

9 NOISE AND VIBRATION

Introduction

- 9.1 This chapter of the ES presents an assessment of the potential impacts and associated likely effects of the proposed development in respect of noise and vibration at the identified nearest noise sensitive receptors (NSRs).
- 9.2 The following potential impacts have been assessed:
- Demolition and Construction noise and vibration from works being undertaken;
 - Demolition and construction road traffic noise;
 - Operational noise from plant; and
 - Operational road traffic noise.
- 9.3 The assessment of site suitability is not required under the EIA regulations; however, a site suitability assessment is provided within ES Volume 3: Technical Appendices. The assessment concludes that the site is suitable for its proposed use.
- 9.4 In the context of this assessment, noise is defined as unwanted or undesirable sound derived from sources such as construction activities, road traffic and building services plant. Vibration is defined as perceptible oscillations of ground and building structure transmitted from sources such as construction plant.
- 9.5 This chapter describes the legislative and planning policy of relevance to the application site in the context of noise and vibration; the baseline conditions currently existing at the application site; the methods used to assess the potential impacts and likely effects arising from the proposed development; and the residual effects following consideration of required mitigation measures.
- 9.6 The assessment is based on a baseline noise survey undertaken between Monday 13th June and Monday 20th June 2016 and on Thursday 11th August 2016, prediction methods and guidance set out in industry standards, and predictions undertaken in a proprietary noise modelling software.
- 9.7 This chapter is accompanied by the following technical appendices:
- Technical Appendix 9.1: Acoustic Terminology;
 - Technical Appendix 9.2: Baseline Survey;
 - Technical Appendix 9.3: Construction Noise Calculations;
 - Technical Appendix 9.4: Site Suitability;
 - Technical Appendix 9.5: Road Traffic Data; and
 - Technical Appendix 9.6: Measurement Uncertainties.

Legislation and Policy Context

- 9.8 The Department of the Environment, Food and Rural Affairs (DEFRA) is responsible for all aspects of noise policy in England. Management and enforcement of noise policy is the joint responsibility of the Environment Agency (EA) and Local Planning Authorities.
- 9.9 The aim of noise policy within England has been to protect individuals from excessive noise levels both in the workplace and within their homes. It has been recognised that severe annoyance to individuals due to noise can lead to sleep disturbance and adverse health effects.

National Legislation and Policy

- 9.10 The following section summarises the national legislation and policy considered as part of the assessment detailed in this chapter.
- ### National Planning Policy Framework, 2012
- 9.11 The National Planning Policy Framework (NPPF) (Department for Communities and Local Government, 2012) adopted in 2012 in England outlines the Government's planning policies and requirements for the planning system. The NPPF forms a material consideration in planning decisions and hence must be complied with for planning permission to be granted.
- 9.12 Regarding noise, the NPPF states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of noise pollution.
- 9.13 Paragraph 123 of the NPPF states that the planning system should seek to:
"Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of planning conditions;
Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and
Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason"
- 9.14 To achieve these aims the NPPF refers to the Noise Policy Statement for England 2010¹.

Noise Policy Statement for England, 2010

- 9.15 The NPSE² sets out the long term vision of Government noise policy: to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.
- 9.16 The NPSE outlines three aims for the effective management and control of environmental, neighbour and neighbourhood noise:
"Avoid significant adverse impacts on health and quality of life;
Mitigate and minimise adverse impacts on health and quality of life; and
Where possible, contribute to the improvement of health and quality of life."
- 9.17 The guidance states that it is not possible to have a single objective noise-based measure that defines a 'Significant Observed Adverse Effect Level (SOAEL)' that is applicable to all sources of noise, in all situations, and that not having specific SOAEL values in the NPSE, provides the necessary policy flexibility until further evidence and suitable guidance is available.

¹ Department for Environment, Food and Rural Affairs (DEFRA), 2010

² Noise Policy Statement for England

9.18 The guidance defines two concepts applied to noise impacts. These are:

- NOAEL – No Observed Adverse Effect Level, which is defined as:

'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, which is defined as:

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

National Planning Practice Guidance

9.19 In March 2014, the Department for Communities and Local Government (DCLG) released its Planning Practice Guidance (PPG) web-based resource to support the NPPF. The guidance advises that local planning authorities' should consider:

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

9.20 PPG introduced the additional concepts of NOAEL (No Observed Adverse Effect Level), and UAEL (Unacceptable Adverse Effect Level). Full details of the Planning Practice Guidance on effects are provided in Table 9.1.

Table 9.1: PPG Guidance			
Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; 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 perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to	Significant Observed Adverse Effect	Avoid

Table 9.1: PPG Guidance

	sleep. Quality of life diminished due to change in acoustic character of the area.		
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

9.21 Factors to be considered in determining if noise is a concern are identified including the absolute noise level of the source, the existing ambient noise climate, time of day, frequency of occurrence, duration, character of the noise and cumulative impacts.

Control of Pollution Act, 1974, Part III - Noise

9.22 The Control of Pollution Act, 1974 (CPA)³ is a combination and refinement of three earlier Acts: the Public Health Act, 1936 (replaced by the Public Health Act 1990, Part III), the Noise Abatement Act 1960 and the Public Health Act 1936.

9.23 Section 60 enables a Local Authority to serve a notice on a person (this includes a company) who is carrying out, or who are planning to carry out, works of construction, demolition, road-works, railway maintenance etc. in order to control the noise from those operations.

9.24 Section 61 also enables such a person to apply to the Local Authority for consent in respect of such works. The Act introduces the concept of using 'Best Practicable Means' (BPM) to control the impact of noise, where significant impacts are likely to occur. BPM refers to the selection of plant, techniques and equipment to reduce noise whilst considering local conditions, current state of technical knowledge and the financial implications. Factors such as timing, duration, location and opportunities for acoustic screening or separation are employed; in order to ensure that impacts are controlled in so far as is reasonably practicable. The demonstrable use of BPM can also be used as a defence to enforcement action under nuisance legislation.

The Environmental Protection Act 1990 (as amended)

9.25 Section 79 of the Environmental Protection Act 1990 (EPA)⁴ declares that a number of matters, including noise, are to be statutory nuisances. Under the provisions of the Environmental Protection Act, the Local Authority is required to inspect its area periodically to detect any nuisance and, where a complaint of a statutory nuisance is made by a person living within its area, to take such steps as are reasonably practicable to investigate the complaint.

