90} — The noise level which is exceeded for 90% of the measurement period.

[4] L_{10} — The noise level which is exceeded for 10% of the measurement period.

3.2 Meteorological Conditions

3.2.1 The weather conditions during the noise survey were monitored and the details are shown in Table 2;

Table 2: Weather Conditions	
Average Temperature	19°C
Wind	<3.5 m/s
Cloud Cover	30%
Precipitation	Dry

3.3 Existing Noise Levels

Existing Road Traffic Noise Levels

3.3.1 The road traffic noise levels measured at ML1 and ML2 during the noise survey have been divided into daytime (0700-2300 hours) and night-time (2300-0700 hours). The night-time $L_{AF,max}$ level has been determined based on the highest representative noise level in accordance with ProPG.

3.3.2 A summary of the measured values is shown below in Table 3; and the measured noise levels are set out in full in Appendix B.

Table 3: Measured Road Traffic Noise Levels at Monitoring Locations			
Noise Monitoring Location	**Daytime $L_{Aeq,\ T}$ (dB)**	**Night-time $L_{Aeq,\ 8hour}$ (dB)**	**Night-time $L_{AF,\ max}$ (dB)**
ML1	49	48	72
ML2	59	53	76

Existing Noise Levels from Halterworth Primary School

3.3.3 The noise levels associated with Halterworth Primary School have been measured over a 3-hour period, between 1000 and 1300hrs. The time period includes the breaktime and lunch-time periods of the school. These break-time periods are considered to cause the highest sound emissions from the school.

3.3.4 Therefore, the measured noise levels at ML3 have been assessed both within the school break times, and outside of the breaktimes, when the pupils are in class. The noise levels are given in Table 4 below.

Table 4: Measured School Activity Noise Levels at Monitoring Locations		
Noise Monitoring Location	**Average Noise Level During School Breaks $L_{Aeq,T}$ (dB)**	**Average Noise Levels Outside of Break-times $L_{Aeq,T}$ (dB)**
ML3	59	50

3.3.5 Table 4 shows noise levels generated by the school both during break times, and during lessons. As the noise survey was carried out in May, the playing fields were occupied by students during break times, thereby showing the likely worst case noise levels generated by the school.

3.3.6 The noise levels shown for school breaks occurred over a total of two hours throughout the day, for the remainder of the time the noise levels associated with the school are similar to the 'Average Noise Levels Outside of Break-Times'. Taking into account the 'on-time' of the school breaks, of two hours over a 16-hour period, the average noise level, when taken over the full 16-hour daytime period, is 53dB $L_{Aeq, 16hr}$.

4 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTY

4.1 Introduction

4.1.1 The assessment is affected by the following assumptions and limitations.

4.2 Assumptions

4.2.1 The following assumptions have been made:

- Proposed dwellings will be 8m high and comprise 2 storeys.
- Proposed garden fences will be close-boarded, 1.8m high with no gaps and a minimum mass of 15kg/m^2.
- An open window provides approximately 13dB noise attenuation.

4.3 Limitations

4.3.1 Results of the noise assessment are based on noise monitoring carried out in May 2019.

4.4 Uncertainty

4.4.1 To reduce the level of uncertainty within the assessment, the following steps have been taken:

- Due to limited available information, reasonable assumptions have been made regarding sound source levels associated with the adjacent industrial units which are proposed as part of the wider development.
- The distances between the source and nearest receptors have been measured from scale plans showing the locations of the development.

5 SITE RISK ASSESSMENT

5.1 Noise Risk Assessment

5.1.1 In accordance with ProPG:2017, a Site Noise Risk Assessment (SNRA) has been carried out. The SNRA assesses the initial risk of noise from transportation sources having an adverse impact on a proposed development, based on the overall measured levels with no mitigation in place.

5.1.2 Noise monitoring of road traffic noise was undertaken at ML1 and ML2 which are at the site boundaries, closest to Botley Road and Halterworth Lane. Our observations made during the site visits identified that the noise levels at the site were dominated by road traffic noise. These noise levels have been compared to guidance provided on Figure 1 (*Stage 1 – Initial Site Noise Risk Assessment)* of ProPG:2017, to assess the risk of an adverse impact. The results of the assessment are shown in Table 5 below.

Table 5: Initial Site Noise Risk Assessment Average Daytime and Night-time Noise Levels

Risk Assessment Location	Average Daytime Noise Level (dB $L_{Aeq,16hr}$)	Daytime Risk of Adverse Effect	Average Night-time Noise Level (dB $L_{Aeq, 8hr}$)	Night-time Risk of Adverse Effect
ML1	49	Negligible	48	Low
ML2	59	Low	53	Low/Medium

5.1.3 Table 5 indicates that proposed receptors, close to Botley Road, are at a Negligible risk of experiencing an adverse noise impact due to road traffic during the day and at a Low risk of experiencing an adverse noise impact due to road traffic during the night-time. In addition, the proposed dwellings in the south-eastern part of the site will be located further away from the road than ML1, therefore the noise levels they are likely to experience will be less.

