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DEAN LEWIS ESTATES LTD

OLD ASHFORD ROAD, LENHAM

NOISE ASSESSMENT REPORT

SEPTEMBER 2019

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REPORT NUMBER: **001**

DEAN LEWIS ESTATES LTD

OLD ASHFORD ROAD, LENHAM

NOISE ASSESSMENT REPORT

SEPTEMBER 2019

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Wardell Armstrong is the trading name of Wardell Armstrong LLP, Registered in England No. OC307138.

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EXECUTIVE SUMMARY

Wardell Armstrong carried out a noise assessment as part of an outline planning application for a proposed development at Old Ashford Road, Lenham, Kent.

A noise survey found the main source of noise affecting the site to be traffic on Old Ashford Road and activities at Scrap My Car Kent in the Ashford Business Park, to the north of the site.

The noise survey shows that proposed dwellings across the majority of the site would be likely to meet external and internal noise guideline levels without the need for any mitigation.

However, some mitigation measures would be required to meet noise guideline levels in areas of the site closest to Old Ashford Road and Scrap My Car Kent.

The survey showed that no mitigation would be required to mitigate external noise from Old Ashford Road, however mitigation would be required to mitigate external noise from Scrap My Car Kent. This can be achieved by locating gardens on the screened sides of dwellings, without a direct line of sight to Scrap My Car Kent. Alternatively, noise guideline levels could be achieved with the use of close boarded fencing of 2.2m in height between the gardens and Scrap My Car Kent.

Internal noise guideline levels will be met in most dwellings across the site, even with windows open for ventilation. In those noise sensitive rooms closest to and facing Old Ashford Road, where internal noise guidance levels might not be met with windows open, standard thermal double glazing will ensure that the noise guideline levels are met.

An alternative means of ventilation would therefore need to be installed in those noise sensitive rooms, to remove the need to open the windows for ventilation. Alternatively, noise sensitive rooms could be located on the screened side of the dwellings, facing away from Old Ashford Road. With only non-noise sensitive rooms facing Old Ashford Road, all windows in all dwellings could be opened for ventilation.

Glazing and ventilation requirements can be confirmed, on a plot by plot basis, at the reserved matters stage.

1 INTRODUCTION

1.1.1 Wardell Armstrong LLP was commissioned by email instruction from Dean Lewis Estates Limited (DLEL) to undertake a noise assessment to accompany an outline planning application for a proposed residential development at Old Ashford Road, Lenham.

1.1.2 The proposed development site is located to the east of Lenham, Kent; grid reference TQ907519; and currently comprises open land. To the north of the site lies Old Ashford Road, beyond which lies Ashford Business Park. To the east, south and west of site lies open land. At its closest point, there is a railway line approximately 100m to the south of the site boundary.

1.1.3 This report assesses the results of a noise survey carried out in accordance with current guidance and includes recommendations for mitigation, as appropriate, and will be submitted to accompany an outline planning application.

2 ASSESSMENT METHODOLODGY

2.1 Consultation and Scope of Works

2.1.1 The scope of the noise assessment includes consideration of noise at the proposed residential areas, specifically with regard to the potential impact of existing transportation noise from Old Ashford Road and any commercial/industrial noise associated with Ashford Business Park.

2.1.2 The development framework plan submitted as part of this application shows that the railway line will be at least 570m from the proposed residential area. Due to this large distance, the railway line is not considered to be an issue for the development in terms of noise and will therefore not be considered further within this report.

2.1.3 There are some sports pitches proposed within the south western part of the site. As the nearest existing and proposed residential properties are at least 135m from the proposed sports pitches, this is not considered to be an issue in terms of noise impact. Therefore, the sports pitches will not be considered further within this assessment.

2.1.4 The proposed methodology for the survey and assessment was issued to and agreed with Mr Duncan Haynes, the Environmental Protection Team Leader at Maidstone Borough Council prior to undertaking any works.

2.2 Noise Survey

2.2.1 As part of this assessment, Wardell Armstrong LLP has carried out an attended and unattended noise survey to assess the current noise levels at proposed and existing receptor locations.

2.2.2 The most significant source of noise affecting the site is road traffic on Old Ashford Road, adjacent to the northern site boundary, and activities related to Ashford Business Park.