Regional Policy

The London Plan, Spatial Development Strategy for Greater London with Minor Alterations, 2016

9.26 Under the legislation establishing the Greater London Authority (GLA), the Mayor has to produce a spatial development strategy (SDS) – which has become known as 'the London Plan' – and to keep it under review. Boroughs' local development documents have to be 'in general conformity' with the London Plan, which is also legally part of the development plan that has to be taken into account when

³ Secretary of State, 1974

⁴ Secretary of State, 1990

- planning decisions are taken in any part of London unless there are planning reasons why it should not.
- 9.27 Policy 5.3 Sustainable Design and Construction
'The highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new developments and to adapt to the effects of climate change over their lifetime.'
- Design Principles:
- a) Minimising pollution (including noise, air and urban runoff)
- 9.28 Policy 5.17 Waste Capacity
Proposals for waste management should be evaluating:
'The environmental impact on surrounding areas, particularly noise emissions, odour, air quality and visual impact and impact on water resources.'
- 9.29 Policy 6.6 Aviation
Development proposals affecting airport operations or patterns of air traffic should:
'a) give a high priority to sustainability and take full account of environmental impacts (particularly noise and air quality.'
- 9.30 Policy 7.7 Location and Design of Tall and Large Buildings
'Tall buildings should not affect their surroundings adversely in terms of microclimate, wind turbulence, overshadowing, noise, reflected glare, aviation, navigation and telecommunication interference.'
- 9.31 Policy 7.15 Reducing and Managing Noise, Improving and Enhancing the Acoustic Environment and Promoting Appropriate Soundscapes
'The transport, spatial and design policies of this plan will be implemented in order to reduce and manage noise to improve health and quality of life and support the objectives of the Mayor's Ambient Noise Strategy.'
- 9.32 The London Plan, being the Spatial Development Strategy for Greater London adopted by the Mayor of London in July 2011 (as amended by Revised Early Minor Alterations (2013), Minor Alterations to the London Plan (2015) and Minor Alterations to the London Plan (2016))⁵ is the regional planning policy instrument. With regard to noise, Policy 7.15 sets out the London Plan requirements.
"Policy 7.15 Reducing and Managing Noise, Improving and Enhancing the Acoustic Environment and Promoting Appropriate Soundscapes
- 9.33 The transport, spatial and design policies of this plan will be implemented in order to reduce and manage noise to improve health and quality of life and support the objectives of the Mayor's Ambient Noise Strategy.
- 9.34 Development proposals should seek to manage noise by:
"avoiding significant adverse noise impacts on health and quality of life as a result of new development;
mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens on existing businesses;
improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity);

separating new noise sensitive development from major noise sources (such as road, rail, air transport and some types of industrial development) through the use of distance, screening or internal layout – in preference to sole reliance on sound insulation;
where it is not possible to achieve separation of noise sensitive development and noise sources, without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through the application of good acoustic design principles;
having particular regard to the impact of aviation noise on noise sensitive development; and
promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver."

The Mayor's Ambient Noise Strategy

- 9.35 The Mayor's Ambient Noise Strategy (Mayor of London, 2004) states:
"This strategy sets out the main steps that need to be taken, including quieter road surfaces, smoother traffic flow, rail infrastructure improvements, aircraft noise measures, and improved design for new developments.
The aim of the Mayor's ambient noise strategy is a practical one – to minimise the adverse impacts of noise on people living and working in, and visiting London using the best available practices and technology within a sustainable development framework."

Local Policy

Royal Greenwich Local Plan: Core Strategy, 2014

- 9.36 The Royal Greenwich Local Plan: Core Strategy, 2014 is a subsection of the Royal Borough of Greenwich's Local Development Framework (LDF), which sets out planning policies for the future development in the Royal Borough of Greenwich (RBG). The Core Strategy with Detailed Policies is the key strategic planning document for the RBG and is used to help shape development and determine planning applications.
- 9.37 Policy H5 Housing Design
"New residential development, redevelopment, refurbishment or conversions will be expected to achieve a high quality of housing design and an integrated environment. The Royal Borough will take into account the key relationships between the character of the area, site location and housing densities and expect the following...
- iii. An acceptable level of noise insulation being achieved by means of sensitive design, layout and in developments vulnerable to transportation noise and vibration
- 9.38 Policy EA(d) Home Working
"The Royal Borough is supportive of home working providing the proposal does not generate an increase in visitors, traffic, noise, vibration, fumes or other impacts significantly above levels that would be expected from residential use alone to the extent that it would demonstrably harm the amenity of nearby residents."
- 9.39 Policy DH1 Design
"All developments are required to be of a high quality of design and to demonstrate that they positively contribute to the improvement of both the built and natural environments. To achieve a high quality of design, all developments are expected to provide a positive relationship between the proposed and existing urban context by taking account of...acceptable noise insulation and attenuation"
- 9.40 Policy E(a) Pollution

⁵ Greater London Authority, 2011

"Planning permission will not normally be granted where a proposed development or change of use would generally have a significant adverse effect on the amenities of adjacent occupiers or uses, and especially where proposals would be likely to result in the unacceptable emission of noise"

9.41 This goes on to reference London Plan Policy 7.15 as the determining criteria.

Royal Greenwich Construction Site Noise Code, 2014

9.42 The purpose of this code of practice is to ensure that disturbance due to noise and vibration arising from major construction and civil engineering works is kept to an acceptable level without the imposition of unnecessary or unduly onerous restrictions on contractors. Its primary objective is to minimise nuisance.

Other Guidance

9.43 In addition to the above, consideration has been given by the guidance provided in the following Guidance:

- BS 4142:2014 – 'Methods for rating and assessing industrial and commercial sound';
- BS 5228:2009+A1:2014 – 'Code of practice for noise and vibration control on construction and open sites';
- BS 7385-2: 1993 'Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from groundborne vibration';
- BS 8233:2014 – 'Guidance on sound insulation and noise reduction for buildings';
- BS 6472-1:2008 – 'Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting';
- Transport Research Laboratory (TRL) 53;
- Calculation of road traffic noise (CRTN), 1988;
- The design manual for roads and bridges (DMRB), 2011;
- Institute of Environmental Management and Assessment (2014) *Guidelines for Environmental Noise Impact Assessment*, IEMA; and
- WHO guidelines for community health, 1999.

Consultation Feedback

9.44 As discussed in Chapter 2: EIA Process and Methodology, consideration has been given in this assessment to the EIA Scoping feedback comments provided by the RBG and consultees in respect of the Proposed Development. The key considerations are summarised in Table 9.2.

Table 9.2: Consultation Feedback

Consultee	Comment	Where in the Chapter this comment is addressed
Port of London	It was stated that the noise assessment should consider the implications of the operations at the safeguarded wharves.	Technical Appendix 9.4: Site Suitability and Technical Appendix 9.2: Baseline Noise Survey
Louise Thayre of Royal Borough of Greenwich	'There may also be issues with noise, particularly at anti-social hours including deliveries by HGVs. The unloading of ships in the aggregate zone is on a 24/7 basis. In addition it is not known what hours the existing businesses work.'	Technical Appendix 9.4: Site Suitability and Technical Appendix 9.2: Baseline Noise Survey

Assessment Methodology

Baseline Characterisation

Study Area

9.45 A number of noise sensitive receptors ('NSRs') are located adjacent to the west of the application site and one adjacent to the application site to the north, which are represented as shaded areas in Figure 9.1. The nearest NSRs to the application site are considered a limiting case, meaning that potential noise effects would not be greater at receptors beyond those selected for the assessment. Figure 9.1 also identifies the short-term (ST) attended measurement and long-term (LT) unattended logging positions utilised for the baseline assessment.