5.1.4 Table 5 also shows that proposed receptors located closest to the north-eastern site boundary, closest to Halterworth Lane, are at a Low risk of experiencing an adverse noise impact during the daytime and at a Low/Medium risk of experiencing an adverse noise impact due to road traffic in the night-time period.

5.1.5 Noise levels further into the site and further away from the southern and western boundaries are expected to be lower, and therefore the potential for an adverse noise impact at these receptors will be low.

5.1.6 The SNRA shows that good acoustic design will be required for the proposed development, to ensure that the potential risk of the noise impact is minimised, and guideline internal and external noise levels are achieved.

5.1.7 In accordance with ProPG:2017, a Stage 2 full noise assessment is required to ensure that future residents are protected, and good acoustic design has been implemented.

5.2 Overheating Risk Assessment

5.2.1 In accordance with the AVO guide, an Overheating Risk Assessment (ORA) has been carried out. The ORA assesses the initial risk of overheating, which can be caused by the need to mitigate noise generated by nearby transportation sources and is based on the measured noise levels at the development site.

5.2.2 The daytime ($L_{Aeq,16hr}$) and night-time ($L_{Aeq,8hr}$) noise levels measured at ML1 and ML2 have been compared to the information provided in Table 3-2 of AVO. The results of the ORA are shown in Table 6.

Table 6: Stage 1 Overheating Risk Assessment

Risk Assessment Location	Average Daytime Noise Level (dB $L_{Aeq,16hr}$)	Daytime Risk of Overheating	Average Night-time Noise Level (dB $L_{Aeq,8hr}$)	Night-time Maximum Noise Level (dB L_{Amax})	Night-time Risk of Overheating
ML1	49	Negligible	48	72	Negligible
ML2	59	Low-Medium	53	76	Medium

5.2.3 Table 6 indicates that during the daytime and night-time periods, proposed receptors located in the southern part of the development, closest to Elmtree Gardens and Botley Road would be at a Negligible risk of experiencing overheating due to the likely acoustic design measures required to achieve the recommended internal noise guideline levels.

5.2.4 However, Table 6 shows that proposed dwellings located on the western site boundary, closest to and facing Halterworth Lane, are at a Low-Medium risk of experiencing overheating during the daytime, and Medium risk of experiencing overheating during the night-time. This is due to the acoustic design measures which will probably be required to achieve the recommended internal noise guideline levels.

5.2.5 Proposed receptors located further away from the western and southern boundaries of the site are expected to experience lower noise levels, therefore they will be at a negligible risk of overheating, due to the likely acoustic design measures.

5.2.6 In accordance with AVO, a Stage 2 overheating assessment is optional for dwellings experiencing a 'Medium' risk of overheating. Stage 2 assessments are typically used to establish the level of overheating risk and outline mitigation measures. As the daytime and night-time noise levels at the site are at or below the 'Medium' category defined in Table 3-1 of AVO, and $L_{AF, max}$ levels are below the 78dB threshold, a Stage 2 assessment is not considered to be required at the site. Therefore, overheating will be mitigated appropriately by opening windows, in line with advice in AVO.

6 ACOUSTIC DESIGN STATEMENT FOR DWELLINGS

6.1 Introduction

6.1.1 The results of the ProPG:2017 Stage 1: Initial Site Noise Risk Assessment show that the proposed dwellings closest to Elmtree Gardens and Botley Road are at a Negligible risk of experiencing an adverse noise impact due to road traffic during the daytime and a Low risk of experiencing an adverse noise impact due to road traffic during the night-time. Properties closest to Halterworth Lane are at a Low risk of experiencing an adverse noise impact during the daytime and at Low to Medium risk during the night-time.

6.1.2 Noise levels measured at ML1 are representative of the acoustic environment in the southern part of the site, closest to Elmtree Gardens and Botley Road. However, as the closest dwellings are proposed to be located approximately 130m further into the site than ML1, a distance correction is required to ensure the assessment is representative of noise at dwellings.

BS8233 Assessment of Daytime Noise Levels in Outdoor Living Areas

6.1.3 The measured daytime noise levels, as detailed in Tables 3 and 4, have been used to determine the noise levels likely in outdoor living areas of proposed dwellings in the vicinity of the noise sources during the daytime period.

6.1.4 Table 7 summarises the measured noise level and the attenuation required to achieve the noise guideline level of 55dB $L_{Aeq,\ 16hour}$ recommended in BS8233, during the daytime in outdoor living areas.

Table 7: Average Daytime Noise Levels in Outdoor Living Areas

Representative Monitoring Location	Noise Level (dB $L_{eq,\ 16hr}$)	Level of Attenuation Needed to Achieve 55dB $L_{Aeq,\ 16hr}$ in Outdoor Living Areas (dB(A))
ML1 – Southern site boundary, representative of noise from ElmTree Gardens and Botley Road.	45*	0
ML2 – Western site boundary, representative of noise from Halterworth Lane.	59	4
ML3 – South-eastern site boundary, representative of noise from Halterworth Primary School.	53	0
*A -4dB correction has been applied to correct the measured sound level to the location of the proposed dwellings.		

