

dBTechnika
Acoustic Specialists

NOISE PROTECTION SCHEME

FOR

QVH RESIDENTIAL DEVELOPMENT SITE, EAST GRINSTEAD

BY

dB TECHNIKA

REF: 1R/DTB7818

14 AUGUST 2026

Prepared for:

Natalie Gentry

Macar Partnerships (QVH) Limited
Property Developer

Prepared by:

Steve Sheridan, CEng, MSc, PGDip, MIOA

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DISTRIBUTION LIST

Issued To	Title / Company / Location	Telephone No.
Natalie Gentry	Development Director Macar Partnerships (QVH) Limited Foundation House 42-48 London road Reigate Surrey RH2 9QQ	07921 067 252

Table of Contents

1.0 PROJECT CONTEXT4

2.0 BASELINE ENVIRONMENTAL NOISE MONITORING.....5

3.0 NOISE PROTECTION TARGETS.....7

4.0 STAGE 1 - INITIAL SITE NOISE RISK ASSESSMENT8

5.0 STAGE 2 - ACOUSTIC DESIGN STATEMENT10

6.0 NOISE PROTECTION SCHEME.....12

APPENDIX I – GLAZING & TRICKLE VENT PRODUCT DATA SHEETS13

APPENDIX II – NOISE IMPACT ASSESSMENT REPORT (DEC 2024 – 34 PAGES) - ACG LIMITED16

1.0 PROJECT CONTEXT

This report has been produced further to the acceptance of our fee proposal (Ref. 1P/DBT7818B dated 5 August 2026) in relation to our acoustic consulting services for Planning & Noise.

The following assessments, scheme and reporting have been undertaken by suitable qualified acousticians (SQAs). In this respect dB Technika is an independent acoustic consulting company, operating throughout the UK. All such consulting services are undertaken (or overseen) by the company's lead acoustician, a chartered engineer (CEng) with a master's degree in Acoustics (MSc) and a corporate member of the Institute of Acoustics (MIOA) with over 30 years' professional experience. All our consultants and any associates that have been involved in project work are also AMIOA qualified, as a minimum.

Planning permission was granted by Mid-Sussex District Council on the 18 November 2025 for the erection of 36 dwellings along with access from Oakfield Way along with parking and landscaping (Ref. DM/24/2704) in relation to land at Queen Victoria Hospital, Hackenden Lane, East Grinstead, West Sussex. This consent included the following planning condition regarding the mitigation of environmental noise impact upon the dwellings and external amenity areas:

11. No development shall be carried out above slab/ground floor level until there has been submitted to the local planning authority for its approval in writing, a scheme for protecting the residential units from noise generated by road traffic or other external sources. The scheme shall include an Acoustic Design Statement in line with the recommendations of ProPG: Planning & Noise Professional Practice Guidance on Planning & Noise 2017 and shall ensure that internal and external noise levels are in accordance with BS 8233 2014: Guidance on Sound Insulation and Noise Reduction for Buildings. Noise from individual external events typical to the area shall not exceed 45dB LAmax when measured in bedrooms internally between 23:00 and 07:00 hours, post construction unless otherwise agreed in writing with the LPA. Where the internal noise levels will be exceeded by more than 5dB with windows open, then the applicant shall submit details of an alternative means of ventilation with sufficient capacity to ensure the thermal comfort of the occupants with windows closed. Noise levels in gardens and public open spaces shall not exceed 55 dB LAeq 1 hour when measured at any period unless otherwise agreed in writing. All works that form part of the scheme shall be completed before the noise sensitive development is occupied.

Reason: In the interests of future occupiers amenity and to comply with Policy DP26 of the District Plan.

For reference, the client provided us with a copy of a '*Noise Impact Assessment*' (NIA) report, produced by Aval Consulting Group Limited (Ref. 93617 Rev. A dated 5 December 2024), which was submitted to the Local Planning Authority's (LPA's) in support of their planning application. Our review of this report concludes that it was professionally undertaken, with reliable noise monitoring and assessments. As such it is our intention to rely upon the findings of Aval's environmental baseline noise survey in addressing the requirements of Condition 11 above, particularly as construction works have now commenced at site, which would adversely interfere with any current noise surveying.

2.0 BASELINE ENVIRONMENTAL NOISE MONITORING

The findings of Section 4 – ‘Noise Survey’ of the ‘Noise Impact Assessment’ (NIA) report (Refer to Appendix II) produced by Aval Consulting Group Limited (Ref. 93617 Rev. A dated 5 December 2024) have been referenced and relied upon for the provision of noise level data relating to the pre-development environmental noise levels at site. All measurements were carried out in accordance with the general requirements of BS7445-1:2003, BS7445-2:1991 and BS4142:2014+A1:2019, as appropriate. All noise readings were acquired under free-field conditions

Unattended baseline noise monitoring was conducted over a 24-hour weekday period commencing 31 October 2024, at a central position (BL1) within the development plot. This was supplemented by concurrent attended daytime noise measurements at four additional positions (L1-L4) covering all areas of the site, as shown in the annotated site plan below:



Figure 2.1: Site Development Plan with Noise Measurement Locations

All noise readings were acquired using precision grade (Class 1) instrumentation, laboratory & site calibrated. The prevailing weather conditions were good and deemed not to have adversely affected the survey results. The surveyor’s subjective observations indicated that noise from the adjoining hospital site was not deemed significant at any location and in some areas it was inaudible.

The results of Aval’s unattended 24-hour noise monitoring are summarised in their table below, in terms of daytime (16hr) and nighttime (8hr) noise levels for a range of acoustic parameters, as follows:

Measured Baseline Noise Levels at Location BL1		
Indicator (dB)	L_{Aeq}	
Daytime – 16hrs (07:00 – 23:00)	44	
Nighttime – 8hrs (23:00 - 07:00)	32	

Table 2.1: Summary of Measured 24-hr Baseline Ambient Noise Levels

The results of Aval's attended short-sample daytime noise surveying are summarised in their table below, in terms of ambient ($L_{Aeq,T}$) and background ($L_{A90,T}$) noise levels, as follows:

Attended Survey Locations	Measurement Parameters - Daytime	
	$L_{Aeq,T}$	$L_{A90,T}$
Location L1	43dB	33dB
Location L2	44dB	40dB
Location L3	45dB	38dB
Location L4	42dB	40dB

Table 2.2: Summary of Measured Short-Sample Daytime Noise Levels

For the purposes of our assessments relating the 'Noise Protection Scheme', it is Aval's measured day and nighttime $L_{Aeq,T}$ values given in Table 2.1 that are relevant. The supplementary short-sample levels presented in Table 2.2 demonstrated a minimal level of variability over a range of locations within the site. As regards the assessment of event noise during the nighttime, we were provided with a copy of Aval's noise survey MS Excel file that included the $L_{Amax,F}$ raw data at 1-minute intervals. This in turn allowed us to derive the 10th highest noise event that occurred over the 8-hr nighttime period (in accordance with ProPG), which equated to a 1-minute $L_{Amax,F}$ of 52dB.

Based upon the above findings of their noise surveying, Aval concluded that '*in absolute terms the measured noise levels at site are well within British Standard guidance levels for dwellings, both outdoors and indoors*' and that '*the noise impact levels are satisfactory for residential development, and hence no specific noise mitigation measures are deemed necessary*'. As such, Aval's conclusions would tend to suggest that a specific 'Noise Protection Scheme' may not necessarily be warranted. Nonetheless, it's reasonable to expect a precautionary approach from the LPA given the scale of the development and the close proximity of the Queen Victoria Hospital and its associated fixed plant. Furthermore, the LPA may not have had the benefit of receiving a prior copy of Aval's report.

3.0 NOISE PROTECTION TARGETS

Considering the precise wording of Condition 11, it's noted that the purpose of the scheme is to protect the residential units from noise generated by road traffic and other external sources, citing 'ProPG: Planning & Noise – New Residential Development' (May 2017) and British Standard BS8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings'. In this respect it's important to note that 'the scope of ProPG is restricted to the consideration of new residential development that will be exposed predominantly to airborne noise from transportation sources' and that 'other sources of noise (such as dominant noise from industrial, commercial or entertainment premises) is outside the scope of this document'. As such, if fixed plant noise from the adjoining hospital was found to be dominant, it could not be considered under ProPG. Similarly, the guidance values for internal and external noise for dwellings given in Section 7.7 of BS8233:2014 are also confined to sources without specific character (i.e. anonymous noise), as follows:

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	—
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	—
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Table 3.1: Indoor Ambient Noise Levels for Dwellings

Note 7 of the Standard advises that 'where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5dB and reasonable internal conditions still achieved'. It's noted that an equivalent 5dB margin is included in the text of Condition 11.

In the case of noise levels in gardens and public open spaces, Condition 11 adopts the BS8233:2014 design criterion for external noise in amenity areas, which states that 'it is desirable that the external noise level does not exceed 50dB $L_{Aeq,T}$ with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments'.

Generally, in terms of noise targets, ProPG is consistent with BS8233:2014, although in the case of regular individual night-time noise events (that can cause sleep disturbance) the British Standard does not provide a guideline value. However, ProPG's internal noise level guidelines state that '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 45dB $L_{Amax,F}$ more than 10 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'. This target is consistent with 45dB L_{Amax} stipulated in Condition 11, though the 'more than 10 times a night' clause is not specifically stated.

In terms of external and internal noise targets, the noise assessment would follow the guidance provided in British Standard BS8233:2014 'Guidance on sound insulation and noise reduction for buildings', including the consideration of the sound reduction performance of the external building envelope, based upon the architect's selected materials and building elements. As regards nighttime ingress event noise into bedrooms, the measured external L_{Amax} dB noise levels would be corrected for open-window attenuation in line with ProPG (i.e. -15dB) and assessed using the highest reading acquired, as a worst-case.

