

NOISE CONSTRAINTS ASSESSMENT

Site:	Shermanbury Road, Partridge Green
References:	52-145
Date:	16 June 2026
Client:	Wain Estates (Land) Limited





Taylor Road | Trafford Park | Urmston | Manchester | M41 7JQ
Registered in England | CRN: 08725262

+ 44 (0) 161 707 9612 | e3p.co.uk

QUALITY ASSURANCE

Report references

52-145-R1

REV REF	DESCRIPTION	DATE
01	First issue	21/04/2026
02	Second Issue	23/04/2026
03	Final	16/06/2026

WRITTEN BY	QUALIFICATION	POSITION
Ollie Harrison	BSc (Hons)	Consultant

REVIEWED BY	QUALIFICATION	POSITION
Melissa Bailey	BEng (Hons) MIOA	Senior Consultant

AUTHORISED BY	QUALIFICATION	POSITION
Lee Faulkner	BSc (Hons) MEnvSc MIOA	Associate Director



EXECUTIVE SUMMARY

Site Address	Land North of Shermanbury Road, Partridge Green, RH13 8EU
Grid Reference	E 519832, N 119674
Proposed Development	Proposed residential development comprising up to 75 dwellings with associated landscaping and access.
Surveys Completed	E3P has conducted one unattended road traffic noise survey to quantify the levels of noise from Shermanbury Road.
Assessments Completed	A 3D noise model has been constructed in order to undertake a site risk assessment in accordance with the guidance given in ProPG, for day and night, for potential rear garden areas and internal habitable rooms. Road traffic sound is assessed in accordance with the criterion, for day and night, given in BS 8233:2014+A1:2019.
Mitigation Recommended	Good acoustic design is recommended for certain areas of the site with the following recommended: ☛ Plots along the boundaries with Shermanbury Road should be oriented such that the garden areas are protected by the building envelope and buildings should wrap around the sides, where possible, to protect the gardens and negate the requirement of an acoustic barrier. ☛ Wherever possible, windows for habitable rooms should face away from the noise sources so that opening windows does not result in an exceedance of the criteria.
Conclusions and Discussions	With good acoustic design measures in place and allowance for mitigation, this assessment has shown that the site is suitable for residential development and that no adverse impact is predicted day or night at the proposed receptors due to road traffic.



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1. INTRODUCTION

1.1. BACKGROUND

E3P were commissioned by Wain Estates (Land) Limited to undertake a Noise Constraints Assessment for a proposed residential development on Land north of Shermanbury Road, Partridge Green in Horsham, to be referred to hereafter as 'the site'.

This assessment looks to determine the key noise sources that have potential to impact upon the proposed noise sensitive development, and to assess their impact, if any, upon proposed receptors and to specify mitigation measures, where required.

1.2. REPORT OBJECTIVES

The objectives of this report are as follows:

- ✿ Establish and measure the existing sound levels across the site, day and night.
- ✿ Consider the potential sources of sound impacting the site and to measure source sound levels of all applicable sources.
- ✿ Undertake an initial site risk noise assessment in accordance with ProPG.
- ✿ Assess internal and external noise levels associated with road traffic in accordance with criteria given in BS 8233.
- ✿ Provide advice on good acoustic design and/or mitigation measures, where required.

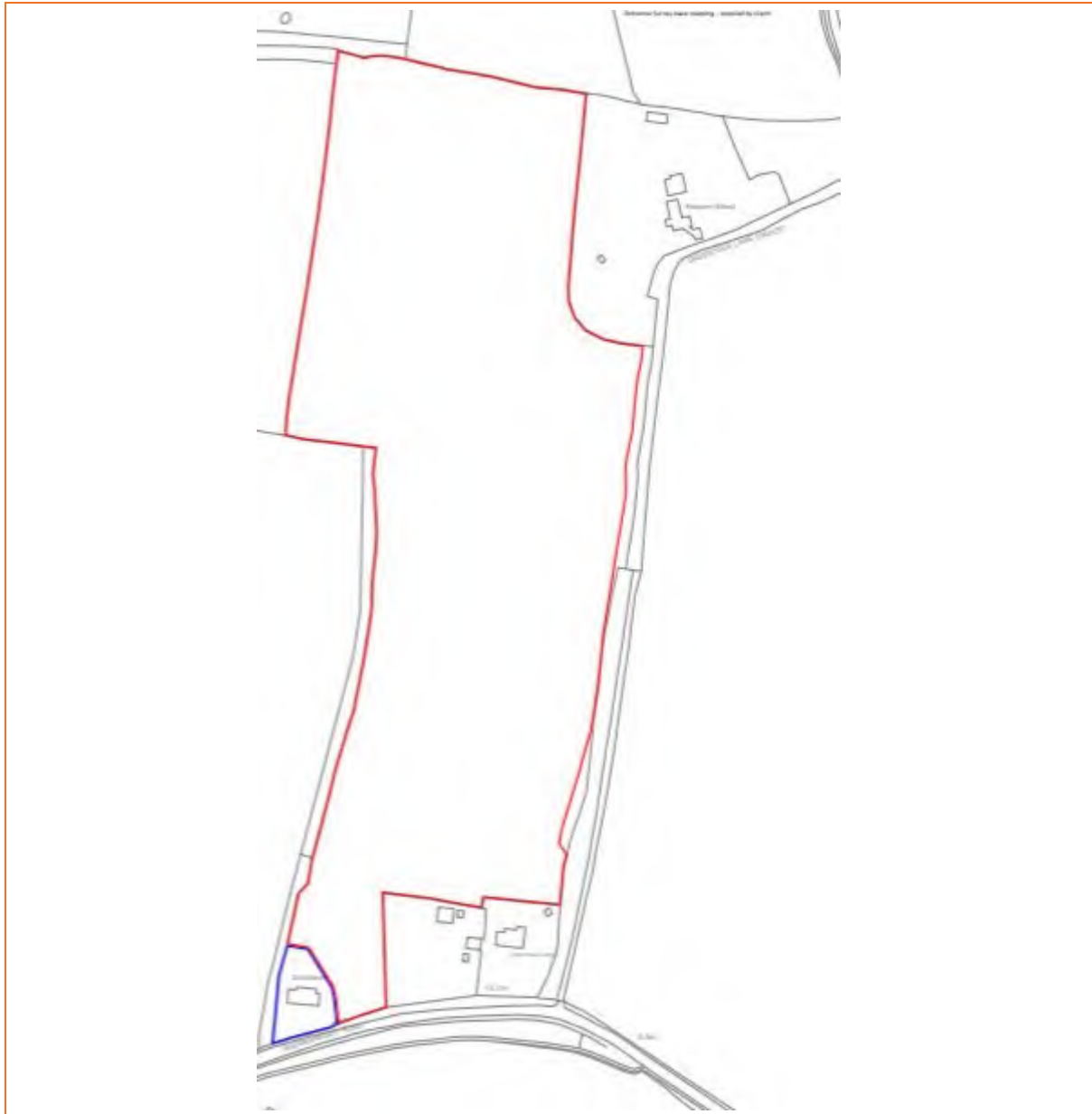
1.3. PROPOSED DEVELOPMENT

Wain Estates Limited propose to construct residential dwellings with associated access roads, parking, landscaping and adopted drainage infrastructure.