9.46 The application site consists of two plots of land. Plot B is located along Anchor and Hope Lane. Plot A is located to the northeast of Plot B. The identified NSRs are:

- R1: Residential Premises along Atlas Gardens;
- R2: Residential Premises along Derrick Gardens; and
- R3: Commercial Premises adjacent to the Plot A.

9.47 The application site is currently surrounded by industrial and light industrial premises, including safeguarded wharves.

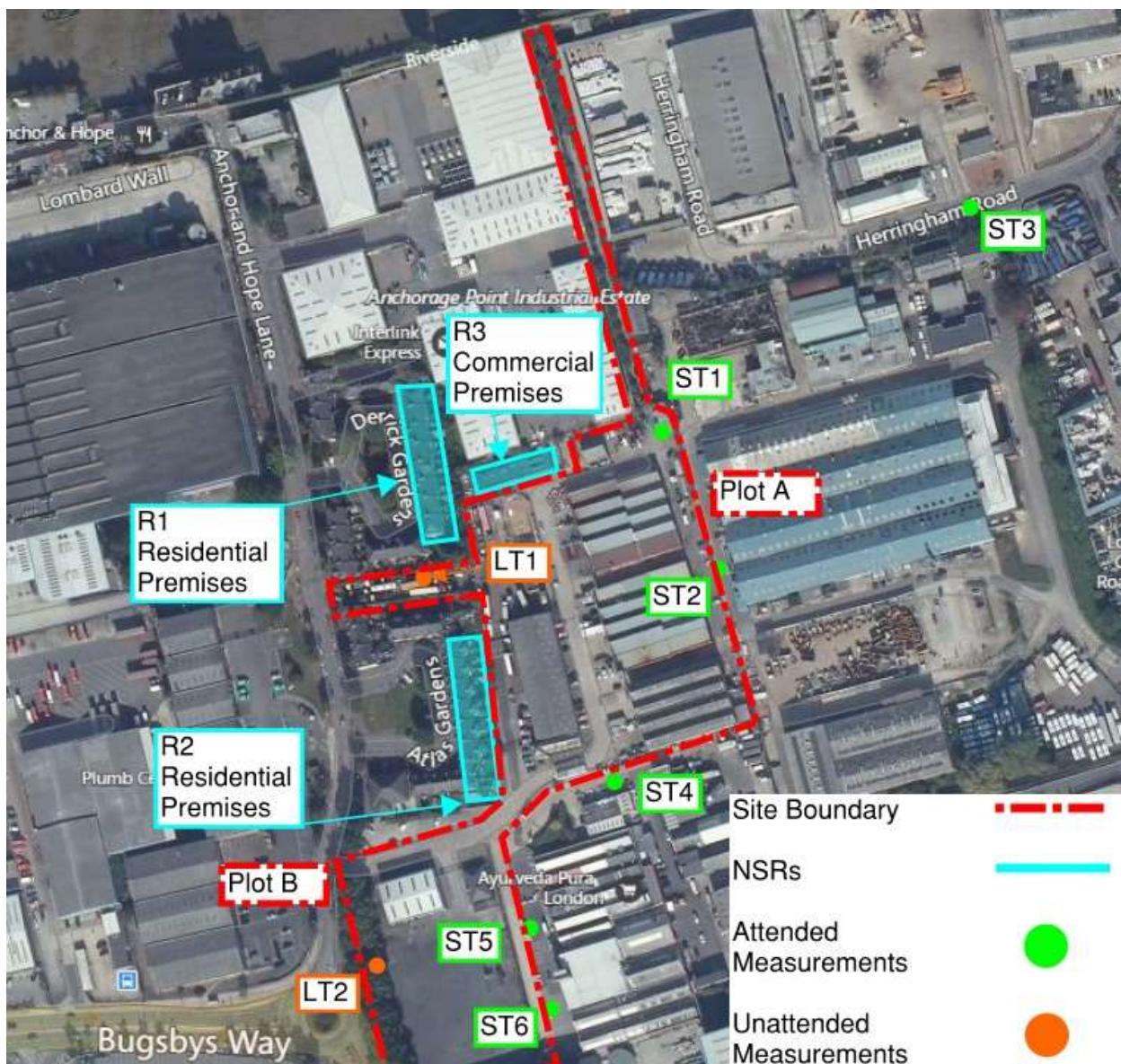


Figure 9.1: Measurement Locations and NSRs

9.48 Monitoring location LT1 is considered representative of receptors R1, R2 and R3 due to similar distance from dominant noise source Anchor and Hope Lane.

Field Study

- 9.49 A baseline noise survey was undertaken in and around the application site to quantify the prevailing ambient and background noise levels during daytime and night-time periods. The locations of the baseline survey positions in relation to the application site are shown in Figure 9.1. The purpose of the baseline survey was to establish the ambient and background noise levels to inform the assessment criteria for plant noise emissions, building envelope and ventilation strategies and construction noise effects.
- 9.50 The baseline survey consisted of attended short-term noise level measurements and unattended long-term noise logging.
- 9.51 Unattended long-term measurements were undertaken during the following dates:
- LT1: Monday 13th June – Sunday 19th June; and

- LT2: Monday 13th June – Friday 17th June.
- 9.52 Attended short-term measurements were undertaken during the following dates and times:
- Monday 13th June 13:00-15:00
 - Thursday 11th August 05:00-08:00
- 9.53 Details of the survey methodology and full results are presented in ES Volume: Technical Appendix 9.2.

Demolition and Construction phase

Demolition and construction Noise and Traffic

- 9.54 An estimate of the expected noise levels over a representative period has been undertaken using typical plant equipment specifications and the associated noise emission data from BS 5228:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites'⁶, and best practice mitigation measures such as site hoardings.
- 9.55 In order to determine the impact of noise during demolition and construction of the Proposed Development, noise predictions have been carried out in accordance with the procedures presented in BS5228. The prediction method described in BS5228 comprises taking the source noise level of each item of plant and correcting it for the following variables:
- distance effects between source and receiver;
 - percentage operating time of the plant;
 - barrier attenuation effects;
 - ground absorption; and
 - façade corrections.
- 9.56 According to BS5228-1:2009+A1:2014, it is possible for site hoardings to reduce noise levels at the receptor by 10 dB. However, a 10 dB reduction is considered best-case and may not be achieved in all cases. Therefore, considering the reduction of noise levels from site hoardings averaged over the entire site, a 5 dB reduction has been applied to predictions of noise levels from construction activity and traffic to account for the proposed site hoardings.
- 9.57 In addition to the site hoardings, the contractor will employ a range of best practicable means (BPM) to further reduce noise and vibration effects during demolition and construction. The specific BPM will be developed by the contractor during the demolition and construction planning process. As such, specific BPM have not been included in our assessment.
- 9.58 Demolition and construction traffic has been assessed using the haul route method defined in BS 5228-1:2009+A1:2014. The number of HGVs travelling to and from the application site used in the assessment is based on the peak traffic flows provided in Chapter 5: Demolition and Construction.