2.3 Assessment Methodology

2.3.1 The noise assessment takes into account current guidance including the following:

- National Planning Policy Framework, 2019;
- Noise Policy Statement for England, 2010;
- Planning Practice Guidance - Noise, 2019 (PPG);
- Pro:PG Planning & Noise: Professional Practice Guidance on Planning and Noise, 2017;

- British Standard 8233: 2014 Guidance on Sound Insulation and noise reduction for buildings (BS8233); and
- British Standard 4142: 2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Noise;

National Planning Policy Framework

2.3.2 In February 2019 the 'National Planning Policy Framework' (NPPF) was introduced as the current planning policy guidance within England.

2.3.3 Paragraph 180 of the NPPF states:

'Planning policies and decisions should also ensure that new development is appropriate for its location taking in account the likely effects (including cumulative effects) of pollution on heath, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impact 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 impact 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'…

2.3.4 Paragraph 182 of the NPPF states:

'Planning policies and decisions should ensure that new development can be integrated effectively with existing business 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.'

2.3.5 With regard to 'significant adverse impacts on health and the quality of life' the NPPF refers to the 'Noise Policy Statement for England' (NPSE).

2.3.6 The Noise Policy Statement for England refers to the World Health Organisation when discussing noise impacts and introduces observed effect levels which are based on established concepts from toxicology that are applied to noise impacts by WHO.

2.3.7 Three levels are defined as follows:

'NOEL – No Observed Effect Level

- This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

- This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

- This is the level above which significant adverse effects on health and quality of life occur'.

2.3.8 The first aim of the NPSE states that significant adverse effects on health and quality of life should be avoided. The second aim refers to the situation where the impact lies somewhere between LOAEL and SOAEL, and it requires that all reasonable steps are taken to mitigate and minimise the adverse effects of noise. However, this does not mean that such adverse effects cannot occur.

Planning Practice Guidance - Noise

2.3.9 The Planning Practice Guidance (PPG) provides further detail about how the effect levels can be recognised. Above the NOEL noise becomes noticeable, however it has no adverse effect as it does not cause any change in behaviour or attitude. Once noise crosses the LOAEL threshold it begins to have an adverse effect and consideration needs to be given to mitigating and minimising those effects, taking account of the economic and social benefits being derived from the activity causing the noise. Increasing noise exposure further might cause the SOAEL threshold to be crossed. If the exposure is above this level the planning process should be used to avoid the effect occurring by use of appropriate mitigation such as by altering the design and layout. Such decisions must be made taking account of the economic and social benefit of the activity causing the noise, but it is undesirable for such exposure to be caused. At the

highest extreme the situation should be prevented from occurring regardless of the benefits which might arise. Table 1 summarises the noise exposure hierarchy.

Table 1 National Planning Practice Guidance noise exposure hierarchy			
Perception	**Examples of Outcomes**	**Increasing Effect Level**	**Action**
Not present	No Effect	No Observed Effect	No specific measures required
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to close windows for most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

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

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

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

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

2.3.12 In addition, for internal noise levels it states;

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

2.3.13 Furthermore, with regard to external noise, the Standard states;

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

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

2.3.14 ProPG Planning and Noise provides professional practice guidance in relation to new

residential development exposed to noise from transport sources. It provides practitioners with a recommended approach to the management of noise within the planning system in England.

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

British Standard 4142:2014+A1:2019 (BS4142), Method for rating and assessing industrial and commercial sound:

2.3.16 BS4142 is used to rate and assess sound of an industrial and/or commercial nature including:

- sound from industrial and manufacturing processes;
- sound from fixed installations which comprise mechanical and electrical plant and equipment;
- sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
- sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

2.3.17 The standard is applicable to the determination of the following levels at outdoor locations:

- rating levels for sources of sound of an industrial and/or commercial nature; and
- ambient, background and residual sound levels, for the purposes of:

  1) Investigating complaints;

  2) Assessing sound from existing, proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and

3) Assessing sound at proposed new dwellings or premises used for residential purposes.

2.3.18 The purpose of the BS4142 assessment procedure is to assess the significance of sound of an industrial and/or commercial nature.

2.3.19 BS4142 refers to noise from the industrial source as the 'specific noise' and this is the term used in this report to refer to noise which is predicted to occur due to equipment associated with the proposed development. The 'specific noise' levels, of the proposed development are detailed in Section 4 of this report.

