



GA2, Land north of Great Ashby Environmental Statement

Chapter 12: Noise & Vibration

Waterman on behalf of Picture
Estates Limited

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12. NOISE & VIBRATION

Introduction

- 12.1 This chapter of the ES has been prepared by Waterman and presents an assessment of the likely significant effects of the Proposed Development with respect to Noise & Vibration. Mitigation measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified and/or enhance likely beneficial effects. Taking into account the mitigation measures, the nature and significance of the likely residual effects are reported.
- 12.2 The suitability of the Site for residential and school use does not form part of the EIA as it is not a direct effect of the Proposed Development.
- 12.3 This chapter is supported by the following technical appendices:
- **Appendix 12.1:** Glossary of Acoustic Terminology;
 - **Appendix 12.2:** Noise Legislation, Policy & Guidance;
 - **Appendix 12.3:** Consultation;
 - **Appendix 12.4:** Environmental Baseline Noise;
 - **Appendix 12.5:** Construction Assessment Methodology; and
 - **Appendix 12.6:** Road Traffic Noise Assessment Calculations.

Competence

- 12.4 For a summary of the competency of the author of this chapter, please refer to **Appendix 1.6**.

Legislation and Policy Context

Legislation Context

- 12.5 The following legislation is relevant to the Proposed Development:
- Control of Pollution Actⁱ; and
 - Environmental Protection Act (1990)ⁱⁱ.

National Planning Policy

12.6 The following national planning policy is relevant to the Proposed Development, with further details presented in **Appendix 12.2**:

- National Planning Policy Framework (2025)ⁱⁱⁱ; and
- Noise Policy Statement for England (2010)^{iv}.

Regional Planning Policy

12.7 There are no regional planning policies pertaining to noise and vibration relevant to the Proposed Development:

Local Planning Policy

12.8 The following local planning policy is relevant to the Proposed Development

- North Herts Local Plan 2011-2031^v.

Guidance

12.9 The following guidance is relevant to the Proposed Development:

- BS5228 'Code of Practice for Noise and Vibration Control on Construction and Open Sites', Part 1^{vi} and Part 2^{vii} (2014);
- Calculation of Road Traffic Noise^{viii} (2008);
- Design Manual for Roads and Bridges (2020)^{ix}; and
- Guidelines for Environmental Noise Impact Assessment^x
- Planning Policy Guidance Noise^{xi}
- BS4142^{xii} Methods for Rating and Assessing Industrial and Commercial Sound (2019);
- BS8233^{xiii} Guidance on Sound Insulation and Noise Reduction for Buildings (2014);
- WHO Guidelines for Community Noise^{xiv} (1999);
- WHO Night Noise Guidelines For Europe^{xv} (2009); and
- WHO Environmental Noise Guidelines for the European Region^{xvi} (2018).

Assessment Methodology and Significance Criteria

12.10 This section presents the methodology used to assess the potential effects of the Proposed Development in relation to Noise & Vibration.

Consultation

- 12.11 **Table 12.1** presents a summary of the comments raised in the Council's EIA Scoping Opinion and other discussions with relevant consultees with respect to Noise & Vibration.

Table 12.1 Summary of Comments Raised in the Scoping Opinion

Consultee	Comment	Response
Environmental Health North Herts District Council	Environmental Health of North Herts District Council (NHDC) were consulted by email dated 5th April 2023 on the baseline survey approach.	Environmental Health confirmed by email dated 6 th April 2023 that they agreed with the baseline approach (Refer to Appendix 12.3)
Planning NHDC	Scoping opinion stated: The ES shall incorporate a noise assessment in accordance with current guidance including BS8233 'Guidance on sound and noise reduction in buildings and ProPG Planning and Noise – (and subsequently submit an acoustic design at an early stage in any development), these would be in respect of the sound levels experienced by proposed residential dwellings.	The assessment of the application site for residential amenity and school use is considered to be a planning consideration separate to the EIA. The results of the baseline noise survey, as detailed in Briefing Note WIE19867-100-BN-3.1.1, established that at all the long-term monitoring locations daytime noise levels were ≤50dB LAeq,16h and during the night-time period ≤47dB LAeq,8h reducing to 44dB LAeq,8h when noise data from the dawn chorus (0430-0530) was removed. Birdsong was considered to be the cause of the LAmax events based on on-site observations during set-up and take down of equipment. Prevailing noise levels established through baseline survey are therefore not considered to be a constraint to residential or school development.
	An assessment in accordance with BS4142 (current version) 'Method for rating and assessing industrial and commercial sound' in respect of noise associated with retail, medical and social aspects of the development, to include levels for plant noise. Similarly, an assessment and limits set for plant noise from the schools.	Noise from fixed external plant has been considered within the EIA, although at this stage specific details on type, location and number of plant are not known therefore noise limits are recommended based on measured background noise levels and requirements of the local authority. Once details are available during construction, conditions could consider these noise details.
	An assessment of noise if Artificial sports pitches are to be associated with schools (extended hours of use).	This is accepted.
	A traffic noise assessment as this is a proposed development for 650 homes.	This is accepted.

Study Area and Scope

Study Area

- 12.12 The study area for the noise and vibration assessment comprises an area of approximately 300m around the Site, as defined in DMRB LA111 paragraph 3.5 Note 1, on the basis that *“a study area of 300m from the closest construction activity is normally sufficient to encompass noise sensitive receptors”*. It further states *“Variations in the study area can be defined for individual projects”*. It should be noted that assessment is only undertaken on the nearest sensitive receptors to the Application Site in the various cardinal directions. This is on the basis that if effects are considered acceptable for the nearest sensitive receptors, it should automatically be the case for those located at greater distance. It also extends to include key linkages within the local highway network which have the potential to be affected by traffic associated with the Proposed Development. At these local highway network locations, the study area is 50m from the kerb line as defined in DMRB LA111 paragraph 3.8.
- 12.13 The baseline year is 2023, with prevailing noise and vibration conditions being established through baseline survey. The future Proposed Development year, which is used for the road traffic noise assessment with and without Development is 2035, which is 5 years after completion and in line with the Transport Assessment.

Scope

- 12.14 The Scoping Report identified the following as aspects that would not be considered in the ES because potential effects on these receptors are not likely to be significant:
- Operational Vibration: The operational phase of the Proposed Development does not introduce activities that would give rise to vibration. On this basis, assessment of operational vibration has been scoped out of the assessment.