Based upon the prevailing environmental noise levels measured at the development site by Aval, our 'Noise Protection Scheme' includes a ProPG: Planning & Noise (May 2017) Stage 1 'Initial Site Risk Assessment' followed by a Stage 2 'Acoustic Design Statement', at a level of detail proportional to the findings of the Stage 1 assessment.

4.0 STAGE 1 - INITIAL SITE NOISE RISK ASSESSMENT

ProPG's initial site noise risk assessment (ISNRA) considers the pre-developed plot without any subsequent noise mitigation measures for the purposes of categorising the site, over the range 'negligible' to 'high'. This should include the combined free-field noise level from all relevant sources of transportation noise that affect the site. The assessment may also include industrial/commercial noise where it is present but is not dominant.

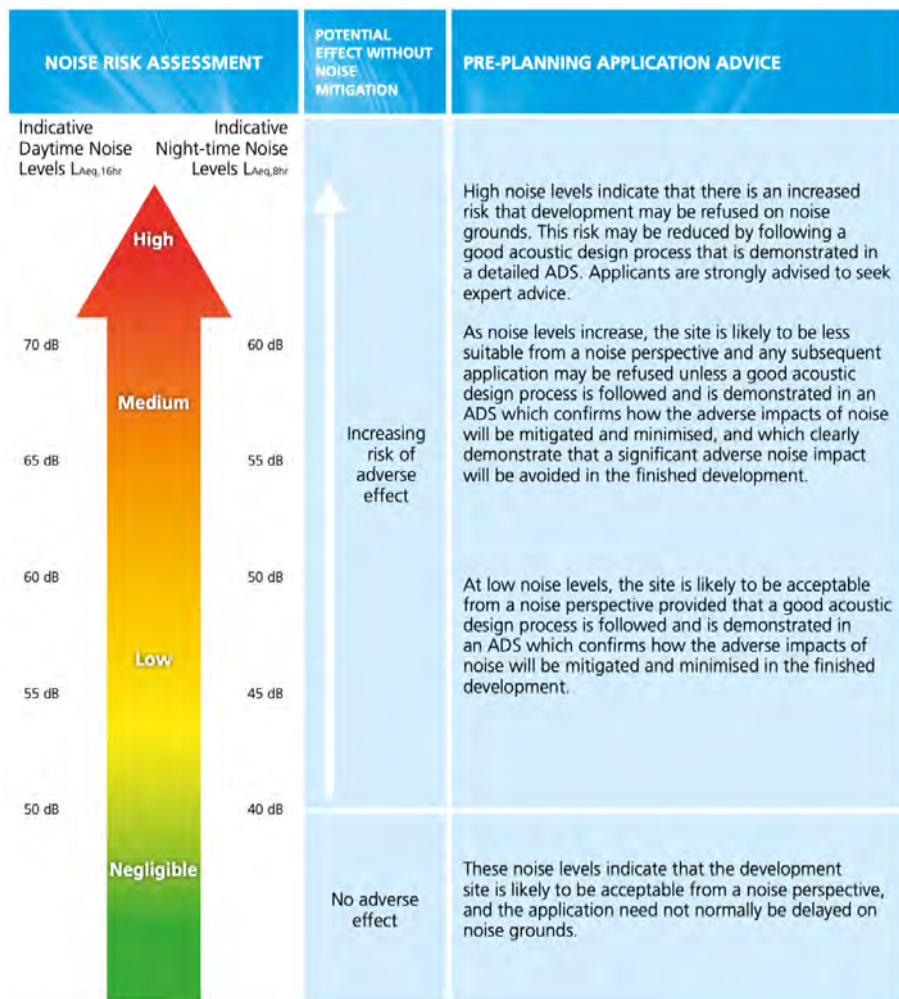


Figure 1 Notes:

- Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures.
- Indicative noise levels are the combined free-field noise level from all sources of transport noise and may also include industrial/commercial noise where this is present but is "not dominant".
- $L_{Aeq,16hr}$ is for daytime 0700 – 2300, $L_{Aeq,8hr}$ is for night-time 2300 – 0700.
- An indication that there may be more than 10 noise events at night (2300 – 0700) with $L_{Amax,F} > 60$ dB means the site should not be regarded as negligible risk.

Figure 4.1: ProPG Stage 1 Assessment – External Noise Targets

Time Period	External Measured Noise Level	ProPG External Negligible Risk	BS8233:2014 Indoor Guideline	Status
Daytime – 16hrs (7am-11pm)	44dB $L_{Aeq,T}$	<50dB	35+15=50dB (Resting)	Pass
Nighttime – 8hrs (11pm-7am)	32dB $L_{Aeq,T}$	<40dB	30+15=40dB (Sleeping)	Pass
	52dB $L_{Amax,F}$ (10 th Highest)	<60dB 10 Events	N/A	Pass

Table 4.1 – Summary of ProPG ISNRA Results

Based upon Aval's survey results as presented in Section 2.0 above and the ISNRA summary provided in the table above, the daytime and nighttime $L_{Aeq,T}$ levels of 44dB and 32dB, respectively, both equate to 'negligible' risk and hence likely to be acceptable from a noise perspective. Similarly, in terms of event noise, the 10th highest $L_{Amax,F}$ cannot have exceeded 60 dB as the measured L_{A0} was 58dB – again corresponding to 'negligible' risk. In this case, ProPG advises that the planning consent may be granted without the need for noise conditions. Similarly, the BS8233:2014 indoor guideline values are met, which are shown to be consistent with ProPG's external targets on the basis of a partially open window providing 15dB level difference, as stated in Annex G of BS8233:2014.

5.0 STAGE 2 - ACOUSTIC DESIGN STATEMENT

As advised in ProPG, the Acoustic Design Statement (ADS) should be proportionate to the scale of the development and to the degree of noise risk at the proposed development site. An ADS should not normally be necessary where the noise risk has been properly assessed as ‘negligible’ during Stage 1. The level of detail provided in an ADS should increase with increasing level of risk. Nevertheless, in view of the proximity of the hospital, the following ADS has been undertaken to support the ‘*Noise Protection Scheme*’ presented in Section 6.0.

Site Location and Layout

The final site layout plan for 36 dwellings is shown below in Figure 5.1, showing the proximity of existing residential areas to the west, woodland to the north and north-east, a hospital to the south-east and a pond to the south.



Figure 5.1: Site Layout Plan – 36 Dwellings

Considering the location of the site with respect to the local road network, the situation is favourable as regards road traffic noise as there are no through routes in close proximity to the boundary. Similarly, roof-mounted fixed plant associated with Queen Victoria Hospital's main buildings is not located close to the site boundary. Furthermore, the majority of the eastern boundary adjoins woodland. The south-eastern element of the development that's located closer to the hospital features a car parking area, which serves as a buffer zone effectively separating the residential units from the shared boundary.

As regards external sources of noise associated with the hospital, it's noted that the British Standard BS4142 survey and assessment undertaken by Aval did not detect any increase in noise levels upon approaching the eastern boundary with the hospital, nor was any significant impact indicated. Overall, it was concluded that distant transportation noise was predominant and that any contribution from the hospital was relatively minimal. Condition 11 is deemed consistent with this situation, as there's no mention of industrial/commercial noise sources nor any specific requirements or targets set with respect to BS4142. Furthermore, ProPG and BS8233 targets are only applicable to situations where industrial/commercial noise is not dominant.

6.0 NOISE PROTECTION SCHEME

The findings of the ProPG Stage 1 & 2 assessments indicate that a bespoke noise protection scheme is not necessarily required for this development, as all the noise targets set out in both ProPG and BS8233:2014 are complied with internally (i.e. indoors) and externally (i.e. amenity areas) for both the day and night time periods. Furthermore, the nighttime targets can be met with the windows open, so there are no implications for the management of overheating relative to Part O of the Building Regulations.

Nonetheless, the design of the dwellings has allowed for external glazing with a good acoustic performance, combined this sound attenuating trickle vents. This provides future residents with the option to close windows and achieve a significant reduction in indoor noise ingress levels, on any rare occasions where elevated noise levels might occur (e.g. temporary garden machinery – such as lawn mowers or during property maintenance works) or when external temperatures are too cold to leave windows open (e.g. winter time).

Based upon laboratory testing in accordance with ISO140 and single figure ratings in accordance with ISO717, the acoustic specifications for the external glazing and the trickle vents are provided in the datasheets included in Appendix I and are summarised as follows in the table below:

Building Element	$R_w / D_{n,e,w}$	C_{tr}	$R_w + C_{tr}$
External Glazing (4-16-4)	30dB	-4dB	26dB
Trickle Vent (M335 TV - Open)	32dB	-2dB	30dB

Table 6.1 – Summary of Sound Insulation Performances

Based upon the above degree of sound insulation, the ingress sound level with the windows closed would be insignificant. Conversely, with the windows open, the targets stipulated in Condition 11 would be fully complied with.

APPENDIX I – GLAZING & TRICKLE VENT PRODUCT DATA SHEETS

APPENDIX I – GLAZING & TRICKLE VENT PRODUCT DATA SHEETS



Acoustic Performance

Glazing Configuration

4mm Float Glass

16mm Cavity

4mm Float Glass

Sound Reduction Indices

Frequency, Hz / dB*						Rw	C	Ctr	OITC	STC
125	250	500	1000	2000	4000	30	-1	-4	24	30
25	16	26	39	47	39					

*The values expressed in the frequency table correspond to the central values of the 1/3 octave band

Disclaimer: The acoustic performance data provided in the reports is based on a test protocol or an estimation and may be used if user actual glazing is identical to input data described herein as to the date of this report. Acoustic performance data herein is only applicable for glazing dimensions 1,23 m x 1,48 m (as per testing standard). Estimation of acoustic performance is based on component-similarity assumptions which are derived from measured data and interpolation to expand the database of values from test protocols. Due to inherent variations in acoustic performance when testing in accordance with EN ISO 10140-3/EN ISO 10140-2, some variation in the calculated performance can also be expected. As such, the weighted performance, R_w , and adaptation terms, C and C_{tr} , should typically be considered to be accurate within ± 2 dB. However, wider deviations can occur and calculations may vary in the future due to database variations. Actual performance may vary according to the glazing dimensions, frame system, noise sources and many other parameters. The acoustic performance data herein should not be used as a substitute for tests of actual glazing. For more information, please consult Assumptions and Terminology section in Guardian Acoustic Assistant. By accessing this calculator, you agree not to alter or modify the generated report data and information, by any means. Any manual alteration will be your own responsibility and will annul all the content of the report.