6.1.5 Therefore, only the proposed dwellings with gardens located closest to and facing Halterwoth Lane, will require mitigation to reduce the impact of noise in gardens. The acoustic attenuation scheme is outlined in Section 8 of this report.

Assessment of Daytime Noise Levels in Living Rooms and Bedrooms

6.1.6 The daytime noise levels in noise sensitive rooms of the proposed dwellings have been assessed in accordance with BS8233 for living room and bedroom areas. The daytime noise guideline level within living rooms and bedrooms is 35 dB $L_{Aeq,16\ hour}$.

6.1.7 The measured daytime noise levels have been used to determine the noise levels likely at facades of the dwellings during the daytime period.

6.1.8 Before internal noise levels can be calculated, 3 dB(A) must be added to the free-field measured levels to allow for the reflection of noise from the proposed facades when the buildings are in place.

6.1.9 A correction of -4dB has been applied to the noise levels measured at ML1, to account for the additional distance between the proposed dwellings and the nearest noise sources.

6.1.10 The calculated noise levels at the facades of the proposed dwellings, together with the level of attenuation required to achieve 35dB $L_{Aeq\ (16hr)}$ in living rooms and bedrooms is summarised in Table 8.

Table 8: Facade Noise Level at Dwellings Located Closest to Site Boundaries and Level of Attenuation Required to Achieve the Internal Daytime Noise Guideline Level

Representative Monitoring Location	Noise Level at the Facade of the Property (dB L_{Aeq})	Level of Attenuation Needed to Achieve Noise Guideline Levels in Living Rooms and Bedrooms dB(A)
ML1 – Southern site boundary, representative of noise from ElmTree Gardens and Botley Road.	48	13
ML2 – Western site boundary, representative of noise from Halterworth Lane.	62	27
ML3 – South-eastern site boundary, representative of noise from Halterworth Primary School.	56	21

6.1.11 The results indicate that noise sensitive rooms, located closest to and facing the western site boundary are likely to exceed noise guideline levels with windows open during the daytime. The results set out in Table 8 show that sensitive facades of proposed dwellings closest to Halterworth Lane, and Halterworth Primary School, will require mitigation to minimise the impact of noise. Mitigation is discussed in Section 8 of this report.

6.1.12 The facades further into the site will be screened by intervening buildings, and therefore the level of attenuation required will be less than those detailed in Table 8.

Assessment of Night-Time Noise Levels in Bedrooms

6.1.13 The night-time noise levels in noise sensitive rooms of the proposed dwellings have been assessed in accordance with BS8233 and ProPG for bedroom areas. The guideline noise level within bedroom areas is 30 dB $L_{Aeq\ 8hour}$. In addition, individual noise events should not normally exceed 45dB L_{Afmax}.

6.1.14 The measured night-time noise levels have been used to determine the noise levels likely at the facades of the dwellings during the night-time period.

6.1.15 Before internal noise levels can be calculated, 3dB(A) must be added to the free-field measured levels to allow for the reflection of noise from the proposed facades when the dwellings are in place.

6.1.16 Corrections of -4dB ($L_{Aeq,8hr}$) and -7dB ($L_{AF,\ max}$) have been applied to the noise levels measured at ML1, to account for the additional distance between the proposed dwellings and the nearest noise sources.

6.1.17 The measured noise levels at the facades of the proposed dwellings, together with the level of attenuation required to achieve 30dB L_{Aeq} and 45dB L_{Amax} in the bedrooms, are summarised in Table 9.

Table 9: Facade Noise Level and Level of Attenuation Required to Achieve the Internal Night-Time Noise Guideline Levels			
Representative Monitoring Location	**Noise Level at the Façade of the Property (dB $L_{Aeq, 8hr}$)**	**Maximum Noise Level at the Façade of the Property (dB $L_{Af,max}$)**	**Level of Attenuation Needed to Achieve the Noise Guideline Levels in Bedrooms (dB(A))**
ML1 – Southern site boundary, representative of noise from ElmTree Gardens and Botley Road.	47	68	23
ML2 – Western site boundary, representative of noise from Halterworth Lane.	56	79	34

6.1.18 The results indicate that sensitive facades of proposed dwellings closest to Halterworth Lane, Elmtree Gardens and Botley Road will require façade mitigation to reduce the level of road traffic noise. Mitigation is discussed in Section 8 of this report.

6.1.19 The facades further into the site will be screened by intervening buildings. It is considered that the level of attenuation required will be less than those detailed in Table 9.

7 NOISE ATTENUATION SCHEME

Daytime Noise Levels in Outdoor Living Areas

7.1.1 The noise levels, as detailed in Table 7, indicate that gardens located closest to Halterworth Lane, represented by ML2, will require mitigation to achieve the daytime noise guideline level of 55dB $L_{Aeq.}$

7.1.2 To achieve noise guideline levels in gardens, it is recommended that gardens are located on the screened side of proposed dwellings, furthest away from noise from Halterworth Lane, with localised close-boarded fencing constructed between gardens and Halterworth Lane, as required.