Assessment Methodology

Impact Areas

Construction Effects

- 12.15 The following construction effects (noise, vibration and traffic) are considered within this chapter. Further details about the technical assessment methodologies for each effect are contained in **Appendix 12.5**. Due to the phase nature of the Proposed Development, there is the potential for part of the Proposed Development to be completed and occupied whilst construction operations are still occurring. The assessment therefore addresses the potential effects on future sensitive receptors introduced as part of the Proposed Development as well as existing sensitive receptors proximate to the Application Site.

Construction Noise

- 12.16 Construction noise levels were calculated in accordance with the methodology prescribed within BS 5228-1:2009+A1:2014 for each of the major stages of construction, taking into account the typical type of plant and activities anticipated during the Works. The 'ABC Method' set out in the above guidance was used to determine the 'threshold noise values' for each sensitive receptor, which are determined by the time of day and existing prevailing ambient noise levels recorded during the baseline surveys. The noise generated by individual construction activities was then compared with the threshold value to determine the magnitude of the noise to allow determination of the level of effect and its significance. The magnitude of construction noise in relation to prevailing noise and the ABC threshold level is presented in **Table 12.2**.

Construction Vibration

- 12.17 The following potential effects of construction vibration have been assessed, also having regard to the typical type of plant and activities anticipated during the Works:
- The effects on people or equipment within buildings (people are sensitive to low levels of vibration being just perceptible at 0.3 mm/s Peak Particle Velocity (PPV) in residential environments with the potential for complaints at 1.0 mm/s PPV); and
 - The impacts on buildings (or other structures) themselves (the potential for damage to buildings from vibration occurs at significantly higher levels than human perceptibility, with the probability of damage tending towards zero at ≤ 12.5 mm/s PPV).
- 12.18 There are currently no British Standards that provide a methodology for predicting levels of vibration from demolition and construction activities other than BS5228-2:2009+A1:2014, which relates to percussive or vibratory rolling and piling only. Table B1 of the above guidance has been used to determine the likely magnitude of vibration in this assessment based on the type of Works and distance from the Works. The magnitude of construction vibration is presented in **Table 12.2**.

Table 12.2 Magnitude of Construction Noise & Vibration

Magnitude	Construction Noise Level dB L _{Aeq,T}	Level of Vibration mm/s PPV	Definition
Low/Negligible	$\leq$ Baseline (Prevailing) Noise Level	<0.3	The level is not of concern. $\leq$ NOEL
Small Adverse	$\leq$ Threshold Noise Level	≥ 0.3 to <1	The level is undesirable but of limited concern. $>$ NOEL $\leq$ LOAEL.
Medium Adverse	$>$ Threshold Noise Level to $<$ Threshold +5dB (or ≤ 75 dB L _{Aeq,T} , whichever is highest	≥ 1 to <10	The level gives rise to some concern but is likely to be tolerable depending on scale and duration. $>$ LOAEL $<$ SOAEL.

Magnitude	Construction Noise Level dB L _{Aeq,T}	Level of Vibration mm/s PPV	Definition
Large Adverse	>Threshold +5dB (or >75dB L _{Aeq,T} , whichever is highest	≥10	The level gives rise to serious concern and it should be considered unacceptable, except for very brief exposure depending on the absolute level. ≥SOAEL.

Construction Traffic

- 12.19 The percentage change in daily traffic volume and HGVs is calculated using peak construction traffic estimates provided by the Project Transport Consultant, was used to determine the potential change in road traffic noise from construction traffic using the methodology provided in 'Calculation of Road Traffic Noise' (CRTN and magnitude criteria of DMRB LA111. The magnitude of change in noise level is presented as **Table 12.3** and is based on DMRB criteria (Table 3.17 'Magnitude of impact at receptors').

Table 12.3 Magnitude of Construction Road Traffic Noise

Magnitude	Change in Road Traffic Noise with Construction Traffic	Definition
Low/Negligible	<1.0	The change is not of concern. ≤NOEL.
Small	≥1.0 to ≤3.0	The change is of limited concern. >NOEL ≤LOAEL.
Medium	>3.0 to <5.0	The change gives rise to some concern depending on absolute levels and duration. >LOAEL <SOAEL.
Large	≥5.0	The change gives rise to serious concern and it should be considered unacceptable where it increases the prevailing noise levels by this amount, depending on absolute level and duration. Note: noise from another road link may be the dominant source so the predicted increase may not be realised. ≥SOAEL.

Assessment of Operational Effects

Fixed External Plant & Building Services

- 12.20 BS 4142:2014+A1:2019 'Methods for Rating and Assessing Industrial and Commercial Sound', provides an assessment and rating method to assess the potential impact from a range of commercial noise sources, including fixed building services plant.
- 12.21 The measured or predicted noise level from the source in question, the 'specific sound level (L_{Aeq,T})', immediately outside the dwellings is compared with the 'background sound level (L_{A90,T}). Where the

sound contains certain acoustic features at the assessment location (e.g. tones, impulses, intermittency etc.), then a scaled character correction is added to the specific sound level to obtain the 'rating level ($L_{Ar,Tr}$). The greater the difference the greater the magnitude, not taking 'context' into account. Context partially overlaps with significance of effect as it takes account of the sensitivity of the receptor. Further to this, context also takes account of the level and nature of the sound and inherent design measures (such as façade insulation treatment and acoustic treatment).

12.22 **Table 12.4** presents the significance criteria without context, based on BS4142.

Table 12.4 Magnitude of Fixed External & Building Services Plant Noise (without context)

Magnitude	Rating Level dB $L_{Ar,Tr}$ (without context) Compared to Background Sound Level (L_{A90})	Definition
Low/Negligible	Rating Level $\leq L_{A90}$	The rating level is not of concern. $\leq NOEL$.
Small	Rating Level $\leq L_{A90}+5dB$	The rating level is undesirable but of limited concern. $>NOEL \leq LOAEL$.
Medium	Rating Level $> L_{A90}+5dB$	The rating level gives rise to some concern but is likely to be tolerable depending on scale, duration and period of operation (day/night). $>SOAEL < SOAEL$.
Large	Rating Level $\geq L_{A90}+10dB$	The rating level gives rise to serious concern and it should be considered unacceptable. $\geq SOAEL$.