Construction Vibration

- 9.59 There is no established method of predicting vibration in buildings from construction activities. However it is possible to apply predictions methods for vibration propagation in the ground, as described in BS 5228:2009 Part 2 Vibration. The propagation calculation methods predict the vibration peak particle velocity (PPV) and take into account piling method, distance to receptor, and ground conditions.
- 9.60 BS 5228:2009 Part 2 provides historical data of continuous flight auger piling at various distances, as summarised in Table 9.3. This data can be used to provide an indicative assessment of the distance at which significant vibration impacts could occur. However the ground conditions on site will affect the

⁶ British Standards Institution (2014) BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites, BSI.

propagation and piling methods employed and therefore this method is suitable for initial estimates only.

Table 9.3: Ranges of PPV for piling

Piling method	Distance from source (m)		
	10	20	30
CFA	0.38 mms ⁻¹	0.3 mms ⁻¹	0.03 mms ⁻¹

- 9.61 Chapter 5: Demolition and Construction also indicates that vibrationless sheet piling techniques will be used. No data is provided in BS 5228:2009 Part 2 for this method and it is assumed that no significant vibration impacts will arise. Therefore the piling vibration assessment considers CFA methods only.

Completed Development

Noise Modelling Approach and Site Suitability for Residential Use – Noise

- 9.62 The method of assessment for the noise modelling approach and site suitability for residential use is detailed in Technical Appendix 9.4: Site Suitability.

Traffic Noise

- 9.63 The proposed development, when completed, has the potential to change traffic flows on the existing roads in the area surrounding the application site.
- 9.64 The assessment of road traffic noise considers changes in 18-hour LA10 statistical noise levels in the opening year of 2023. The traffic data includes other committed and proposed developments which will be in place by 2023.
- 9.65 The baseline and operational traffic noise levels are predicted using the UK 'standard' road traffic noise prediction methodology, as detailed in the Calculation of Road Traffic Noise⁷ ('CRTN'). CRTN provides a method for predicting the 'Basic Noise Level' ('BNL') at 10m from the kerb, based on the 18 hour annual average weekday traffic flow ('AAWT'), plus the corresponding speed and percentage of heavy goods vehicles (%HGV). The baseline and operational BNLS are compared to give an indication of the likely magnitude of the change in traffic noise levels at receptors located along the surrounding affected local roads.

Operational Noise from Ventilation and Cooling/Heating Installations

- 9.66 The type, quantity and location of fixed mechanical and electrical ('M&E') plant associated with the proposed development has not been finalised at this stage in the design and hence it is not possible to fully quantify the building services plant noise impact at the nearest NSRs.
- 9.67 The design of appropriate noise mitigation for each individual plant item will be undertaken during the detailed design stage. It is therefore suggested that noise emissions from plant associated with the proposed development could be controlled via a suitably worded planning condition.
- 9.68 Suitable criteria for determining the magnitude of the impact are proposed based on the guidance in BS 4142: 2014 'Methods for rating and assessing industrial and commercial sound'⁸.
- 9.69 The basis of BS 4142 is a comparison between the background noise level in the vicinity of residential locations and the rating level of the noise source under consideration. The relevant parameters in this instance are as follows:

- **Background Sound Level** – $L_{A90,T}$ – defined in the Standard as the 'A' weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, and quoted to the nearest whole number of decibels;
- **Specific Sound Level** – $L_{Aeq,Tr}$ – the equivalent continuous 'A' weighted sound pressure level produced by the specific sound source at the assessment location over a given time interval, T;
- **Residual Sound Level** – $L_{Aeq,T}$ – the equivalent continuous 'A' weighted sound pressure level at the assessment location in the absence of the specific sound source under consideration, over a given time interval, T; and
- **Rating Level** – $L_{Ar,Tr}$ – the specific sound level plus any adjustment made for the characteristic features of the noise.

- 9.70 The background level and the rating levels are compared and the standard states that:

'Typically, the greater the difference, the greater the magnitude of impact.'

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending upon the context.
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending upon the context.
- The lower the rating level is to the measured background sound level, the less likely it is that the specific sound 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 upon the context.'

- 9.71 The standard specifies the specific sound level as an L_{Aeq} with a one hour assessment period during the day (07:00-23:00) and a fifteen minute assessment period at night (23:00-07:00).

Significance Criteria

Sensitivity of Receptor

- 9.72 The significance of an effect is derived from the magnitude of the impact and the sensitivity of the affected receptor. Table 9.4 summarises the sensitivity of receptors relevant to this assessment.

Table 9.4: Receptor Sensitivity

Sensitivity of Receptor	Description
High	Residential properties
Low	Other commercial/retail premises

Magnitude of Impact

- 9.73 The magnitude of impact used to determine the significance is defined in the following sections.

Construction Noise and Traffic

- 9.74 The significance scale, which is based on the baseline noise survey results and the method of '5 dB change', is presented in Table 9.5. The construction noise changes presented in this method are subject to a lower cut-off daytime noise level of 65 dB. The resulting corresponding noise levels are also presented in Table 9.5.

⁷ Department of Transport and the Welsh Office (1988) *Calculation of Road Traffic Noise*, DoT & Welsh Office.

⁸ British Standards Institution (2014) *BS 4142: 2014 Methods for rating and assessing industrial and commercial sound*, BSI.

Table 9.5: Construction Noise Criteria

Magnitude of Impact	Construction noise less existing ambient noise	Lower Cut-off Noise Level $L_{Aeq, 12h}$
Very Low	< 0 dB	< 65 dB
Low	0 - 5 dB	65 - 70 dB
Medium	5 - 10 dB	70 - 75 dB
High	> 10 dB	> 75 dB

Construction Vibration

9.75 BS 5228 suggests that for the majority of people vibration levels between 0.14 and 0.3 mm/s PPV are just perceptible. A vibration level of 1.0 mm/s is sufficient to cause complaint, but tolerable with prior warning, whereas a level of 10 mm/s is intolerable for anything more than a very brief exposure. Vibration levels exceeding 15 mm/s PPV are sufficient to result in minor cosmetic damage in light / unreinforced buildings. This magnitude of vibration is not considered likely as a result of the proposed construction activities being undertaken, and therefore an assessment of building damage has not been undertaken.