2.3.20 BS4142 assesses the significance of impacts by comparing the specific noise level to the background noise level (L_{A90}). Section 3 provides details of the background noise survey undertaken.

2.3.21 Certain acoustic features can increase the significance of impacts over that expected from a simple comparison between the specific noise level and the background noise level. In particular BS4142 identifies that the absolute level of sound, the character, and the residual sound and the sensitivity of receptor should all be taken into consideration. BS4142 includes allowances for a rating penalty to be added if it is found that the specific noise source contains a tone, impulse and/or other characteristic, or is expected to be present. The specific noise level along with any applicable correction is referred to as the 'rating level'.

2.3.22 The greater the increase between the rating level over the background noise level, the greater the magnitude of the impact. The assessment criteria given by BS4142 are as follows:

- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

2.3.23 During the daytime, BS4142 requires that noise levels are assessed over 1-hour

periods. However, during the night-time, noise levels are required to be assessed over 15-minute periods.

2.3.24 Where the initial estimate of the impact needs to be modified due to context, BS4142 states that all pertinent factors should be taken into consideration, including:

- The absolute level of sound;
- The character and level of the residual sound compared to the character and level of the specific sound; and
- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.

3 NOISE SURVEY

3.1.1 Between the 22nd and 23rd of July 2019, Wardell Armstrong LLP carried out a noise survey at the proposed application site.

3.1.2 Noise measurements were carried out at three monitoring locations. The monitoring locations were chosen as the areas within the site closest to existing noise sources.

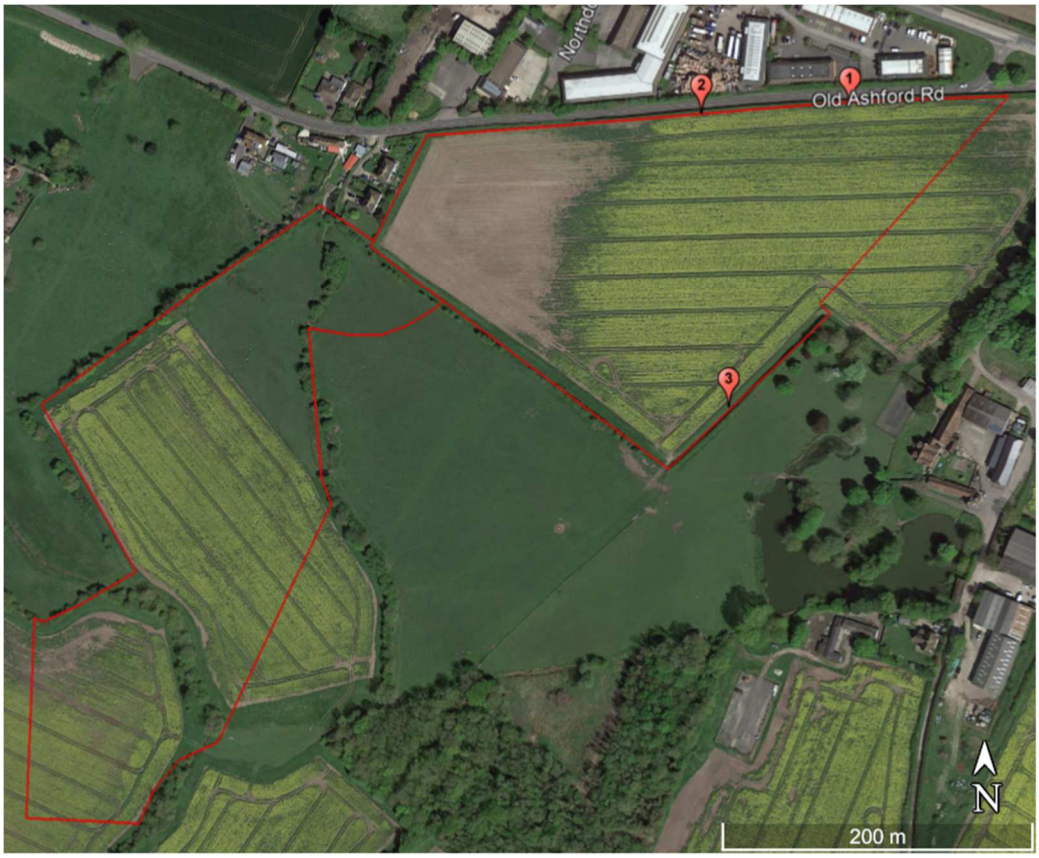
3.1.3 The monitoring locations are detailed in Table 2 and are shown in Figure 1 below.