Thursday, June 11, 2026 | Acoustic database 20221229 | Certified

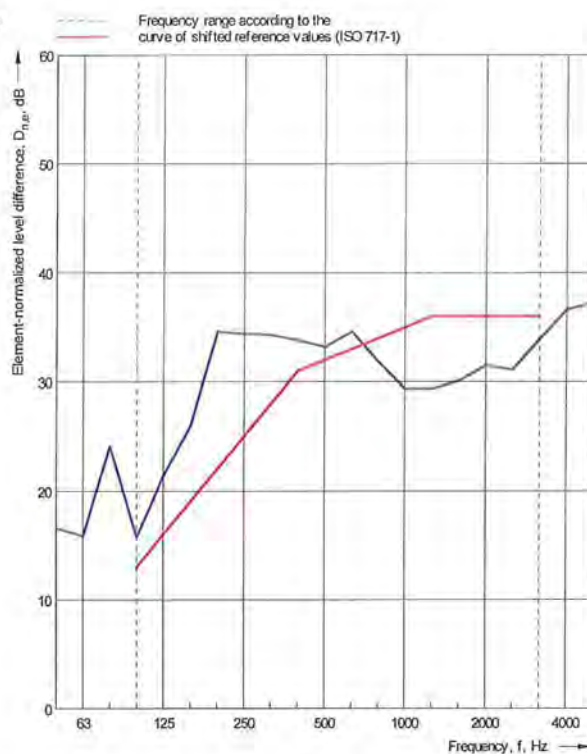
Element-normalized level difference according to ISO 140-10

Laboratory measurements of airborne sound insulation of building elements

Client: Munster Joinery Date of test: 21/11/2016
 Manufacturer: Munster Joinery
 Test room identification: Vinci Technology Centre Airborne Transmission suite
 Test specimen mounted by: Vinci Technology Centre
 Product identification: A6179-07
 Description of the specimen: M335 TV (open)

Barometric pressure: 1024.0 kPa
 Size of test opening: 0.04 m²
 Mass per unit area: kg/m²
 Temperature: 9.0 °C
 Air humidity: 56 %
 Source room volume: 145 m³
 Receiving room volume: 125.0 m³

Frequency f [Hz]	D _{n,e} 1/3 octave [dB]
50	16.6
63	15.9
80	24.1
100	15.8
125	21.4
160	26.0
200	34.6
250	34.4
315	34.3
400	33.8
500	33.2
630	34.6
800	31.8
1,000	29.4
1,250	29.4
1,600	30.1
2,000	31.5
2,500	31.1
3,150	33.9
4,000	36.6
5,000	37.3



Rating according to ISO 717-1

$D_{n,e,w}(C;C_T) = 32 (-1; -2)$ dB

Evaluation based on laboratory measurement results obtained in one-third-octave bands by an engineering method.

$C_{50-3150} = -1$ dB

$C_{T,50-3150} = -3$ dB

$C_{50-5000} = 0$ dB

$C_{T,50-5000} = -3$ dB

$C_{100-5000} = 0$ dB

$C_{T,100-5000} = -2$ dB

Company: Technology Centre

No. of test report: 25114

Page 10 of 11

Date: 21/11/2016

Signature:

[Handwritten Signature]

APPENDIX II – NOISE IMPACT ASSESSMENT REPORT (DEC 2024 – 34 PAGES) - ACG LIMITED

APPENDIX II – NOISE IMPACT ASSESSMENT REPORT



Noise Impact Assessment

QVH Site, East Grinstead, West Sussex, RH19 3DU

Macar Partnerships (QVH) Limited

December 2024

Project Information

Title	Noise Impact Assessment
Job Code	93617
Sector	Environment
Report Type	Noise Impact Assessment
Client	Macar Partnerships (QVH) Limited
Revision	A
Status	Final
Date of Issue	05 December 2024

Revision History

Revision	Date	Author	Reviewer	Approver	Status
A	05 December 2024	DL – MEng, CCENM, CCBAM	SMS – CEng, MSc, MIOA	SMS – CEng, MSc, MIOA	Final

Disclaimer

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party. This report may include data obtained from trusted third-party consultants/laboratories that have been supplied to us in good faith. Whilst we do everything we can to ensure the quality of all the data we use, we cannot be held responsible for the accuracy or integrity of third-party data.

1 Table of Contents

Project Information	ii
1. Introduction.....	4
1.1 Overview	4
1.2 Objective	4
1.3 Site Proposal and Location.....	4
2. Relevant Noise Standards.....	5
2.1 The 'National Planning Policy Framework (NPPF)	5
2.2 British Standard BS4142 - Methods for Rating and Assessing Industrial and Commercial Sound	6
2.3 British Standard BS8233 - Guidance on Sound Insulation and Noise Reduction for Buildings	7
2.4 Local Noise Guidance.....	8
3. Methodology	10
4. Noise Survey	11
4.1 Noise Monitoring Locations	11
4.1.1 Baseline Monitoring.....	11
4.1.2 Short-Term Noise Monitoring.....	11
4.2 Noise Survey Periods	12
4.3 Weather Conditions and Observations	12
4.4 Details of Noise Monitoring Equipment.....	12
5. Survey Results.....	13
5.1 Baseline Noise Survey Results.....	13
5.2 Short-Sample Noise Survey Results	13
6. Noise Impact Assessment	14
6.1 Assessment of Baseline Noise Levels	14
6.2 BS4142 Noise Impact Assessment	14
6.3 Noise Impact at the Outdoor Amenity Areas	14
7. Conclusions	15
Appendix A: Noise Indicators	16
Appendix B: Noise Certificates	18
Appendix C: Weather Monitoring Data	19
Appendix D: Proposed Development Plans.....	20

1. Introduction

1.1 Overview

Aval Consulting Group Ltd has been commissioned to carry out a 'Noise Impact Assessment' (NIA) for the Queen Victoria Hospital (QVH) residential development site, located at East Grinstead, West Sussex, RH19 3DU, hereby referred to as the 'proposed development'. This project consists of the construction of thirty-six dwellings. It is understood that the site already has consent for thirty dwellings, for which no 'Noise Impact Assessment' report was produced. As such, this development plot is not considered to be a high-risk as regards potential noise impacts, hence the design-based 'ProPG: Planning & Noise' methodology was not deemed necessary. Only the adjoining hospital is considered a potential source of noise that could impact the proposed development to some degree.

1.2 Objective

Through the submission of this NIA report, the local authority will receive evidence that the expected noise impact levels at the nearest noise-sensitive receptor location to the QVH hospital are unlikely to be adverse. With regard to fixed plant and on-site vehicle movements associated with the hospital, British Standard BS4142:2014+A1:2019 states that if the rating level exceeds the $L_{A90,T}$ background sound level by around +10dB or more, then it is likely that the resultant noise may have a significant adverse impact, a difference of around +5dB over the background sound level is likely to have an adverse impact, and where the rating level does not exceed the background sound level it is an indication that the resultant noise is not likely to have any adverse impact, though in all cases it's important to take account of the context of the assessment, including absolute noise levels.

The purpose of this assessment is to demonstrate that no adverse noise impact would occur at any of the proposed dwellings based upon the finding of the BS4142 assessment. If found to be necessary, outline noise mitigation measures could be identified.

1.3 Site Proposal and Location

The site is situated adjacent to Queen Victoria Hospital, East Grinstead on the eastern boundary. The site is currently a vacant green space comprising recently cleared woodland. Residential developments surround the other site boundaries. It is understood that the hospital's mechanical equipment including an emergency backup generator, ventilation equipment is on the eastern boundary of the proposed development and is considered the only noise source of any significance in the area. Road traffic noise was anticipated to be minimal, as all the nearby roads are cul-de-sacs for residential access only with no through-traffic. Due to its location and orientation in relation to the sources of noise likely to impact the site, the nearest proposed noise-sensitive receptors were determined to be:

- Dwellings and external amenity areas within the proposed development site



Figure 1.1 Site Location (Source : Google)

2. Relevant Noise Standards

This section summarises all legislation, policy, statutory and non-statutory guidelines relevant to the proposed development. Furthermore, the latest regional and local planning policy guidance specifically applicable to the proposed development has been reviewed.

2.1 The 'National Planning Policy Framework (NPPF)

The updated 2021 version of the 'National Planning Policy Framework (NPPF)'¹ contains information and general guidance to Local Authorities in relation to considering and taking into account noise. The National Planning Policy Framework (NPPF) guidance reinforces that noise should be taken into account when considering planning policies and decisions. Some of the guidance contained in the 'National Planning Policy Framework (NPPF)' includes the following:

- Paragraph 180e: "...preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability..."
- Paragraph 191a,b: "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 value for this reason;..."
- Paragraph 193: Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues, and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

In conjunction with the 'National Planning Policy Framework (NPPF)', 'The Noise Policy Statement for England (NPSE)'², dated March 2010, states the following regarding a long-term vision of government noise policy:

"Noise Policy Statement for England Aims:

- *The first aim of the NPSE:*
Avoid significant adverse impacts on health and quality of life from environmental, neighbour, and neighbourhood noise within the context of Government policy on sustainable development.