7.1.3 The height and location of the fencing can be determined during the detailed design stage of the application.

Glazing and Ventilation Requirements

7.1.4 When assessing daytime noise levels in noise sensitive rooms, the noise attenuation provided by the overall building façade should be considered. To mitigate noise levels, the composition of the building façade can be designed to provide the level of attenuation required. Glazing is generally the building element that attenuates noise the least, so the proportion of glazing in a building façade is an important consideration when assessing overall noise attenuation.

7.1.5 In the absence of design details for the building facades, it has been assumed that the glazing to noise sensitive rooms would comprise about 25% of the façade area. To calculate the overall attenuation provided by this percentage of glazing in a brick or block façade, a non-uniform partition calculation can be used.

7.1.6 The calculation combines the different degrees of attenuation of the wall element and the window element. A façade element comprising a standard modern solid brick or block work construction will typically attenuate by 50-55dB (BS 8233: Table E1.A) whereas standard double glazing will attenuate road traffic noise by 26-29dB(A) (BRE Digest 379 ‘Double glazing for heat and sound insulation’). The overall noise attenuation provided by this combination is therefore between 32dB(A) and 35dB(A).

Daytime Living Rooms and Bedrooms

7.1.7 With windows open, the attenuation provided by the façade will be approximately 13dB(A). This would allow the recommended internal noise guideline levels to be exceeded in some living rooms and bedrooms, which are closest to and facing Halterworth Lane, and Halterworth Primary School.

7.1.8 On occasion, this may be acceptable to the residents, but when quiet conditions are required, the residents should be able to close windows whilst maintaining adequate ventilation.

7.1.9 Therefore, closed windows with standard thermal glazing, and an alternative means of passive ventilation are required to ensure that internal noise guideline levels are met within living room and bedroom areas in dwellings, while maintaining sufficient levels of background ventilation. Alternative ventilation methods will be required only for dwellings located closest to and facing Halterworth Lane, and Halterworth Primary School.

7.1.10 Living rooms and bedrooms located on the screened side of proposed dwellings, facing away from Halterworth Lane, and Halterworth Primary School and on all facades of the dwellings located further into the site, are likely to meet the guideline noise levels even with windows open.

7.1.11 Glazing and ventilation requirements can be confirmed, once a detailed design layout is available. Alternatively, satisfactory internal conditions could be ensured through revision to the site design at the reserved matters stage to accommodate good acoustic design principals such as layout and orientation of habitable rooms.

Night-time Bedrooms

7.1.12 With windows open, the attenuation provided by the façade will be approximately 13dB(A). This would allow the recommended internal noise guideline levels to be exceeded in some bedrooms, located closest to and facing Halterworth Lane and Botley Road.

7.1.13 On occasion, this may be acceptable to a resident, but when quiet conditions are required, the resident should be able to close windows whilst maintaining adequate ventilation.

7.1.14 If proposed dwellings are constructed up to the southern and western boundaries of the proposed developable area, shown in the Development Framework Plan (DFP) REF: 09840-FPCR-ZZ-ZZ-DR-L-0002, properties represented by ML1 and ML2, which are closest to and facing Halterworth Lane and Botley Road are likely to require standard thermal glazing and an alternative means of ventilation to achieve internal guideline noise levels inside bedrooms.

7.1.15 Glazing and ventilation requirements can be confirmed, once a detailed design layout is available. Alternatively, satisfactory internal conditions could be ensured through revision to the site design at the reserved matters stage to accommodate good acoustic design principals such as layout and orientation of habitable rooms.

Industrial noise

7.1.16 As part of the development there will be a small pumping station. This should be mitigated to ensure the specific noise of the pumping station is equal to or less than the background noise levels during operational hours. This can be done through acoustic barriers or varying the wall design to increase the sound reduction of the plant when enclosed in a building.

8 CONCLUSION

8.1.1 Wardell Armstrong has carried out a noise assessment for the proposed residential development on Land off Halterworth Lane, Romsey.

8.1.2 The dominant noise source, which will affect the residents of the proposed development, is road traffic on Halterworth Lane, and Botley Road.

8.1.3 In policy terms there is no presumption against development in places with significant noise levels, provided that the noise can be adequately mitigated taking into account the economic and social benefits of the proposed scheme.

8.1.4 Traffic noise levels have been assessed against the noise guideline values stated in BS8233. It should be noted that the internal guideline values are health-based and are relatively inflexible, however adequate noise mitigation is relatively straightforward to implement. The external guideline values are based on amenity and allow noise to be balanced against any benefits of the location of the proposed scheme.

8.1.5 Due to limited information concerning the proposed industrial facilities and external plant, assumptions have been made about any industrial noise possibly affecting the development. Provided that any noise from the industrial facilities does not exceed the background noise level it should not impact the properties within the development.