The proposed red line boundary is presented in Figure 1.



Figure 1 Proposed Red Line Boundary





2. ASSESSMENT METHODOLOGY

2.1. NATIONAL PLANNING POLICY FRAMEWORK (2024)

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 impact 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.

2.2. NATIONAL PLANNING PRACTICE GUIDANCE

Noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. When preparing local or neighbourhood plans, or taking decisions about new development, there may also be opportunities to consider improvements to the acoustic environment.

Local planning authorities' plan-making and decision-making should take account of the acoustic environment and in doing so consider:

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

In line with the explanatory note of the NPSE, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase, where applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

The “observed effect levels” are as follows:

- ✳ Significant observed adverse effect level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur.
- ✳ Lowest observed adverse effect level: This is the level of noise exposure above which adverse effects on health and quality of life can be detected.
- ✳ No observed effect level: This is the level of noise exposure below which no effect at all on health or quality of life can be detected.

Table 2.1 summarises the noise exposure hierarchy, based on the likely average response.



Table 2.1 Noise Exposure Hierarchy

PERCEPTION	EXAMPLES OF OUTCOMES	INCREASING EFFECT LEVEL	ACTION
Not Applicable	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			
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, or having to close windows for some of the time because of the noise where there is no alternative ventilation. 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, having to keep windows closed most of the time because of the noise where there is no alternative ventilation. 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 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 (auditory and non-auditory).	Unacceptable adverse effect	Prevent

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 situation. These factors include the following:



- ✳ The source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day. The adverse effect can also be greater simply because there is less background noise at night.
- ✳ For non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise can be important.
- ✳ The spectral content of the noise and the general character of the noise. The local topology and topography should also be considered along with the existing and, where appropriate, the planned character of the area.

More specific factors to consider when relevant:

- ✳ Where applicable, the cumulative impacts of more than one source should be considered along with the extent to which the source of noise is intermittent and of limited duration.
- ✳ Consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time. In both cases, a suitable alternative means of ventilation is likely to be necessary.
- ✳ If external amenity spaces are an intrinsic part of the overall design, then the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.

2.3. PROFESSIONAL PRACTICE GUIDANCE ON PLANNING & NOISE (2017)

The Professional Practice Guidance (ProPG) on Planning and Noise has been produced to provide practitioners with guidance on a recommended approach to the management of noise within the planning system in England. The guidance encourages better acoustic design for new residential development and aims to protect people from the harmful effects of noise. It aims to complement government planning and noise policy and guidance. In particular, it strives to:

- ✳ Advocate full consideration of the acoustic environment from the earliest possible stage of the development control process.
- ✳ Encourage the process of good acoustic design in and around new residential developments.
- ✳ Outline what should be taken into account in deciding planning applications for new noise-sensitive developments.
- ✳ Improve understanding of how to determine the extent of potential noise impact and effect; and
- ✳ Assist the delivery of sustainable development.

This ProPG advocates a systematic, proportionate, risk-based, two-stage, approach. The approach encourages early consideration of noise issues, facilitates straightforward accelerated decision-making for lower-risk sites, and assists proper consideration of noise issues where the acoustic environment is challenging.

The two sequential stages of the overall approach are:

- ✳ Stage 1 – An initial noise risk assessment of the proposed development site. It is important that the assessment of noise risk at a proposed residential development site is not the basis for the



eventual recommendation to the decision maker. The recommended approach is intended to give an early indication of the likely initial suitability of the site for new residential development from a noise perspective and the extent of the acoustic issues that would be faced.

- 📌 Stage 2 – A systematic consideration of four key elements. These elements are presented in the following four subsections.

2.3.1. ELEMENT 1 – DEMONSTRATING A “GOOD ACOUSTIC DESIGN PROCESS”

It is imperative that acoustic design is considered at an early stage of the development control process. A good acoustic design process takes a multifaceted and integrated approach to achieve optimal acoustic conditions, both internally and externally. Good acoustic design should avoid “unreasonable” acoustic conditions and prevent “unacceptable” acoustic conditions.

2.3.2. ELEMENT 2 – OBSERVING INTERNAL “NOISE LEVEL GUIDELINE”

Table 2.2 ProPG Internal Noise Level Guidelines

ACTIVITY	LOCATION	DAYTIME HOURS (07:00-23:00)	NIGHT-TIME HOURS (23:00-07:00)
Resting	Living Room	35 dB $L_{Aeq,16\text{ hr}}$	–
Dining	Dining Room/Area	40 dB $L_{Aeq,16\text{ hr}}$	–
Sleeping	Bedrooms	35 dB $L_{Aeq,16\text{ hr}}$	30 dB $L_{Aeq,8\text{ hr}}$ 45 dB $L_{Amax,fast}$ ⁴

Notes

1) Table 2.2 provides recommended internal L_{Aeq} target levels for overall noise in the design of a building. These are the sum total of structure-borne and airborne noise sources. Ground-borne noise is assessed separately and is not included as part of these targets, as human response to ground-borne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.

2) The internal L_{Aeq} target levels shown in Table 2.2 are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port with high levels of traffic at certain times of the night, an appropriate alternative period, e.g. 1 hour, may be used, but the level should be selected to ensure consistency with the internal L_{Aeq} target levels recommended in the table.

3) These internal L_{Aeq} target levels are based on annual average data and do not have to be achieved in all circumstances. For example, it is normal to exclude occasional events, such as fireworks night or New Year’s Eve.

4) Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of Sound Exposure Level (SEL) or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances, in noise-sensitive rooms at night (e.g. bedrooms), good acoustic design can be used so that individual noise events do not normally exceed 45 dB $L_{Amax,F}$ more than ten times a night. However, where it is not reasonably practicable to achieve this guideline, then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events.

5) Designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates good acoustic design. Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed; however, any façade openings used to provide whole-dwelling ventilation (e.g. trickle



ventilators) should be assessed in the “open” position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in 7).

6) Attention is drawn to the requirements of the building regulations.

7) Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal L_{Aeq} target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved. The more often internal L_{Aeq} levels start to exceed the internal L_{Aeq} target levels by more than 5 dB, the more that most people are likely to regard them as “unreasonable”. Where such exceedances are predicted, applicants should be required to show how the relevant number of rooms affected has been kept to a minimum. Once internal L_{Aeq} levels exceed the target levels by more than 10 dB, they are highly likely to be regarded as “unacceptable” by most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing “unacceptable” noise levels at all and, where such levels are likely to occur frequently, the development should be prevented in its proposed form.

2.3.3. ELEMENT 3 – UNDERTAKING AN “EXTERNAL AMENITY AREA NOISE ASSESSMENT”

Advice in BS 8233:2014 provides the following:

If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended. The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50–55 dB $L_{Aeq,16hr}$. These guideline values may not be achievable in all circumstances where development might be desirable. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces.

Where, despite following a good acoustic design process, significant adverse noise impacts remain on any private external amenity space, then that impact may be partially offset if the residents are provided, through the design of the development or the planning process, with access to:

- ✚ A relatively quiet façade or a relatively quiet externally ventilated space as part of their dwelling; and/or
- ✚ A relatively quiet alternative or additional external amenity space for sole use by a household; and/or
- ✚ A relatively quiet, protected, nearby, external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings; and/or
- ✚ A relatively quiet, protected, publicly accessible, external amenity space that is nearby.

2.3.4. ELEMENT 4 – CONSIDERATION OF “OTHER RELEVANT ISSUES”

Some further considerations to make in the second stage of the ProPG overall approach are:

- ✚ Compliance with relevant national and local policy.
- ✚ Magnitude and extent of compliance with ProPG.
- ✚ Likely occupants of the development.
- ✚ Acoustic design versus unintended adverse consequences; and
- ✚ Acoustic design versus wider planning objectives.



SUBSEQUENT RECOMMENDATIONS

Following the above stages, including the initial site risk assessment and full assessment, a recommendation to the decision maker is determined as follows:

- ✳ Grant without noise conditions; or
- ✳ Grant with noise conditions; or
- ✳ Avoid (significant adverse effects); or
- ✳ Prevent (unacceptable adverse effects).

2.4. BUILDING REGULATION: APPROVED DOCUMENT F – VOLUME 1: DWELLINGS (JUNE 2022)

Approved document F Volume 1: Dwellings (ADF) provides guidance set by the Department for Levelling Up, Housing and Communities, that relates to means of ventilation within dwellings. The ventilation strategy specified within the ADF are as follows.

1.9 The ventilation strategy in this approved document relies on a combination of all of the following.

- a. Extract ventilation from rooms where water vapour or pollutants are likely to be released (e.g. bathrooms and kitchens), to minimise their spread to the rest of the building. Ventilation fans may be either intermittent operation or continuous operation.*
- b. Whole dwelling ventilation to provide fresh air to the building and to dilute, disperse and remove water vapour and pollutants not removed by extract ventilation.*
- c. Purge ventilation to remove high concentrations of pollutants and water vapour. Purge ventilation is used intermittently and required only for pollutants produced by occasional activities (e.g. fumes from painting).*

1.10 Ventilation may be delivered through natural ventilation, mechanical ventilation or a combination of both.

1.11 The ventilation systems in this approved document are examples of systems that comply with Part F of the Building Regulations. Other ventilation systems may be acceptable if they can be shown to meet an equal level of performance.

Within the ADF there are three system specific ventilation systems that can be utilised to provide sufficient ventilation. These methods are as follow.

- 1. Natural ventilation with background ventilators and intermittent extract fans (guidance suitable only for less airtight dwellings) - Ventilation provided by thermal, wind or diffusion effects through doors, windows or other intentional openings without the use of mechanically driven equipment. For the purposes of this approved document, natural ventilation refers to a ventilation strategy using background ventilators and intermittent extract ventilation.*
- 2. Continuous mechanical extract ventilation - Mechanically driven ventilation that continuously extracts indoor air and discharges it to the outside.*
- 3. Mechanical ventilation with heat recovery - A mechanically driven ventilation system that both continuously supplies outdoor air to the inside of the dwelling and continuously extracts indoor air and discharges it to the outside. For the purposes of this approved document, the guidance*



for mechanical ventilation with heat recovery applies to centralised or decentralised supply and extract systems, with or without heat recovery.

2.5. BUILDING REGULATIONS: APPROVED DOCUMENT O – OVERHEATING (JUNE 2022)

Approved document O - Overheating (ADO) provides guidance set by the Department for Levelling Up, Housing and Communities, that relates to the mitigation of overheating. In relation to noise the ADO provides the following guidance.

3.2 In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

3.3 Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.

a. 40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).

b. 55dB L_{AFmax} , more than 10 times a night (between 11pm and 7am).

3.4 Where in-situ noise measurements are used as evidence that these limits are not exceeded, measurements should be taken in accordance with the Association of Noise Consultants'

Measurement of Sound Levels in Buildings with the overheating mitigation strategy in use.

NOTE: Guidance on reducing the passage of external noise into buildings can be found in the National Model Design Code: Part 2 – Guidance Notes (MHCLG, 2021) and the Association of Noise Consultants' Acoustics, Ventilation and Overheating: Residential Design Guide (2020)

2.6. APPROVED DOCUMENT PART O NOISE GUIDE (2024)

This guide sets out a method to demonstrate compliance to the Building Control Body of the noise constraints in AD-O. This guide aims to provide clarity for practitioners and regulators so that assessments can be carried out consistently, and the outcome is repeatable and reliable.

Any assessment of overheating, in relation to noise, follows this guidance. Importantly, the guide, based on research and typical assumptions, provides the resulting outside-to-inside level difference for window openings necessary to satisfy the simplified method of AD-O which are expected to be:

✳ 5 dB for 'high risk' locations; and

✳ 10 dB for 'medium risk' locations.

With reference to paragraph 3.3 of AD-O, this implies the following limiting external free-field levels above which external noise precludes the use of the simplified method, and dynamic thermal modelling should be used to demonstrate compliance.

The guide also recommends that $L_{Amax,fast}$ measurement and assessment should be based on a sampling period of 2 minutes.