Table 2: Details of Noise Monitoring Location

Monitoring Location Number	Location Description	Time Period Monitored		Attended or Unattended Monitoring
		Start	End	
1	At the northern part of the site approximately 4m from Old Ashford Road and the Vinorium and KSE Homes Improvements within the Ashford Business Park	1900 hrs 22/07/19	1300 hrs 23/07/19	Attended and unattended
2	At the northern part of the site approximately 7m from Old Ashford Road and 20m from Scrap My Car Kent within the Ashford Business Park	1000 hrs 23/07/19	1300 hrs 23/07/19	Attended
3	At the southern part of the site away from all noise sources.	1300 hrs 23/07/19	1500 hrs 23/07/19	Attended

3.1.4 A summary of the noise survey results is shown in Appendix A.

Figure 1 – Noise Monitoring Locations (*image sourced from Google Earth)*



3.1.5 The noise measurements were made using a Class 1, integrating sound level meter. In accordance with guidance, the meter was mounted vertically on a tripod 1.5m above the ground and more than 3.5 metres from any other reflecting surfaces.

3.1.6 The sound level meter was calibrated to a reference level of 94dB at 1kHz both before, and on completion of, the noise survey. No significant drift in the calibration during the survey was noted.

3.1.7 Noise monitoring took place during dry weather conditions.

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

3.1.9 A-weighted[1] L_{eq}[2] noise levels were measured to comply with the requirements of

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

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

BS8233. A-weighted L_{90}[3] and L_{10}[4] noise levels, together with the maximum and minimum sound pressure levels, were also measured to provide additional information. The measured noise levels are set out in full in Appendix A.

3.1.10 During site visits, observations and detailed notes were made of the significant noise sources which contribute to each of the measured levels. The observations identified the following:

Road Traffic Noise: Noise from road traffic on Old Ashford Road was audible across the proposed development site during the daytime and night-time periods.

Ashford Business Park: Noise from Scrap My Car Kent was audible in the northern part of the site at monitoring location 2 during the daytime. No other premises at Ashford Business Park were audible from within the site boundary.

Birdsong: Birdsong was audible throughout the attended site visits.

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

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

4 NOISE IMPACT ASSESSMENT

4.1 Existing Noise Levels

4.1.1 The measured noise levels for the monitoring location have been divided into daytime (0700-2300 hours) and night-time (2300-0700 hours) categories. The individual L_{Aeq} levels have been arithmetically averaged and then rounded to give single daytime and night-time levels.

4.1.2 Scrap My Car Kent is only operational during the daytime, therefore only daytime measurements were taken at monitoring location 2.

4.1.3 Housing is proposed approximately 15m from Old Ashford Road at its closest point, therefore a -6dB line distance correction has been applied to the measured noise levels at monitoring location 1 and -3dB line distance correction to the measured noise levels at monitoring location 2 to derive noise levels at proposed properties closest to the western site boundary.

4.1.4 The results are presented in Table 3.

Table 3: Average Daytime and Night-time Free-Field Noise Levels at the Location of Dwellings (Figures in dB L_{Aeq})

Time	Monitoring Location	Average Measured Noise Level, Adjusted for Distance to Closest Dwelling
0700-2300	1	48.7
2300-0700		42.1
0700-2300	2	50.0
2300-0700		-
0700-2300	3	40.9
2300-0700		-

4.1.5 In order to derive a representative figure for the maximum noise levels at the site during the night-time, an average of the 10 maximum noise levels recorded throughout the night has been used for the assessment.

4.1.6 A point distance correction of -12dB has been applied to the measured noise levels to derive maximum road noise levels at proposed properties closest to the northern site boundary.

4.1.7 The average maximum noise level during the night-time, as described above, are shown in Table 4.

Table 4: Summary of the Maximum Free Field Night-time Noise Levels at the Location of Dwellings (Figures in dB L_{Amax})	
Monitoring Location	**Maximum Measured Noise Level, Adjusted for Distance to Closest Dwelling**
1	59.4

4.1.8 Based on the results obtained, a robust assessment can be made of the noise levels at the proposed development site and of the mitigation necessary to achieve the required internal and external noise levels during the daytime and night-time.