8.1.6 The initial Site Noise Risk Assessment carried out in accordance with ProPG shows that proposed receptors located closest to Halterworth Lane are at a Low risk of experiencing an adverse noise impact due to road traffic during the daytime and a Low-Medium risk of experiencing an adverse noise impact during the night-time period, with no mitigation in place. It has also been shown that proposed dwellings located closest to Elmtree Gardens and Botley Road are at a Negligible risk of experiencing an adverse noise impact during the day and a Low risk of experiencing an adverse noise impact during the night-time.

8.1.7 An initial Overheating Risk Assessment has been carried out in line with AVO guidance and shows that dwellings located closest to Elmtree Gardens and Botley Road are at a Negligible Risk of experiencing overheating. Proposed dwellings with facades located closest and facing Halterworth Lane are at a Low-Medium risk of experiencing overheating during the daytime and a Medium risk of experiencing overheating during the night-time periods. In accordance with AVO guidance, overheating is expected to

be sufficiently mitigated through opening windows, therefore a Stage 2 Overheating Assessment is not required.

External Living Areas

8.1.8 The Acoustic Design Statement indicates that the majority of gardens across the development site would meet the external noise guideline level without the need for any noise mitigation. However, mitigation would be required for gardens located closest to and facing Halterworth Lane.

8.1.9 It is recommended that gardens associated with properties closest to Halterworth Lane are located on the screened side of the proposed dwellings and include localised closed boarded fencing, to screen parts of gardens with a direct line of sight to the road.

Internal; Daytime and Night-time

8.1.10 Proposed dwellings across the majority of the development site, further away from Botley Road and Halterworth Lane, are expected to achieve the internal daytime and night-time noise levels even with windows open for ventilation. However, facades of dwellings closest to and facing Botley Road and Halterworth Lane will require some noise mitigation.

8.1.11 Therefore, standard thermal glazing, with the windows closed and an alternative means of ventilation, should be installed to provide the levels of mitigation required to meet the recommended internal noise levels within living rooms and bedrooms in dwellings closest to and facing Halterworth Lane and Botley Road. Alternatively, satisfactory internal conditions could be ensured through revision to the site design at the reserved matters stage to accommodate good acoustic design principals such as layout and orientation of habitable rooms.

APPENDICES

Appendix A

Standards, Guidance and Legislation

APPENDIX A

Noise Legislation and Guidance

National Planning Policy Framework

A.1 In December 2023 the 'National Planning Policy Framework' (NPPF) was introduced as the current planning policy guidance within England. Paragraph 191 of the NPPF states:

A.2 '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 values for this reason;"*

Noise Policy Statement for England

A.3 With regard to 'adverse impacts' the NPPF refers to the 'Noise Policy Statement for England' (NPSE), which defines three categories, as follows:

- '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'.

A.4 The first aim of the NPSE states that significant adverse effects on health and quality of life should be avoided. The second aim refers to the situation where the impact lies somewhere between LOAEL and SOAEL, and it requires that all reasonable steps are

taken to mitigate and minimise the adverse effects of noise. However, this does not mean that such adverse effects cannot occur.

Planning Practice Guidance

A.5 The Planning Practice Guidance (PPG) provides further detail about how the effect levels can be recognised. Above the NOEL noise becomes noticeable; however, it has no adverse effect as it does not cause any change in behaviour or attitude.

A.6 Once noise crosses the LOAEL threshold it begins to have an adverse effect and consideration needs to be given to mitigating and minimising those effects, taking account of the economic and social benefits being derived from the activity causing the noise.

A.7 Increasing noise exposure further might cause the SOAEL threshold to be crossed. If the exposure is above this level the planning process should be used to avoid the effect occurring by use of appropriate mitigation such as by altering the design and layout. Such decisions must be made taking account of the economic and social benefit of the activity causing the noise, but it is undesirable for such exposure to be caused.

A.8 At the highest extreme the situation should be prevented from occurring regardless of the benefits which might arise. The following Table summarises the noise exposure hierarchy.

Table 1: National Planning Practice Guidance Noise Exposure Hierarchy			
Response	**Examples of Outcomes**	**Increasing Effect Level**	**Action**
Not present	No Effect	No Observed Effect	No specific measures required
		No Observed 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. 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.	Observed Adverse Effect	Mitigate and reduce to a minimum
		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

A.9 The PPG summarises the approach to be taken when assessing noise. It accepts that noise can override other planning concerns, but states:

"It can, where justified, although it is important to look at noise in the context of the wider characteristics of a development proposal, its likely users and its surroundings, as these can have an important effect on whether noise is likely to pose a concern."

A.10 British Standard 8233 "Guidance on sound insulation and noise reduction for buildings" 2014, suggests the following guideline noise levels and states that they are based on guidelines issued by the World Health Organisation;

- 35 dB $L_{Aeq\ (16\ hour)}$ during the day time in noise sensitive rooms
- 30 dB $L_{Aeq\ (8\ hour)}$ during the night time in bedrooms
- 45 dB $L_{Af,Max}$ during the night time in bedrooms
- 50 dB $L_{Aeq\ (16\ hour)}$ desirable external noise levels for amenity space such as gardens and patios
- 55 dB $L_{Aeq\ (16\ hour)}$ upper guideline value which would be acceptable in noisier environments.