2.7. BRITISH STANDARD BS 8233:2014+A1:2019 – GUIDANCE OF SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS

The scope of this standard is the provision of recommendations for the control of noise in and around buildings including residential dwellings. It suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new buildings or refurbished buildings undergoing a change of use, rather than to assess the effect of changes in the external noise climate.

The standard suggests suitable internal noise levels within different types of buildings, including residential dwellings, as shown in Table 2.2.

Table 2.2 BS 8233:2014 Recommended Internal Noise Level

CRITERION	TYPICAL SITUATION	DESIGN CRITERION $L_{Aeq, T}$ (dB)
Suitable resting and sleeping conditions	Living Room	35
	Bedroom	30

BS 8233 goes on to recommend noise levels for gardens:

It is desirable that the external noise level does not exceed 50 dB $L_{Aeq, T}$, with an upper guideline 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 might be warranted.

BS 8233 goes on to say:

In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited.



3. SURVEY RESULTS

Figure 2 details the noise measurement position.

Figure 2 Noise Measurement Position



3.1. ROAD TRAFFIC SOUND MEASUREMENT

E3P has conducted a Road Traffic Noise Survey to measure the level of noise generated by road traffic along Shermanbury Road. The survey was carried out over the following time period in accordance with Calculation of Road Traffic Noise (CRTN):

📅 13:00 Wednesday 15th to 12:00 Thursday 16th April 2026.

The following noise measurement position was chosen for the Road Traffic Noise Survey:

📍 Noise Measurement Position 1 (NMP1): Positioned approximately 4.5 m from the nearside curb of Shermanbury Road to the south of the Site. The microphone was located at a height of 1.3 m above local ground level under free-field conditions. The sound climate was dominated by road traffic along Shermanbury Road.



A summary of the measured sound pressure levels from the Road Traffic Noise Survey is presented in Table 3.1.

Table 3.1 Unattended Road Traffic Noise Levels – Shermanbury Road

MEASUREMENT START TIME	MEASURED SOUND PRESSURE LEVEL (dB)	
	$L_{Aeq,T}$	10 th Highest Maximum Noise Level L_{AFMax}
15/04/2026 13:00	63.9	N/A
15/04/2026 14:00	64.3	
15/04/2026 15:00	65.3	
15/04/2026 16:00	66.0	
15/04/2026 17:00	67.0	
15/04/2026 18:00	64.2	
15/04/2026 19:00	62.4	
15/04/2026 20:00	60.5	
15/04/2026 21:00	58.7	
15/04/2026 22:00	56.9	
15/04/2026 23:00	54.8	77.2
16/04/2026 00:00	50.7	
16/04/2026 01:00	45.3	
16/04/2026 02:00	50.8	
16/04/2026 03:00	52.4	
16/04/2026 04:00	54.6	
16/04/2026 05:00	57.7	
16/04/2026 06:00	62.4	
16/04/2026 07:00	65.8	
16/04/2026 08:00	67.0	N/A
16/04/2026 09:00	64.7	
16/04/2026 10:00	63.1	
16/04/2026 11:00	65.5	

Weather conditions were conducive to the requirements for environmental noise measurements.

The equipment outlined in Table 3.2 was used for the road traffic noise survey.



Table 3.2 Noise Measurement Equipment and Calibration Dates

MEASUREMENT POSITION	EQUIPMENT DESCRIPTION	MANUFACTURER AND TYPE NUMBER	SERIAL NUMBER	CALIBRATION DUE DATE
NMP1	Sound Level Meter	Svantek SV 917A	159408	12/03/2028
	Microphone	Svantek ACO Pacific 7152	95340	
	Calibrator	Norsonic Nor 1255	125525208	16/06/2026

The sound level meter was field calibrated before and after measurements with no significant drift witnessed.



4. INITIAL NOISE RISK ASSESSMENT

The noise risk assessment should provide an indication of the likely risk of adverse effects from noise where no subsequent mitigation is to be included as part of the development proposal. It should indicate whether the proposed site is considered to pose a negligible, low, medium or high risk from a noise perspective. The risk assessment should not include the impact of any new or additional mitigation measures that may subsequently be included in development proposals for the site and proposed as part of a subsequent planning application.

Accordingly, a site noise risk assessment has been undertaken for road traffic noise.

For the purposes of this assessment, E3P have used noise modelling software, CadnaA 2026, to determine the impact of noise from Shermanbury Road.

The following inputs have been included in the model:

- ✳ Shermanbury Road is calibrated to NMP1.
- ✳ Site elevations have been taken as existing by way of a 1 m grid Digital Terrain Model (DTM) which contains public sector information licensed under the Open Government License v3.0.
- ✳ Existing buildings are included.
- ✳ A reflection order of 2 has been used in all calculations.
- ✳ Noise levels generated using ISO 9613-2:2024 "Acoustics – Attenuation of sound during propagation outdoors" and CRTN as incorporated into CadnaA software.

Figures 3 and 4 determine the noise levels across the site during the daytime and night-time periods, respectively, due to road traffic sound.

Figure 3 determines that noise levels range between 31 dB and up to 64 dB within the red line boundaries of site within daytime periods. This results in most of the site being "Negligible Risk" with areas closer to Shermanbury Road between "Low and Medium Risk" during daytime periods.

For night-time periods, Figure 4 determines that noise levels range between 27 dB and up to 56 dB within the red line boundaries of the site. This results in most of the site being "Negligible Risk" with areas closer to Shermanbury Road subject to "Low to Medium Risk" during night-time periods. The pre-planning application advice is as follows:

LOW RISK

At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an acoustic design statement (ADS) which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.

No specific requirements to control noise impact is required for these areas given that good acoustic design will be required close to the road thus reducing noise levels to these areas.

MEDIUM RISK

The site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse noise impact will be avoided in the finished development.



Only areas along the boundary with Shermanbury Road are subject to “Medium Risk” during the day and night and an acoustic design statement (ADS) will be required to ensure that everything possible has been done to design the layout with acoustics in mind. Additionally, mitigation measures such as acoustic barriers and higher-specification glazing may still be required following this process.



5. FULL ASSESSMENT

The assessment outlined in Section 4 has been used for the basis of the full assessment in relation to road traffic sound.

5.1. GOOD ACOUSTIC DESIGN PROCESS

Good acoustic design should avoid “unreasonable” acoustic conditions and prevent “unacceptable” acoustic conditions. Good acoustic design is not just compliance with recommended internal and external noise exposure standards. Good acoustic design should provide an integrated solution whereby the optimum acoustic outcome is achieved, without design compromises that will adversely affect living conditions and the quality of life of the inhabitants or other sustainable design objectives and requirements.