4.2 BS8233 Assessment of Daytime Noise Levels in Outdoor Living Areas

4.2.1 Table 3 shows that during the daytime, worst case external noise levels affecting the development site would be between 40 and 50dB $L_{Aeq, 16hour}$. This is below the lower BS8233 guideline value of 50dB $L_{Aeq, 16hour}$, therefore no mitigation is required for gardens closest to and facing Old Ashford Road.

4.3 Assessment of Daytime Noise Levels in Living Rooms

4.3.1 The measured daytime noise levels, as detailed in Table 3, have been used to determine the noise levels likely at the façades of dwellings closest to Old Ashford Road during the daytime period.

4.3.2 Before internal noise levels can be calculated, 3dB(A) must be added to the freefield measured levels to allow for the reflection of noise from the proposed dwelling façades when the buildings are in place.

4.3.3 The calculated noise levels at the facades of the dwellings, together with the level of attenuation required to achieve 35dB L_{Aeq} in the living room areas, are summarised in Table 5.

Table 5: Facade Noise Levels at Dwellings Closest to the Noise Sources and Level of Attenuation Required to Achieve the Internal Daytime Noise Guideline Level (Figures in dB(A))		
Residential Properties	**Noise Level at the Façade of the Dwelling**	**Level of Attenuation Needed to Achieve Noise Guideline Level in Living Room Areas**
Properties in the northern part of the site closest to Old Ashford Road	53.0	18.0

4.4 The facades of the dwellings further into the site will require a lower level of attenuation, if any, to achieve the noise guideline levels.

4.5 Assessment of Night-time Noise Levels in Bedrooms

4.5.1 The measured night-time noise levels, as detailed in Tables 3 and 4, have been used to determine the noise levels likely at the façades of the dwellings closest to Old Ashford Road during the night-time period.

4.5.2 Before internal noise levels can be calculated 3dB(A) must be added to the freefield measured levels to allow for the reflection of noise from the proposed housing facades when the buildings are in place.

4.5.3 The calculated noise levels at the façades of properties, together with the level of attenuation required to achieve 30dB L_{Aeq} and 45dB $L_{Af,max}$ in the bedrooms, are summarised in Table 6.

Table 6: Facade Noise Levels at Dwellings Closest to the Noise Sources and Level of Attenuation Required to Achieve the Internal Night-time Noise Guideline Levels (Figures in dB(A))

Residential Properties	Noise Level at the Façade of the Property (L_{Aeq})	Maximum Noise Level at the Façade of the Property (L_{Amax})	Level of Attenuation Needed to Achieve the Noise Guideline Levels in Bedrooms
Properties in the western parts of the site closest to Old Ashford Road	45.1	62.4	17.4

4.5.4 The facades of the buildings further into the site will require a lower level of attenuation, if any, to achieve the noise guideline levels.

4.6 BS4142 Assessment of the Scrap My Car Kent (SMCK)

4.6.1 SMCK is only operational during the daytime, therefore only a daytime assessment has been undertaken. Noise from SMCK included vehicle movements and intermittent banging of tools and equipment.

Identification of the Specific Noise

4.6.2 Due to the intermittent nature of the noise produced by SMCK some assessment of the noise monitored has been undertaken. In order to establish the noise associated solely with SMCK, the adjusted noise level as shown for ML1 in Table 3 where SMCK was not audible (48.7dBL_{Aeq}) has been logarithmically subtracted from the adjusted

noise level as shown for ML2 in Table 3 where SMCK was audible (50.0dBL_{Aeq}). This figure has been used to best represent the noise produced solely by the SMCK. For the purpose of the assessment the measured noise level of 44.1dB(A) has been used as the specific sound of SMCK.

Application of Acoustic Feature Penalties

4.6.3 BS4142 includes a section on identifying acoustic features which can increase the significance of impact over that expected from the basic comparison of the specific sound level and the background sound level. The noise from SMCK is considered to be impulsive and intermittent in nature and therefore, in accordance with BS4142, the following weightings will be included in the assessment:

- Impulsivity - a 6dB(A) penalty has been added as there is potential for this to be clearly perceptible;
- Intermittency – 3dB(A) had been added as the intermittency is readily distinctive against the residual acoustic environment.