Table 9.6: Magnitude of Impact & Effect Construction Vibration Annoyance

Magnitude of Impact	Effect: Annoyance	Continuous Vibration Level ppv mm s^{-1}
High	Vibration is likely to be intolerable for any more than a very brief exposure to this level	≥ 10
Medium	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents	1.0-9.9
Low	Vibration might be just perceptible in residential environments	0.3-0.9
Very Low	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration	<0.3

Traffic Noise

9.76 The magnitude of the predicted change in noise levels uses the scale shown in Table 9.7. The criteria are based on the current guidance on short term changes in traffic noise levels in the Design Manual for Roads and Bridges⁹ (DMRB).

Table 9.7: Magnitude of Impact Road Traffic Noise Changes

Magnitude of Impact	Change in Traffic Basic Noise Level $L_{A10,18h}$ dB
High	≥ 5
Medium	3 to 5
Low	1 to 3

Table 9.7: Magnitude of Impact Road Traffic Noise Changes

Very Low	<1
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Ventilation and Cooling/Heating Installations - Noise

9.77 Table 9.8 presents the adopted magnitude of impact scale based upon the numerical level difference. For indicative assessment purposes the SOAEL is set at a rating level above background of +10 dB, and the LOAEL at +5 dB, although it should be noted that the magnitude of impact can vary depending on the context.

Table 9.8: Magnitude of Impact Operational Noise

Magnitude of Impact	BS 4142 Descriptor	Rating level – background level (dB)
High	Indication of a significant adverse effect, depending upon context	>10
Medium	Indication of an adverse effect, depending upon context	5 to 10
Low	Indication of low impact, depending upon context	≤ 0
Very Low	n/a	n/a

Significance of Effects

9.78 Table 9.9 relates significant effects to magnitude of impacts for sensitive receptors.

Table 9.9: Significance of Effects

Sensitivity of Receptor	Magnitude of Impact			
	High	Medium	Low	Very Low
High	Major	Moderate	Minor	Negligible
Low	Minor	Negligible	Negligible	Negligible

9.79 Table 9.10 puts the levels of significance in context. This is based on the IEMA Guidelines for Environmental Noise Impact Assessment¹⁰ and the PPG web based resource. Table 9.10 also relates the magnitude of adverse impact with the LOAEL and SOAEL rating.

Table 9.10: Classification of Noise Effects

Level of Significance	Description of Effect	Significance	Exceeds SOAEL?	Exceeds LOAEL?
Major	Disruptive, causes a material change in behaviour and/or attitude. Potential for sleep disturbance. Quality of life diminished due to change in character of the area	Significant	Yes	Yes

⁹ Highways Agency (2011) *Design Manual for Roads and Bridges Volume 11 Part 7*, HA.

¹⁰ Institute of Environmental Management and Assessment (2014) *Guidelines for Environmental Noise Impact Assessment*, IEMA.

Table 9.10: Classification of Noise Effects

Moderate	Intrusive, noise can be heard and causes small changes in behaviour and/or attitude. Potential for non-awakening sleep disturbance. Affects the character of an area such that there is a perceived change in the quality of life	Not significant	No	Yes
Minor	Non-intrusive, can be heard but does not cause any change in behaviour or attitude. Can slightly affect the character of an area but not such that there is a perceived change in the quality of life	Not significant	No	No
Negligible	No discernible effect on the receptor		No	No

Baseline Conditions

Current Baseline

9.80 The baseline was determined through short-term (ST) attended measurements around the application site and unattended long-term (LT) noise logging as described in Technical Appendix 9.2: Baseline Noise Survey.

Existing Noise Environment

9.81 The baseline noise levels are summarised in Table 9.11 and 9.12. At locations ST1 and ST2, the acoustic climate was dominated by plant noise from the adjacent industrial facility, Stone Foundries. At locations LT1, LT2, ST4, ST5 and ST6, the acoustic climate was dominated by road traffic noise from Anchor and Hope Lane. At location ST3, the acoustic climate was dominated by HGV and plant noise from the adjacent safeguarded Wharf, Riverside Wharf.

Table 9.11: Results of short-term attended noise measurements

Location	Time	Duration	dB _{L_{A90}}	dB _{L_{Aeq}}	dB _{L_{AFmax}}
ST1	13:17	15 min	55	56	68
	14:28	15 min	54	57	74
	07:00	15 min	53	60	78
ST2	13:41	15 min	69	70	81
	13:57	15 min	69	71	90
ST3	06:40	15 min	60	67	87
ST4	06:05	15 min	48	53	74
ST5	07:25	15 min	53	62	83
ST6	05:30	15 min	50	55	76

Table 9.12: Results of long-term unattended noise logging

Location	Time Period (T)	Average dB _{L_{Aeq,T}}	Highest dB _{L_{Aeq,15min}}	Lowest dB _{L_{A90,15min}}	Modal Average dB _{L_{A90,15min}}
LT1	Daytime (07:00-23:00)	51	66	37	44
	Night-time (23:00-07:00)	45	57	35	40
LT2	Daytime (07:00-23:00)	63	68	47	57
	Night-time (23:00-07:00)	59	64	43	48

Sensitive Receptors

Existing Sensitive Receptors

9.82 The identified nearest NSRs are as follows:

- Residential Premises along Atlas Gardens, R1;
- Residential Premises along Derrick Gardens, R2; and
- Commercial Premises adjacent to the second parcel of land, R3.

9.83 The impacts of all construction phases will be considered for the existing sensitive receptors.

9.84 According to Table 9.4, receptors R1 and R2 are considered to have high sensitivity while receptor R3 is considered to have low sensitivity.

New Sensitive Receptors

9.85 The construction information is set out in Chapter 5: Demolition and Construction. It is shown that the construction of buildings in Plot B is expected to be completed approximately 18 months prior to the completion of the buildings in Plot A. Therefore, new sensitive receptors to construction related impacts include:

- Residents of Building B East, Plot B;
- Residents of Building B West, Plot B; and
- Residents of Building 3, Plot B.

9.86 The construction phases that could affect these new sensitive receptors are:

- Building envelope works (i.e. superstructure) - Plot A;
- Fit out works – Plot A; and
- Road and Landscaping - Plot A.

9.87 The only impacts considered for the new NSRs will be the above construction phases.

9.88 Noise levels measured at LT2 are considered representative of the noise levels affecting the East Building, West Building, and Building 3 of Plot B because these future receptors will be exposed to noise from Anchor and Hope Lane and the site access road.

9.89 Noise levels measured at LT1 are considered representative of receptors R1, R2 and R3 due to the proximity of the measuring location to the location of the receptors and the similar distance to the main noise source, Anchor and Hope Lane.