¹ The National Planning Policy Framework (2021) <https://www.gov.uk/guidance/national-planning-policy-framework>

² Noise Policy Statement for England (NPSE) <https://www.gov.uk/government/publications/noise-policy-statement-for-england>

- *The second aim of the NPSE:*

Mitigate and minimize adverse impacts on health and quality of life from environmental, neighbour, and neighbourhood noise within the context of Government policy on sustainable development.

- *The third aim of the NPSE:*

Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour, and neighbourhood noise within the context of Government policy on sustainable development."

In terms of the NPSE, the impact of noise can be categorised by the following terms:

- NOEL – No Observed Effect Level – The level where no effect can be detected
- LOAEL – Lowest Observed Adverse Effect Level – The level where adverse effects on health and quality of life can be detected
- SOAEL – Significant Observed Adverse Effect Level – The level where significant adverse effects on health and quality of life may occur.

The NPSE further states that:

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

No specific guidance is detailed or given in the 'National Planning Policy Framework (NPPF)', or 'The Noise Policy Statement for England (NPSE)' in terms of acceptable acoustic criteria/noise criteria in order to achieve the 'NOEL, LOAEL, or SOAEL'. Therefore, it is considered necessary to refer to alternate national guidance, preferably standardised or regulated such as an appropriate British Standard (BS), or in the absence of this, alternate World Health Organisation (WHO) guidelines, etc.

The British Standard 8233: Sound Insulation and Noise Reduction for Buildings/Code of Practice BS 8233: Sound Insulation and Noise Reduction for Buildings/Code of Practice states that for different spaces, there might be a range of noise levels that are considered acceptable.

2.2 British Standard BS4142 - Methods for Rating and Assessing Industrial and Commercial Sound

In terms of noise of an industrial/commercial nature, guidance is set out in BS4142:2014+A1: 2019, 'Methods for rating and assessing industrial and commercial sound'. This standard requires the noise from the process/equipment/activity ($L_{Aeq,T}$ dB) to be compared with the background sound level ($L_{A90,T}$ dB) in conjunction with the new noise source.

BS4142 assesses potential significant effect by comparing the source's rating level (e.g. mechanical services or on-site vehicle noise) with the measured background noise level ($L_{A90,T}$ dB) outdoors at the residential receptor. The standard provides penalties for acoustic features for instance bangs or tonal qualities that can increase the likelihood of annoyance and in these cases, the standard requires a correction to be added to the specific noise level. The specific sound level along with any applied penalties is referred to as the 'rating level'. The rating level is then compared with the background level. BS4142 advocates the use of the $L_{Aeq,T}$ parameter - a level, which is directly measurable or predictable and termed the specific sound level of the source.

BS4142 states that if the rating noise level exceeds the background sound level by around +10dB or more, then it is likely that the resultant noise may have a significant adverse impact, a difference of around +5dB over the background sound level is likely to have an adverse impact, and where the rating level does not exceed the background sound level it is an indication that the resultant noise is likely to have a low adverse impact, depending on context.

BS 4142:2014+A1:2019 provides a method for assessing whether an industrial or commercial sound source is likely to cause a disturbance to persons living near to the sound source.

The standard considers three main acoustic features:

- **Tonality:** Defined as more sound in the 1/3 octave band than those nearby 1/3 octave bands or more sound in a given frequency than in those nearby frequencies. The tonality feature correction +6dB and can be applied using the subjective method or an objective method using 1/3 octave bands.
- **Impulsivity:** defined as sound that increases by a rate of at least 10dB per second, regardless of its duration. The impulsivity feature correction ranges from 0-9 dB and can be applied using a subjective method or an objective method using a sound level meter capable of sampling sound at either once every 0.01s interval or once every 0.025s interval.
- **Intermittency:** Defined as sound that can be identified as being on/off during the measurement period in which case the correction factor that is applied to the specific sound source (e.g. fume extraction system) is +3 dB.

The BS4142 standard also provides the methodology for measuring the on times of the equipment involved and specifies how measurements should be taken for continuous, cyclic and intermittent sound sources. It is important to note that the initial estimate of impact may need to be modified due to context, taking all pertinent factors into consideration, including the following:

- Absolute level of sound, especially where prevailing levels are low.
- Character and level of the residual sound compared to that of the specific sound.
- Sensitivity of the receptor and whether the dwellings will incorporate design measures that secure good internal and/or outdoor acoustic conditions.

2.3 British Standard BS8233 - Guidance on Sound Insulation and Noise Reduction for Buildings

Section 7.7.2 of BS8233:2014 states that in general, for steady external noise sources, it is desirable that the internal ambient noise level does not exceed the guideline values in Table 2.1 below.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	—
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	—
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Table 2.1 – Indoor Ambient noise Levels for Dwellings

Section 7.7.3.2 of the BS8233:2014 states that 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 guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments.

However, it is also recognized 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.

2.4 Local Noise Guidance

The relevant local authority (Mid Sussex District Council) has adopted county's the 'Planning Noise Advice Document: Sussex' (November 2023) document, which aims to provide advice for developers and their consultants to assist in making a planning application in East and West Sussex having regard to noise. This document seeks to complement the Noise Policy Aims set out in the Noise Policy Statement for England (2010) (NPSE).

The following table is provided in relation to new noise sensitive uses and determining whether a noise report is required.

Type of Development		Noise Report Required	Comments
New residential development and extensions to existing residential dwellings.	Close to a major highway (motorways, A-class and major B roads).	Yes	Noise reports will normally be required for residential development in close proximity to a major road. Pro PG: Planning and Noise - Professional Practice Guidance on Planning and Noise - New Residential Development (2017) and Calculation of Road Traffic Noise (DfT, 1988) shall be followed.
	Near to a railway.	Yes	Noise reports will normally be required for residential development near to a railway for both noise and vibration. Pro PG: Planning and Noise - Professional Practice Guidance on Planning and Noise - New Residential Development 2017 and Calculation of Railway Noise 1995 shall be followed. Vibration is discussed in section 3.9.
	Near to commercial sources	Yes	Noise reports will normally be required if an existing commercial noise source has the potential to cause a significant adverse noise impact upon the proposed development. Consideration shall be given to Paragraph 187 (National Planning Policy Framework, September 2023) and the Agent of Change Principle. See also Section 3 Industrial and Commercial Sound Sources for the application of BS4142:2014+A1:2019 "Methods for Rating and Assessing Industrial and Commercial Sound" and other standards relevant to a commercial setting.
	Within the predicted 54dB contour of an existing or proposed expansion of an airport or the vicinity of an aerodrome, or the final approach and departure routes of an operational runway.	Yes	Noise reports will normally be required. Noise exposure contour maps can be found at GOV.UK or on the specific airport's website. Regard shall be had to ProPG: Planning and Noise – Professional Practice Guidance on Planning and Noise – New Residential Development 2017. For development in the proximity of airports or aerodromes, please consult with the Local Planning Authority for further guidance.
	10+ houses in a rural/suburban environment.	Maybe	In certain circumstances a noise report will be required. Please consult with the Local Planning Authority.

Table 2.2 – New Residential Development – Noise Reporting Requirements

As the proposed development is not located near to any major roads but near to commercial sources (e.g. hospital with fixed plant and on-site vehicle movements), it's noted that the adoption of BS4142:2012+A1:2019 is advised. As regards 'agent of change principle', this new development is deemed to be in keeping with the adjoining established residential area and would be unlikely to create a situation whereby new residents would have an adverse response to pre-existing noise levels from the QVC hospital site.

3. Methodology

This section of the report defines the methodology and approach used to acquire baseline noise data as well as for the noise impact levels at the receptor locations.

Certain items of noise-generating equipment within the hospital site are located in the vicinity of the eastern boundary of the proposed development. It is not the objective (nor practicable) to assess each source individually. The identification and specifications of each item of the equipment is not unknown, hence the entire hospital site including all associated fixed plant and on-site vehicle movements is considered as one cumulative noise source representing the 'specific sound source' as defined in BS4142:2014+A1:2019.

To establish the prevailing noise levels on site and acquire the ambient, residual and background noise levels as defined BS4142:2014+A1:2019, a noise survey was carried out and baseline data (i.e. $L_{Aeq,T}$ $L_{A90,T}$) was acquired by monitoring over a period of 24 hours within the plot of the proposed development.

Furthermore, attended BS4142 monitoring was also carried out at multiple locations of the proposed development to allow an analysis of the variability in prevailing noise within the site, with reference to the locations of the proposed dwellings.

4. Noise Survey

The current prevailing acoustic environment was established by monitoring the noise levels at the site and where applicable, using the key noise indicators namely $L_{Aeq,T}$, $L_{A90,T}$, $L_{An\%,T}$ as described in Appendix A.

4.1 Noise Monitoring Locations

4.1.1 Baseline Monitoring

The long-term noise monitoring location (Ref: BL1 in Figure 4.1 below) was adopted to capture the prevailing ambient noise levels over a 24-hour weekday period, to ascertain representative daytime and nighttime environmental noise levels. The sound level meter and its microphone were set up and installed near the centre of the plot, where the proposed dwellings to be located. All measurements were carried out in accordance with the general requirements of BS7445-1:2003, BS7445-2:1991 and BS4142:2014+A1:2019. The noise readings were acquired under free-field conditions; therefore, no façade reflection corrections have been applied (Refer to Section 5 of this report).