Identification of the Background Noise

4.6.4 The average background noise level measured at ML1 between 1000hours and 1300hours when SMCK was operational, but not audible, at this location is considered representative of the background noise levels within the northern parts of the site and has been used within this assessment. The daytime background noise level of 40.4 dBL_{A90} has been used.

4.6.5 In accordance with BS4142 the rating noise level of SMCK has been compared with the corresponding measured background noise level, as shown in Table 7.

Table 7: BS4142 Assessment of MUGA at Proposed Dwellings– (Figures in dB(A))

	Daytime
Specific Noise i.e. noise level of the operational activities	**44.1**
Acoustic Feature Correction	**+9**
Rating Level	**53.1**
Background Noise Level	**40.4**
Excess of rating over background level	**+12.7**

BS4142 Context Assessment

Absolute Level of Sound

4.6.6 The impact of a given exceedance of the rating level of the industrial/commercial noise above the background noise level will depend upon whether the residual sound level

is low or high. The magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low.

4.6.7 As the residual and rating sound level are both relatively low it is likely that the noise from SMCK would have a lower impact on the site, than is suggested by Table 7.

Character & Level of Residual Sound

4.6.8 The proposed development is adjacent to a small rural town where the dominant noise source is traffic on Old Ashford Road and the residual sound level is low. The specific noise level of the SMCK is lower than the residual noise, however the SMCK does alter the character of the noise at the proposed development site and is therefore noticeable. This would suggest that there may be an adverse impact with no mitigation in place.

Sensitivity of Receptor & Existing Acoustic Conditions

4.6.9 The proposed development is residential in nature and therefore the sensitivity of the receptors is high. However, the proposed dwellings will be provided with sufficient mitigation such as façade insulation, ventilation and acoustic screening as suggested in section 11, paragraph 3 of BS4142 to secure good internal and external acoustic conditions.

BS4142 Assessment Summary

4.6.10 A BS4142 assessment has been undertaken to assess the potential noise impact from SMCK at the proposed sensitive receptors.

4.6.11 The assessment indicates that the noise associated with SMCK has the potential to cause an adverse impact on proposed sensitive receptors during the daytime when considering all factors of the BS4142 assessment.

4.6.12 Based on the excess of the rating level above the background noise level and the results of the context assessment, it is considered that mitigation should be implemented in order to reduce the noise level from SMCK at the proposed residential dwellings by approximately 12.7dB during the daytime in order not to exceed the background noise levels.

5 NOISE ATTENUATION SCHEME

5.1 Introduction

5.1.1 The results of the noise assessment indicate that noise mitigation measures are required to reduce the internal and external noise levels from traffic on Old Ashford Road and SMCK at the proposed dwellings in the northern parts of the site.

5.2 Daytime Noise Levels in Outdoor Living Areas

5.2.1 Prediction calculations have been undertaken using established procedures to determine noise levels in proposed outdoor living areas. No mitigation will be required to reduce noise levels from Old Ashford Road, however in order to meet external noise guideline levels some mitigation will be required to reduce noise levels from SMCK. This could be achieved by locating gardens on the screened side of dwellings, furthest away from SMCK. Alternatively, a 2.2m high close boarded fence would ensure that external noise guideline levels are achieved if gardens are located between the dwellings and SMCK.

5.3 Glazing Requirements of Proposed Development

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

5.3.2 The calculation combines the different degrees of attenuation of the wall element and the window element. A facade element comprising solid brick or blockwork, will attenuate by 50-55dB (BS8233: Table E1.A) whereas standard double glazing will attenuate road traffic noise by 26-29dB(A) (BRE Digest 379 ”Double glazing for heat and sound insulation”). The overall noise attenuation provided by this combination is, therefore, between 32.0dB(A) and 35.0dB(A).

Noise Sensitive Living Rooms and Bedrooms During the Daytime and Night-time

5.3.3 The noise attenuation requirements during the daytime and night-time for proposed noise sensitive rooms nearest to Old Ashford Road and SMCK are summarised in Table 5 and 6 and paragraph 4.6.12. With windows open for ventilation purposes, the attenuation provided by the façade will be approximately 15dB(A). The majority of the dwellings across the site will achieve internal noise guideline levels even with windows open. However, in dwellings closest to and facing Old Ashford Road, this would

potentially allow the internal noise guideline level to be exceeded in some noise sensitive rooms during the daytime and night-time.