Given the potential for some developable areas to fall within “Medium Risk” for the daytime and night-time periods, good acoustic design is recommended in these areas. Specifically, the following will need to be considered when designing the site and plot layouts:

- ✚ Plots near Shermanbury Road should be orientated such that the garden areas are protected by the building envelope and buildings should wrap around the sides, where possible, to protect the gardens.
- ✚ Gaps between dwellings along this boundary should be kept to a minimum to avoid noise creep into the gardens behind.
- ✚ Wherever possible, windows for habitable rooms should face away from the noise sources, so that opening windows does not necessarily result in an exceedance of the criteria. Also, a standoff from the roads could reduce internal levels to an acceptable level without mitigation. However, where this is not possible, internal levels can be controlled by way of mitigation.

E3P are in receipt of an illustrative layout showing proposed draft plot locations and orientations. It is noted that the two plots adjacent to Shermanbury Road will not be included in the final site layout and have thus been omitted from the noise model. Good Acoustic Design is incorporated with the above two points implemented for the southern boundary. The layout is assessed in detail below.

5.2. INTERNAL NOISE LEVEL ASSESSMENT

With regards to internal noise levels, BS 8233:2014 suggests that a glazing unit with configuration 4 mm glass/20 mm air space/4 mm glass affords sound insulation performance in the order of 29 dB; however, this is for a pink noise spectrum. The same unit, weighted for road traffic noise using the “+C_{tr}” correction, has a sound insulation performance value of approximately 25 dB and so this value has been used to calculate internal noise levels.

This performance is added to the criteria for internal noise levels resulting in an allowable threshold of 60 dB during the day and 55 dB during the night, beyond which higher specification glazing is required.

In order to assess the potential for higher specification glazing, the worst-case potential facade day and night-time noise levels are considered. Figures 5 and 6 show the daytime and night-time noise levels respectively and the following is noted for the southernmost plots closest to Shermanbury Road:

- ✚ 52 dB day and 44 dB night based on indicative plot locations.

Consideration must also be given to maximum noise levels generated by road traffic. The 10th highest maximum noise level has been used and distance corrected to the closest plot. Internal maximum noise



levels of 45 dB $L_{A\text{Max}, \text{Fast}}$ should also not be exceeded. The sound insulation performance achieved by standard glazing (29 dB) has been added to the 45 dB maximum internal noise level limit. As such, facades subject to maximum noise levels above 74 dB will require higher specification glazing.

The maximum noise level at the worst affected facades is calculated to be 53 dB for the southernmost proposed plots, adjacent to Shermanbury Road. Therefore, standard specification glazing is sufficient to mitigate against road traffic noise along Shermanbury Road for all plots.

5.3. VENTILATION CONDITION

When considering a partially open window for ventilation purposes, E3P has assumed that a Building Regulations ADF compliant system would be installed as part of the development, in all plots, as it is unlikely the plots are suitable for natural ventilation given modern construction. This could be a decentralised continuous extract ventilation system with fans in wet rooms and trickle vents in habitable rooms.

Therefore, the only consideration in relation to noise will be the performance of any window mounted or through walls vents in relation to the passage of external to internal noise.

This is discussed in the mitigation section.

5.4. OVERHEATING CONDITION

E3P has considered the requirements of ADO in relation to opening windows at night to mitigate the potential for overheating, which at this stage is assumed to be required. Therefore, external noise levels at affected facades apply. Any plots that experience noise levels below these limits will be able to have openable windows to mitigate any overheating. Those that exceed these limits will be subject to an Overheating Assessment by a suitably qualified professional.

It is noted that part of the site is within a medium risk area and, as such, an outside-to-inside level difference for window openings for the simplified method is noted to be 10 dB.

As such, the allowable façade noise levels are 50 dB averaged over the 8-hour nighttime period and 65 dB $L_{A\text{max}, \text{fast}, 2\text{min}}$ during the night.

As can be seen from Figure 7, no proposed plots exceed the average noise level at night. With regards the maximum noise level, this was measured to be 77 dB at 4.5 m. When distance corrected to the closest plot (70 m), this results in an expected level of 53 dB, which is 12 dB below the stated threshold. As such, no overheating assessment is necessary for proposed plots.

5.5. EXTERNAL AMENITY AREA NOISE LEVEL ASSESSMENT

Figure 5 in Appendix III shows that noise levels range from less than 43 dB up to 49 dB within the rear garden areas of plots closest to Shermanbury Road. Accordingly, the design range is achieved with the current layout as good acoustic design is incorporated.

Should the final layout expose gardens to the road, acoustic barriers will be required.

Where barriers are not favourable due to other factors, the closest garden area could be offset by 50 m from the road edge to achieve noise levels in the garden of less than 55 dB or below without the need for barriers, where good acoustic design is not desirable.



5.6. OTHER RELEVANT ISSUES

The ProPG primarily seeks to encourage a good acoustic design process for new residential developments. It is recognised that it may not always be possible to achieve the internal noise level guidelines in all rooms within noise-sensitive developments. Where it is not possible to achieve the recommended standards in every respect, regard should be had to the number of dwellings and number of habitable rooms in each of the dwellings where the recommended standard cannot be achieved. Similarly, regard should be given to the extent to which the guidance on the external amenity area noise assessment has been followed, including whether access to quiet external amenity areas is considered necessary, and the extent of any adverse impacts on external amenity areas that are an intrinsic part of the overall design.

Design measures taken to reduce intrusion by noise may have unintended adverse consequences for the building or the nearby environment and may affect the attractiveness of the living environment for the occupants. Examples include roadside barriers that remove views or prevent crossing roads and sealed facades that affect personal control over the internal environment. Wherever possible, such unintended adverse consequences should be obviated by good acoustic design.

Some wider planning objectives may have unforeseen acoustic implications. For example, the encouragement of “active facades”, which overlook public footpaths etc. to ensure “safe by design” could result in some residential units facing noisy streets. The encouragement of active outdoor lifestyles may require the careful protection of amenity spaces from sources of transport noise. The creation of vibrant mixed-use commercial and residential neighbourhoods can introduce challenges that will need to be overcome by careful acoustic design.



6. MITIGATION STRATEGY AND ACOUSTIC DESIGN STATEMENT

6.1. SITE LAYOUT AND DESIGN

With regards to Shermanbury Road, the following design features are recommended:

- ✳ Plots should be orientated such that the garden areas are protected by the building envelope and buildings should wrap around the sides, where possible, to protect the gardens and negate requirement for acoustic barriers.
- ✳ Gaps between dwellings along the boundaries with the road should be kept to a minimum to avoid noise creep into the gardens behind.
- ✳ Wherever possible, windows for habitable rooms should face away from the noise sources so that opening windows does not necessarily result in an exceedance of the criteria.