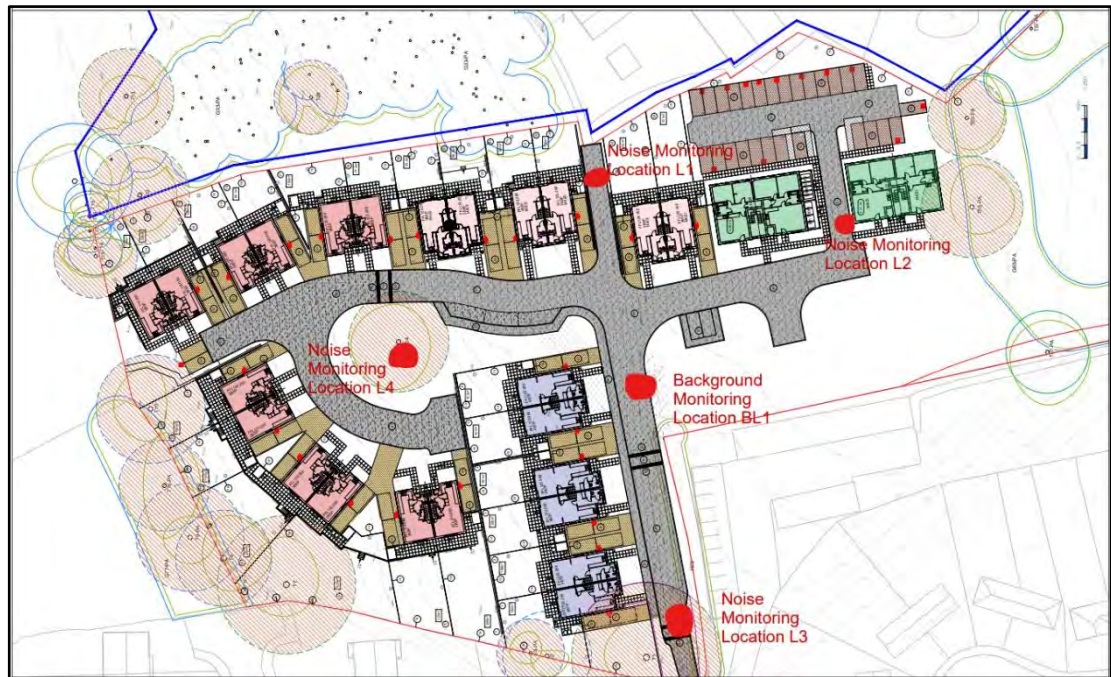


Figure 4.1 Noise Monitoring Locations (Source: Client)

4.1.2 Short-Term Noise Monitoring

Short Term Monitoring Location (see Figure 4.1 above) was used to capture the prevailing noise levels at the receptor locations. The sound level meter and its microphone was supported on a tripod at a height of approximately 1.5 metres above the immediate ground and measurements were taken to capture the ambient and residual sound levels as per the requirements of BS4142:2014+A1:2019. The data acquired was deemed to be under free-field conditions, therefore, no façade reflection corrections have been applied (refer to Section 5 below). Access to the far western boundaries were not available during the survey as there were no clear pathway as the mudded tracks were 2 foot deep.

4.2 Noise Survey Periods

The noise monitoring periods (Thu to Fri) for the different monitoring locations are tabulated below.

Locations	Start Date	Start Time	End Date	End Time
BL1	31/10/24	11:00	01/11/24	11:00
L1	31/10/24	11:11	31/10/24	11:37
L2	31/10/24	11:40	31/10/24	11:55
L3	31/10/24	11:36	31/10/24	11:52
L4	31/10/24	11:53	31/10/24	12:07

Table 4.3 Noise Survey Periods

4.3 Weather Conditions and Observations

During the noise monitoring survey, it was mostly clear, with some cloudy hours. Wind speeds reached a maximum of 2 m/s, with wind direction varying between the south-west-south and the West. The temperature ranged from 9°C to 16°C. No precipitation was recorded (Source: Worldweatheronline ⁽³⁾). On-site windspeed measurements were also sampled at the microphone position during the attended readings.

Subjectively, noise from emanating the hospital site was found to generally be inaudible further towards the entrance of the site in the vicinity of Location L3 and at no location within the development site was noise from the hospital deemed significant. Throughout the survey period, the site was found to be relatively quiet, though chainsaws nearby could be heard. No construction work was in progress during the survey period, as such the measured levels are deemed representative of typical prevailing environmental noise within the development plot.

4.4 Details of Noise Monitoring Equipment

The details of the equipment used for all noise monitoring have been tabulated below. The sound level meter used for this survey was a Class 1 device which has been laboratory calibrated ⁽⁴⁾, as well as field calibrated before and after the surveys (no calibration drift was recorded).

Equipment	Serial Number
BSWA 308 Class 1 Sound Level Meter	590144
BSWA 308 Class 1 Sound Level Meter	590145
BSWA 308 Class 1 Sound Level Meter	570134
BSWA CA111 Class 1 Calibrator (UKAS)	550282

Table 4.4 Noise Equipment Details

³ <https://www.worldweatheronline.com/> (last accessed: 1/11/24)

⁴ Please note that, if required, calibration certificates can be made available upon request.

5. Survey Results

5.1 Baseline Noise Survey Results

Unattended measurements for the prevailing ambient noise levels were obtained in 1-minute intervals at noise monitoring location BL1 and the measured data has been summarised and presented in Table 5.1 below together with a statistical analysis ($L_{An\%}$ dB).

Measured Baseline Noise Levels at Location BL1										
Indicator (dB)	L_{Aeq}	L_{A0}	L_{A1}	L_{A5}	L_{A10}	L_{A50}	L_{A90}	L_{A95}	L_{A99}	L_{A100}
Daytime – 16hrs (07:00 – 23:00)	44	69	55	44	40	33	32	31	31	31
Nighttime – 8hrs (23:00 – 07:00)	32	58	55	48	43	34	32	32	31	31

Table 5.1 Summary of 24-hour Baseline Noise Levels Survey Results

5.2 Short-Sample Noise Survey Results

The results of the attended daytime short-term survey carried out within the proposed development (Refer to Section 4.1.2) are tabulated below.

Attended Survey Locations	Measurement Parameters - Daytime	
	$L_{Aeq,T}$	$L_{A90,T}$
Location L1	43dB	33dB
Location L2	44dB	40dB
Location L3	45dB	38dB
Location L4	42dB	40dB

Table 5.2 Attended Short-Sample Noise Survey Results

6. Noise Impact Assessment

6.1 Assessment of Baseline Noise Levels

The overriding finding as regards the context for the BS4142:2014+A1:2019 assessment is that both the background sound levels and rating levels are deemed to be low, in which case Clause 11 the standard advises that ‘... *absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night*’. It can be noted from Table 5.1 that the background sound level remains at 32dB $L_{A90,T}$ for both the day and nighttime periods, indicating a stable underlying noise level. The daytime ambient sound level is 44dB $L_{Aeq,16hr}$ falling to 32dB $L_{Aeq,8hr}$ over the nighttime. According to BS8233:2014 (Refer to Section 2.3 above), levels below 50dB $L_{Aeq,16hr}$ are deemed desirable for residential outdoor amenity areas during the daytime. As regards the nighttime, an outdoor level of 32dB would translate to an indoor sound level well below the 30dB guidance value, even with the bedroom windows open.

Considering the summary of the survey results presented in Table 5.2 of this report, the ambient levels measured nearer to the hospital (i.e. Locations L1 & L2) are of a similar order to the residual level (i.e. Location L3) measured in the absence of audible sound from the hospital. It can be implied from these attended noise readings that any noise from the hospital is of no significance at the receptor locations, as the prevailing noise levels which form part of the existing environment are similar or higher than the noise contribution from the hospital. The observations presented in Section 4.3 of this report also support the analysis. In summary, there's no evidence of reducing sound levels with distance from the hospital boundary, which would be the case if the ambient noise was dominated by sources such as fixed plant and on-site vehicle movements during the daytime. During the nighttime, it's noted that sound levels are very stable at 32dB, with the background equivalent to the ambient level, which is only 1dB higher than the lowest measured level (L_{A100} dB), which could be deemed representative of the hospital's specific sound level for both the day and night times, on the basis that fixed plant is the hospital's predominant sound source and it operates constantly and at the same duty 24-hours per day. The results of the noise surveying at night (i.e. 58dB $L_{A0,T}$) do not indicate the presence of numerous individual noise events of a high level, that could potentially cause sleep disturbance.

6.2 BS4142 Noise Impact Assessment

BS4142:2014+A1:2019 states that the significance of sound of an industrial or commercial nature depends both upon the margin by which the rating level exceeds the background noise levels as well as the context (Refer to Section 6.1 above) in which the sound occurs.

If context were ignored (although this isn't advised), the daytime the specific/rating sound level of 32dB $L_{Aeq,16hrs}$ could be compared against the background of 32dB $L_{A90,16hr}$ indicating equivalence, though the specific sound would be masked by the dominant residual level of 44dB, indicating that the noise of the hospital is relatively insignificant. At night, equivalence with background is still achieved outdoors, without the benefit of masking, though the receptors would be indoors and benefiting from at least a 13-15dB reduction if bedroom windows were open and upwards of 35dB reduction with closed windows. In both cases, the internal bedroom noise levels would be well within the BS8233:2014 guidance values.

6.3 Noise Impact at the Outdoor Amenity Areas

BS8233:2014 states that “*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 50dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments*”.

Based on the results in Section 5, the daytime $L_{Aeq,16hrs}$ is 44 dB and hence well within the above relevant guidance values.

7. Conclusions

An environmental noise survey has been undertaken for the proposed residential development at QVH Site, East Grinstead, West Sussex, RH19 3DU, allowing the assessment of the noise impact likely to be experienced by the future occupiers.

In absolute terms the measured noise levels at site are well within British Standard guidance levels for dwellings, both outdoors and indoors.

It has been concluded that contextually, the noise impact levels are satisfactory for residential development, and hence no specific noise mitigation measures are deemed necessary.

It can, therefore, be concluded that the proposed development is not considered to conflict with any national, regional, or local noise planning policy.