12.23 Where prevailing background sound levels are low, taken as less than 30dB L_{A90} and a rating level of less than 35dB $L_{Ar,Tr}^{xvii}$, then setting an absolute value which adequately safeguards residential amenity, such as a night-time rating noise level of $\leq 35dB L_{Ar,Tr}$ is considered to be more appropriate. This is applicable to the Application Site where prevailing background sound levels during the night-time period are considered to be very low.

Servicing & Delivery Noise

12.24 Specific details concerning the end users of the commercial elements of the Proposed Development are not known at this stage and would be dependent on the future tenants. As such, a qualitative assessment has been undertaken of noise sources associated with the commercial elements of the Proposed Development on the basis of commercial uses typically included within a development of this nature.

- 12.25 Due to the nature of the noise source, the magnitude would be assessed in line with BS4142:2014+A1:2019 as detailed in **Table 12.4** 'Magnitude of fixed external & building services plant noise'.

Road Traffic Noise

- 12.26 Road traffic noise has been calculated using the calculation methodology of Calculation of Road Traffic Noise. This has been used to predict the dB L_{A10,18 hour} Basic Noise Levels (BNL) for the year of completion 2035.
- 12.27 The calculations use the 18-hour Average Annual Weekday Traffic (AAWT) flow, % HGV composition and average vehicle speed for each road link. The magnitude of the change in road traffic noise was evaluated by considering the estimated change in the BNL L_{A10,18 hour} road traffic noise level on the local highway network as a result of the operation of the completed Proposed Development (including committed developments). The Design Manual for Roads and Bridges (DMRB) LA 111 provides magnitude criteria for short-term changes in operational road traffic noise levels which are reproduced in **Table 12.5**. The SOAEL absolute road traffic noise level is reported as 68dB L_{A10,18h} (façade) in DMRB LA111. The absolute road traffic noise level will also be a consideration in addition to the predicted change in noise levels where the predicted change is ≥1dB.

Table 12.5 Magnitude of Change in Road Traffic Noise (Short-Term)

Magnitude	Short-Term Change in Road Traffic Noise Level (dB)
Low/Negligible	<1.0 [≤NOEL]
Small	1.0 to 2.9 [>NOEL ≤LOAEL]
Medium	3.0 to 4.9 [>LOAEL <SOAEL]
Large	≥5.0 [≥SOAEL]

Artificial (Sports) Grass Pitches (AGPs)

- 12.28 In the absence of guidance in assessing noise from outdoor sports facilities, guidance provided by Sport England has been used. In their document '*Artificial Grass Pitches (AGP) – Acoustics – Planning Implications*^{xviii}' it suggests a noise limit of 50dB L_{Aeq} at 1m from any residential façade. This itself is drawn from WHO guidance on community noise but over a smaller daytime time averaging period of 1-hour compared to 16-hours in that external daytime noise levels of this magnitude will avoid moderate annoyance.
- 12.29 Sport England consider that with suitable noise mitigation measures, it is considered that acceptable noise levels can be achieved for the majority of AGP sites and will operate without adversely affecting neighbouring residential properties.

- 12.30 For existing residential receptors, regard has also been given to the potential change in prevailing noise levels when the artificial sports pitches are in use. **Table 12.6** presents the magnitude of change in prevailing noise levels. This is based on human perception and response to changes in environmental noise levels and information presented in Tables 7-12 and 7-14 of Institute of Environmental Management & Assessment (IEMA) 'Guidelines For Environmental Noise Impact Assessment'^{xix}.

Table 12.6 Magnitude of Noise From Artificial Sport Pitch

Magnitude	Change in Ambient Noise Level (dB)	Absolute Day, Evening Noise Level	Definition
Negligible	<1.0	≤50dB L _{Aeq,T}	The effect is not of concern
Small	≥1.0 to ≤3.0	≤55dB L _{Aeq,T}	The effect is of limited concern
Medium	>3.0 to <5.0	≤60dB L _{Aeq,T}	The effect gives rise to some concern depending on absolute levels and duration
Large	≥5.0	>60dB L _{Aeq,T}	The effect gives rise to serious concern, and it should be considered unacceptable where it increases the prevailing noise levels by this amount, depending on absolute level and duration.

Significance Criteria

- 12.31 The scale attributed to each effect has been determined based on the sensitivity of the receptor and magnitude of impact arising as a result of the Proposed Development. Professional judgement and experience have been drawn upon to assess the scale and significance.

Receptors and Receptor Sensitivity

- 12.32 The sensitivity of each receptor was evaluated as being high, medium, low or negligible based on a review of the baseline position of each receptor and its performance against benchmark areas. The receptors and the definition of sensitivity of a receptor (high, medium, low) is based on a scale set out in **Table 12.7**. This assessment has concentrated on the residential and school receptors, with high sensitivity, nearest to the Application Site.

Table 12.7 Receptor Sensitivity Description

Value (Sensitivity)	Descriptor
High	Residential, school, hospital
Medium	Office, commercial
Low	Industrial
Very Low	No receptors within 800m ¹

Note: * This has been adopted from BREEAM POL 05 'Reduction of noise pollution' and is considered to be a conservative approach.

Magnitude of Impact

- 12.33 The magnitude of impact to a receptor has been determined by considering the predicted change in or absolute level of noise and vibration when compared to baseline conditions, both before, and if required, after mitigation. The scale used for determining the magnitude of an impact has regard to Noise Policy Statement for England's (NPSE) 'Effect Levels' and the noise exposure levels presented within Planning Policy Guidance-Noise, and are presented as **Table 12.8**.

Table 12.8 Magnitude of Impact Description

Magnitude	Descriptor
Large	Significant Observed Adverse Effect Level (SOAEL)
Medium	Above LOAEL but below SOAEL
Small	Lowest Observed Adverse Effect Level (LOAEL)
Low/Negligible	No Observed Adverse Effect Level (NOAEL)

- 12.34 The effect levels are defined as follows:

- NOEL – No Observed Effect Level: Level below which no effect on health and quality of life due to noise can be detected;
- LOAEL – Lowest Observed Adverse Effect Level: Level above which adverse effects on health and quality of life can be detected;
- SOAEL – Significant Observed Adverse Effect Level: Level above which significant adverse effects on health and quality of life occur.

- 12.35 Magnitude of change/absolute level as a result of the Proposed Development, is considered within the range of large, medium, small and negligible.

- 12.36 Consideration is given to the scale and duration (e.g. for construction, short-term for 1-2 years, medium-term for 3-5 years, long-term for 5 years and greater, and permanent, dependent upon project timeframes) and the extent of the Proposed Development when considering the level of effect.