A.11 In addition, for internal noise levels it states;

"Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved."

A.12 Furthermore, with regard to external noise, the Standard states;

"However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited".

BS8233 Guidance on sound insulation and noise reduction for buildings

A.13 British Standard 8233 "Guidance on sound insulation and noise reduction for buildings" 2014 bases its advice on the WHO Guidelines. In addition, for internal noise levels it states:

> *"Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved."*

A.14 Furthermore, with regard to external noise, the Standard states:

> *"For traditional external areas that are used for amenity space such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$ with an upper guidance value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."*

ProPG: Planning & Noise Professional Practice Guidance on Planning & Noise

A.15 ProPG Planning and Noise provides professional practice guidance in relation to new residential development exposed to noise from transport sources. It provides practitioners with a recommended approach to the management of noise within the planning system in England.

A.16 A two-stage process is suggested:

- Stage 1 – Initial Noise Risk Assessment
- Stage 2 – Detailed assessment (Acoustic Design Statement), required where the Stage 1 risk is identified above negligible.

The guidance reflects the Government's overarching National Planning Policy Framework, the Noise Policy Statement for England, and Planning Practice Guidance - Noise and draws on other authoritative sources of guidance. It provides advice for Local Planning Authorities and developers, and their professional advisors, on achieving good acoustic design in and around new residential developments.

AVO: Acoustics, Ventilation and Overheating Residential Design Guide

A.17 The AVO guide recommends an approach to acoustic assessments for residential development that takes into consideration the interdependence of provisions for acoustics, ventilation and overheating. The application of the AVO Guide is intended to demonstrate good acoustic design in accordance with ProPG. A two-stage assessment approach is advised as:

- Stage 1: Site Risk Assessment
- Stage 2: Detailed Assessment of Adverse Effect

A.18 The guide provides a means of assessment to satisfy the need to consider acoustics, ventilation and overheating at the planning stage. It also assists in educating clients, environmental health officers, planning officers and other stakeholders of the interdependence of design for acoustics, ventilation and overheating.

Appendix B

Noise Monitoring Results

Appendix B

Noise Monitoring Results

Monitoring Location 1						
Time	**L_{Aeq} (dB)**	**$L_{A\ min}$ (dB)**	**$L_{A\ max}$ (dB)**	**L_{A90} (dB)**	**L_{A10} (dB)**	**Comments**
22/05/2019 – Daytime						
1000-1100	51.7	36.8	72.9	40.9	56.5	Noise levels at this monitoring location were dominated by the road traffic on Elmtree Gardens and Botley Road. Bird song was also occasionally audible.
1100-1200	48.8	36.4	70.7	40.2	52.9	
1200-1300	49.7	38.8	69.8	42.8	52.0	
1300-1400	49.1	36.5	70.3	40.8	52.0	
1400-1500	46.7	38.4	68.6	41.6	49.4	
1500-1600	46.2	38.7	61.2	42.8	48.1	
1600-1700	45.9	40.3	67.2	42.7	47.4	
1700-1800	48.2	40.7	71.4	42.4	47.8	
1800-1900	48.6	39.5	69.2	42.2	52.1	
1900-2000	48.9	37.9	77.7	41.3	51.3	
2000-2100	48.8	37.5	70.2	40.6	51.6	
2100-2200	48.2	35.6	68.1	39.1	50.4	
2200-2300	41.2	33.5	56.3	36.5	43.8	
22/05/2019 – Night-time						
2300-2315	39.2	32.6	49.8	35.4	41.3	Noise levels at this monitoring location were dominated by the road traffic on Elmtree Gardens and Botley Road. Bird song was also occasionally audible.
2315-2330	38.1	32.3	47.3	34.6	40.7	
2330-2345	36.8	30.8	48.3	33.0	39.4	
2345-0000	38.3	30.5	47.8	34.1	40.7	
0000-0015	37.0	30.6	49.9	31.8	39.6	
0015-0030	36.4	30.3	51.7	31.3	39.1	
0030-0045	36.2	31.1	48.7	31.8	39.1	
0045-0100	36.0	30.2	51.9	31.4	38.7	
0100-0115	34.2	28.9	47.2	30.6	36.7	
0115-0130	30.7	28.2	43.3	28.6	32.9	
0130-0145	33.3	27.6	49.1	28.4	36.3	
0145-0200	32.7	27.3	46.2	29.2	35.1	
0200-0215	33.0	26.8	49.3	28.8	36.3	
0215-0230	36.0	29.3	49.4	31.8	38.7	
0230-0245	34.4	30.4	46.9	31.7	36.7	
0245-0300	33.2	30.8	43.4	31.3	34.9	
0300-0315	33.7	30.0	43.7	30.7	36.7	
0315-0330	37.2	29.4	51.0	29.9	40.8	
0330-0345	37.8	29.4	49.0	30.7	41.4	
0345-0400	36.8	30.2	52.8	31.2	40.2	
0400-0415	49.8	34.1	65.8	38.3	54.6	
0415-0430	53.5	36.1	70.8	40.3	58.1	
0430-0445	52.7	36.6	70.4	41.3	57.8	
0445-0500	50.8	37.2	70.7	41.4	53.8	
0500-0515	52.3	37.6	70.1	40.9	57.6	
0515-0530	50.0	38.9	68.0	42.1	54.0	
0530-0545	49.8	40.9	68.5	44.1	51.3	
0545-0600	54.3	42.8	72.2	44.8	59.4	
0600-0615	51.3	41.5	68.2	44.8	54.6	
0615-0630	52.2	41.5	69.6	45.5	56.1	
0630-0645	50.0	43.7	70.2	45.8	52.2	
0645-0700	52.9	44.0	67.5	45.8	57.8	