9.90 The prevailing background noise level representative of the nearest NSRs is shown in Table 9.13.

Table 9.13: Representative Noise Levels at each NSR			
Sensitive Receptor	Time Period (T)*	Representative Ambient Noise Level, dB _{L_{Aeq,T}}	Representative Background Noise Level, dB _{L_{A90,15min}}
R1	Daytime	51	44
	Night-time	45	40
R2	Daytime	51	44
	Night-time	45	40
R3	Daytime	51	44
	Night-time	45	40
West Building, Plot B	Daytime	63	57
	Night-time	59	48
East Building, Plot B	Daytime	63	57
	Night-time	59	48
Building 3, Plot B	Daytime	63	57
	Night-time	59	48

* Daytime = 07:00-23:00 hrs; Night time = 23:00-07:00 hrs

Potential Effects

Demolition and Construction

Construction noise

Existing Sensitive Receptors

9.91 The results for the predicted worst case scenario for each NSR are reported in Table 9.14.

Construction Phase	Sensitive Receptor Locations					
	R1		R2		R3	
	Predicted noise levels dB _{L_{Aeq,12h}}	Significant (Y/N?)	Predicted noise levels dB _{L_{Aeq,12h}}	Significant (Y/N?)	Predicted noise levels dB _{L_{Aeq,12h}}	Significant (Y/N?)
Site Enabling Works	62	N	62	N	70	N
Demolition	67	N	67	N	74	N
Excavation and Remediation	67	N	67	N	75	N
Substructure	71	N	71	N	78	N

Table 9.14: Summary of noise levels (dB) for construction activities						
Superstructure	69	N	69	N	76	N
Fit-out	62	N	62	N	70	N
Roads and Landscaping	64	N	64	N	71	N

9.92 Temporary low to medium magnitude of impacts are predicted at receptors R1 and R2 and temporary medium to high magnitude of impacts are predicted at receptor R3. Receptors R1 and R2 are considered to have *high sensitivity* and receptor R3 is considered to have *low sensitivity*. Therefore, no significant effects are predicted.

9.93 It should be noted that the assessment is based on a spatial average noise level across the whole application site. Therefore when the individual works are taking place in locations farther away from the receptors, and when the noise sources are screened by intervening structures, noise impacts are likely to be less significant than identified within this assessment.

New Sensitive Receptors

9.94 Table 9.15 summarises the predicted noise levels for construction activities for new sensitive receptors.

Construction Phase	Sensitive Receptor Locations					
	West, Plot B		East, Plot B		Building 3	
	Predicted noise levels dB _{L_{Aeq,12h}}	Significant (Y/N?)	Predicted noise levels dB _{L_{Aeq,12h}}	Significant (Y/N?)	Predicted noise levels dB _{L_{Aeq,12h}}	Significant (Y/N?)
Plot A Superstructure	61	N	58	N	53	N
Plot A Fit-out	55	N	51	N	47	N
Plot A Roads and Landscaping	56	N	52	N	48	N

9.95 Table 9.15 shows that a very low magnitude of impact is predicted at all buildings in Plot B. Therefore, negligible effects are predicted for all new sensitive receptors, which are not significant.

Construction Traffic

9.96 Table 9.16 and Table 9.17 summarise the predicted worst-case noise levels produced by construction traffic at each sensitive receptor. The links that were considered during construction traffic are Site Access and Bugsby's Way.

Table 9.16: Construction Traffic Noise Levels of Existing Sensitive Receptors

Road	Predicted Noise Levels at R1 dB L _{A10,18hr}	Predicted Noise Levels at R2 dB L _{A10,18hr}	Predicted Noise Levels at R3 dB L _{A10,18hr}
Bugsby's Way	34	42	30
Site Access	35	65	35

Table 9.17: Construction Traffic Noise Levels of New Sensitive Receptors

Road	Predicted Noise Levels at West Building, Plot B dB L _{A10,18hr}	Predicted Noise Levels at East Building, Plot B dB L _{A10,18hr}	Predicted Noise Levels at Building 3 dB L _{A10,18hr}
Bugsby's Way	43	48	51
Site Access	56	56	36

9.97 Table 9.18 and Table 9.19 summarises the level of significance for each road link at each identified sensitive receptor as per the predicted construction traffic noise levels. The predictions consider the first floor of the receptors. According to Chapter 5: Demolition and Construction, the construction traffic route would not include Anchor and Hope Lane north of Bugsby's Way. Therefore, this link has been excluded from the construction traffic assessment.

Table 9.18: Level of Significance of Construction Traffic on Existing Receptors

Receptor	Link	Predicted Construction Traffic Noise Level	Magnitude of Impact	Level of Significance
R1	Bugsby's Way	34	Very Low	Negligible
	Site Access	35	Very Low	Negligible
R2	Bugsby's Way	42	Very Low	Negligible
	Site Access	65	Low	Minor
R3	Bugsby's Way	30	Very Low	Negligible
	Site Access	35	Very Low	Negligible

Table 9.19: Level of Significance of Construction Traffic on New Sensitive Receptors

Receptor	Link	Predicted Construction Traffic Noise Level	Magnitude of Impact	Level of Significance
West, Plot B	Bugsby's Way	43	Very Low	Negligible
	Site Access	57	Very Low	Negligible
East, Plot B	Bugsby's Way	48	Very Low	Negligible
	Site Access	57	Very Low	Negligible
Building 3	Bugsby's Way	51	Very Low	Negligible
	Site Access	36	Very Low	Negligible

9.98 Construction traffic noise from Bugsby's Way is predicted to result in either minor or negligible effects on existing and new sensitive receptors, which are not significant.

Construction Vibration

Existing Sensitive Receptors

9.99 Figure 9.2 shows the minimum anticipated distances from sensitive receptors to the worst-case piling locations. At a distance of 10 m, a PPV of around 0.38 mms^{-1} is predicted. At this level, only minor impacts are predicted and therefore the majority of piles for the proposed development will result in either minor or negligible vibration effects, which are not significant.

9.100 The distance between the nearest receptor and worst-case piling location is 5 m, for Receptor R3. At this distance BS 5228 does not provide any data for CFA piling vibration. However CFA piling has been selected because of its low noise and vibration levels compared to impact piling and it is expected, based on experience of previous similar sites, that the increase in vibration at this distance will not change the significance of the assessment.

9.101 Chapter 5: Demolition and Construction states the construction activity that requires piling is substructure works, the duration of which for Plot A is anticipated to be approximately 7 months.