Assessing Significance

- 12.37 **Table 12.9** provides a matrix for determining the significance of an effect based on the sensitivity of the receptor and the magnitude of impact.

Table 12.9 Significance of Effect Matrix

Receptor Sensitivity	Magnitude of Impact			
	Large (SOAEL or above)	Medium (between LOAEL and SOAEL)	Small (LOAEL)	Low/Negligible
High	Major Beneficial / Adverse	Moderate to Major Beneficial / Adverse	Minor to Moderate Beneficial / Adverse	Negligible
Medium	Moderate to Major Beneficial / Adverse	Moderate Beneficial / Adverse	Negligible to Minor Beneficial / Adverse	Negligible
Low	Minor to Moderate Beneficial / Adverse	Minor Beneficial / Adverse	Negligible	Negligible
Very Low	Minor Beneficial / Adverse	Negligible	Negligible	Negligible

12.38 Generally, effects classified as major or moderate are considered ‘significant’. Effects classified as minor or negligible in scale are considered ‘not significant’. This is, however, informed by professional judgement which takes account of site specifics, duration as well as the magnitude of change (or absolute level) and sensitivity of the receptor(s). Further explanation of the significance criteria are presented below:

- Major effect: where the Development is likely to cause a considerable change from the baseline conditions or large exceedance of the threshold level and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity. This effect is considered to be ‘significant’;
- Moderate effect: where the Development is likely to cause either a considerable change from the baseline conditions or medium exceedance of the threshold level at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability. This effect is considered more likely to be ‘significant’ but will be subject to professional judgement which takes account of the absolute noise level and duration;
- Minor effect: where the Development is likely to cause a small, but noticeable change from the baseline conditions or small exceedance of the threshold level on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Development is likely to cause a considerable change from the baseline conditions at a receptor which can

adapt, is tolerant of the change or/and can recover from the change. This effect is considered less likely to be 'significant' but will be subject to professional judgement; and

- Negligible: where the Development is unlikely to cause a noticeable change or threshold level is satisfied at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change. This effect is 'not significant'.

Limitations and Assumptions

Construction

- 12.39 The BS 5228 calculation methodologies allow accurate noise levels to be determined for various demolition and construction activities. However, at this stage specific detail on the construction plant and machinery to be used (make/model) is not known. A number of assumptions have therefore been made regarding the number and type of plant to be utilised, their location, and detailed operating arrangements. Some of this information would be clarified as the detailed design progresses and later when resources are mobilised and the contractor is appointed, but other information (such as exactly where the plant operates and for how long) would remain uncertain, even after works have commenced.
- 12.40 Construction noise levels have been based on generic plant detail contained within BS5228-1:2009+A1:2014 and information provided by the applicants. The available information is considered sufficient to undertake a noise assessment of the demolition and construction work, focussing on key activities operating at the Application Site, with the aim of identifying whether a significant, albeit temporary, adverse noise effect is likely to arise at the nearest sensitive receptors. Full details of assumed plant complement and distance to receptors are presented within **Appendix 12.5**. In this respect, a medium to high degree of confidence is assigned to the predicted significance of the potential effects.

Baseline

- 12.41 This assessment is based upon noise and vibration monitoring conducted at the Application Site in May 2023 from Thursday 11th May to Tuesday 16th May 2023, thereby covering both a weekday and weekend period and is therefore considered robust on which to base the assessment.
- 12.42 There are no existing sources of vibration proximate to the Application Site or immediate surrounds. On this baseline vibration is taken as zero.

Fixed Plant & Building Services

- 12.43 At this stage of planning, the specific type and configuration of fixed plant are not defined. Consequently, it is not possible to undertake predictions to determine whether appropriate standards would be met, so instead appropriate plant noise emission limits have been set based on prevailing conditions established through baseline survey, BS4142.

Baseline Conditions

Establishing Baseline Conditions

- 12.44 A baseline environmental noise survey was undertaken from Thursday 11th May to Tuesday 16th May 2023 to establish baseline conditions at and within the vicinity of the Application Site. The survey protocol was agreed in advance with Environmental Health at North Herts District Council (NHDC) and comprised the installation of four environmental noise loggers and a short-term noise measurement. The monitoring locations are presented in **Figure 12.1**. Full details are presented within **Appendix 12.4**

Baseline Conditions

- 12.45 **Table 12.10** presents a description of the noise monitoring locations. At all of the environmental noise logger monitoring locations no specific dominant noise source was noted, just general ambient noise typically associated with a rural location such as birdsong, occasional distant road traffic noise, insects and vegetation noise together with the occasional walker.

Table 12.10 Description of Noise Monitoring Locations

Monitoring Location	Description & Observations
LT1: Tile Kiln Farm	Northern application boundary location near Tile Kiln Farm. Approximately 100m south of Back Lane. Microphone 1.5m above ground level. Distant road traffic noise, occasional traffic on Back Lane, general ambient noise, birdsong.
LT2: Merrick Close	Western application boundary location near Merrick Close. Microphone 1.5m above ground level. Distant road traffic noise, general ambient noise, birdsong and occasional walkers.
LT3: Dane End Farm	Eastern application boundary location near Dane End Farm. Microphone 1.5m above ground level. Distant road traffic noise, general ambient noise, birdsong and occasional walkers.
LT4: Cleveland Way / Ryders Hill	Western application boundary location near Cleveland Way / Ryders. Microphone 1.5m above ground level. Distant road traffic noise, general ambient noise and birdsong.
ST1: Mendip Way	Approximately 1m from road edge of Mendip Way, 2m above ground level. Dominant noise comprised occasional vehicle movements on Mendip Way, occasional human activity and distant road traffic noise.

Note: LT - Long-term, ST – Short-term

- 12.46 During the baseline survey weather conditions were monitored remotely^{xx} and data sets where windspeeds greater than 5m/s and/or rain were removed from the subsequent data analysis. This included Friday day and night-time period due to wind speeds exceeding 5m/s. A summary of weather conditions during the baseline survey are presented in **Appendix 12.4** together with details

on the equipment used. **Table 12.11** presents a summary of the measured noise levels with full details in **Appendix 12.4**.