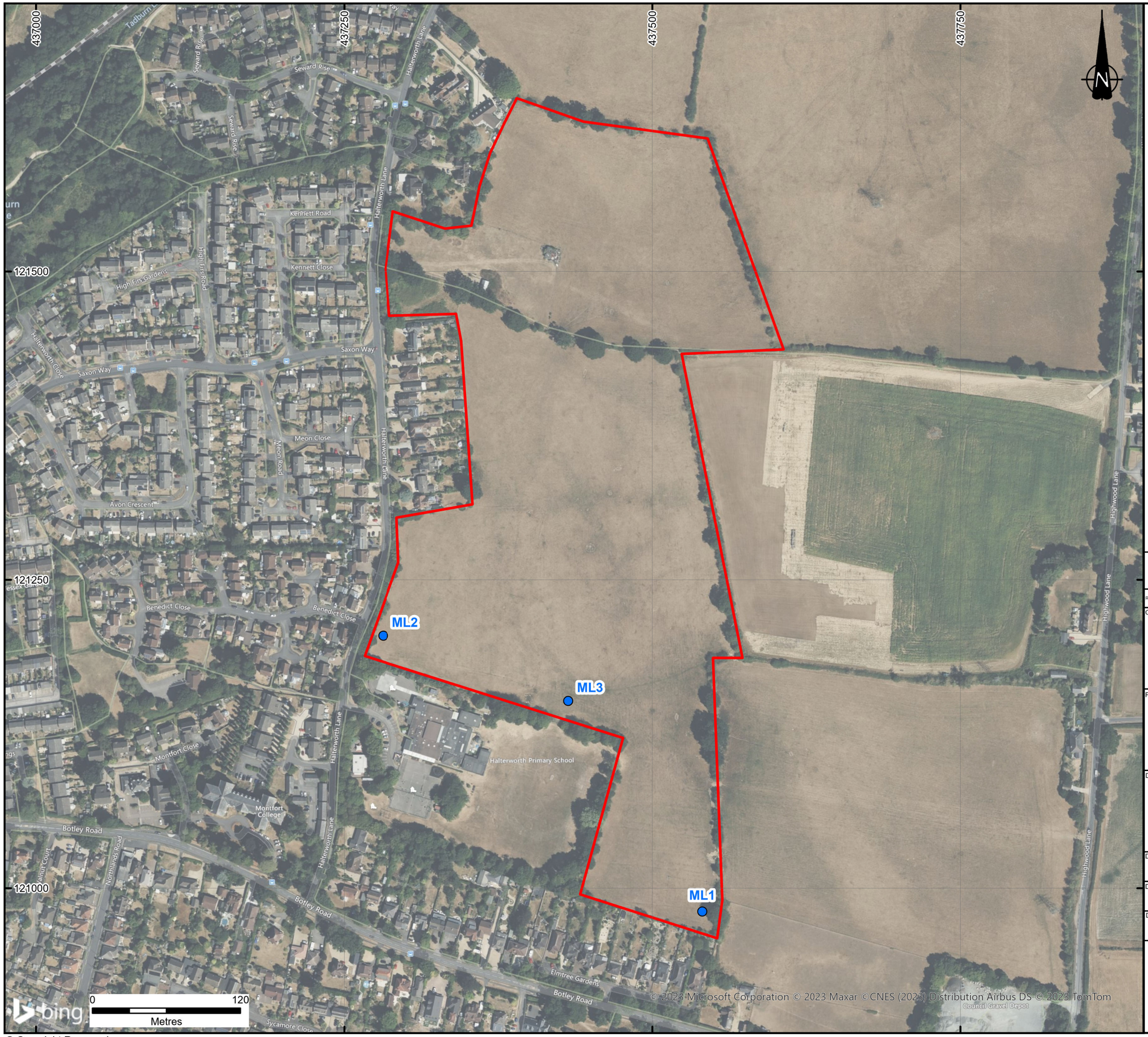
Monitoring Location 1						
Time	**L_{Aeq} (dB)**	**$L_{A\ min}$ (dB)**	**$L_{A\ max}$ (dB)**	**L_{A90} (dB)**	**L_{A10} (dB)**	**Comments**
23/05/2019 – Daytime						
0700-0800	51.4	40.7	70.5	43.7	55.7	Noise levels at this monitoring location were dominated by the road traffic on Elmtree Gardens and Botley Road. Bird song was also occasionally audible.
0800-0900	47.3	39.2	67.5	41.8	50.5	
0900-1000	50.5	35.4	71.4	38.9	55.3	