The Illustrative layout has shown that a suitable layout can be achieved with good acoustic design and without the need for acoustic barriers. It is recommended that any future layout design closely follows the same provisions as shown here.

6.2. INTERNAL HABITABLE ROOMS – GLAZING AND VENTILATION REQUIREMENTS

It was found that standard double glazing is sufficient for all proposed plots. A whole dwelling ventilation system is assumed, in accordance with ADF, to be installed in all plots; this will satisfy any requirements here. However, this may not be sufficient following an overheating assessment at the detailed design stage.

Ideally, any inlet for fresh air should be located away from the noise source to ensure that the freshest air available is brought into the habitable rooms.

The southernmost plot, closest to Shermanbury Road, will also need to be assessed in an overheating assessment as windows should, ideally, not be opened at night on southern elevations to mitigate overheating as internal noise levels would exceed Part O requirements.

6.3. EXTERNAL AMENITY AREAS

The previous section found that noise levels in the rear gardens would be 55 dB or below due to good acoustic design.

6.4. ACOUSTIC DESIGN STATEMENT

The majority of site is of “Negligible Risk” and there should be no adverse impact in regards to noise. Areas close to Shermanbury Road are of “Low to Medium Risk” and there should be no adverse impact assuming good acoustic design and mitigation measures are incorporated into the design.

In external areas, the assessment determined that noise levels are below 55 dB for all plots, and it is recommended that this good acoustic design measure is implemented on layout designs going forward. Furthermore, the following is required should any changes to the layout be made:



- ✳ Plots along the boundary with Shermanbury Road should be orientated such that the garden areas are protected by the building envelope and buildings should wrap around the sides, where possible, to protect the gardens and negate requirement for acoustic barriers.
- ✳ Gaps between dwellings along the boundaries with the road should be kept to a minimum to avoid noise creep into the gardens behind.
- ✳ Wherever possible, windows for habitable rooms should face away from the noise sources so that opening windows does not necessarily result in an exceedance of the criteria.

END OF REPORT

Appendix I: Limitations





GENERAL

1. This report and any associated works (together comprising the "Services") were compiled and carried out by E3P for the client (as present in Section 1) under the E3P "Terms of Business" or with those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.
2. Unless explicitly agreed otherwise, in writing, this report has been prepared under E3P Standard Terms and Business as included within our proposal to the Client.
3. Project-specific appointment documents may be agreed upon at our discretion and a charge may be levied for both the time to review and finalise appointment documents and also for associated changes to the appointment terms. E3P reserves the right to amend the fee should any changes to the appointment terms create an increased risk to E3P.
4. The report needs to be considered in light of the proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

NOISE AND VIBRATION IMPACT ASSESSMENTS

5. Where a noise or vibration survey is required to inform an assessment, E3P will endeavour to ensure that all noise and vibration measurements taken are robust, representative and reliable in order to inform an accurate assessment.
6. Where mitigation measures are specified in this report, it should be noted that these measures are relative to a specific sound or vibration source, both in terms of the measured sound pressure and vibration level and the character of the sound source. Where either the sound pressure level or the character of the sound varies following completion of the sound survey, E3P cannot be held responsible for any subsequent variations in the proposed mitigation performance.
7. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walkover inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. E3P cannot be held responsible for any disclosures that are provided post-production of our report and will not automatically update our report.
8. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, E3P reserves the right to review such information and, if warranted, to modify the opinions accordingly.
9. E3P does not warrant work/data undertaken/provided by others.

Appendix II: Glossary





NOISE

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source. The most widely used weighting mechanism that best corresponds to the response of the human ear is the "A"-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or LAeq, LA90 etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective but, as a general guide, a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table A Typical Sound Pressure Levels

SOUND PRESSURE LEVEL	LOCATIONS/EXAMPLE
0	Threshold of hearing
20-30	Quiet bedroom at night
30-40	Living room during the day
40-50	Typical office
50-60	Inside a car
60-70	Typical high street
70-90	Inside a factory
100-110	Burglar alarm at 1 m away
110-130	Jet aircraft on take off
140	Threshold of pain



ACOUSTIC TERMINOLOGY

Table B Terminology

DESCRIPTOR	EXPLANATION
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. "A" weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
LAeq, T	LAeq is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.
LAmx	LAmx is the maximum A-weighted sound pressure level recorded over the period stated. LAmx is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the "fast" sound level meter response.
L10 and L90	If a non-steady noise is to be described, it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L10 is the level exceeded for 10% of the time and as such can be regarded as the "average maximum level". Similarly, L90 is the "average minimum level" and is often used to describe the background noise. It is common practice to use the L10 index to describe traffic noise.
Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and away from buildings.
Fast	A time weighting used in the root-mean-square section of a sound level meter with a 125-millisecond time constant.
Slow	A time weighting used in the root-mean-square section of a sound level meter with a 1000-millisecond time constant.
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. "A" weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