Table 12.11 Description of Noise Monitoring Locations

Monitoring Location	Period	dB L _{Aeq,T}	dB L _{Amax} (90th percentile)	dB L _{A10}	dB L _{A90} Range	dB L _{A90} Mode [ave.]
LT1 Tile Kiln Farm	Day	49	75	47	28-41	35 [35]
	Night	46	70	39	27-42	30 [32]
	Night ²	42	67	37	27-42	30 [31]
LT2 Merrick Close	Day	50	74	50	22-44	34 [34]
	Night	47	68	40	22-46	23 [29]
	Night ²	44	66	37	22-43	23 [28]
LT3 Dane End Farm	Day	45	67	47	19-43	32 [33]
	Night	45	67	39	19-41	21 [28]
	Night ²	44	63	37	19-41	21 [26]
LT4 Cleveland Way / Ryders Hill	Day	46	69	47	18-41	31 [33]
	Night	45	67	40	19-46	21 [30]
	Night ²	43	66	38	19-45	21 [28]
ST1 Mendip Way	Day (1034-1204)	57	76	59	38-43	41 [41]

Note: ¹ Daytime period 0700-2300 and night-time period 2300-0700. ². Excludes dawn chorus from birds between 0430-0530.

12.47 The measured noise levels during the weekend period were broadly comparable with those measured on a weekday period. At ST1, which was adjacent to Mendip Way, the measured noise levels were higher due to proximity to Mendip Way and human activity. Overall, the measured noise levels are considered typical of a rural location, distant from major roads.

12.48 It is noted that Luton Airport is approximately 14km to the southwest of the Application Site. The Application Site is outside of the 57dB L_{Aeq,16} summer actual daytime contour and the 48dB L_{Aeq,8h} summer actual night-time contour as evidenced in the 2019^{xxi} and 2021^{xxii} Annual Monitoring Reports, both of which lie to the west of Stevenage. Further to this both reports illustrate that aircraft associated with Luton Airport do not fly directly over the Application Site.

Receptors

12.49 A list of existing and future receptors is included in **Table 12.12** and illustrated **Figure 12.1**. The Proposed Development will be a phased build out over a projected 5 year period (2025/6-2030/1)

therefore there is the potential for residential and school use to be built-out and occupied whilst construction works are on-going. This has been considered within the assessment.

Table 12.12 Existing and Future Sensitive Receptors

ID	Receptor	Sensitivity
	Existing Receptors	
A	Tile Kiln Farm, residential	High
B	The Bungalows, Warrensgreen Lane, residential	High
C	Dane End Farm, residential	High
D	Merrick Close, residential area	High
E	Mendip Way, residential area	High
F	Grampian Place, residential	High
G	Cromdale Walk, residential	High
H	Cleveland Way / Ryders Hill residential areas	High
	Future Receptors	
I	Proposed Development residential	High
J	Proposed Development school(s)	High

Future Baseline

- 12.50 Road traffic noise, albeit distant at the noise logger locations, is considered to be the dominant source. In the absence of the Proposed Development baseline noise levels are predicted to increase slightly due to the temporal growth in road traffic on the surrounding road network. Between the baseline year of 2023 and 2035 (5 years after opening which is in-line with the Transport Assessment) with No Development, the predicted increase in road traffic noise on the majority of road links is predominantly less than 1dB and therefore negligible and not significant. On Mendip Way South and Orwell Avenue increases of +1.4db and +1.5dB in road traffic noise are predicted which are small in magnitude resulting in minor adverse effects considered to be not significant.

Assessment of Effects (Construction and Operational)

Environmental Design and Management

Construction

- 12.51 The implementation of a Construction Environmental Management Plan (CEMP) is assumed to be inherent and would be secured through planning condition. For assessment purpose this is assumed to provide a minimum of 10dB attenuation based on information within BS5228-1. Typical CEMP measures are presented in **Appendix 12.5**.

12.52 The noisiest construction operations and associated noise levels with CEMP measures are presented below and it is on this basis that assessment has been undertaken when works are being conducted at the shortest distance to the receptor.

- Earthworks 74 dB $L_{Aeq,1h}$ at 10m
- CFA Piling 75 dB $L_{Aeq,1h}$ at 10m
- Concreting 73 dB $L_{Aeq,1h}$ at 10m
- Pavement 71 dB $L_{Aeq,1h}$ at 10m

Operational

12.53 With regard to servicing and delivery it is assumed that standard controls secured through planning conditions, relating to hours of delivery, combined with acoustic attenuation measures should they be necessary, would be inherent to the scheme design.

12.54 With regard to noise from fixed external and building services plant it is assumed that mitigation would be inherent to the design to ensure noise from fixed external and building services plant is reduced to acceptable levels so as not to cause disturbance. This would be secured through planning condition.

12.55 With regard to potential noise emissions from AGP associated with the school use, it is assumed that best practice would be used in the design and materials used to lower noise emissions, such as use of a super rebound sports fence with resilient fittings to reduce impact noise levels.

Effects During Construction

Noise

12.56 **Table 12.13** presents a summary of the predicted noise effects during construction, when the Works are being undertaken at the shortest distance to the receptor and with the implementation of mitigation and noise control measures as set out in the CEMP affording 10dB(A) reduction. The assumed shortest distance from the Works to future receptors is 15m. Full details are presented within **Appendix 12.5**. All adverse levels of effects are considered to be medium-term, temporary and local.

Table 12.13 Construction Noise Effects

ID	Receptor(s)	Level of Effect	Significance
	Existing		
A	Tile Kiln Farm, (LT1)	Moderate Adverse (<i>earthworks / pavement</i>) Minor Adverse (<i>CFA / concreting</i>)	Not Significant

ID	Receptor(s)	Level of Effect	Significance
	Existing		
B	The Bungalows, Warrengreen Lane, (LT1)	Moderate Adverse (<i>earthworks / pavement</i>) Minor Adverse (<i>CFA / concreting</i>)	Not Significant
C	Dane End Farm, (LT3)	Minor Adverse	Not Significant
D	Merrick Close, (LT2)	Minor Adverse	Not Significant
E	Mendip Way, (ST1)	Moderate Adverse (<i>earthworks</i>) Minor (<i>pavement</i>) Negligible (<i>CFA / concreting</i>)	Not Significant
F	Grampian Place, (LT2)	Moderate (<i>earthworks / pavement</i>) Negligible (<i>CFA / concreting</i>)	Not Significant
G	Cromdale Walk, (LT2)	Moderate Adverse (<i>earthworks / pavement</i>) Minor Adverse (<i>CFA / concreting</i>)	Not Significant
H	Cleveland Way / Ryders Hill (LT4)	Minor Adverse	Not Significant
	Future		
I	Residential	Moderate Adverse	Not Significant
J	School	Moderate (<i>earthworks / pavement</i>) Minor (<i>CFA / concreting</i>)	Not Significant

12.57 With the implementation of mitigation and noise control measures as set out in the CEMP affording 10dB attenuation, although there are predicted increases in the prevailing noise levels when the Works are being undertaken at the shortest distance to the receptors the significance of the level of effect is '**not significant**' and therefore acceptable.