Monitoring Location 2						
Time	**L_{Aeq} (dB)**	**$L_{A\ min}$ (dB)**	**$L_{A\ max}$ (dB)**	**L_{A90} (dB)**	**L_{A10} (dB)**	**Comments**
22/05/2019 – Daytime						
1400-1500	54.5	39.3	68.7	44.0	58.2	Noise levels at this monitoring location were dominated by the road traffic on Halterworth Lane. Bird song was also occasionally audible.
1500-1600	54.8	43.4	68.6	47.3	58.2	
1600-1700	58.6	40.3	75.3	43.9	63.3	
1700-1800	60.9	39.4	76.9	45.2	65.9	
1800-1900	60.9	38.3	75.6	42.6	65.8	
1900-2000	59.3	36.9	73.7	41.4	63.2	
2000-2100	57.7	34.8	73.9	39.6	60.4	
2100-2200	57.3	33.3	73.7	36.4	60.2	
2200-2300	54.1	30.4	75.2	34.2	53.4	
22/05/2019 – Night-time						
2300-2315	51.6	30.8	71.6	32.9	45.8	Noise levels at this monitoring location were dominated by the road traffic on Halterworth Lane. Bird song was also occasionally audible.
2315-2330	51.2	30.4	72.5	32.4	39.6	
2330-2345	49.3	28.6	69.2	30.2	41.7	
2345-0000	51.4	29.3	71.3	30.5	42.5	
0000-0015	51.5	27.3	74.1	29.9	36.9	
0015-0030	44.8	27.4	68.3	28.6	35.4	
0030-0045	33.2	28.1	44.5	29.2	35.1	
0045-0100	49.2	25.4	72.2	26.9	38.1	
0100-0115	30.5	24.1	41	25.3	33.5	
0115-0130	27.2	23.9	38.5	24.6	29.4	
0130-0145	28.9	23.7	39.9	24.5	31.6	
0145-0200	28.2	23	39.2	23.7	30.8	
0200-0215	29.2	24.1	40.3	24.9	31.9	
0215-0230	32.8	24.9	43.9	26.1	36.2	
0230-0245	29.6	24.9	42.6	25.5	32.2	
0245-0300	28.1	24.5	36.7	25.6	30.2	
0300-0315	48.8	24.2	73.9	25	34.3	
0315-0330	33.8	24.3	44.7	25	38.7	
0330-0345	35.2	25	49.1	27.5	37.2	
0345-0400	35.2	26.5	45.2	27.1	40.6	
0400-0415	49.9	29	73.3	33.3	50.4	
0415-0430	51.3	34.1	71.4	41	52.6	
0430-0445	53.8	36	75.3	40	51.3	
0445-0500	51.5	36.2	71	39.3	55	
0500-0515	57.9	39.9	72.9	52.1	60.3	
0515-0530	54.9	38.5	72.7	41.5	56.3	
0530-0545	57.7	41.7	74.6	43.6	57.3	
0545-0600	59.2	42.1	75.2	45.2	60.5	

Monitoring Location 2						
Time	**L_{Aeq} (dB)**	**$L_{A\ min}$ (dB)**	**$L_{A\ max}$ (dB)**	**L_{A90} (dB)**	**L_{A10} (dB)**	**Comments**
0600-0615	54.5	41.4	73.9	44.2	54.3	
0615-0630	58.6	41.6	74.9	45.3	60.6	
0630-0645	59.4	43.8	75	46.3	60.7	
0645-0700	59.9	43.8	75.5	46.4	62.9	
23/05/2019 – Daytime						
0700-0800	61.4	39.8	80.5	46.4	65.4	Noise levels at this monitoring location were dominated by the road traffic on Halterworth Lane. Bird song was also occasionally audible.
0800-0900	58.5	39.3	71.5	46.9	62.2	
0900-1000	55.8	36.5	70.0	41.6	59.9	

Monitoring Location 3						
Time	**L_{Aeq} (dB)**	**$L_{A\ min}$ (dB)**	**$L_{A\ max}$ (dB)**	**L_{A90} (dB)**	**L_{A10} (dB)**	**Comments**
22/05/2019 – Daytime						
1000-1100	55.5	36.8	74.9	40.4	58.9	The noise levels at this monitoring location were dominated Halterworth Primary School
1100-1200	46.9	36.9	61.5	40.1	49.6	
1200-1300	62.5	39.7	74.5	53.0	65.8	

DRAWINGS



KEY

- Site Boundary
- Noise Monitoring Locations

Notes:

Boundaries are indicative. Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

GLADMAN DEVELOPMENTS LTD

PROJECT

HALTERWORTH LANE, ROMSEY

DRAWING TITLE

NOISE MONITORING LOCATION PLAN

DRG No.	REV	SUIT. CODE
GM13034-001	A	--

DRG SIZE	SCALE	DATE
A3	1:3,000	20/12/2023

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