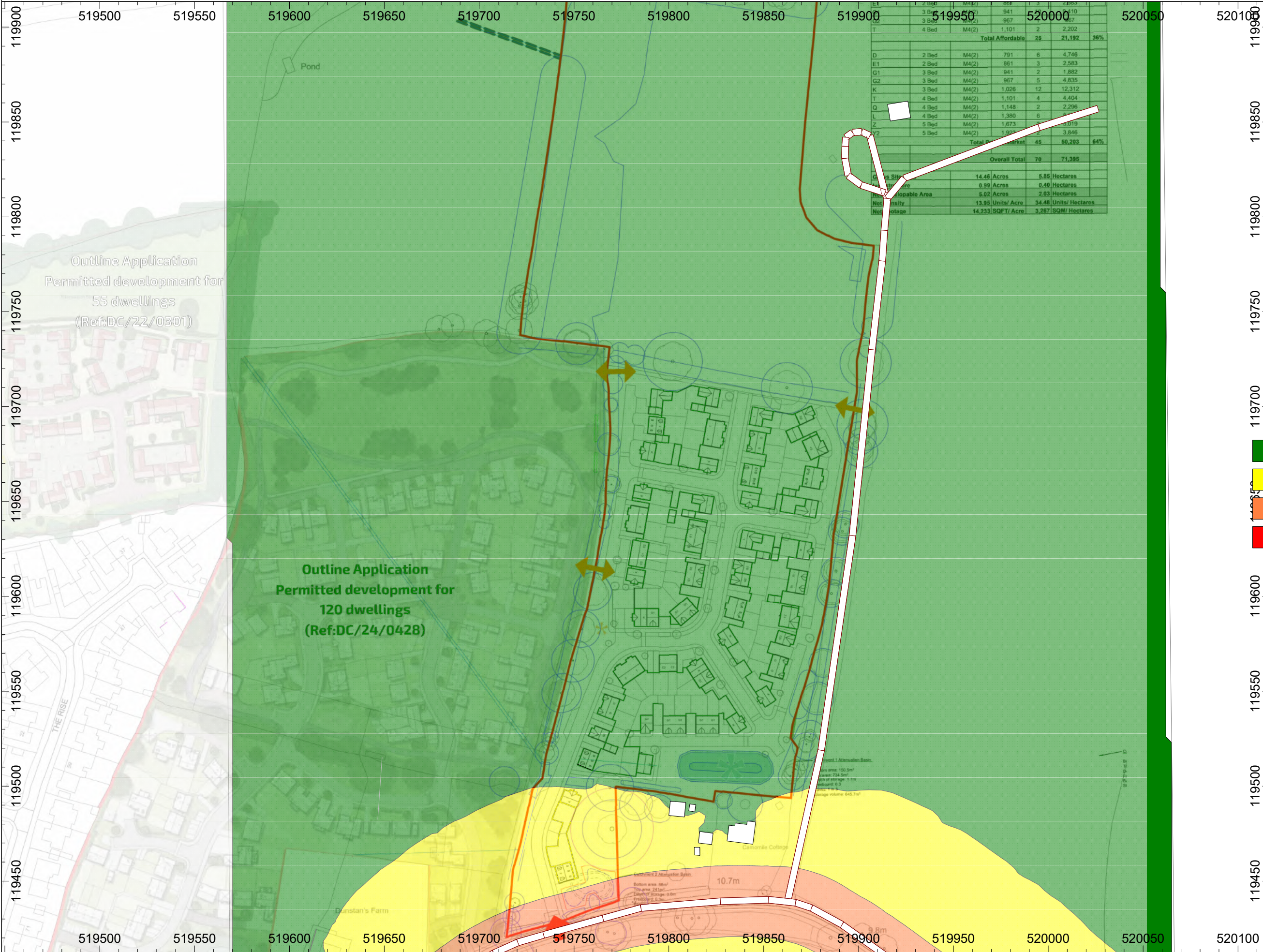
Appendix III: Figures



Figure 3 - Daytime Grid Noise Map Risk Assessment - Calculation at 1.5 m above ground level



Figure 4 - Nighttime Grid Noise Map Risk Assessment - Calculation at 4.0 m above ground level