12.58 It should be noted that although some 'moderate adverse' effects are predicted when some earthworks and pavement works are undertaken at the shortest distance to the receptors, none of the predicted noise levels exceed 75dB LAeq,T. Based on information within BS5228-1, this is regarded as a level above which 'significant adverse' effects occur should they occur for a period of 10 or more days of working in any 15 consecutive days or for a total number of days exceeding 40 in any 6 consecutive months. Predominantly the predicted noise levels during earthworks and pavement works when undertaken at the shortest distance range from 68 to 71dB LAeq,T, with the exception of earthworks at the shortest distance (10 metres) to The Bungalows, Warrengreen Lane which is predicted to be 74dB LAeq,T. As stated, this is when works are being undertaken at the shortest distance to the receptors and noise levels will reduce as works are undertaken at greater

distance. The duration of exposure to the highest predicted noise levels is therefore considered to be short-term and on-balance acceptable.

Vibration

- 12.59 **Table 12.14** presents the vibration effects which have been inferred from distance between works and the receptor. Full details are presented in **Appendix 12.5**. For assessment purpose it is assumed that should piling be required that Continuous Flight Auger (CFA) would be the method used. Should impact method of piling be used then the construction vibration effects would need to be re-evaluated.

Table 12.14 Construction Noise Effect

ID	Receptor(s)	Distance to Earthworks (m)	Distance to CFA (m)	Level of Effect (subjective)	Significance
	Existing				
A	Tile Kiln Farm	15	45	Negligible	Not Significant
B	The Bungalows, Warrengreen Lane	10	135	Negligible to Minor adverse (earthworks)	Not Significant
C	Dane End Farm	150	225	Negligible	Not Significant
D	Merrick Close	30	50	Negligible	Not Significant
E	Mendip Way,	25	195	Negligible	Not Significant
F	Grampian Place	15	170	Negligible	Not Significant
G	Cromdale Walk	15	110	Negligible	Not Significant
H	Cleveland Way / Ryders Hill	40	60	Negligible	Not Significant
	Future				
I	Residential	15	15	Minor Adverse	Not Significant
J	School	15	40	Negligible	Not Significant

- 12.60 Based on the shortest distance between the Works and receptors the potential effects from construction vibration are predominantly negligible. There is the potential for some minor adverse effects should earthworks occur within 10m of receptors and if CFA works occur at 15m from the receptors. Overall, the effects are considered to be **not significant**.

Traffic

- 12.61 Details on forecast construction traffic is not available at this stage of the Proposed Development. On review of existing 2023 18-hour AAWT traffic and HGVs on Great Ashby Way East (4122 vehicles, 77 HGVs), Great Ashby Way West (5726 vehicles, 81 HGVs) and Mendip Way (1678 vehicles and 107 HGVs) it is considered there is the potential for adverse effects to occur due to increase in the number of HGV movement. However, provided a Construction Transport Logistics Plan is implemented, which is assumed to be inherent, this should result in negligible to minor adverse changes in road traffic noise on the existing road network. The overall level of effect would be negligible and therefore **'not significant'**

Effects Once the Proposed Development is Operational

Fixed External Plant & Building Services

- 12.62 There are no specific details on fixed external plant and building services at this stage in the design of the Proposed Development. Plant noise limits have therefore been recommended (rating level not to exceed representative background sound level), presented as **Table 12.15**, and are based on the measured background noise levels and guidance within BS4142. It should be noted that a minimum night-time noise limit of 30dB L_{Ar,Tr} is recommended where the background sound level is less than 30dB L_{A90}, on the basis that this would adequately safeguard disturbance to sleep and amenity. This would however have to be agreed with Environmental Health of NHDC.

Table 12.15 Recommended Plant Noise Limits

Sensitive Receptor	Period	dB L _{Aeq,T}	dB L _{A90} Range	dB L _{A90} Mode [ave.]	Recommended Plant Noise Limit (Rating Level dB L _{Ar, Tr})
Tile Kiln Farm	Day	49	28-41	35 [35]	≤35
	Night	46	27-42	30 [32]	≤30
	Night ²	42	27-42	30 [31]	
Merrick Close	Day	50	22-44	34 [34]	≤34
	Night	47	22-46	23 [29]	≤30
	Night ²	44	22-43	23 [28]	
Dane End Farm	Day	45	19-43	32 [33]	≤32
	Night	45	19-41	21 [28]	≤30
	Night ²	44	19-41	21 [26]	
Cleveland Way / Ryders Hill	Day	46	18-41	31 [33]	≤31
	Night	45	19-46	21 [30]	≤30
	Night ²	43	19-45	21 [28]	
Mendip Way	Day	57	38-43	41 [41]	≤41
	Night	≤45 ¹	-	≤35 ¹	≤35

Future Proposed Development Residential	Day	≤50 ¹	-	≤35 ¹	≤35
	Night	≤40-45 ¹	-	≤30 ¹	≤30
Future Proposed Development School	Day	≤50 ¹	-	≤35 ¹	≤35

Note: ¹ Assumed level based on measured noise levels during baseline survey at other locations.

- 12.63 Provided the recommended plant noise limits are satisfied the level of effect would be negligible and therefore **'not significant'**. This statement is made on the basis that mitigation would be inherent to the design to ensure noise from fixed external and building services plant is reduced to acceptable levels so as not to cause disturbance. On this basis typical mitigation measures are discussed within the mitigation section of this chapter.

Servicing & Delivery

- 12.64 The Proposed Development, which is predominantly residential which is considered to be a quiet land-use, includes healthcare, commercial, mixed-use as well as school use. The number of delivery vehicles associated with non-residential uses would be largely dependent upon the final occupants and as such has not yet been determined. It is considered that standard controls, secured through planning conditions relating to hours of delivery, combined with acoustic attenuation measures should they be necessary, would be used to minimise likely noise effects. Therefore, noise effects associated with servicing and deliveries on existing and future sensitive receptors is considered to be negligible and therefore **'not significant'**.