5.3.4 In those noise sensitive rooms closest to Old Ashford Road that may not achieve internal noise guideline levels with windows open, standard thermal double glazing will be sufficient to achieve internal noise guideline levels during the daytime and night time, with windows closed. An alternative means of ventilation would need to be installed in those rooms.

5.3.5 Alternatively, to meet the required noise levels, noise sensitive rooms could be located on the screened side of the proposed buildings, facing away from Old Ashford Road. With only non-noise sensitive facades facing the road all windows in all dwellings could be opened for ventilation.

5.3.6 Glazing and ventilation requirements can be confirmed, on a plot by plot basis, at the reserved matters stage.

5.4 Acoustic Ventilation Requirements

5.4.1 It is recommended that the acoustic ventilation proposed at the site should, as a minimum, comply with Building Regulations 2000 Approved Document F1 Means of Ventilation and British Standard BS5925 1991: “Code of Practice for Ventilation Principles and Designing for Natural Ventilation”. Acoustic ventilation is only recommended for noise sensitive rooms, which are bedrooms and living rooms.

5.4.2 The implementation of the recommended glazing together with appropriate acoustic ventilation will ensure that the required internal daytime and night-time noise limits are achieved.

5.4.3 Acoustic ventilation is likely to be required for only those noise sensitive facades closest to, and facing, Old Ashford Road. The requirement for acoustic ventilation can be confirmed on a plot by plot basis, at detailed design stage.

6 CONCLUSIONS

6.1.1 Wardell Armstrong has carried out a noise assessment for the proposed residential development at Old Ashford Road, Lenham. Railway noise is not considered to be an issue at the site. The dominant noise sources, which will potentially affect the residents of the proposed residential development, are road traffic on Old Ashford Road and activities at Scrap My Car Kent (SMCK) to the north of the site.

6.1.2 An indicative layout for the site has been prepared by Gladman Developments Ltd. The layout has been used to inform the assessment. The indicative layout includes a minimum standoff of 15m from Old Ashford Road.

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

6.1.4 The resultant noise levels can be assessed against the guideline values suggested by the BS8233. It should be remembered that the internal guideline values are health-based and are therefore relatively inflexible; however adequate noise mitigation is relatively straightforward to engineer. The external guideline values are based on amenity and allow noise to be balanced against any benefits which flow from the location of the proposed scheme.

6.1.5 Baseline noise monitoring was under taken and a noise impact assessment was carried out based on the indicative layout and baseline noise monitoring results.

6.1.6 The assessment identified that external noise guidelines as outlined in BS8233 would be achieved without the need for any mitigation. However good acoustic design is required to meet the guidelines set out in BS4142 for those dwellings located closest to SMCK.

6.1.7 To mitigate noise levels in outdoor living areas closest to SMCK, gardens could achieve noise guideline levels if they are located on the screened sides of dwellings, furthest away from the road.

6.1.8 Alternatively, if gardens are located between the dwellings and SMCK, a 2.2m high close boarded fence would ensure that external noise guideline levels are achieved.

6.1.9 In those noise sensitive rooms closest to and facing Old Ashford Road, that may not achieve internal noise guideline levels with windows open, standard thermal double glazing will ensure that internal noise guideline levels are achieved during the daytime

and night time. An alternative means of ventilation would be required for those rooms.

6.1.10 Alternatively, to meet the required noise levels, noise sensitive rooms could be located on the screened side of the proposed buildings, facing away from Old Ashford Road. With only non-noise sensitive facades facing the road, all windows could be opened for ventilation.

6.1.11 The results of this assessment demonstrate that external and internal noise guideline levels can be achieved using standard mitigation measures.