Appendix A: Noise Indicators

Decibel scale - dB

In practice, when sound intensity or sound pressure is measured, a logarithmic scale is used in which the unit is the 'decibel', dB. This is derived from the human auditory system, where the dynamic range of human hearing is so large, in the order of 10^{13} units, that only a logarithmic scale is the sensible solution for displaying such a range.

Decibel scale, 'A' weighted - dB(A)

The human ear is less sensitive at frequency extremes, below 125Hz and above 16Khz. A sound level meter models the ears variable sensitivity to sound at different frequencies. This is achieved by building a filter into the Sound Level Meter with a similar frequency response to that of the ear, an A-weighted filter where the unit is dB(A).

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 11 such octave bands whose centre frequencies are defined in accordance with international standards. These centre frequencies are: 16, 31.5, 63, 125, 250, 500, 1000, 2000, 4000, 8000 and 16000 Hertz.

Reference Time Interval, T

The specified time interval over which an equivalent continuous A-weighted sound pressure level is determined.

$L_{Aeq,T}$

The A-weighted equivalent continuous sound level. This is the sound level of a notionally steady sound having the same energy as the fluctuating sound over a specified measurement period, T.

$L_{A10,T}$

The A-weighted sound level exceeded for 10% of the specified measurement period, T.

L_{Amax}

The highest short duration A-weighted sound level recorded during a noise event.

L_{A90}

The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 % of a given time interval, T.

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than a single source and 4 sources produce a 6dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3dB for each doubling of distance.

Subjective impression of noise

Hearing perception is highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a guide to explain increases or decreases in sound levels for many scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible

6	Clearly noticeable
10	About twice as loud

Transmission path(s)

The transmission path is the path the sound takes from the source to the receiver. Where multiple paths exist in parallel, the reduction in each path should be calculated and summed at the receiving point. Outdoor barriers can block transmission paths, for example traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and construction.

Ground-borne vibration

In addition to airborne noise levels caused by transportation, construction, and industrial sources there is also the generation of ground-borne vibration to consider. This can lead to structure-borne noise, perceptible vibration, or in rare cases, building damage.

Sound insulation - Absorption within porous materials

Upon encountering a porous material, sound energy is absorbed. Porous materials which are intended to absorb sound are known as absorbents, and usually absorb 50 to 90% of the energy and are frequency dependent. Some are designed to absorb low frequencies, some for high frequencies and more exotic designs being able to absorb very wide ranges of frequencies. The energy is converted into both mechanical movement and heat within the material; both the stiffness and mass of panels affect the sound insulation performance.

Appendix B: Noise Certificates

CERTIFICATE OF CALIBRATION

Issued By UK Test Instruments Limited

Date of Issue 29 October 2024

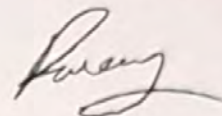
Certificate Number IH528484

test4less

Century Road
High Carr Business Park
Newcastle-Under-Lyme
Staffordshire
ST5 7UG

Page 1 of 2

Approved Signatory



J Tildesley ☐

S Fowler ☐

A Simcock ☐

A Poyser ☐

R Way ☒

Customer : Aval Consulting Group Ltd (London)
3 Lloyds Avenue, London
Greater London, EC3N 3DS

Date Received : 17 October 2024

Instrument : System ID : sid947032
Description : Sound Calibrator
Manufacturer : BSWA Tech
Model Number : CA111
Serial Number : 550282
Procedure Version : V1.0

Job Number : j889369-1
Ref Number :
Site :
Location :

Environmental Conditions

Temperature : $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$
Relative Humidity : $40\%\text{RH} \pm 20\%\text{RH}$

Mains Voltage : $240\text{V} \pm 10\text{V}$
Mains Frequency : $50\text{Hz} \pm 1\text{Hz}$

Comments

Instrument was calibrated in accordance with IHxxxxx
Instrument was allowed to stabilise for at least 12 hours before calibration.
No adjustment was made unless stated.

Traceability Information

Instrument Description	Serial Number	Certificate Number	Cal. Date	Cal. Period
EC 11670us/cm @ 20°C [ASCL117]	HI70030P	Lot 5266	30/04/2020	260
EC 1278us/cm @ 20°C [ASCL116]	HI70031P	Lot 5275	30/04/2022	156
EC 76us/cm @ 20°C [ASCL115]	HI7033L	Lot 7824	16/05/2023	107
Saveris 2 H1 Wifi data logger	0054616449	UH2463	13/09/2024	52

Calibrated By : Ryan Way

Date of Calibration : 29 October 2024

This certificate provides traceability of measurement to recognised National standards, and to the units of measurements realised at the National Physical Laboratory or other recognised National standards laboratories. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced except with the prior written approval of the issuing laboratory.

This certificate complies with the requirements of BS EN ISO 10012:2003

CERTIFICATE OF CALIBRATION

Certificate Number
IH528484

Page 2 of 2

AS FOUND RESULTS

Test Title	Tolerance	Applied Value	Reading	Pass / Fail
General Condition	---	---		PASS
Battery Check	---	---		PASS
	2dB	114dB	114.1dB	PASS
	2dB	94dB	95.5dB	PASS

END OF TEST DATA

Uncertainties

CERTIFICATE OF CALIBRATION

Issued By UK Test Instruments Limited

Date of Issue 03 November 2023

Certificate Number IH502483

test4less

Century Road
High Carr Business Park
Newcastle-Under-Lyme
Staffordshire
ST5 7UG

Page 1 of 2

Approved Signatory

R Hewitt

J Chinnock ☐

S Fowler ☐

P Hewitt ☒

A Poyser ☐

J Palethorpe ☐

Customer : Aval Consulting Group Ltd (Newhaven)
Newhaven Enterprise Centre, Denton Island
Newhaven East Sussex, BN9 9BA

Date Received : 22 September 2023

Instrument :	System ID :	sid947029	Job Number :	j878197-1
	Description :	Sound Level Meter	Ref Number :	
	Manufacturer :	BSWA Tech	Site :	
	Model Number :	308	Location :	
	Serial Number :	590145		
	Procedure Version	V1.0 (88)		

Environmental Conditions

Temperature : $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$

Relative Humidity : $40\%\text{RH} \pm 20\%\text{RH}$

Mains Voltage : $240\text{V} \pm 10\text{V}$

Mains Frequency : $50\text{Hz} \pm 1\text{Hz}$

Comments

No adjustment was made unless stated.

Instrument was allowed to stabilise for at least 12 hours before calibration.

Traceability Information

Instrument Description

GA607 Acoustic Calibrator

Serial Number

041679

Certificate Number

UCRT23/1516

Cal. Date

14/04/2023

Cal. Period

52

Calibrated By : Paul Hewitt

Date of Calibration : 03 November 2023

This certificate provides traceability of measurement to recognised National standards, and to the units of measurements realised at the National Physical Laboratory or other recognised National standards laboratories. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced except with the prior written approval of the issuing laboratory.

This certificate complies with the requirements of BS EN ISO 10012:2003

CERTIFICATE OF CALIBRATION

Certificate Number
IH502483

Page 2 of 2

AS FOUND RESULTS

Test Title	Tolerance	Applied Value	Reading	Pass / Fail
General Tests				
General Condition	---	---		PASS
Display Condition	---	---		PASS
Test Buttons	---	---		PASS
Battery Test	---	---		PASS
Sound Level Tests				
94dB @ 1kHz	2dB	94dB	93.0dB	PASS
104dB @ 1kHz	2dB	104dB	103.0dB	PASS

END OF TEST DATA

Uncertainties
dB : 0.01dB

CERTIFICATE OF CALIBRATION

Issued By UK Test Instruments Limited

Date of Issue 03 November 2023

Certificate Number IH502484



Century Road
High Carr Business Park
Newcastle-Under-Lyme
Staffordshire
ST5 7UG

Page 1 of 2

Approved Signatory

P. Hewitt

J Chinnock ☐

S Fowler ☐

P Hewitt ☒

A Poyser ☐

J Palethorpe ☐

Customer : Aval Consulting Group Ltd (Newhaven)
Newhaven Enterprise Centre, Denton Island
Newhaven East Sussex, BN9 9BA

Date Received : 22 September 2023

Instrument :	System ID :	sid947030	Job Number :	j878197-2
	Description :	Sound Level Meter	Ref Number :	
	Manufacturer :	BSWA Tech	Site :	
	Model Number :	308	Location :	
	Serial Number :	570134		
	Procedure Version	V1.0 (88)		

Environmental Conditions

Temperature : $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$
Relative Humidity : $40\%\text{RH} \pm 20\%\text{RH}$

Mains Voltage : $240\text{V} \pm 10\text{V}$
Mains Frequency : $50\text{Hz} \pm 1\text{Hz}$

Comments

No adjustment was made unless stated.

Instrument was allowed to stabilise for at least 12 hours before calibration.

Traceability Information

Instrument Description	Serial Number	Certificate Number	Cal. Date	Cal. Period
GA607 Acoustic Calibrator	041679	UCRT23/1516	14/04/2023	52

Calibrated By : Paul Hewitt

Date of Calibration : 03 November 2023

This certificate provides traceability of measurement to recognised National standards, and to the units of measurements realised at the National Physical Laboratory or other recognised National standards laboratories. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced except with the prior written approval of the issuing laboratory.