Road Traffic Noise

- 12.65 **Table 12.16** presents the existing road links where an increase in road traffic noise of 1dB(A) or more is predicted. On all other road links the predicted increase is less than 1dB(A) and therefore negligible. Full calculation details are presented in Appendix 12.9.

Table 12.16 Road Traffic Noise Assessment

Road Link	BNL 2035 No Development dB LA10,18h	BNL 2035 With Development dB LA10,18h	Change in Road Traffic Noise Level	Magnitude
Mendip Way (South)	57.9	65.4	+7.5	Large
Great Ashby Way (East)	62.3	63.4	+1.1	Small
Great Ashby Way (West)	63.4	66.7	+3.3	Medium
Orwell Ave.	60.4	61.9	+1.5	Small
Canterbury Way	67.6	68.9	+1.3	Small

All other Links	64.6-71.1	64.6-71.9	<1.0	Negligible
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- 12.66 For the majority of road links with Proposed Development, the predicted increase in road traffic noise is negligible and therefore **not significant**. On Great Ashby Way (east) and Orwell Avenue a small increase in road traffic noise is predicted resulting in potential minor adverse effects which are considered to be **not significant**.
- 12.67 On Canterbury Way, although the increase in road traffic noise is small (+1.3dB), the forecast BNL, which is the predicted level 10m from the road edge, is predicted to be above 68dB $L_{A10,18h}$ with Development. For the majority of dwellings on Canterbury Way, the set-back from the road edge is approximately 25m, and therefore the road traffic noise level at the dwellings are forecast to be below 68dB $L_{A10,18-hour}$ when account is taken of both distance and screening attenuation (closed board garden fences, walls, change in land height between road and dwelling). Residential dwellings located on Canterbury Way proximate to the roundabout with Great Ashby Way, appear to be located approximately 10-15m from the road edge from study of google imagery. When account is taken of intervening screening (close board garden fence, walls), angle of view and change in land height between road and dwelling the absolute noise level at the dwelling is predicted not to exceed ≥ 68 dB $L_{A10,18h}$ with Development. On this basis the overall effect is considered to be minor adverse and therefore **not significant**.
- 12.68 On Mendip Way South of the Proposed Development access road the predicted increase in BNL road traffic noise is +7.5dB with Development which is of large magnitude. There is the potential therefore of major adverse effects to dwellings directly adjacent to this section of the road which is considered to be **significant**. The absolute noise level is however below the SOAEL.
- 12.69 The predicted BNL from the new access road into the Proposed Development from Mendip Way is 62.4dB $L_{A10,18h}$. This is based on the 20 mph speed limit for this road link which results in slightly lower road traffic noise levels compared to a 30 mph speed limit. The existing dwellings on Cromdale Walk are approximately 60m from the road edge which would result in a road traffic noise level of 55 dB $L_{A10,18h}$. Existing dwellings on Grampian Place are approximately located 13m to 25m from the road edge which would result in a road traffic noise levels of 58 to 61 dB $L_{A10,18h}$. Putting this into context the measured prevailing noise level adjacent to Mendip Way (refer to **Table 12.11**) was 59dB $L_{A10,T}$ and that at monitoring location LT2 was 50dB $L_{A10,T}$ during the daytime period. On this basis facades of dwellings on Cromdale Walk and Grampian Place facing the new access road are predicted to be exposed to an increase in road traffic noise levels with Development. This is not unexpected given the introduction of a noise source where currently there isn't one. The potential increase in prevailing noise level from road traffic noise are up to ≥ 5 dB and therefore of large magnitude which would result in major adverse effects which is considered to be potentially **significant**. Consideration of mitigation measures is recommended once route of the new access

road is finalised which also takes into account existing screening from gardens fences/walls. This is discussed further in the mitigation section of the report.

Artificial (Sports) Grass Pitches (AGPs)

- 12.70 Sport England report that when a site is in an open location, noise levels of 50 dB L_{Aeq}(1 hour) can be achieved at a distance of 40 m at 1.5 m above the ground but a distance of 70 m is required at a height of 30 m above the ground, the latter being relevant where the site is surrounded by a block of flats with dwellings at high level. This is based on the measured noise emission level of 58 dB L_{Aeq} (1 hour) at a distance of 10 m from an AGP.
- 12.71 Based on land-use parameter plans, the distance of the potential location of AGP or sports fields to existing sensitive receptors is relatively large, ranging from approximately 320-325m (Tile Kiln Farm and The Bungalows on Warrensgreen Lane) to approximately 760m to Dane End Farm. With distance attenuation alone, noise from this source is predicted to result in zero increase in prevailing noise levels at the majority of the existing sensitive receptors resulting in negligible effects and therefore not significant. At the nearest prevailing sensitive receptors of Tile Kiln Farm and The Bungalows on Warrensgreen Lane a noise level increase of up to 2dB may occur, based on measured prevailing daytime noise levels, which is a small magnitude resulting in minor adverse effects which are considered to be **not significant**.
- 12.72 With regard to future residential receptors, the nearest area designated for residential use to AGP or sports fields is approximately 65 to 70m. On this basis noise from this source should result in negligible effects and therefore **not significant**. Should the distance between AGP or sports fields be reduced then mitigation measures may need to be considered.

Mitigation Measures

Mitigation During Construction

- 12.73 The noise assessment indicates that secondary mitigation measures in addition to CEMP are not required. This is on the basis that no works are undertaken within less than 10m of existing or future receptors.
- 12.74 With regard to construction traffic, the assumption is that adverse effects could be adequately controlled through implementation of a Construction Traffic Logistics Plan (CTLTP).

Mitigation Once the Proposed Development is Operational

Fixed External Plant & Building Services

- 12.75 Specific detail on the location, type and number of fixed plant and building services are not known. At this stage of the Proposed Development plant specification is sufficiently flexible as to ensure that

suitably quiet, non-tonal plant can be procured and / or mitigation options such as screening (e.g. acoustic louvres) can be installed as necessary to ensure that guideline noise criteria are satisfied.

12.76 Measures to control noise from fixed mechanical plant to the required level as agreed with NHDC, would be inherent in the detailed design of the Proposed Development and may include:

- Procurement of 'quiet' non-tonal plant;
- Locate plant and air vents away from sensitive receptors;
- Acoustic enclosures;
- In-duct attenuators;
- Acoustic louvres; and
- Isolation of plant from building structures.

Servicing & Delivery

12.77 No additional mitigation is proposed above standard controls secured through planning conditions relating to hours of delivery, combined with acoustic attenuation measures should they be necessary to minimise likely noise effects.