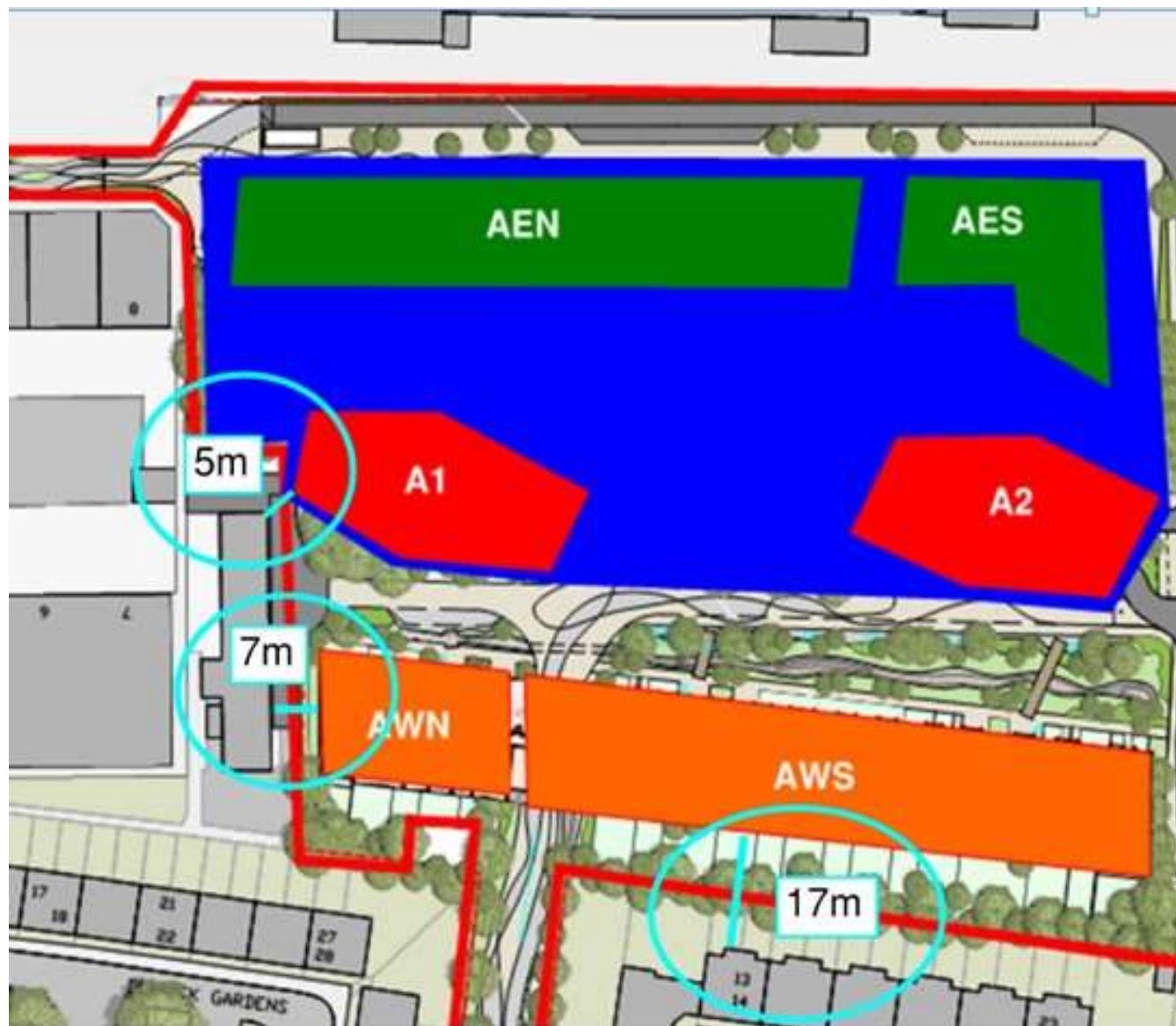


Figure 9.2: Distance of piling activities to receptors

New Sensitive Receptors

9.102 Piling in Plot A is planned to take place prior to the occupation of Plot B, therefore piling vibration is expected to result in no significant effects for new sensitive receptors.

Completed Development

Operational Noise

9.103 In order to ensure negligible effects from fixed plant installations, the rating sound level from should not exceed the existing L_{A90} background sound level. The plant rating sound level would apply to the cumulative effect from all plant installed as part of the proposed development. Background sound levels and the corresponding plant rating sound levels at the sensitive receptors are set out in Table 9.20.

Table 9.20: On-Site Operational Noise Assessment

Receptor	Corresponding Monitor Location	Representative back-ground noise level $dB L_{A90}$	Rating noise level dB
R1	LT1	40	40
R2	LT1	40	40
R3	LT1	40	40
Plot A East	LT1	40	40
Plot A West	LT1	40	40
Plot A Building 1	LT1	40	40
Plot A Building 2	LT1	40	40
Plot B West	LT2	48	48
Plot B East	LT2	48	48
Plot B Building 3	LT2	48	48

9.104 In determining the significance of the impact BS 4142:2014 requires a consideration of the context of the assessment i.e. the nature of the existing acoustic environment and the new noise source, and the sensitivity of the affected receptors. It would be possible to meet the noise emissions limits by provision of standard noise control measures and on this basis, the noise effect of fixed plant installations is predicted to be not significant.

Road Traffic Noise

9.105 Table 9.21 provides the predicted traffic noise levels with and without the proposed development and the resulting change in traffic noise along each road considered in the traffic impact assessment. Details of the road traffic data are provided in ES Volume 3: Appendix 9.5.

Table 9.21: Road Traffic Noise Levels

Road	2023 Baseline BNL $L_{A10,18h}$ dB (without development)	2023 Operational BNL $L_{A10,18h}$ dB (with development)	Change in Traffic Noise Level, dB (Operational minus Baseline)
Anchor and Hope Lane North of Bugsby's Road	64.9	65.6	+0.7
Anchor and Hope Lane South of Bugsby's Road	72.3	72.3	+0
Site Access	61.2	62.6	+1.4

9.106 The predicted changes in traffic noise levels would result in a negligible effect for NSRs on Anchor and Hope Lane and a minor effect for NSRs on the Site Access road, which are not significant.

Mitigation and Residual Effects

Demolition and Construction

9.107 In addition to the site hoardings included as part of the main assessment, a range of good site practices would also be adopted by the contractor in order to further mitigate construction phase noise and vibration. The contractor would follow best practicable means to reduce the noise and vibration impact on the local community further, including:

- fixed and semi-fixed ancillary plant such as generators, compressors etc. which can be located away from receptors and positioned so as to cause minimum noise disturbance. If necessary, acoustic barriers or enclosures would be provided for specific items of fixed plant;
- plant used on site to comply with the EC Directive on Noise Emissions for Outdoor Equipment (2000/14/EC), where applicable;
- selection of inherently quiet plant where appropriate. All major compressors to be 'sound reduced' models fitted with properly lined and sealed acoustic covers which are kept closed whenever the machines are in use, and all ancillary pneumatic percussive tools to be fitted with mufflers or silencers of the type recommended by the manufacturers;
- all plant used on site would be regularly maintained, paying particular attention to the integrity of silencers and acoustic enclosures;
- machines in intermittent use to be shut down in the intervening periods between work or throttled down to a minimum;
- drop heights of materials from lorries and other plant would be kept to a minimum;
- adherence to the codes of practice for construction working and piling given in BS 5228:2009+A1:2014 and the guidance given therein for minimising noise and vibration emissions from the site;
- provision of rest periods during any prolonged noisy activities;
- compliance with the Council's preferred working hours, with no working on Sundays or bank holidays; and
- keeping local residents informed and provision of a contact name and number for any queries or complaints. In particular, construction activity would need to be discussed with the occupants of the sensitive receptor, R3 to minimise any disruption prior to any construction works.