This certificate complies with the requirements of BS EN ISO 10012:2003

CERTIFICATE OF CALIBRATION

Certificate Number
IH502484

Page 2 of 2

AS FOUND RESULTS

Test Title	Tolerance	Applied Value	Reading	Pass / Fail
General Tests				
General Condition	---	---		PASS
Display Condition	---	---		PASS
Test Buttons	---	---		PASS
Battery Test	---	---		PASS
Sound Level Tests				
94dB @ 1kHz	2dB	94dB	93.4dB	PASS
104dB @ 1kHz	2dB	104dB	103.2dB	PASS

END OF TEST DATA

Uncertainties

dB : 0.01dB

CERTIFICATE OF CALIBRATION

Issued By UK Test Instruments Limited

Date of Issue 05 January 2024

Certificate Number IH506333



Century Road
High Carr Business Park
Newcastle-Under-Lyme
Staffordshire
ST5 7UG

Page 1 of 2

Approved Signatory

J Chinnock ☐

S Fowler ☐

P Hewitt ☐

A Poyser ☐

J Palethorpe ☐

Customer : Aval Consulting Group Ltd (Newhaven)
Newhaven Enterprise Centre, Denton Island
Newhaven East Sussex, BN9 9BA

Date Received : 21 December 2023

Instrument :	System ID : sid950235	Job Number : j880880-3
	Description : Sound Level Meter	Ref Number :
	Manufacturer : BSWA	Site :
	Model Number : 308	Location :
	Serial Number : 590144	
	Procedure Version : V1.0 (88)	

Environmental Conditions

Temperature : 20°C ± 2°C
Relative Humidity : 40%RH ± 20%RH

Mains Voltage : 240V ± 10V
Mains Frequency : 50Hz ± 1Hz

Comments

No adjustment was made unless stated.
Instrument was allowed to stabilise for at least 12 hours before calibration.

Traceability Information

<i>Instrument Description</i>	<i>Serial Number</i>	<i>Certificate Number</i>	<i>Cal. Date</i>	<i>Cal. Period</i>
GA607 Acoustic Calibrator	041679	UCRT23/1516	14/04/2023	52

Calibrated By : Kallum Bailey

Date of Calibration : 05 January 2024

This certificate provides traceability of measurement to recognised National standards, and to the units of measurements realised at the National Physical Laboratory or other recognised National standards laboratories. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced except with the prior written approval of the issuing laboratory.

This certificate complies with the requirements of BS EN ISO 10012:2003

CERTIFICATE OF CALIBRATION

Certificate Number
IH506333

Page 2 of 2

AS FOUND RESULTS

Test Title	Tolerance	Applied Value	Reading	Pass / Fail
General Tests				
General Condition	---	---		PASS
Display Condition	---	---		PASS
Test Buttons	---	---		PASS
Battery Test	---	---		PASS
Sound Level Tests				
94dB @ 1kHz	2dB	94dB	94.0dB	PASS
104dB @ 1kHz	2dB	104dB	102.7dB	PASS

END OF TEST DATA

Uncertainties

dB : 0.01dB

Appendix C: Weather Monitoring Data

Device Name

Device Model and Serial Number

Session name

Start

End

Duration

Logging rate

WEATHER - 2382253

5500L, 2382253

Session - 31 Oct 2024_12:20:10 pm

31 Oct 2024 / 12:18:59 pm

31 Oct 2024 / 12:20:10 pm

00:01:11

5 seconds



Location Description

Location address

Location coordinates

Notes

Session statistics

	Units	Avg	Min	Max	Standard Deviation
Temperature	°C	17.5	16.7	19.5	0.85
Heat Index	°C	16.7	15.8	18.9	0.92
Relative Humidity	%	69.0	64.9	72.0	2.81
Wind Speed	m/s	0.3	0.0	0.6	0.23
Station Pressure	mb	1014.4	1014.2	1015.1	0.27
Dew Point	°C	11.7	10.3	13.2	0.99
Altitude	m	-11	-16	-10	2.26
Density Altitude	m	131	94	210	33.50
Barometric Pressure	mb	1014.4	1014.2	1015.0	0.26
Compass Magnetic Direction	Deg	–	–	–	–
Compass True Direction	Deg	–	–	–	–
Crosswind	m/s	–	–	–	–
Headwind	m/s	–	–	–	–
Wind Chill	°C	17.4	16.7	19.5	0.85
Wet Bulb Temp	°C	14.0	12.9	15.4	0.83