Road Traffic Noise

12.78 Mitigation measures are not proposed with regard to existing road links.

12.79 It is recommended that consideration be given to mitigation to reduce noise from the new access road off Mendip Way to existing receptors on Grampian Place and Cromdale Walk. Screening could be provided through landscaping measures intervening between the access road and receptors. It should be noted that some screening would be afforded by in-situ garden fences and walls.

Artificial (Sports) Grass Pitches (AGPs)

12.80 No additional mitigation is proposed to that which would be inherent in the design of the AGP.

Residual Effects and Monitoring

12.81 The residual effects arising from the Proposed Development are summarised in **Table 12.17** below.

Table 12.17 Summary of Residual Effects

Effect	Receptor (Sensitivity)	Nature of Effect and Geographic Scale	Magnitude of Impact*	Classification of Effect (Statement of Significance BEFORE mitigation**)	Mitigation and Monitoring	Residual Effect
Construction Effects						
Noise	All existing and future receptors (Refer to Table 12.11) (high) Tile Kiln Farm, The Bungalows, Mendip Way, Grampian Place, Cromdale Walk, Future Proposed (residential/school) Dane End Farm Merrick Close, Cleveland Way / Ryders Hill	Local	Medium (with CEMP) Small (with CEMP)	Moderate Adverse Minor Adverse	Adherence to the CEMP secured through planning condition	Moderate Adverse Minor Adverse

Effect	Receptor (Sensitivity)	Nature of Effect and Geographic Scale	Magnitude of Impact*	Classification of Effect (Statement of Significance BEFORE mitigation**)	Mitigation and Monitoring	Residual Effect
Vibration	All existing and future receptors (high)	Local			Adherence to the CEMP secure through planning condition	
	All except The Bungalows and Future Residential.		Negligible (with CEMP)	Negligible		Negligible
	The Bungalows and Future Residential		Small (with CEMP)	Minor Adverse		Minor Adverse
Traffic	All existing and future receptors (high)	Local	Small (with CTLP)	Minor Adverse	Adherence to CTLP secured through planning condition	Minor Adverse
Operational Effects						
Fixed External Plant & Building Services	All existing and future receptors (high)	Local	Negligible (inherent mitigation)	Negligible	Adherence to planning condition	Negligible

Effect	Receptor (Sensitivity)	Nature of Effect and Geographic Scale	Magnitude of Impact*	Classification of Effect (Statement of Significance BEFORE mitigation**)	Mitigation and Monitoring	Residual Effect
Servicing & Delivery	All existing and future receptors (high)	Local	Negligible (inherent mitigation)	Negligible	Adherence to planning condition	Negligible
Road Traffic Noise	All existing and future receptors (high)	Local	Negligible to Small	Negligible to Minor Adverse	None	Negligible to Minor Adverse
	All except Mendip Way South and new access road		Large	Major Adverse	None proposed as below SOAEL.	Major Adverse
	Mendip Way South		Medium to Large	Moderate to Major Adverse	Strategic landscaping intervening between road and receptors to provide screening	Minor Adverse
	New Access Road					

Effect	Receptor (Sensitivity)	Nature of Effect and Geographic Scale	Magnitude of Impact*	Classification of Effect (Statement of Significance BEFORE mitigation**)	Mitigation and Monitoring	Residual Effect
Artificial Sports (Grass) Pitches	All existing and future receptors (high)	Local			Inherent design measures secured through planning condition	
	All existing receptors except Tile Kiln Farm and The Bungalows		Negligible (inherent design measures)	Negligible		Negligible
	Tile Kiln Farm and The Bungalows		Small (inherent design measures)	Minor Adverse		Minor Adverse
	Future Residential / School		Negligible (inherent design measures)	Negligible		Negligible

Notes: * incorporating environmental design and management, ** incorporating mitigation and monitoring measures

Likely Significant Environmental Effects

- 12.82 During the construction phase, with provision of CEMP and CLTP when works are being undertaken at the shortest distance to existing and future receptors, although increases in noise and localised vibration are predicted to occur, these are considered to be '**not significant**' when assessed against relevant British Standards and guidance.
- 12.83 When the Proposed Development is operational, the main land-use is residential which is considered to be a 'quiet' thereby having negligible residual effects. With regard to non-residential uses, control of noise from delivery, servicing, fixed external and building services plant through inherent mitigation, secured through planning condition, would result in negligible residual effects on both existing and future sensitive receptors and therefore '**not significant**'.
- 12.84 The forecast change in road traffic noise levels as a result of the Proposed Development are predominantly predicted to be negligible to minor adverse and therefore '**not significant**'. On Mendip Way however, due to current prevailing traffic flows, with development the increase is potentially **major adverse**, although the absolute level is below the SOAEL. With regard to the new access road, with provision of strategic intervening landscaping it should be possible to reduce noise from this source through screening thereby reducing any likely significant effects so as to be '**not significant**'.
- 12.85 Based on the results monitoring is not proposed.

Summary and Conclusions

- 12.86 Baseline noise conditions, against which the assessment has been undertaken, was established through an extended noise survey, the strategy of which was agreed in advance with Environmental Health of NHDC. The results confirmed the dominant noise at and within the vicinity of the Application Site was predominantly distant road traffic noise from the surrounding road network. Noise levels at the Application Site and surrounds, except adjacent to roads were relatively low, which is expected given the rural setting.
- 12.87 During the construction phase, although noise levels and to a lesser extent vibration, are predicted to increase locally, with inherent CEMP measures, these would be reduced and controlled to acceptable levels as detailed in British Standards and guidance. Noise from construction traffic would be controlled through the implementation of a CTLP. This together with account of existing traffic and HGV levels, the effects are anticipated to be **not significant**.
- 12.88 During the operational phase noise emissions from delivery, servicing, fixed external and building services plant would be controlled to acceptable levels through inherent mitigation, secured through planning condition. Noise from the AGP would be controlled through inherent design measures, but

also benefits from distance separation to sensitive receptors. The level of effect on both existing and future receptors would be negligible to minor adverse and therefore **not significant**.

- 12.89 Changes in road traffic noise on the majority of the existing road network as a result of the Proposed Development are predominantly negligible, being less than 1dB to less than 3dB and therefore minor adverse, both being **not significant**. On Mendip Way there is the potential for a large increase in road traffic noise, although the absolute level is predicted to be below the SOAEL.

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