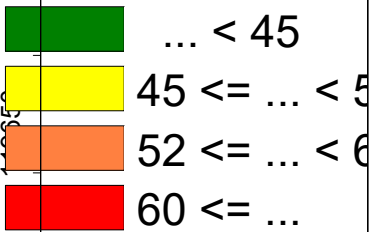


Project:
Shermanbury Road,
Horsham

Project-No:
52-145

Client:
Wain Estates
Limited

**Predicted Noise Level,
LAeq,T (dB)**



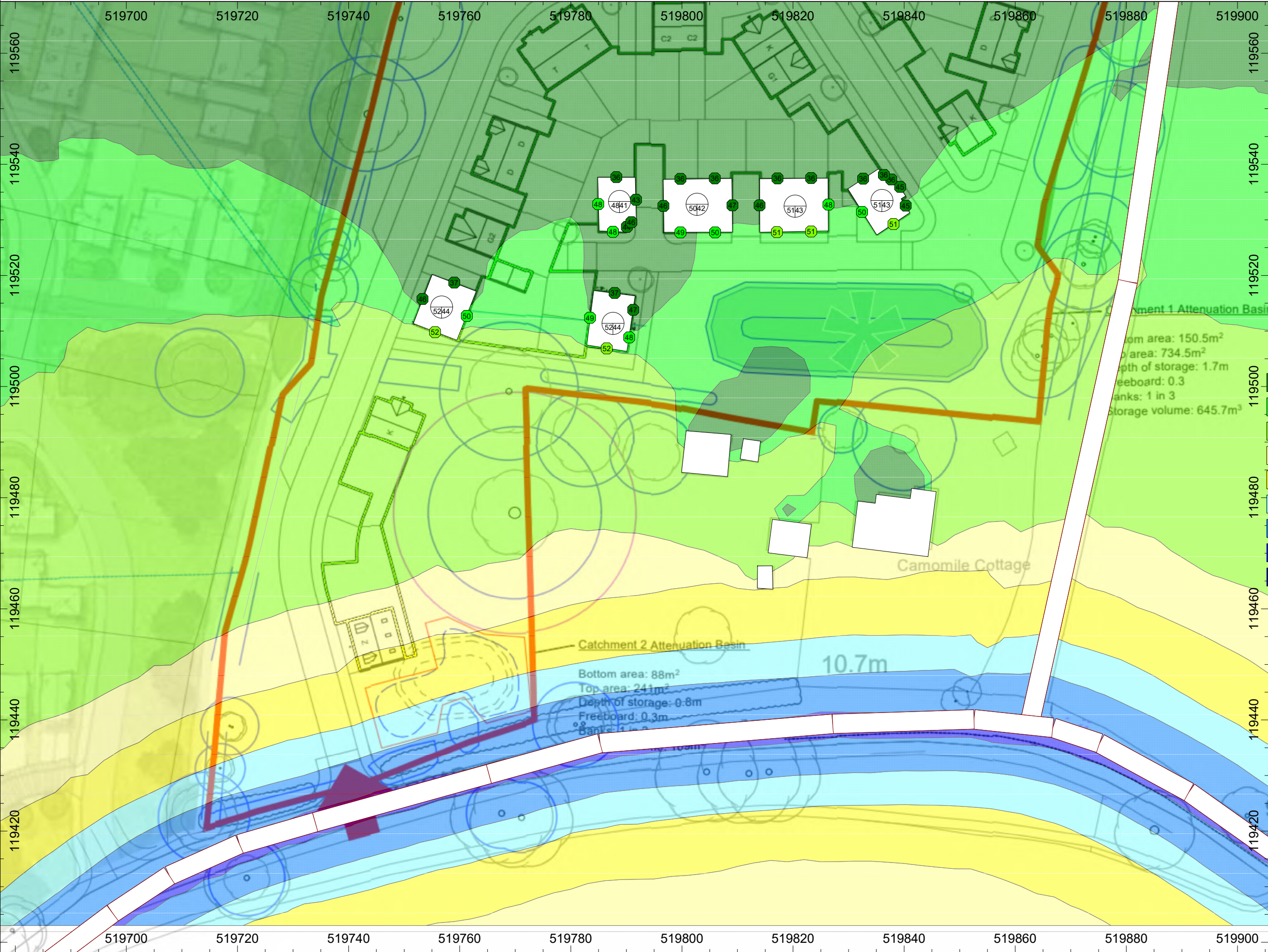
Noise Map Objects

- Road
- Building
- Calculation Area



Project Engineer: O Harrison
Date: 16/06/2026

Figure 5 - Daytime Grid Noise Map - Calculation at 1.5 m above ground level



Project:
Shermanbury Road,
Horsham

Project-No:
52-145

Client:
Wain Estates
Limited

**Predicted Noise Level,
LAeq,T (dB)**

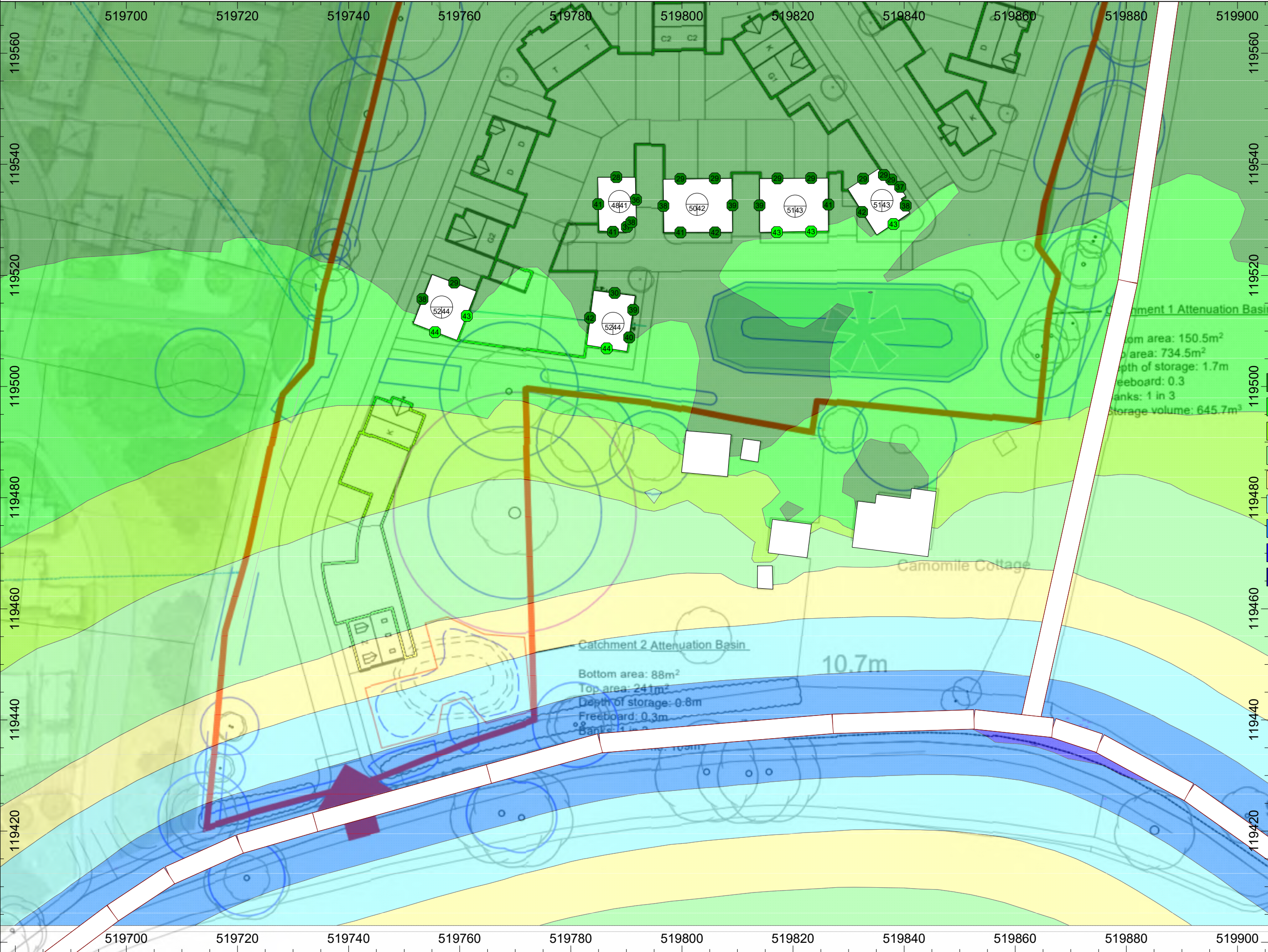
...	≤ 47
47 < ...	≤ 50
50 < ...	≤ 55
55 < ...	≤ 57
57 < ...	≤ 60
60 < ...	≤ 62
62 < ...	≤ 65
65 < ...	≤ 67
67 < ...	

Noise Map Objects

- Road
- Building
- Building Evaluation
- Calculation Area

Project Engineer: O Harrison
Date: 16/06/2026

Figure 6 - Nighttime Grid Noise Map - Calculation at 4.0 m above ground level



Project:
Shermanbury Road,
Horsham

Project-No:
52-145

Client:
Wain Estates
Limited

**Predicted Noise Level,
L_{Aeq,T} (dB)**

...	≤ 42
42 < ...	≤ 45
45 < ...	≤ 47
47 < ...	≤ 50
50 < ...	≤ 52
52 < ...	≤ 55
55 < ...	≤ 57
57 < ...	≤ 60
60 < ...	

Noise Map Objects

- Road
- Building
- Building Evaluation
- Calculation Area

e3p

Project Engineer: O Harrison
Date: 16/06/2026

Figure 7 - Nighttime Overheating Risk Assessment - Calculation at 4.0 m above ground level



Project:
Shermanbury Road,
Horsham

Project-No:
52-145

Client:
Wain Estates
Limited

**Predicted Noise Level,
LAeq,T (dB)**

... ≤ 50.0
50.0 < ...

Noise Map Objects

- Road
- Building
- Building Evaluation
- Calculation Area

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Project Engineer: O Harrison
Date: 16/06/2026