6.1.12 Glazing and ventilation requirements can be confirmed, on a plot by plot basis, at the reserved matters stage.

APPENDICES

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Appendix A

Noise monitoring results

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Appendix A

Noise Monitoring Results

Monitoring Location 1 –Adjacent to northern site boundary, approximately 4m from Old Ashford Road and 20m from the Vinorium and KSE Homes Improvements						
Time	**L_{Aeq} (dB)**	**$L_{A\ min}$ (dB)**	**$L_{A\ max}$ (dB)**	**L_{A90} (dB)**	**L_{A10} (dB)**	**Comments**
22/07/19 - Daytime						
1900-2000	58.5	34.3	76.8	38.9	58.2	
2000-2100	56.6	33.8	76.2	37.9	53.7	
2100-2200	55.9	34.0	82.2	38.6	51.9	
2200-2300	52.0	34.4	75.5	38.9	50.1	
22-23/07/2019 - Night-time						
2300-2315	47.3	35.3	67.4	37.6	48.3	
2315-2330	54.8	36.8	78.1	39.1	49.9	
2330-2345	43.0	34.4	54.1	37.1	46.2	
2345-0000	43.3	34.6	58.5	37.3	45.4	
0000-0015	43.4	33.0	58.2	35.7	46.7	
0015-0030	49.6	29.6	77.5	34.6	45.3	
0030-0045	42.1	32.9	53.6	36.2	45.5	
0045-0100	43.5	32.6	55.1	34.8	47.0	
0100-0115	45.0	37.1	66.2	37.1	39.9	
0115-0130	45.3	37.1	64.8	37.1	42.1	
0130-0145	44.1	37.1	66.8	37.1	38.9	
0145-0200	45.6	37.0	66.4	37.1	42.6	
0200-0215	38.7	37.1	57.6	37.1	38.0	
0215-0230	44.4	37.1	64.7	37.1	40.1	
0230-0245	41.3	37.1	62.8	37.1	38.5	
0245-0300	44.2	37.2	68.9	37.1	37.6	Traffic noise from Old Ashford Road
0300-0315	45.5	37.1	67.2	37.2	39.8	
0315-0330	46.6	37.2	66.4	37.2	41.6	
0330-0345	45.3	37.2	65.7	37.2	40.4	
0345-0400	48.1	37.2	68.9	37.2	40.8	
0400-0415	46.0	37.2	68.7	37.2	41.1	
0415-0430	50.0	37.1	68.5	37.2	48.8	
0430-0445	52.0	37.2	70.7	37.3	50.7	
0445-0500	50.9	37.3	69.4	37.3	50.9	
0500-0515	50.2	37.3	65.9	37.3	50.5	
0515-0530	50.9	37.3	67.7	37.4	51.7	
0530-0545	53.3	37.4	69.5	37.7	55.3	
0545-0600	55.5	37.6	70.3	38.8	60.5	
0600-0615	56.5	37.7	71.1	39.3	62.1	
0615-0630	56.9	38.4	69.7	39.6	62.4	
0630-0645	58.2	38.2	68.1	40.1	63.2	
0645-0700	57.8	38.3	66.7	39.3	62.8	
23/07/19 - Daytime						
0700-0800	58.9	37.8	70.2	43.0	63.2	
0800-0900	59.3	38.2	78.2	42.7	63.4	
0900-1000	56.4	38.4	68.1	40.4	61.0	Traffic noise from Old Ashford Road
1000-1100	49.3	39.1	66.9	41.1	53.3	
1100-1200	50.2	38.2	66.9	39.6	54.6	
1200-1300	49.9	38.4	66.8	40.4	54.6	

Monitoring Location 2 –Adjacent to northern site boundary, approximately 7m from Old Ashford Road and 20m from Scrap My Car Kent						
Time	**L_{Aeq} (dB)**	**$L_{A\ min}$ (dB)**	**$L_{A\ max}$ (dB)**	**L_{A90} (dB)**	**L_{A10} (dB)**	**Comments**
23/07/19 - Daytime						
1000-1100	52.5	37.8	72.7	42.7	56.3	Noise from Old Ashford Road and Scrap My Car Kent
1100-1200	52.7	35.0	72.7	42.4	57.1	
1200-1300	53.8	37.0	83.0	40.8	55.9	
Monitoring Location 3 –Adjacent to southern site boundary, away from all noise sources						
Time	**L_{Aeq} (dB)**	**$L_{A\ min}$ (dB)**	**$L_{A\ max}$ (dB)**	**L_{A90} (dB)**	**L_{A10} (dB)**	**Comments**
23/07/19 - Daytime						
1313-1413	40.2	34.8	59.4	36.7	41.7	Distant traffic noise from Old Ashford Road
1413-1513	41.6	36.4	55.2	37.6	44.0	