Completed Development

9.108 All fixed plant installations would be fitted with standard attenuation and acoustic screening, as required to meet the noise emissions limits. No additional mitigation would be required beyond this.

Summary of Mitigation and Residual Effects

9.109 Table 9.22 and Table 9.23 provide a tabulated summary of the mitigation measures and residual effects of the Noise and Vibration Impact Assessment of the proposed development.

Table 9.22: Summary of Proposed Mitigation and Enhancement Measures

Receptor	Description of Potential Effect	Proposed Mitigation & Enhancement Measures
Demolition and Construction		
R1, R2, R3	Construction noise, vibration and traffic	Standard best practice measures and discussion with the occupants of receptor R3 prior to any construction works, to minimise any disruption.
Plot B East, West, Building 3	Construction noise, vibration and traffic	Standard best practice measures
Completed Development		
All receptors	Changes in Road Traffic Noise	None
All receptors	Operational Noise	All fixed plant installations would have standard attenuation and acoustic screening, as required to meet the noise emissions limits

Table 9.23: Summary of Residual Effects

Receptor	Description of Residual Effect	Nature of Residual Effect*							
		Significance**	+	D	P	R	IR	St Mt Lt	
Demolition and Construction									
Existing Sensitive Receptors									
R1, R2, R3	Construction Noise - Negligible to moderate effects would occur at receptors R1, R2 and R3	Negligible to Moderate	-	D	T	R	Mt		
R1, R2, R3	Construction Vibration - It is shown that minor effects would occur at receptors R1, R2 and R3.	Negligible to Minor	-	D	T	R	Mt		
R1, R2, R3	Construction Traffic	Negligible to Minor	-	I	T	R	Mt		
New Sensitive Receptors									
Plot B East, West, Building 3	Construction Noise	Negligible	n/a	D	T	R	Mt		
Plot B East, West, Building 3	Construction Vibration	Negligible	n/a	D	T	R	Mt		
Plot B East, West, Building 3	Construction Traffic	Negligible	n/a	I	T	R	Mt		

Completed Development							
All Receptors	Operational Noise	Negligible	-	D	P	R	Lt
All Receptors	Changes in Traffic Noise	Negligible to Minor	-	I	P	IR	Lt

Notes:
* - = Adverse/ + = Beneficial; D = Direct/ I = Indirect; P = Permanent/ T = Temporary; R=Reversible/ IR= Irreversible; St- Short term/ Mt -Medium term/ Lt -Long term.
**Negligible/Minor/Moderate/Major

Likely Significant Environmental Effects

9.110 No likely significant effects have been identified for the construction or operational phases of the proposed development.

Site Suitability

9.111 The assessment of site suitability is not required under the EIA regulations; however, a site suitability assessment is provided in ES Volume 3: Technical Appendix 9.4. The assessment concludes that the application site is suitable for its proposed use.

Cumulative Effects

9.112 The relevant 'other developments' considered are as follows:

- Greenwich Millennium Village (Phases 3, 4 & 5) (Ref. 12/0022/O);
- Parcel 2, Sub-Phase 1, Greenwich Millennium Village Phases 3, 4 & 5 (Ref. 13/3281/R);
- Morris Walk Estate (North), north of Pett Street (Ref. 14/0127/O);
- Morris Walk Estate, south of Maryon Road (Ref. 14/0126/O);
- Sainsbury's and Former Comet Stores, 55 & 57 Bugsby's Way (Ref. 13/3285/O);
- Brocklebank Industrial Estate (Ref. 13/2086/F);
- Valley House, 445 Woolwich Road (Ref. 16/0132/F);
- Former Matalan Site, 30 Bugsby's Way (Ref. 13/2016/F);
- Land to north of Woolwich Road (Ref. 11/0868/F);
- Land to north of Woolwich Road (Ref. 14/2550/F); and
- Maryon Road and Grove Estate (Ref. 14/0117/O).

9.113 The development identified closest to the application site and the most likely to be significant is Valley House.

Demolition and Construction

9.114 There is potential for construction activity noise and construction site traffic noise to have a cumulative effect which is more significant than the individual assessment presented in this chapter. However, given that the construction traffic noise assessment shows that noise levels will not exceed $L_{A10,12hr}$ 65 dB, there is no scope for the cumulative assessment to exceed the threshold of significance (75 dB) at any receptor. As such as detailed cumulative assessment is not required.

9.115 Additional noise effects upon the identified existing sensitive receptors might result in the event that construction works were to take place simultaneously at both the application site and at other future development sites.

- 9.116 It has been assumed that this and the 'other developments' which are further afield will be required to incorporate best available mitigation measures during their construction phases if required and that compliance with any noise and vibration limits set will be monitored.
- 9.117 Detailed assessments of construction noise and vibration are not available for Valley House, which is closest to the application site; and therefore it is not possible to undertake a quantitative assessment of the cumulative noise and vibration effects.
- 9.118 It is not unusual for construction activities to take place on more than one development site in proximity to each other, and it is envisaged that the contractors would undertake regular liaison meetings and reviews with neighbouring sites to plan works so that they do not cause unnecessary disruption.
- 9.119 The precise scale of additional noise effects will be dependent on the exact works taking place at Valley House; however, it is expected that compliance with best practicable measures to control noise emissions would reduce these effects as far as possible.
- 9.120 It has been assumed that the 'other developments' would be required to incorporate best available mitigation measures during their construction phases if required and that compliance with any noise and vibration limits set would be monitored.

Completed Development

- 9.121 As plant details information is unknown at this stage, it has been assumed that for Valley House and the 'other developments' which are further afield would be required to incorporate mitigation measures during specification/installation of these if required and that compliance with any noise limits set would be met through design.
- 9.122 Road traffic noise as a result of 'other developments' has been assessed. The links that would possibly be affected include:
 - Anchor and Hope Lane, north of Bugsby's Way; and
 - Anchor and Hope Lane, south of Bugsby's Way.
- 9.123 Table 9.24 summarises the predicted noise levels compared to the predicted baseline noise level of road traffic without development.

Table 9.24: Road Traffic Noise Levels

Road	2023 Baseline BNL $L_{A10,18h}$ dB (without development)	2023 Operational BNL $L_{A10,18h}$ dB (with development and cumulative effects)	Change in Traffic Noise Level, dB (Operational minus Baseline)
Anchor and Hope Lane North of Bugsby's Road	64.9	65.6	+0.7
Anchor and Hope Lane South of Bugsby's Road	72.3	72.6	+0.3

9.124 The predicted noise levels show negligible significance.

9.125 The anticipated cumulative effects regarding operational plant and increases of road traffic are negligible.