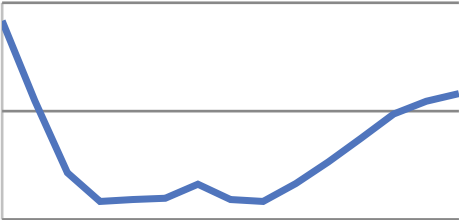
Session graphs

Temperature

Max19.5 °C

Avg17.5 °C

Min16.7 °C

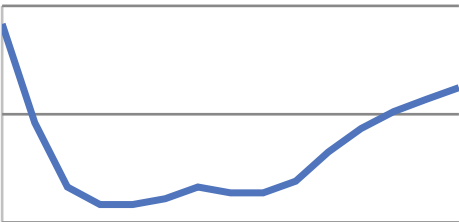


Heat Index

Max18.9 °C

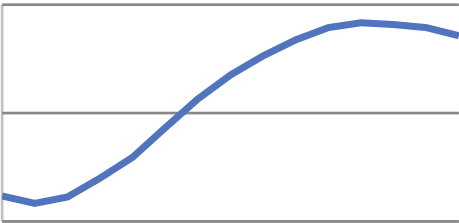
Avg16.7 °C

Min15.8 °C



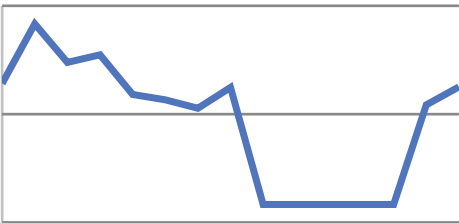
Relative Humidity

Max 72.0 %
Avg 69.0 %
Min 64.9 %



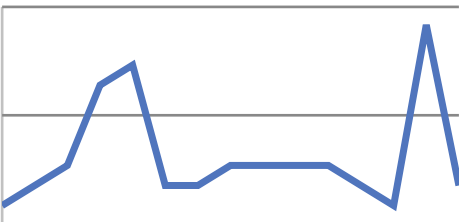
Wind Speed

Max 0.6 m/s
Avg 0.3 m/s
Min 0.0 m/s



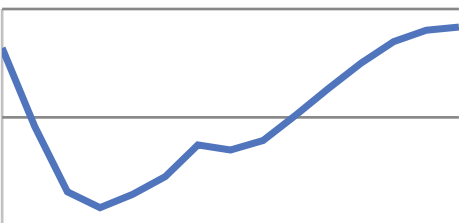
Station Pressure

Max 1015.1 mb
Avg 1014.4 mb
Min 1014.2 mb



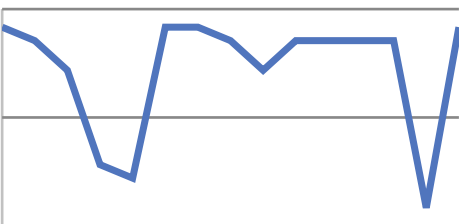
Dew Point

Max 13.2 °C
Avg 11.7 °C
Min 10.3 °C



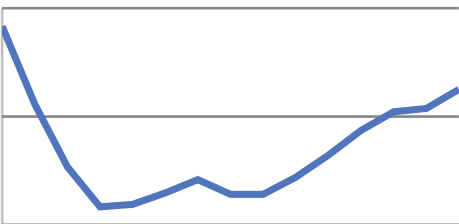
Altitude

Max -10 m
Avg -11 m
Min -16 m



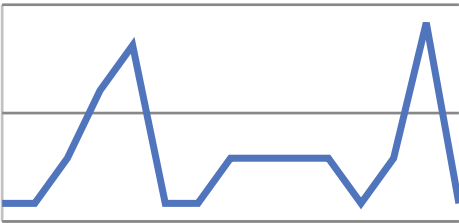
Density Altitude

Max 210 m
Avg 131 m
Min 94 m



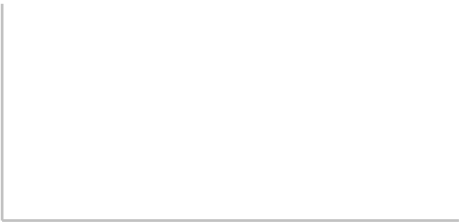
Barometric Pressure

Max 1015.0 mb
Avg 1014.4 mb
Min 1014.2 mb



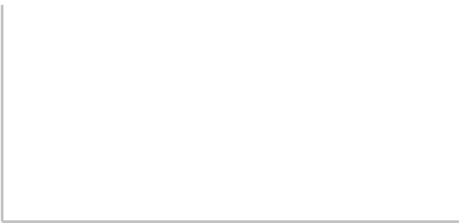
Compass Magnetic Direction

Max - Deg
Avg - Deg
Min - Deg



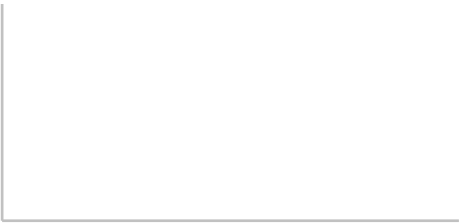
Compass True Direction

Max - Deg
Avg - Deg
Min - Deg



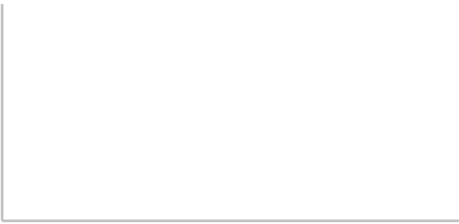
Crosswind

Max - m/s
Avg - m/s
Min - m/s



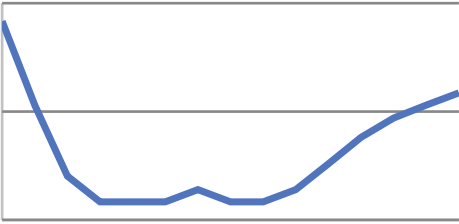
Headwind

Max - m/s
Avg - m/s
Min - m/s



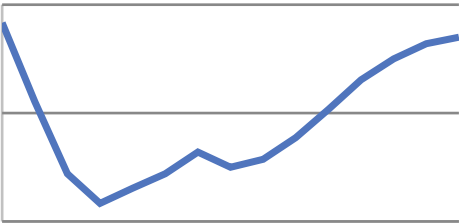
Wind Chill

Max 19.5 °C
Avg 17.4 °C
Min 16.7 °C



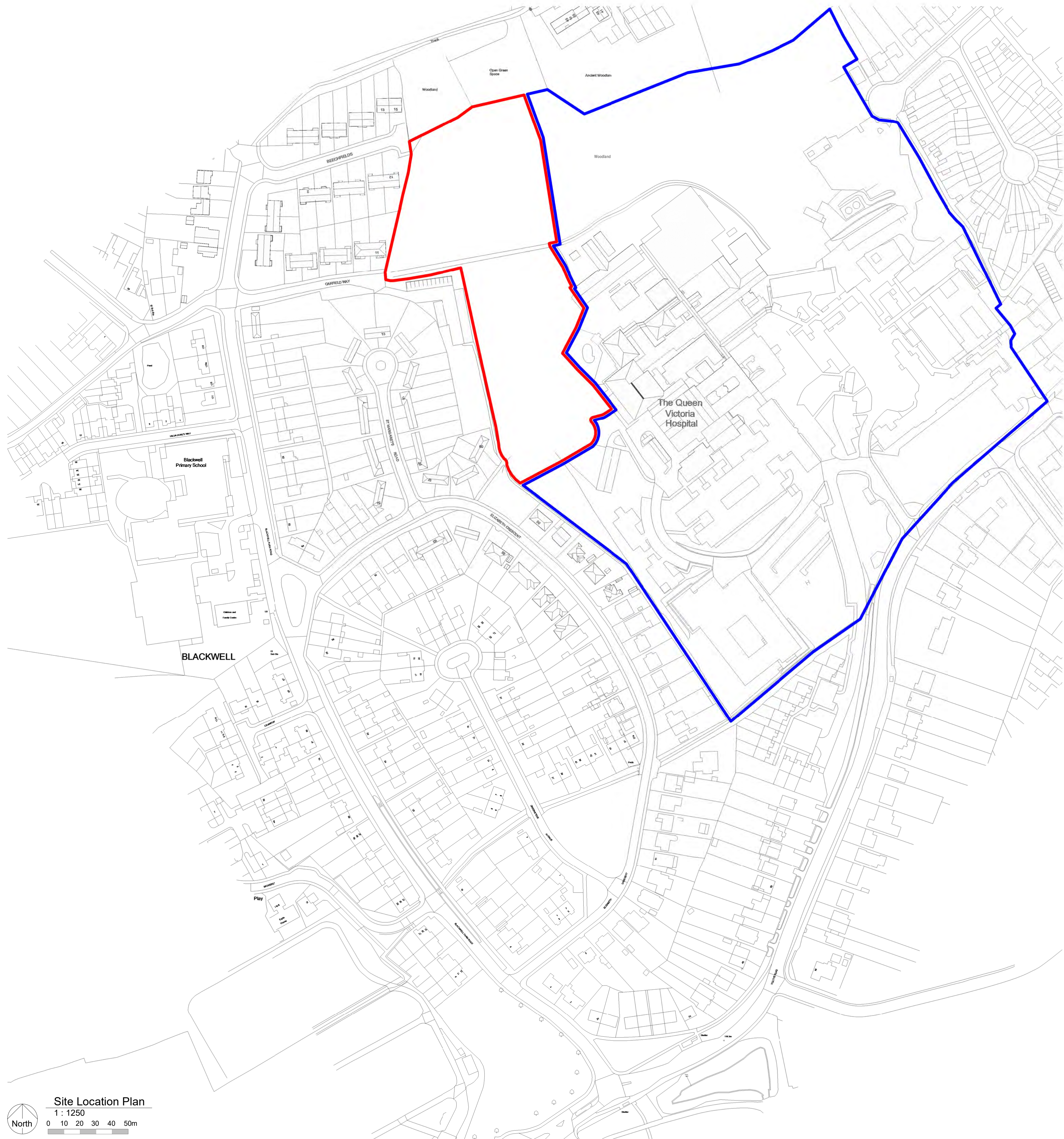
Wet Bulb Temp

Max 15.4 °C
Avg 14.0 °C
Min 12.9 °C



Appendix D: Proposed Development Plans

DRAWINGS CAN BE SCALED FOR PLANNING ONLY, DO NOT SCALE FOR ANY OTHER PURPOSE. ALL DIMENSIONS TO BE CHECKED ON SITE AND ANY DISCREPANCIES TO BE NOTIFIED TO THE ARCHITECT IMMEDIATELY



P5	PK	18/05/21	Ownership Boundary Amendments
P4	PK	16/04/21	Sheet Amendments
P3	PK	15/04/21	Arboricultural Amendments
P2	LR	07/04/21	Planning Issue - Further Detail Added
P1			Issued

Revision Schedule

COWAN
ARCHITECTS

T. 01342 410242 info@cowan-architects.co.uk www.cowan-architects.co.uk	
Job	QVH Woodland
Client	Brookworth Homes
Address	

Drawing: Existing Location Plan

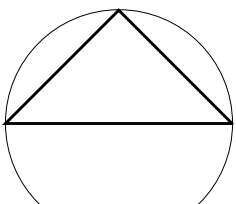
PLANNING				
Project Ref. 2281		Drg No. 0100	Suitability S3	Rev. P5
Size: A1	Scale: 1 : 1250	Drawn: PK	Checked: NM	Date: 01/04/21

BIM Ref. 2281-CAL-XX-XX-DR-A-0100_S3-P5



BROOKWORTH
HOMES

Notes:
This drawing is to be read in conjunction with all other drawings carrying the same drawing numbers.
Contractor to check all dimensions on site and report any discrepancies before proceeding.
All relevant British standards and Codes of Practices to be complied with



LEGEND	
SITE BOUNDARY	
	Application Site Boundary
	Line of retaining wall. Refer to civil engineers drawings for details
	1.1m Timber Morticed Post and Rail Fence
	Line of gravel boards. Refer to civil engineers drawings for details
	1.8m High Timber Close Board Fence
ELECTRIC CAR CHARGING POINT	
	Delta 'EDOCK' wall mounted EV charger
	Delta 'EDOCK' post mounted EV charger. Charger powered by Doncaster cables. EV-ULTRA with integrated ethernet cable
	100mm TWINWALL DUCT CONTAINING POWER CABLE
EXTERNAL WORKS	
	Location of external taps
	1800mm x 900mm timber gate and latch
	7' x 5' garden shed (cycle storage). Base to be constructed using patio slabs
	Mitsubishi Ecodan R32 (or similar) Monobloc ASHP
	270ltr wheellie bins
SURFACE MATERIALS	
	Tarmac to road and footpaths. Laid in accordance with engineer's details
	Priora paving in charcoal laid in herringbone pattern from Marshalls or similar. Laid in accordance with engineer's details
	Priora paving in brindle laid in herringbone pattern with white blocks to demarcate parking spaces from Marshalls or similar. Laid in accordance with engineer's details
	Proposed rumble strip made from concrete sets 100x100mm in silver grey. From Marshalls or similar.
	Saxon concrete paving slabs 600x600mm in buff laid in stack bond from Marshalls or similar. Laid in accordance with engineer's details.
	5m Private Street Light Post
	For tree and landscaping information refer to Landscape Architects drawings
	Root Protection Zone
	Existing Trees and root protection
ECOLOGY	
	Hedgehog Highway Route
	Vivara Pro Build-In Woodstone bat box
	Manthorpe Swift bird box
	Flush Threshold
	Stepped Threshold
HIGH VOLTAGE CABLE	
	INDICATES ROUTE OF HIGH VOLTAGE UNDERGROUND ELECTRIC CABLE. ALL SITE WORKERS TO BE MADE FULLY AWARE OF LOCATION.

HOUSE TYPE LEGEND	
	HOUSE TYPE 3: 4 BED 8 PERSON
	HOUSE TYPE 2: 3 BED 5 PERSON
	HOUSE TYPE 1: 3 BED 5 PERSON
	APARTMENT BLOCK: 4NO. 2 BED 4 PERSON UNITS 2NO. 1 BED 2 PERSON UNITS

PRELIMINARY

Rev:	HA layout updates	15.10.2024
D	Fence boundary lines amended	30.09.2024
C	Substation location indicated	16.08.2024
B	General updates to road	12.08.2024
A	General updates. Plots 19 & 20 repositioned	07.08.2024
Rev:		Date:
Revisions:		

macar.

PARTNERSHIPS

A	B	P	T	W
Drawing Status:				

ama CHARTERED ARCHITECTS Suite 30, Sheraton House, Castle Park, Cambridge, CB3 0AX. Tel: 01223 361 761 email: ama@amarch.co.uk, web: www.amarch.co.uk	
Project Title: LAND AT QVH HOLTYE ROAD EAST GRINSTEAD	
Client: MACAR DEVELOPMENTS CITY HOUSE, SUTTON PARK ROAD SUTTON, SM1 2AE	
Drawing Title: PROPOSED SITE PLAN (REVISED SCHEME)	
36 UNIT SCHEME	
Dwg No: QVH-AMA-RS-X-DR-A-91-001	Rev: E
Scale @ A1: 1:250	Date: JUNE 2024
C:\Users\User\AMA Architects\Communication site... Documents\360-UG-23\4040-Cam-Grinstead\0000\PLANNING\36 UNIT SCHEME All dimensions are to be checked on site. Do not scale from this drawing. Copyright remains with AMA.	

0 2.5 10m
1:250